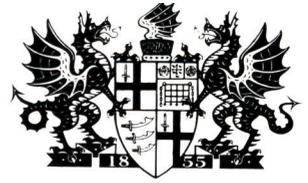
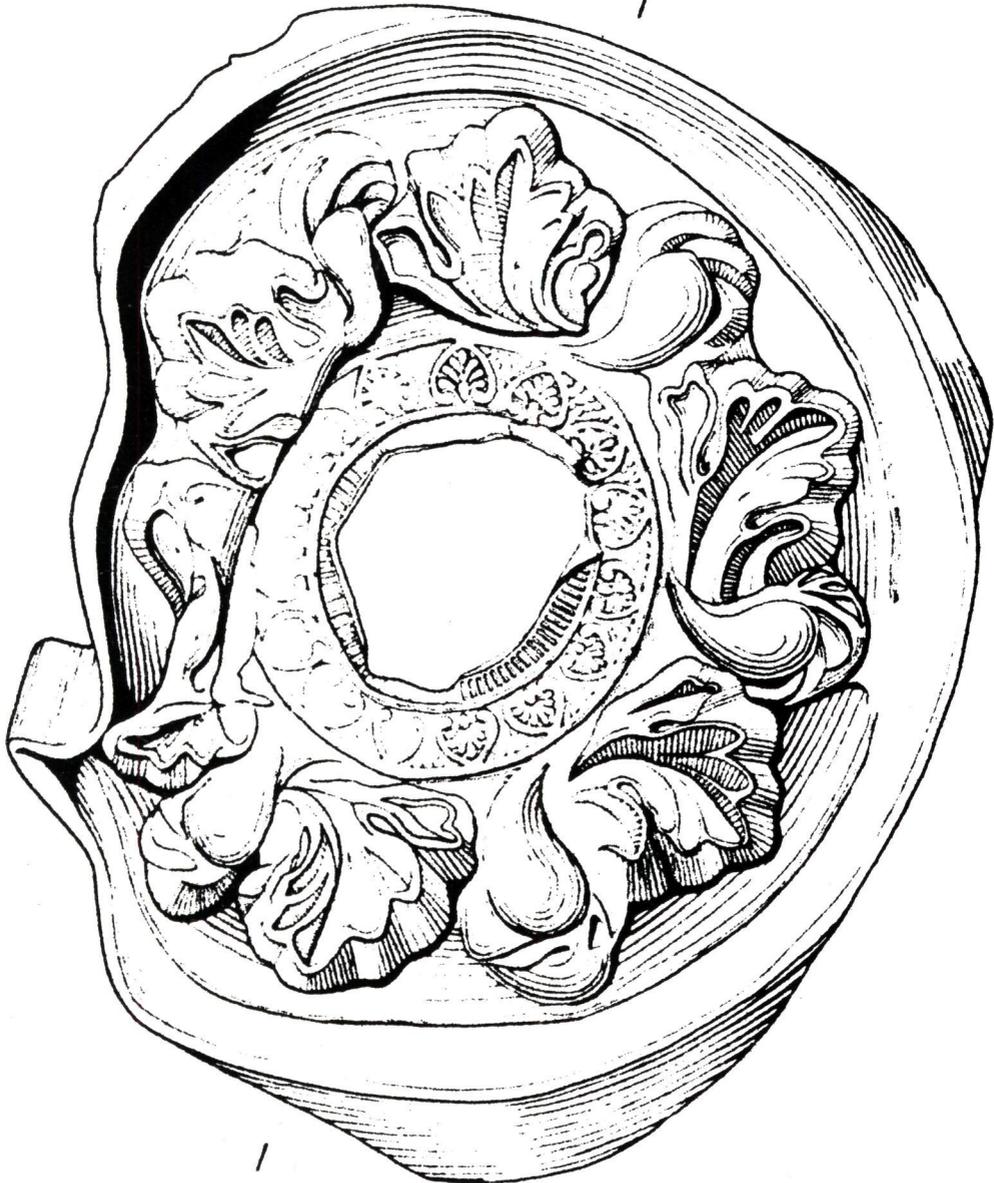


Transactions
Volume 36 1985



London & Middlesex Archaeological Society



YOUNG BORN
YOUNG BORN

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Editor's Notes:

The Editor will be glad to consider papers for publication. New contributors should obtain a copy of 'Notes for Contributors' from the Editor before submitting a paper.

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Transactions of the
London & Middlesex
Archaeological Society
incorporating the
Middlesex Local History Council

Volume 36

1985

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London & Middlesex Archaeological Society

incorporating Middlesex Local History Council

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(N.B. The Hon. Editor apologises for the omission of the Society's Vice President L. S. SNELL, M.A., F.S.A., F.R.Hist.S., F.R.S.A. from the list of officers presented in Vol 35).

London & Middlesex Archaeological Society

incorporating Middlesex Local History Council

129th ANNUAL REPORT OF COUNCIL FOR THE YEAR ENDING
30 SEPTEMBER 1984

Meetings

At the Annual General Meeting on 24 February 1984 the President, Professor John Wilkes, gave his address on the subject of *Diocletian's Palace, Split*. Other lectures in the season 1983–84 were on *Recent Research on London's Medieval Pottery* by Alan Vince, 28 October 1983, *Highbury New Park* by Tanis Hinchcliffe, 25 November, *Recent Work on Roman Sites in Greater London* by Harvey Sheldon, 9 December, *Looking for the Film Industry* (The George Eades Memorial Lecture) by Colin Sorensen, 27 January 1984, *Alessandro Magno and Other Tourists in Tudor London* by Caroline Barron, 23 March, *Recent Work by the Canterbury Archaeological Trust* by Tim Tatton-Brown, 13 April, and *Some Demographic Problems of 18th-century London* by John Landers, 11 May. Following the resignation of Edward Biffin as Hon. Director of Meetings, the Society was lucky to find in Alison Parnum someone willing to take on the organisation of the lecture programme for 1984–85; the first lecture of the new season was *Thomas Layton—a Brentford Antiquary* by James Wisdom, 28 September. A Special General Meeting, held before the last lecture, agreed to extend Joint Membership to 'any two named individuals living at the same address, with entitlement to one copy only of each publication'.

The Stow Service was held at St Andrew Undershaft on 12 April 1984, the address on *Stow's view of Cheapside* being given by Dr Derek Keene; the Pepys Service at St Olave, Hart Street was held on 8 June, when the Rt Rev A. W. M. Weekes, Suffragan Bishop of Gibraltar, spoke on *Samuel Pepys, Parishioner*.

Problems with the programme of visits arose following the resignation of Edward Biffin. On 5 November 1983 a tour of *Saxon and Medieval London* was organised on behalf of the Society by Citisights, and Beatrice Shearer deserves our thanks for arranging visits during 1984, to *the Wallace Collection*, 28 January, *Pre-Fire City Churches*, 25 February, *King's Cross and Clerkenwell*, 31 March, *Saffron Hill Liberty*, 28 April, and *the Chichester area*, 7 July, as well as a weekend in *the Bath area*, 21–24 September. The Society owes a special debt of gratitude to two Members, Rupert and Natalia Morris, who took over the organisation of the long weekend tour of *Normandy*, 24–29 May.

Publications

Volume 33 of *Transactions* was published early in 1984, and an *Index* of Volumes 18–32 was compiled by Mr. F. H. C. Tatham, the intention being to publish it during 1985. Three issues of the *Newsletter* appeared under the editorship of Andrew Doige.

A large stock of reprints of Rocque's Map of Middlesex, originally published by the Society, were passed to the London Topographical Society to store and market.

Council

The Society's Council met five times during the year, under the Chairmanship of Nicholas Fuentes. Considerable attention was given to the possible effects on areas of interest to the Society of the Government's proposals for the abolition of the GLC, and a paper detailing Council's views—'*Streamlining the Cities—the effects on London's heritage*'—was submitted to the Secretary of State for the Environment and to the Office of Arts and Libraries in January 1984. Close watch was kept on developments in this area during the year.

Discussions continued with the Museum of London over the future of the Society's Library, it being agreed that the Society's books be integrated into the Museum Library, with access by Members, surplus books being disposed of; in connection with this the Society's books were sorted and listed by Museum Library staff.

Archaeological Research Committee

The Committee met five times during the year. Following publication of the Government's White Paper '*Streamlining the Cities*', much of the Committee's time was spent in assessing the repercussions for London's archaeology that any abolition of the GLC would have. As usual, the Committee arranged the Annual Conference of London Archaeologists, the Twenty-First, which was held in the Museum of London in March. The theme chosen was *Roman London and Roman Londoners*, and speakers included Mark Hassall, Ralph Merrifield and Harvey Sheldon.

Following detailed consideration of its own future, the Committee decided to sponsor, jointly with the GLC, a major two-day conference on the archaeology of the London area, to be held in 1985 or 1986.

Historic Buildings and Conservation Committee

Most of the Committee's time was devoted to the consideration of Listed Building applications on behalf of the C.B.A., by whom the Committee has been appointed agents for the Greater London area. Arrangements were made with the Surrey Archaeological Society for the coverage, in some instances joint coverage, of the south and south-west London Boroughs.

A new system instituted by the C.B.A. resulted in closer working with them. Worthwhile contacts were maintained with the four national societies. Action was also taken, often in conjunction with other societies, on buildings notified by members of the Committee. The Committee was approached on several occasions by planning authorities, through the C.B.A., for an opinion on a Listed Building application.

130 applications were considered during the year; two-thirds of these came from the Boroughs of Camden, Merton, Richmond, Westminster and Tower Hamlets, and ten Boroughs notified no applications at all.

Four resignations from the Committee during the year were made up by the appointment of D. G. W. Ballard, K. G. Baldwin, T. Wilson, Dr T. Harper Smith and Mrs W. Cunningham.

Local History Committee

The most important event of the year was the first all-day venture with the annual Local History Conference—the Eighteenth—held on 19 November 1983. The theme chosen was *London and Warfare*, and proved most successful, with over 220 people attending.

Conrad Wood, of the Imperial War Museum, gave a specially-prepared tape presentation on London in the Blitz; Carl Harrison spoke on the history of Deptford Dockyard and the Victualling Yard; Alasdair Glass gave many insights into prominent features of the London landscape in *London's Barracks: Restoration to Reform*; finally, Rosemary Weinstein, a member of the Local History Committee, spoke on the defences of London in the Civil War. It was pleasing to see that several local societies had adopted the defence and warfare theme in their exhibitions.

It had been planned to hold another informal seminar on a topic of mutual interest to local historians during the year, but a rather lukewarm response for suggested subjects from local societies caused its postponement.

The most significant change in the membership of the Committee during the year was the resignation of the Hon. Secretary, Jim Slade, owing to pressure of other commitments. During his four years in the post, Jim worked hard on behalf of the Committee, and made an important contribution to improving the range and quality of links with local societies and developing the role of the annual Conference. Miss P. A. Cheng has kindly agreed to take on the job on an interim basis.

It was with regret that the Committee heard of the death of a former member, Mrs Stoddard of Fulham, in mid-1984. Her place on the Committee has been taken by Denis Haslegrove. We are also pleased to welcome James Wisdom to the Committee.

Youth Section

The year began quietly, as a little time was needed to take stock of what had been accomplished in the past and to decide how the Youth Section should develop. The organiser, Karen Eyre, attended a meeting of 'Young Archaeology' at the Museum of London in December, where they decided to extend their membership to 17 and 18 year olds. It was decided that our Youth Section should also extend its membership to those of this age who wished to help edit the newsletter and organise events. The membership list was tidied up and all those who had not paid their subscriptions for well over a year were removed from the list. The membership now stands at 95.

The first meeting was in February and looked at the life of a Roman soldier. Members had a chance to try on replica Roman armour, grind corn to make bread the way a Roman soldier would and visit the Roman Baths in Lower Thames Street.

The theme for the Spring meeting was industrial archaeology. The group spent a day hearing and observing how the Docklands History team was rescuing material from the docks in order to set up a museum of Docklands history and London industry. Parents and younger brothers and sisters were invited to join the day's activities. This proved to be a success; parents clearly appreciate being able to see for themselves what activities their children take part in.

The June meeting attempted to solve the problem that young people under the age of 16 are not allowed to work on archaeological sites. The children carried out a mock excavation in a box, using context sheets and drawing plans.

The 'Summer Special' was held over three days in August. Activities included dressing-up as Roman civilians, a field trip to Chedworth Roman Villa in Gloucestershire and a day of historical research.

Three issues of the Section's *Newsletter* appeared during the year, and thanks are as always due to those who wrote articles for it, as also to all those who helped with the day events and visits.

Membership and Finance

Membership figures show little change. However these figures include a considerable number who are in arrears with their subscriptions; of the removal from Membership from those who do not respond to a further reminder may make considerable inroads into the total.

Membership at 30 September 1984 (with 1983 figures in brackets) was 932 (912), made up as follows:

Ordinary Members	706	(701)
Life Members	47	(44)
Student Members	31	(21)
Honorary Members	6	(6)
Institutional Members	103	(102)
Affiliated Societies	39	(38)

The combination of a reduced publications programme (with no *Special Papers* being distributed during the year) and the increased Membership subscriptions resulted in a surplus for the year to 30 September 1984. The increased subscription income more than made up for a reduced income from other sources, particularly investment income which began to fall sharply. Expenditure was held at a low level, with the bulk of the Society's income being devoted to the production and distribution of its publications; this is likely to place an increasing strain on the reserves which have been built up in more prosperous years. There are no plans for a further increase in subscription unless VAT is applied to publications, in which case a rise will be inevitable.

By direction of the Council
NICHOLAS FUENTES,
Chairman of Council

JOHN CLARK,
Hon. Secretary

LONDON & MIDDLESEX ARCHAEOLOGICAL SOCIETY
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 30TH SEPTEMBER 1984

1982/83		1983/84		1982/83		1983/84	
£	£	£	£	£	£	£	£
Expenditure				Income			
Publications:				3,483	Subscriptions		
Transactions: Volume 32	5,324	—			Income Tax reclaimed on Deeds		5,063
Volume 33	2,600	10,087		76	of Covenant		73
Volume 34	—	4,000		4,194	Dividends and Interest		3,374
Index	2,425	500		1,136	Sales of Publications		995
Special Paper No. 5	16,520	—			Grants for Publication:		
Newsletter	821	627		6,867	Museum of London	3,113	
	<u>27,690</u>		15,214	10,124	Dept. of the Environment	5,870	
Lectures and Visits	(25)		21	5,800	Miscellaneous	1,040	10,023
Parish Boundary Marks	450		50	508	Donations		202
Archaeological Research Committee	2		—				
Local History Committee	—		2				
Youth Section	37		103				
Historic Buildings Committee	56		85				
Commemorative Services	121		—				
Library	31		25				
Postage, Printing & Stationery	1,741		2,178				
Secretarial	1,000		436				
Subscriptions and Donations	82		100				
Sundry Expenses	18		132				
Contingency Fund	750		1,000				
TOTAL EXPENSES	<u>37,953</u>		19,346				
Excess of Income over Expenditure	235		384				
	<u>£32,188</u>		<u>£19,730</u>	£32,188	TOTAL INCOME		<u>£19,730</u>

Note. No value has been attributed to the Society's library, stock of publications or sundry equipment.

We have examined the above Balance Sheet and attached Income and Expenditure Accounts with the books and vouchers of the Society as submitted by the Honorary Treasurer. We have verified the Bank Balances and Securities with the Society's Bankers. In our opinion and to the best of our knowledge, these Accounts together with the Notes, are correct and in accordance with the books and records of the Society.

(Signed) O. T. Allen, FCA, R. R. P. Smith, BSc(Econ), AIB
Honorary Auditors

26th February 1985

THE ROMAN AND MEDIEVAL DEFENCES AND THE LATER DEVELOPMENT, OF THE INMOST WARD, TOWER OF LONDON: EXCAVATIONS 1955–77

GEOFFREY PARNELL

SUMMARY

The course of part of the prehistoric Thames was revealed together with evidence for pre-Roman occupation. During the Flavian period river incursions ceased with the reclamation of the eastern half of the site. Subsequently, during the 2nd century, three successive buildings, the later two domestic in character, were reconstructed on the reclaimed ground. In the late 2nd or early 3rd century this occupation came to an abrupt end with the raising of the City's landward defences. Though no masonry survived, the evidence for a large contemporary internal rampart suggests the wall terminated close to the site of the present Lanthorn Tower. The enceinte was closed in the mid-late 3rd century by the construction of a defensive riverside wall. During the final years of the 4th century at least part of the riverside wall was replaced by another line of defence located slightly further to the north. This remarkably late remodelling of London's defences effectively produced a salient in the south-east corner of the circuit at a point which guarded the river approach to the city; there was evidence to suggest that it might have been reached by means of a gate to the west. Dumped against the rear of the riverside wall and contemporary with its construction was a mass of soil, clay and gravel which probably represented a raising of the ground level rather than the formation of a bank. During the Saxo-Norman period much of this material was removed from the site, but after a short space of time the ground surface was raised again. The Roman riverside defences must have influenced the layout of the early Norman castle and throughout the later medieval period were modified and repaired. North of the defences successive post-medieval redevelopments had erased nearly all trace of the important medieval palace complex—the only exception being a large foundation which may be attributed to the pre-Henry III great hall. Extensive foundations belonging to the 1777–80 Ordnance office and its refurbishment and enlargement of 1789–92 were recorded. The documentary evidence for the later building phases, together with the general development of the southern area of the Inmost Ward during the 17th–19th centuries, has been examined.

INTRODUCTION

This report contains the final results of a number of excavations that have taken place within the south-east corner of the Inmost Ward (Fig. 1). Initial investigations were carried out during 1955–6 by the Ancient Monuments branch of the then Ministry of Works, in advance of a scheme (subsequently abandoned) to construct a new Jewel House for the Royal Regalia. Work began under the supervision of John Hurst, but after initial results indicated the survival of only Roman deposits, responsibility for the investigations was transferred to Sarnia Butcher. A report prepared on this work was superseded by later investigations but

the results have been included in the present report.

Between June and December 1976, under the supervision of the present author, the Department of the Environment carried out further excavations in the area prior to the construction of the new History Gallery (opened to the public in 1978). The main excavations were concentrated 6m north of the extant curtain wall and beyond most of the earlier investigations, but two additional trenches were opened to the south in an attempt to resolve some of the uncertainties surrounding a massive wall that had been encountered during the previous work. Results indicated that the structure was

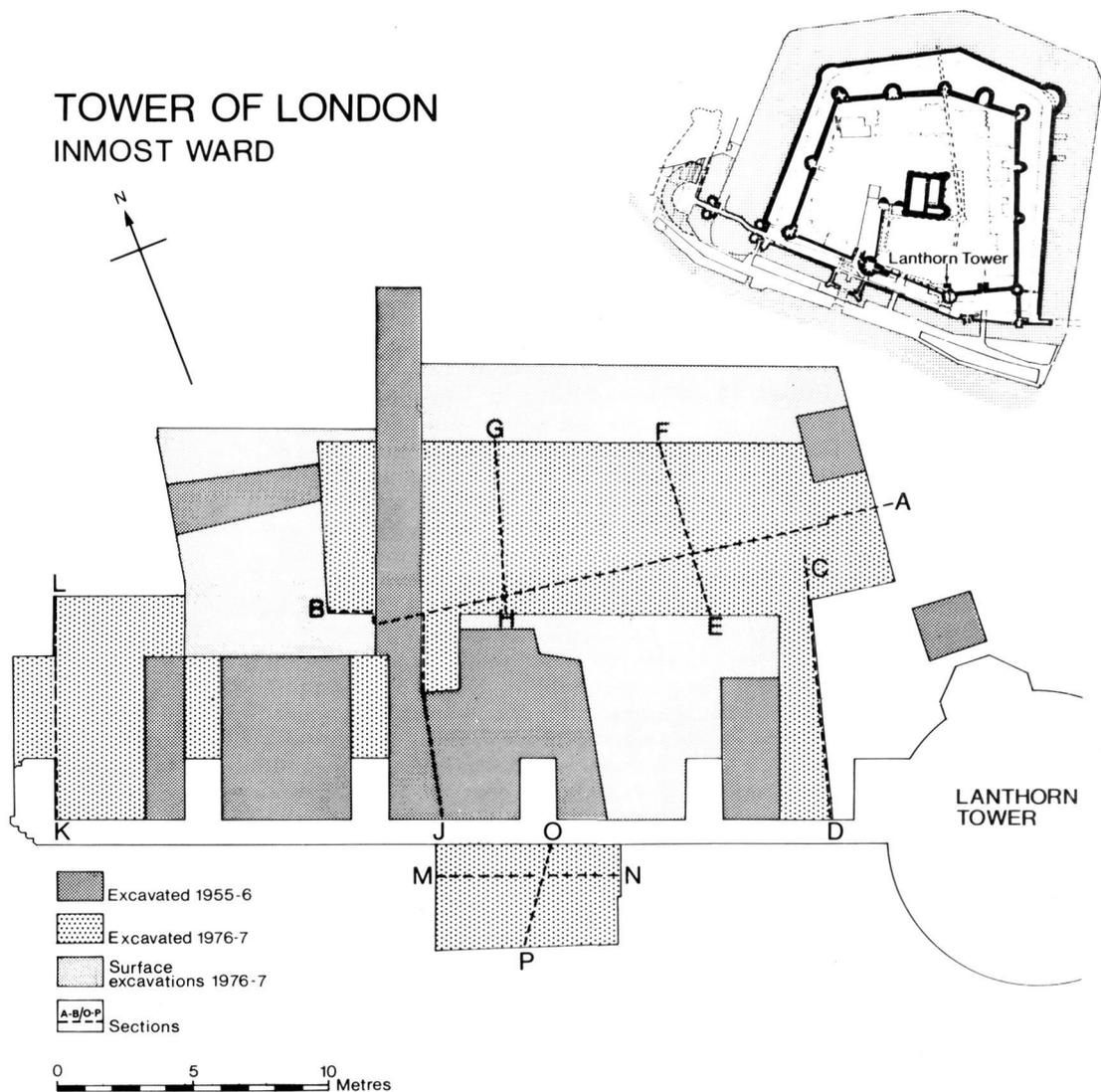


Fig. 1 Inmost Ward 1955-77: Site plan showing areas of excavation and position of sections.

in fact part of a very late 4th-century riverside defensive wall (Parnell, 1977). The remains were deemed important enough to have the History Gallery constructed further to the north than had originally been intended, in order to afford the wall a permanent display.

The remaining unexamined parts of the wall, within the planned display area, were excavated between February and

April 1977. During the following months a watching brief was maintained as work on the gallery began. Disturbances were on the whole shallow and confined to strips of ground separating the earlier excavations; information obtained from these observations is principally concerned with the post-medieval history of the site.

The final investigation sought to

explain a curious re-entrant in the line of the river wall on the west side of the Lanthorn Tower. A small-scale excavation was therefore carried out in Water Lane, on the south side of the curtain, during a six week period beginning in late October 1977 (Fig. 1). This revealed a second, and earlier, wall now identified as being contemporary with other sections of the Roman riverside defence recorded elsewhere along the city waterfront (Parnell 1978).

I. EXCAVATIONS

A. THE GEOLOGY OF THE SITE

The greater part of the site overlies the buried course of the prehistoric and early Roman river Thames. The undisturbed natural is Eocene London clay which in places is sealed by sterile orange-coloured gravel up to 50cm thick. The natural forms a slope running roughly east to west along the length of the site. In the north-east corner, where much of the deep excavation

was concentrated, prehistoric river action has eroded the bank which, at this point, is most pronounced with an angle of up to 45° (Fig. 2, Plate 1). From the top of the slope, at some 2.50m OD, the natural rises gradually northwards to the edge of the gravel terrace on which the White Tower stands, at about 9.00m OD. From the bottom of the slope at 1.00m OD, the natural extends southwards in a relatively level fashion, but 4.50m north of the standing curtain wall, is found descending again at 45° (Fig. 2). This second fall probably represents the buried Thames channel.

B. THE ARCHAEOLOGY OF THE SITE

1. METHODOLOGY

Generally speaking the depth and preservation of the archaeological deposits were determined by two principal factors: the presence of part of the 1777-80 Ordnance office, which had destroyed much of the late Roman and all of the post-Roman deposits on the eastern half of the site, and a post 1888 concrete surface which had removed the stratification of the western half down to Saxo-Norman levels. Only on the south

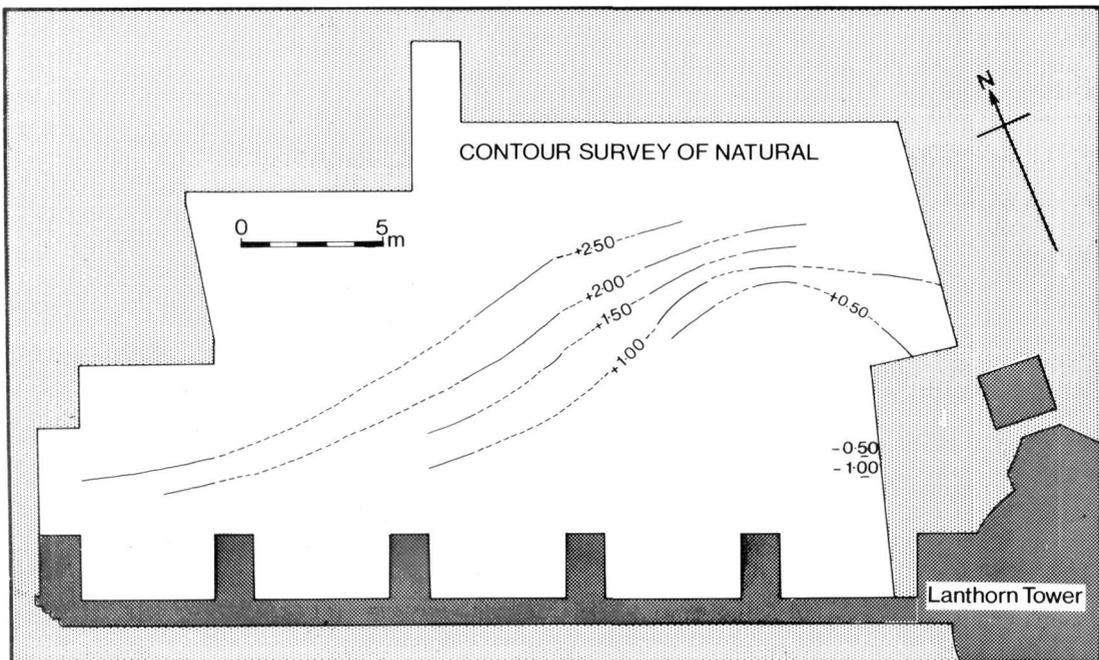


Fig. 2 Inmost Ward 1955-77: Contour survey of London Clay.

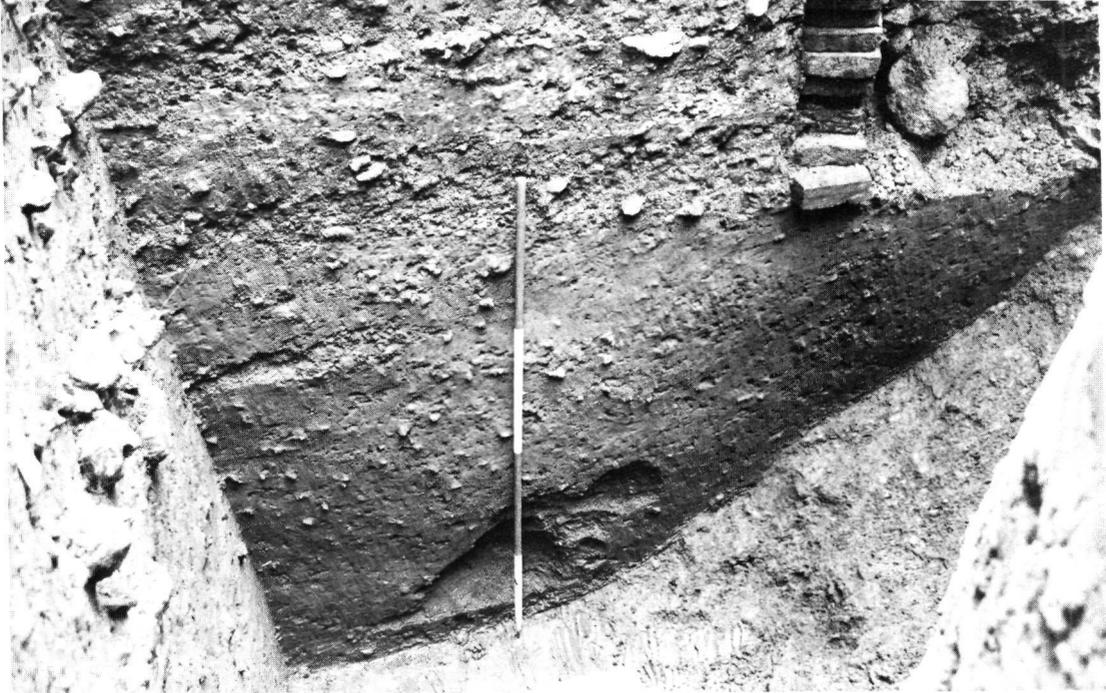


Plate 1 Inmost Ward 1976: Prehistoric river bank revealed in north-east corner of excavations (2m scale).

side of the standing curtain did later medieval strata survive.

During 1955–6 and again in 1976–7 methods of excavation were to a large extent governed by the deposition of the numerous, and substantial, 18th and 19th-century Ordnance walls which traversed much of the site (Fig. 3). A system was thus established whereby after the walls had been excavated down to their foundations, trenches were laid out in the available intervening spaces. Apart from the area around the later Roman riverside wall few of the foundations were disturbed. A notable exception was on the west side of the Lanthorn Tower where the need to interpret the internal bank of the Roman landward wall was judged important enough to have some of the masonry removed.

During the preparation of this report all excavated contexts have been categorised and renumbered. For brevity, each layer, or layers, representing a single phase is prefaced L; walls and cut features (e.g. ditches and pits) are prefaced W and F respectively.

2. PHASING

The history of the site has been arranged into the following sequence:

PREHISTORIC

- I. River silting.
- II. Iron Age activity.

ROMAN

- III. First century.
 - (a) River silting and occupation.
 - (b) Reclamation.
- IV. Second century.
 - (a) Timber foundations.
 - (b) First timber-framed building.
 - (c) Second timber-framed building.
- V. Late second/early third century. City landward defences.
- VI. Mid-late third century. First riverside defensive wall.
- VII. Late fourth century.
 - (a) Dumping.
 - (b) Second riverside defensive wall.
- VIII. Sub Roman.

MEDIEVAL

- IX. Saxo-Norman. Terracing.
- X. Late eleventh-thirteenth centuries. Alterations to Roman riverside defensive walls and early medieval 'palace' foundations.
- XI. Later medieval. Alterations and additions to Roman riverside defensive walls.

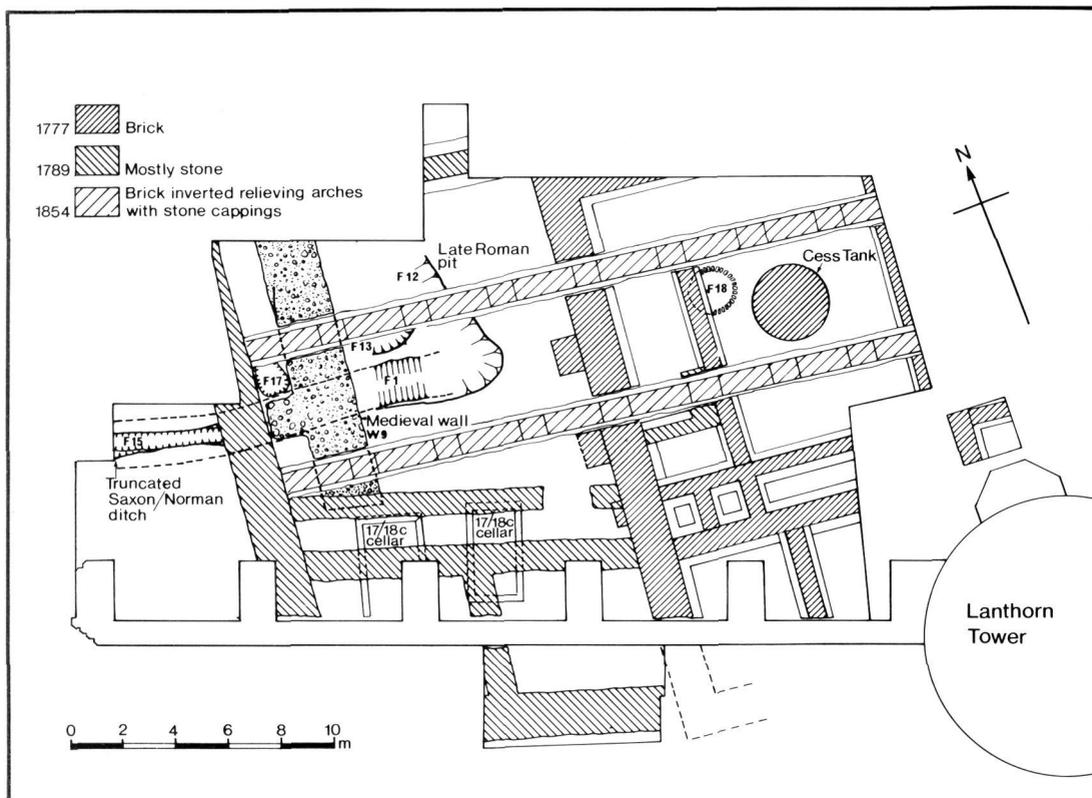


Fig. 3 Inmost Ward 1955–77: General plan of excavated features.

POST MEDIEVAL

- XII. (a) Pre-1777 features.
 (b) 1777–80 Ordnance office foundations.
 (c) 1789–92 Ordnance office foundations.
 (d) 1854 Ordnance office alterations.

PREHISTORIC:

PHASE I. RIVER SILTING

During the prehistoric period the rising river deposited fine grey sand and gravel over the natural clay (Plate 1). The silts appeared to have accumulated without any obvious interruptions and rose to a height of 1.50m OD (Fig. 5 L1). A small quantity of coarse pottery and flints, probably dating to the Iron Age, was recovered from the tops of the deposits in the north-east corner of the site at between 1.30m and 1.50m OD. Much of the material was abraded and had probably entered the river over a period of time (p. 51).

PHASE II. IRON AGE ACTIVITY

After the silting had reached its maximum the river evidently retreated to the south leaving the area dry. A large pit was then excavated in the north-east corner of the site (Fig. 4 F1). This lay partly beneath the deep foundations of an 18th-century Ordnance wall and could not therefore be fully exposed; the excavated part measured 1.50m × 2.00m, with a depth of 1.45m. The sand and gravel infill contained pottery and flints similar to the earlier assemblage from the underlying river silts (pp. 48–50).

Cutting through the southern edge of the backfilled pit was a shallow grave containing the skeleton of a young male between 13 and 16 years of age (p. 51). The body was arranged in a semi-flexed position with legs partly drawn up and pushed on one side (Fig. 4, Plate 2). The arms were outstretched with the hands originally having rested on the pelvis. The grave pit, which had been cut from a height of 1.50m OD, was only 30cm deep, barely adequate in fact to

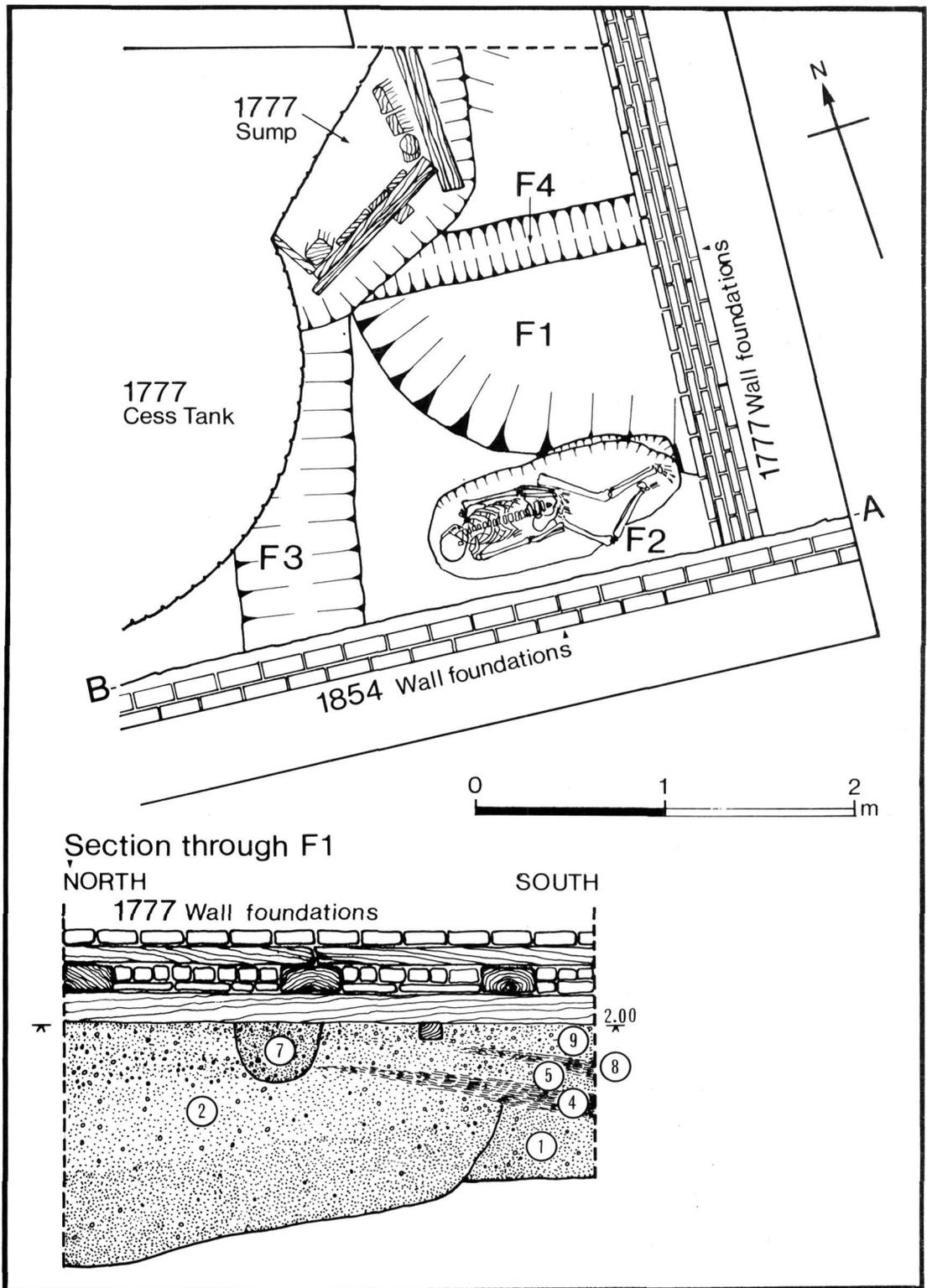


Fig. 4 Inmost Ward 1955-77: Plan of north-east corner of excavations showing Iron Age and early Roman features.

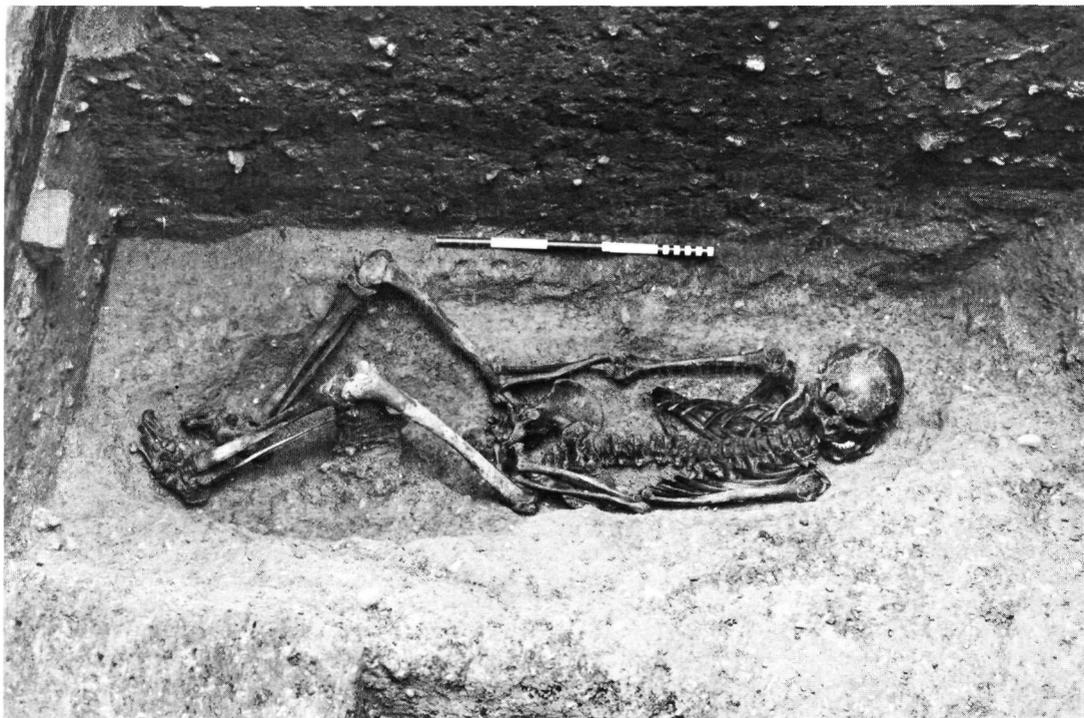


Plate 2 Inmost Ward 1976: Late Iron Age burial (50cm scale).

accommodate the body. A ring and a flint flake were found among the finger bones; unfortunately neither proved to be significant—the flint was Mesolithic in character, and therefore probably derived from the underlying river silts, while the ring exhibited no diagnostic characteristics. Radio carbon analysis of the bone indicates a date of AD 70 ± 70 years¹. Given the nature of the burial and the sequence of early Roman deposits which sealed it, a late Iron Age date seems likely.

ROMAN:

PHASE IIIa. FIRST CENTURY— RIVER SILTING AND OCCUPATION

Following the burial, the area might have experienced river erosion, as the south sides of both the grave and underlying pit showed signs of abrasion. The eastern half of the site then attracted considerable vegetation, with the area presumably representing a marsh along the margins of the river (Fig. 6 L4).

Later the river again inundated the site and deposited a layer of fine sand and gravel up to a height of 1.70m OD (Fig. 5 L5). The only item recovered from this layer was part of a human

leg bone. The incursion marked the last deposition of river silts on the site and in its wake came a resumption of activity in the north-east corner. This was represented by a small V-shaped ditch (F3) aligned north-south and a U-shaped gully (F4) running east-west; the relationship between the two had been destroyed by a post-medieval intrusion (Fig. 4). The gully was very regular and might have held a timber; the ditch was probably a drainage feature. 1st-century pottery recovered from these features represents the earliest stratified Roman material from the excavations. Further west, two pits cut into the edge of the clay bank, might also have belonged to this phase (Fig. 7 F5 & 6).

PHASE IIIb. FIRST CENTURY— RECLAMATION

Activity on the site, which might have been interrupted by further river erosion, was replaced by another phase of marsh environment evidenced by a second peat horizon (Figs 6 & 7 L8). This was sealed on the eastern half of the site by deliberate dumping which sloped from at least 2.20m OD towards the north (Figs 7 L9 and 10) to 1.40m OD towards the south (Fig. 12 L15); the fall was probably not intentional, but

the result of compression and consolidation over a period of time. It seems reasonable to suppose that the dumping was accompanied by the construction of some form of revetment or waterfront nearer to the river and beyond the limits of the excavations. Samian recovered from the sand and gravel dumps suggests a date in the late Flavian period.

PHASE IVa. SECOND CENTURY— TIMBER FOUNDATIONS

Inserted into the dumped deposits was a number of oak timbers which presumably acted as foundations for a structure, or structures, laid out over the reclaimed ground (Fig. 8). These were evidently associated with a thin, hard gravel surface (Figs. 6 & 7 L14). The timbers varied considerably in size. Some had been driven-in as piles, others were planted in pits; there was evidence for additions. One notable arrangement comprised a group of four substantial piles that had been driven into the pit until their tops were flush with the floor of the pit. Onto the piles was placed a large section of tree packed firmly into position with clay and gravel (Fig. 8 F7). Such an arrangement suggests that at least some of the timbers were intended to carry a

substantial load, though no other evidence for any superstructure survived.

Three timbers were selected for dendrochronological analysis. Two contained their full complement of sapwood (one from F7 another from F8) and results indicate that they had evidently been felled together in the winter of AD 126–7 (p. 148).

PHASE IVb. SECOND CENTURY— FIRST TIMBER-FRAMED BUILDING

During the succeeding phase occupation of the eastern part of the site, as represented by the timber foundations and gravel surface, was superseded by a timber-framed building resting on chalk sleeper walls with puddled clay floors often containing crushed chalk (Fig. 9, Phase 1). Though only the western limit of the building was exposed, it had clearly been a sizeable structure—the excavated parts measuring 15.50m east-west and 13m north-south. A corridor some 2.10m wide, its east wall marked partly by a robber trench, had evidently existed along the west side of the building. The plan of the building together with its associated painted wall plaster, sometimes of good quality, though with limited schemes, indicates that the building was

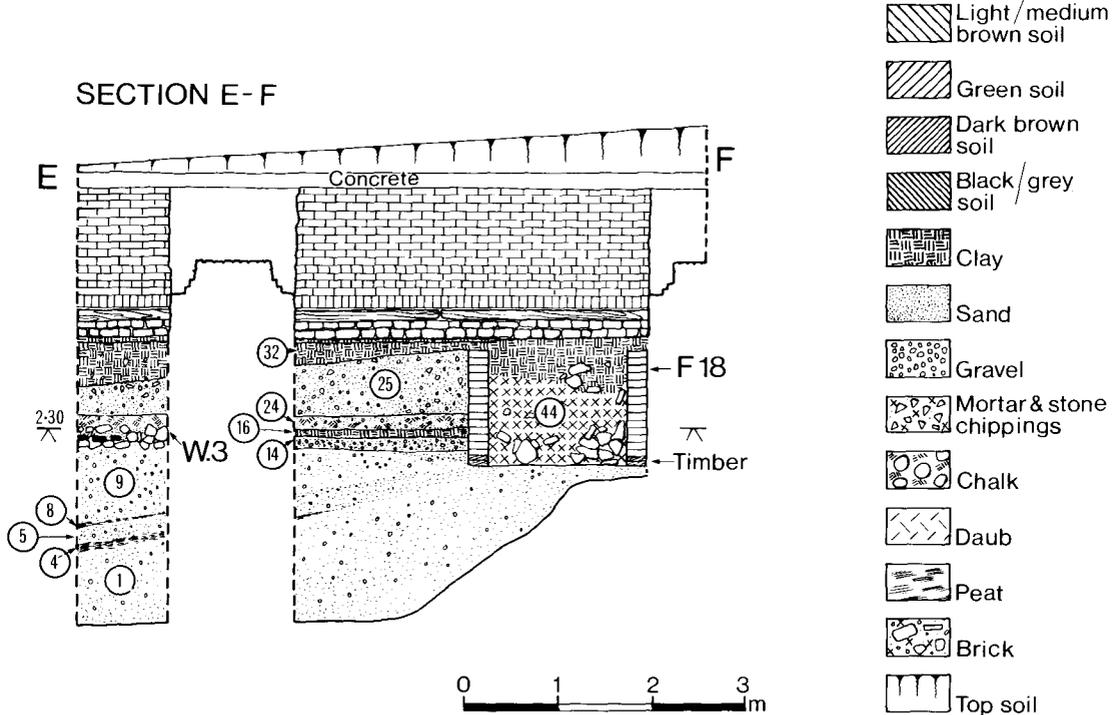


Fig. 5 Inmost Ward 1955–77: Section E–F.

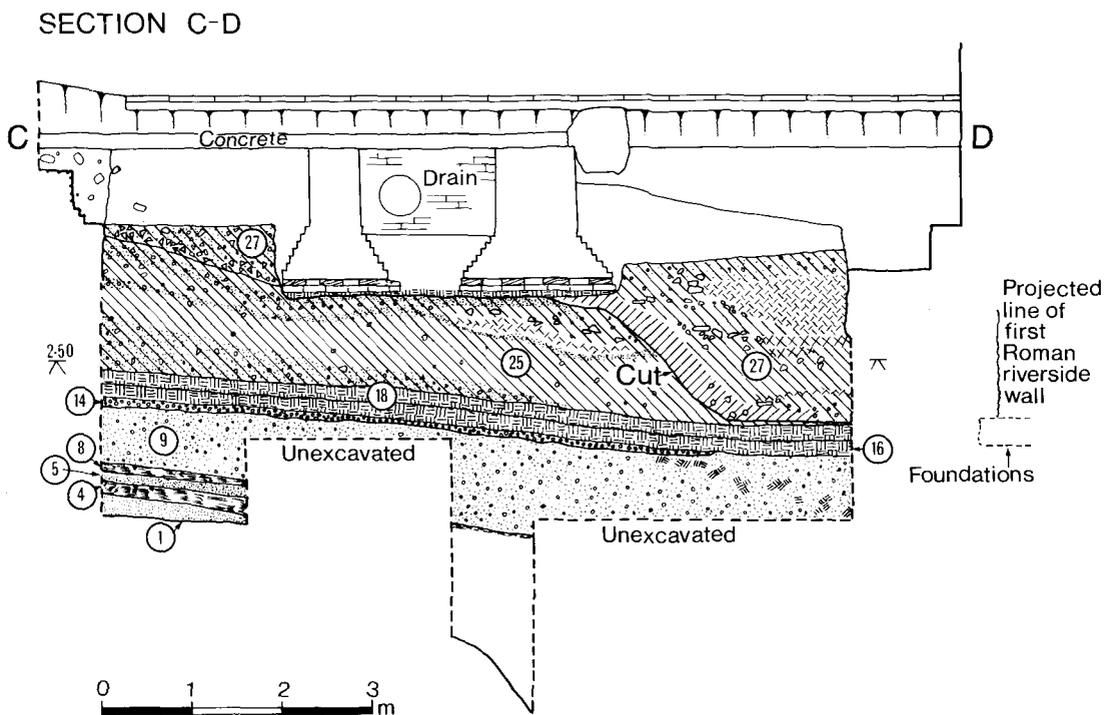


Fig. 6 Inmost Ward 1955-77: Section C-D.

of a residential nature; some repainting was evident². The destruction of the building was clearly defined by a continuous ash layer overlying the floors. Samian from the debris suggests a fire date in the early part of the period AD 160-95.

To the west of the building a thin gravel surface, showing traces of burning, suggests an associated yard. The gravel (L21) sealed some 40cm of fine grey/green sand with gravel inclusions (Fig. 7 L20). The appearance of this material was not dissimilar to the pre-Flavian river-laid silts to the east, though rising to a height of 2.70m OD, river deposition can presumably be ruled out³. Its presence, therefore, can presumably be attributed to either dumping (possibly in a very wet condition) or silting in still water. The latter might help to explain similar deposits overlying the gravel yard which evidently represent the history of this part of the site from the late 2nd century to the end of the 4th century (Fig. 7 L22).

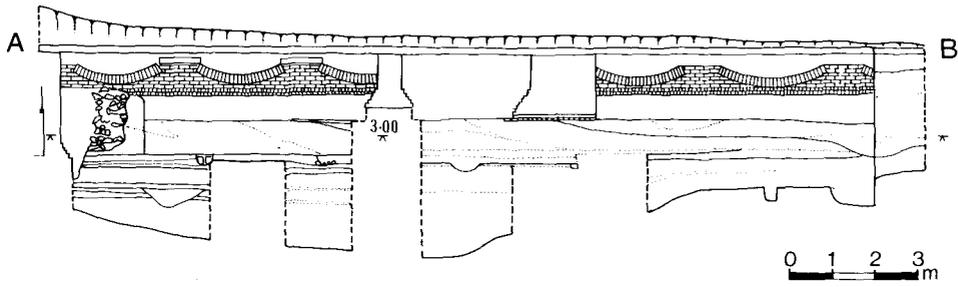
PHASE IVc. SECOND CENTURY— SECOND TIMBER-FRAMED BUILDING

Immediately after fire had destroyed the

building on the eastern half of the site a new structure was erected over its remains. The second building occupied the same north-south alignment, but lay some 5.30m further to the east (Fig. 9, Phase 2). A corridor some 2.60m wide was again incorporated along the west side, beyond which was an exterior gravelled road or yard (Fig. 7 L19). The composition of the building was much the same as its predecessor, though the sleeper for the west wall was somewhat wider and supported a row of tile fragments, which probably provided additional support for a timber base plate (Fig. 9, Plate 3). The upstanding walls were evidently composed of plastered clay.

PHASE V. LATE SECOND-EARLY THIRD CENTURY LANDWARD DEFENCES

Around AD 200 the building occupying the east end of the site was dismantled to make way for the city landward defence⁴. Masons' debris associated with the wall's construction lay directly over the floor of the building and beneath the wall's internal rampart. Apart from some clay and flint foundations 2m north of the Lanthorn Tower nothing of the wall itself



SECTION A-B

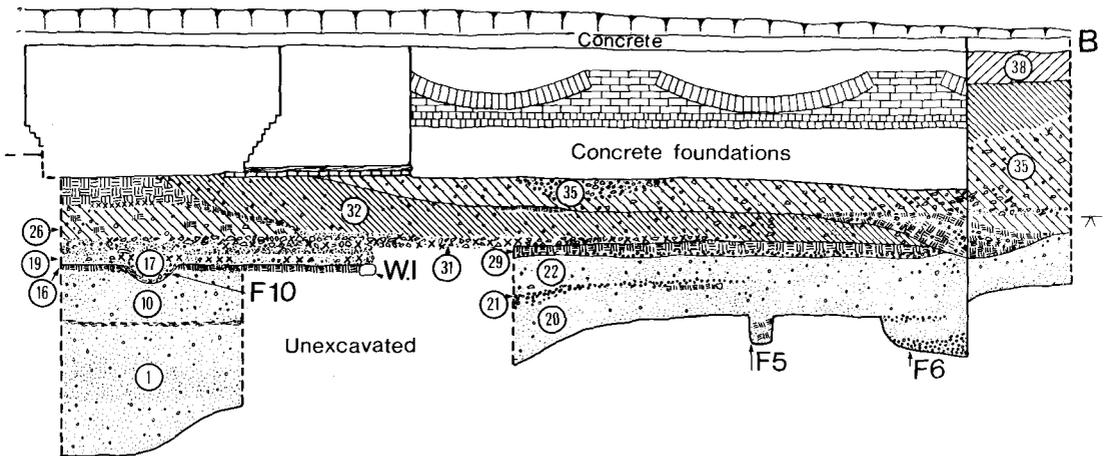
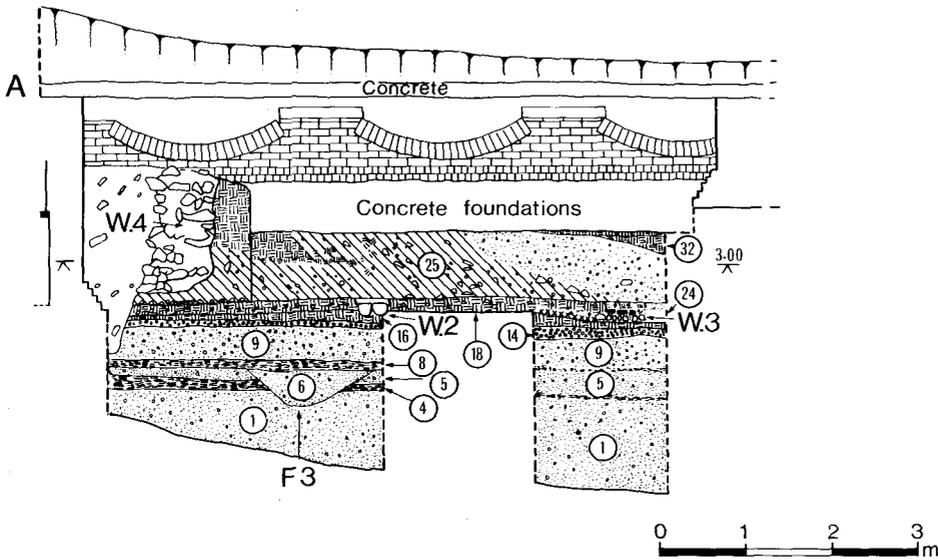


Fig. 7 Inmost Ward 1955-77: Section A-B.

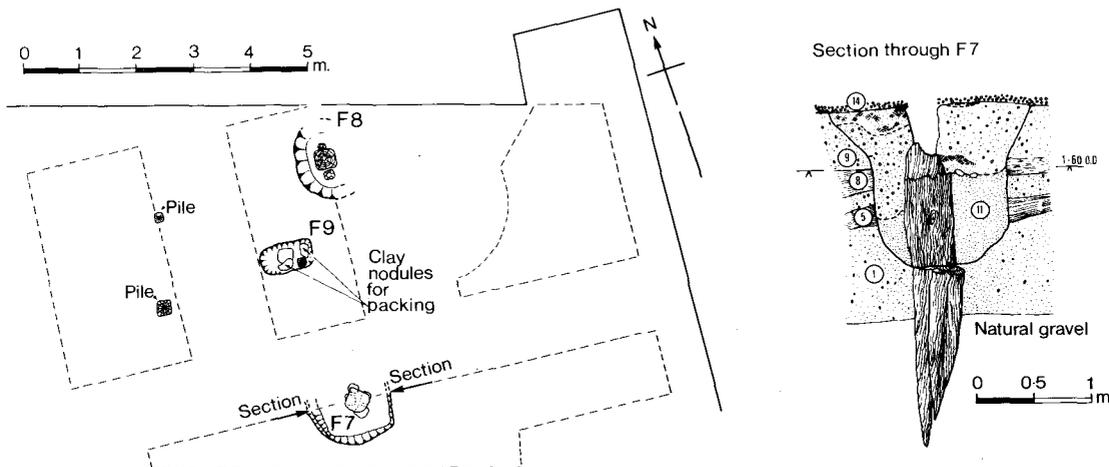


Fig. 8 Inmost ward 1955-77: Plan of 2nd-century timber piles.

survived, its course being occupied by a massive brick wall which formed the east side of a court within the principal office of the Board of Ordnance, built between 1777 and 1780 (Fig. 3). To the rear of the projection of the city wall, however, sections of the internal bank remained standing to a height of 1.50m. Within the area of excavation the bank was clearly tapering, and though the southern extent had been cut away, possibly by a construction trench for the first

riverside wall (Fig. 6), the angle of the remainder indicated that it ended close to the present Lanthorn Tower.

The most northerly section revealed the bank extending some 7m behind the line of the wall before its tail was obscured by an unexcavated balk (Fig. 7, L25). The bank did not reappear 1.60m to the west and its width, therefore, could not have been more than 8.60m. However, as previously stated, the rampart was already

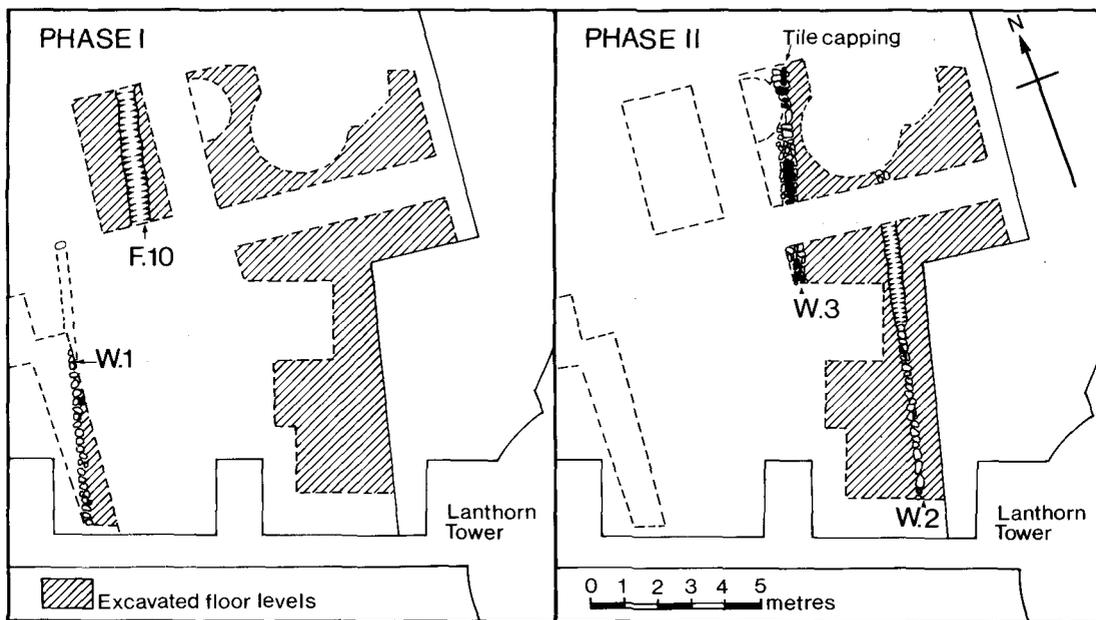


Fig. 9 Inmost Ward 1955-77: Plan of phase I & II 2nd-century timber-framed buildings.



Plate 3 Inmost Ward 1976: Western sleeper wall of phase II second-century timber-framed building viewed from south (50cm scale).

beginning to diminish at this point and a complete profile might only be anticipated further to the north.

The bank was composed of a variety of deposits, most, if not all of them, probably derived from the excavation of the wall and its ditch. These included dumps of redeposited London clay, river silts and earth. The latter contained much refuse, including painted wall plaster, tesserae, tile, mortar, flint, ragstone, chalk and shell. Within the southern end of the bank were two lenses of crushed tile/brick and daub which contained an interesting assemblage of 2nd-century glass (pp. 68–72). Analysis has shown that much of this was in fact production waste (pp. 72–3). Since there would be little benefit in conveying material for the bank over anything other than a short distance, it might be supposed that the collection derived from a local industry.

West of the bank occurred a gravel surface. In the narrow confines of the trench where it was excavated the metallurgy could only be traced to

a width of 2.10m. The eastern limit, i.e. that corresponding with the tail of the bank, must have been located within a standing bank. The western limit was subsequently extended by 1.60m during a watching brief (Fig. 6). Again the actual edge was not seen, though presumably it could not have been more than another 1.60m to the west, or it would have been detected by excavation. In summary, therefore, the overall width of the road could not have exceeded about 5.50m.

Let into the bank, 5.60m north of the Lanthorn Tower, was an extremely hard piece of trench-poured masonry which, though it could not be positively dated, was of Roman appearance. Composed of ragstone in a dark yellow mortar, it was 1.20m wide, survived to a depth of 1.50m and extended some 2m behind the line of the wall (Fig. 7 W4). Its dimensions, and the fact that it was located just south of the transition from firm London clay to relatively soft river silts, suggests that it might have functioned as a buttress.

PHASE VI. MID-LATE THIRD CENTURY—FIRST RIVERSIDE DEFENSIVE WALL

No further evidence for activity on the site was recorded until the building of a substantial riverside wall during the 3rd century. At 2.00m OD the base of the structure was well above the contemporary river level, its function, therefore, was clearly not that of an embankment⁵.

A small section of the wall was examined on the south side of the Victorian curtain (Fig. 11 W5). The western extent, together with the south face, had been destroyed during the 13th century (see below) while the eastern limit lay beneath successive phases of medieval masonry (Plate 4). What remained, however, provided some idea of the wall's considerable size and the manner of its construction.

The foundations of the wall were substantial. Firstly, rows of timber piles, comprised of sections of small oaks squared down to between 12 × 18cm and 40 × 46cm, were driven-in to the underlying silts. Over and between the tops of the timbers was a 30cm thick layer of rammed chalk which provided a stable bed for the main body of the wall. The raft was at least 2.80m wide; the southern edge extended beyond the limits of the excavation.

The upstanding masonry survived to a height of 1.20m and a width of 1.60m. The north face comprised eight neat courses of squared ragstone, the joints being pointed with a fine mortar. The core of the wall comprised a solid

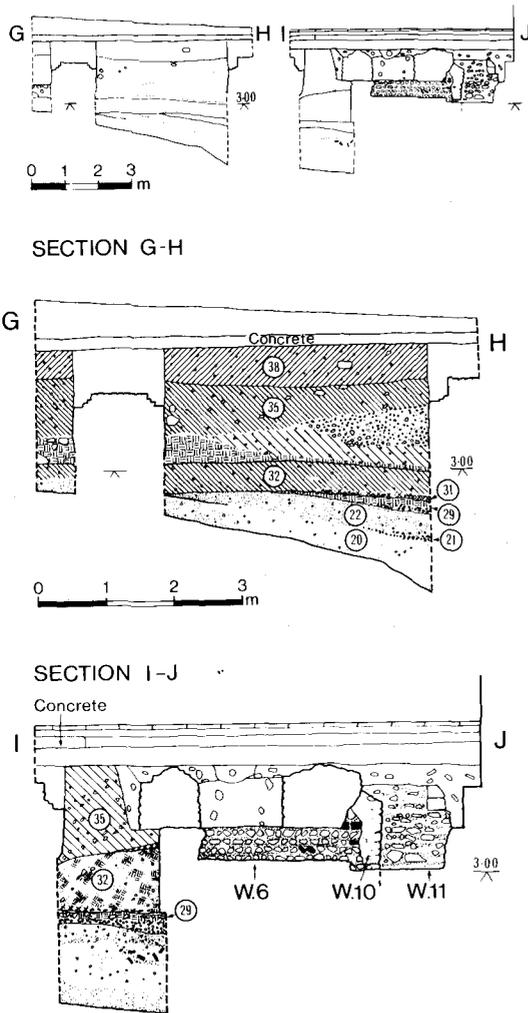


Fig. 10 Sections G-H and I-J.

mass of mortar and ragstone resting on several large irregular ragstone blocks pitched into the chalk raft (Fig. 2). Evidently the core had been raised in the normal manner, with a stone and mortar mix being applied in layers.

Analysis of the mortar has shown that it consisted primarily of sand and gravel, but in addition contained up to 10% brick/tile fragments which gave the material a distinctive pinkish colour. The presence of this inclusion indicates a deliberate attempt to produce, here, as elsewhere, a pozzolonic system in a damp context where the 'normal' mix would not have set satisfactorily⁶.

A simple projection of the wall would take its

line to a position just south of the excavations on the west side of the Lanthorn Tower, an area where the earlier landwall's internal bank was also directed. It was significant, therefore, that just north of this point the end of the bank was found to have been completely cut away (Fig. 6). The bottom of the cut corresponded with the base of the river wall while two masons' working surfaces, one on the floor of the cut, the other at a height of 90cm in the backfill, indicate construction work immediately to the south. The trench had evidently been open long enough to allow a considerable amount of silt to accumulate within it. Pottery from the deliberate infill above was largely of 2nd and early 3rd-century date, but included a few sherds probably dating to the late 3rd century (pp. 55-8).

As no stratigraphical link could be obtained between the river wall on the south side of the Victorian curtain and the excavations to the north, the principal dating evidence for the wall comes from a dendrochronological study of the oak piles employed in its foundations. Only one of the samples could be crossmatched with timbers recovered beneath a section of the Roman riverside wall at Baynards Castle, towards the western end of the city, and none from those associated with another length of wall excavated at New Fresh Wharf, a short distance downstream of London Bridge (Fig. 16). By comparing tree-ring sequences with a recently constructed Southwark chronology, however, much better results were obtained—the relative dates from the three sites showing that the timbers were probably contemporary. Allowing about 15-30 years for missing sapwood, the latest sample from the Tower indicates a felling date of AD 255-70 for the wall timbers (p. 40).

PHASE VIIa. LATE FOURTH CENTURY—DUMPING

At the west end of the site, dumped deposits of compact sandy soil, containing late 4th-century pottery, seem to represent the only available evidence for activity before the construction of the second Roman riverside wall (Fig. 13 L28). Similar deposits, evidently dating to the last decade of the 4th century and probably representing a levelling of the ground surface behind the 3rd-century riverside wall, were recorded 12m further to the west during subsequent excavations in 1979 (Parnell 1979, 70).

PHASE VIIb. LATE FOURTH CENTURY—SECOND RIVERSIDE DEFENSIVE WALL

The second wall lay 4m north of the earlier

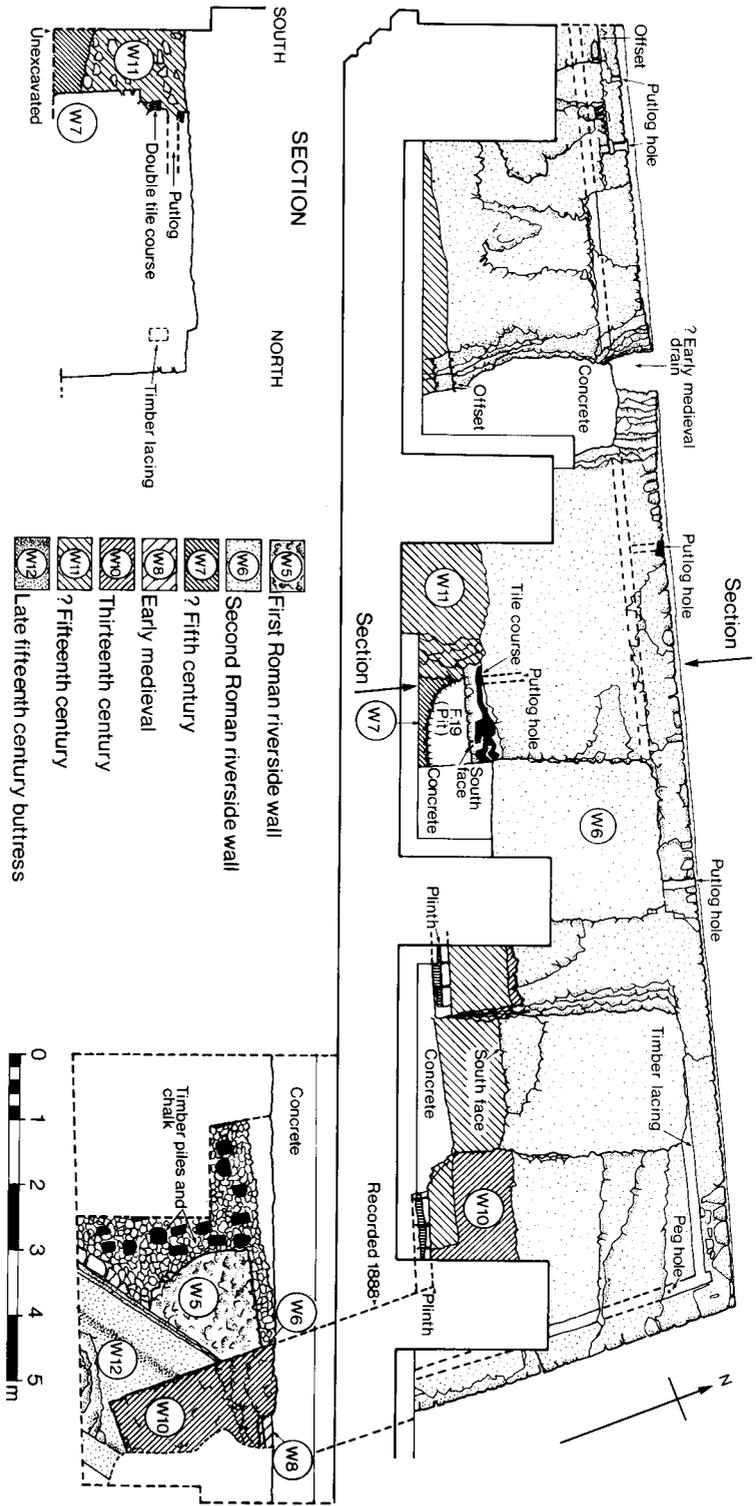


Fig. 11 Inmost Ward 1955-77: Plan and section of Roman riverside walls and medieval additions.

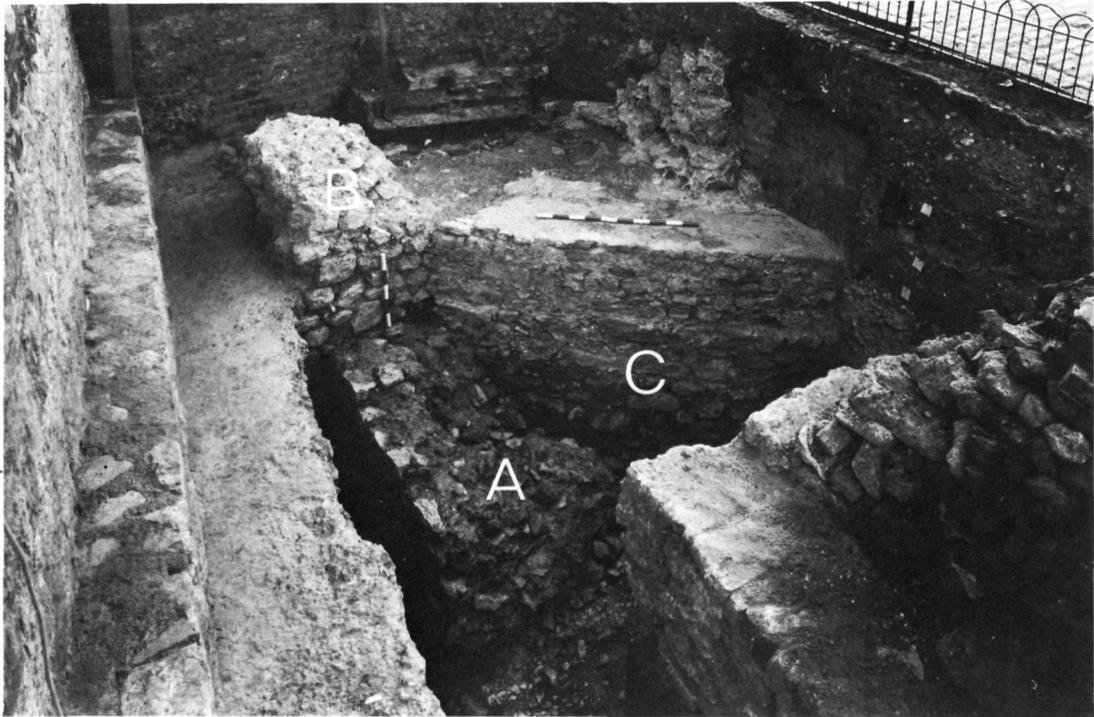


Plate 4 Water Lane 1977: Excavations viewed from west. A – 3rd-century riverside wall, B – 13th-century curtain wall and C – 15th-century buttress (50cm scale).

structure and occupied the same south-east to north-west alignment. Some 14.50m west of the landward wall it turned abruptly south at 105° to rest against the inner (north) face of the earlier wall (Fig. 11 W6, Plate 5).

The main stretch of the excavated wall, some 21m in length, lay on the north side of the standing curtain. The presence of the 19th-century masonry and earlier medieval additions, greatly hindered examination of the wall's south face, nevertheless it was possible to establish the width of the structure at three separate points as being 3.20m (i.e. 11 standard Roman feet). At a height of 1.50m offsets in the north and south faces effectively reduced the width of the masonry to *c.* 2.70m. At its maximum the core of the wall stood to a height of 2.15m; the north and south faces stood 1.90m and 1.80m respectively. Along the north face, the base of the wall rose only 20cm from 2.54m OD in the west, the difference being run out in the lowest course of masonry. By comparison the southern continuation declined some 70cm over its short length, in order to reach the same level as the base of the earlier river wall.

Compared to the thickness of the masonry the

foundations of the wall appeared slight. Rammed gravel, probably laid over a levelled ground surface, was applied first, followed by a mixture of flints and ragstone, with a few pieces of chalk and tile, puddled in clay (Figs. 10 & 13 L29). The combined layers were recorded to a depth of 50cm, though often they were much less. The clay probably derived from an enormous pit located 4m north of the wall (Fig. 3 F12). This feature could not be fully excavated but measured 6m east-west and was in excess of 2m deep. The primary fill of lumps of clay was sealed by a mass of black silty clays containing much organic waste. The pit appears to have been a stagnant pool during building operations and only completely infilled when work on the wall had been completed.

With a stable clay bed prepared work on the main body of the wall began. The method of construction differed from the earlier wall. Onto a layer of mortar the builders positioned their rows of exterior facing stones. Once the mortar was dry enough to walk upon, the area between them was packed with a layer of core rubble comprised largely of ragstone, but including some pieces of chalk, tile and even lumps of *opus*

signinum. Another layer of mortar was then applied and the process repeated. Invariably the thick bands of mortar failed to penetrate between the core stones, thereby leaving numerous air spaces and giving the centre of the wall a honeycombed appearance (Plate 6).

The north face of the wall revealed up to fourteen courses of squared ragstone supplemented with pieces of Purbeck marble, Bathstone, Hassock sandstone, chalk, tufa, brick and tile; the wide joints between the rows were pointed with a fine mortar (Plate 10)⁷. Some of the stone was reused, as was particularly evident in the corner of the wall where several large architectural pieces were employed as quoins (Plate 7). The lowest block exhibited a chiseled groove on its east face, a mark clearly indicating where the mason abandoned his attempt to fashion an angle. It is interesting to note that the large blocks in the corner had been bedded in a fine lime mix, as opposed to the dark yellow, very gravelly, mortar used elsewhere. Presumably the former was intended to prevent the large architectural stones from riding up. Without dismantling the masonry the form and origins of the carved blocks remains uncertain. However,

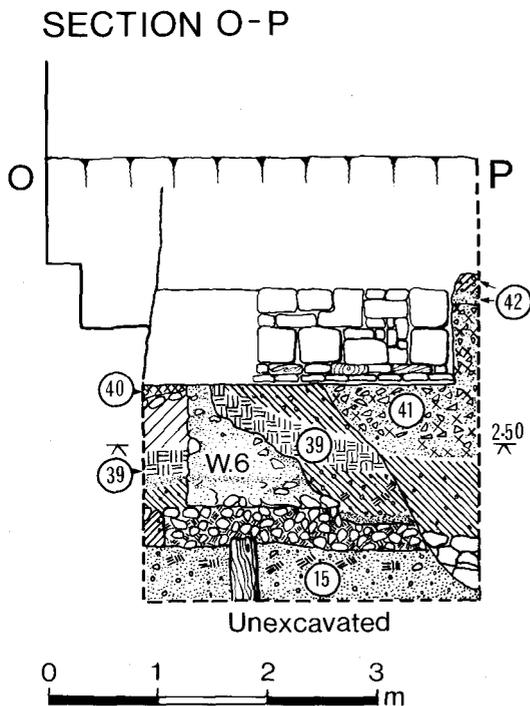


Fig. 12 Inmost Ward 1955-77: Section O-P.

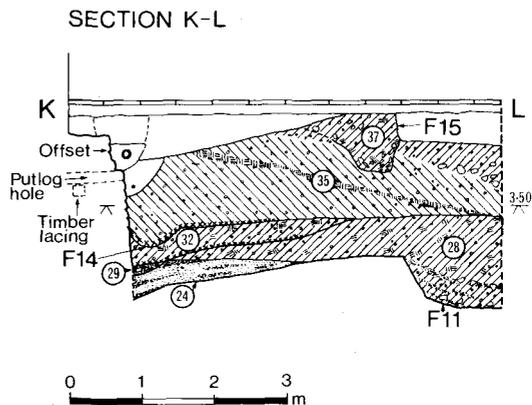


Fig. 13 Inmost Ward 1955-77: Section K-L.

two loose fragments, one a piece of imbricated column shaft, the other part of a possible funerary cornice moulding, are thought to have derived from the wall and thus indicate the possible source of some of the building material (pp. 67-68).

The south face of the wall could only be viewed to its full depth in one very restricted area, where a post-medieval (?) inspection pit had cut away part of a late medieval thickening. Once again the face revealed neat courses of squared ragstone, but at a height of 1.10m occurred a double tile course, remnants of which were also recorded 4m further to the east. The tiles were evidently reused and appeared to extend between 46cm and 60cm into the face of the wall.

Running through the core of the wall, at the level of the ninth course and between 40cm and 56cm from the north face, had been a horizontal line of timbers (Fig. 11). Although long since decayed the positions of the timbers were precisely marked by 16cm square cavities (Plate 8). The beams had been laid onto one of the mortar beds while it was in a fluid state and then after core rubble had been packed around them, remaining interstices were grouted with a fine lime mix; the impression of graining left on the surface of the mortar suggests a hard wood was employed. 4.60m west of the corner, traces of a 16cm square timber, much disturbed by post-medieval activity, were found at right-angles to the east-west beams (Fig. 11). In length this 'cross' piece could not have been more than 1.40m, possibly much less. Its north end did not pass through the face of the wall so the timber could not have been associated with external

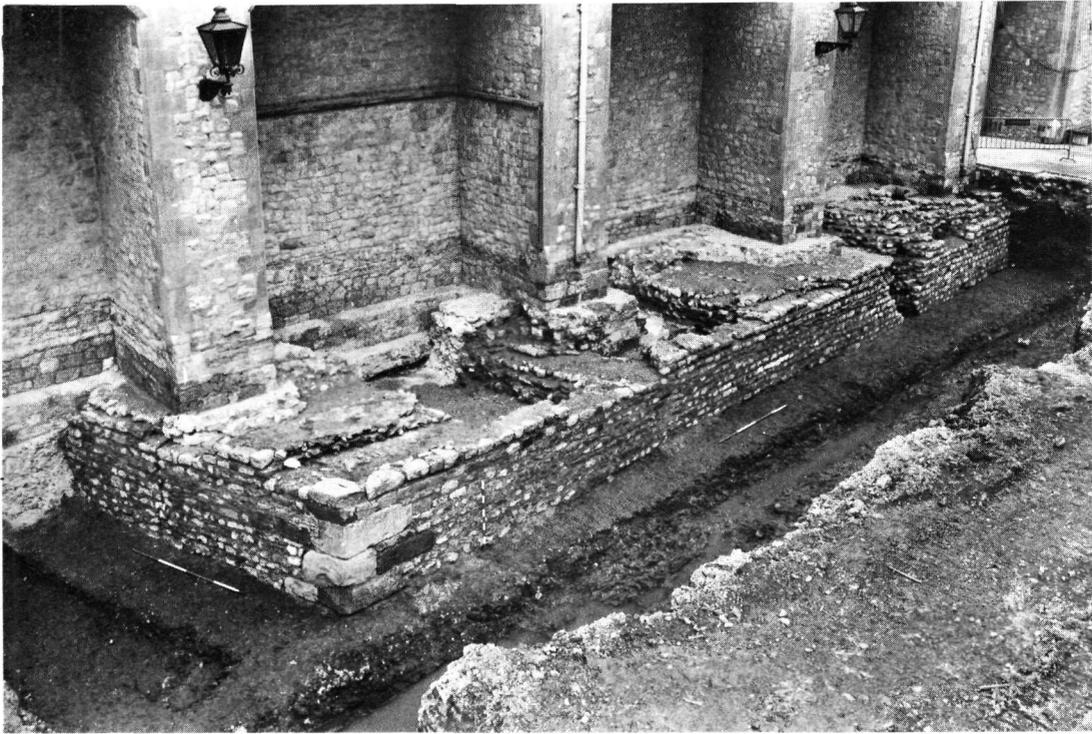


Plate 5 Inmost Ward 1977: General view of late 4th-century riverside wall from north-east (1 and 2m scales).

scaffolding. Perhaps it is best interpreted as bracing along the line of the main east-west beams.

The use of intramural timbering in a Roman context is well attested at some of the Saxon shore forts such as Pevensey and Richborough (Cunliffe 1975, 14–5). Their prime function was to stabilise the wall during construction and help prevent possible slumping. They could also act as anchorage for external shuttering. Clearly the

latter was not employed at the Tower. No lacing was found along the south face of the wall, but at a compatible level to that in the north face occurred the double tile course. A possible explanation for this arrangement might be that both tiles and timbers were intended to level and stabilise the wall close to where the offsets marked a narrowing of the masonry. Alternatively, or in addition, the timbers along the north face might have provided anchorage for external scaffolding. A row of putlog holes, which coincided with the offset in the north face, was in fact located immediately above the level of the timbers and it seems reasonable to suppose that the 10–12cm square putlog beams were fastened to them (Figs. 11 & 13). A careful examination of the ground surface north of the wall failed to reveal any post holes that might have been associated with vertical scantling and it seems reasonable to assume, therefore, that the scaffolding was cantilevered. A single putlog hole observed in the south face indicates the use of scaffolding here at a similar level (Fig. 1).

Section M–N

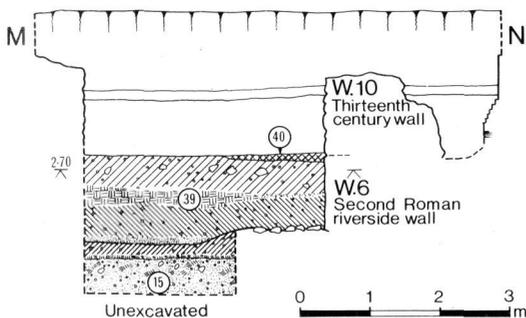


Fig. 14 Inmost Ward 1955–77: Section M–N.

One of the most curious aspects of the wall was its relationship with the earlier riverside



Plate 6 Inmost Ward 1977: Core of late 4th-century riverside wall revealed by removal of lining of post-medieval brick cellar. South face of wall and later medieval addition far left (1m scale).

defence. A small section of the west face of the southern extension was exposed at the point where it butted against the earlier wall (Fig. 1, Plate 9). It stood 1m high and comprised seven familiar neatly pointed courses of squared ragstone. Although a very limited working area permitted only the most restricted examination, it was apparent that the alignment was similar to the opposing east face, as recorded further to the north. A simple projection of the east face would indicate that the extension was only some 1.80m wide at this point.

To the north, where the extension merged with the main body of the east-west wall, a 1.20m section of corework standing proud of the wall face suggested that some form of projection had existed within the outside angle (Fig. 11). At some stage during the medieval period this had been cut back and refaced (see below). The medieval fabric, which continued to reflect a change in the wall alignment, was not removed and it was therefore not possible to ascertain whether the original plan of the feature survived at a lower level.

The enigmatic arrangement within the outer angle of the wall may have reference to the fact

that part of the earlier wall was left standing to the west of the point where the extension butted against it (Fig. 11). This effectively created a corridor between the two walls, though the western extent is not known, owing to the robbing of the earlier wall during the 13th century (see below). It is possible that the lower part of the earlier wall was utilised as a revetment, though this is not supported by the fact that the second wall exhibited signs of weathering down to its base further to the west. Another, and perhaps more plausible explanation, is that the corridor provided access to a possible gate in the later wall—an hypothesis which might account for the curious projection within its outer angle (Fig. 15). It is known that the ground level behind the second defence was raised at the time of its construction (see below), it might be suggested, therefore, that part of the earlier wall was used to revet some sort of ramp from the defences to the lower lying exterior waterfront area. Certainly the space between the two walls had contained dumping, as evidenced by the fact that the mortar pointing on both phases of masonry showed no sign of weathering; unfortunately the deposits were removed during the rob-

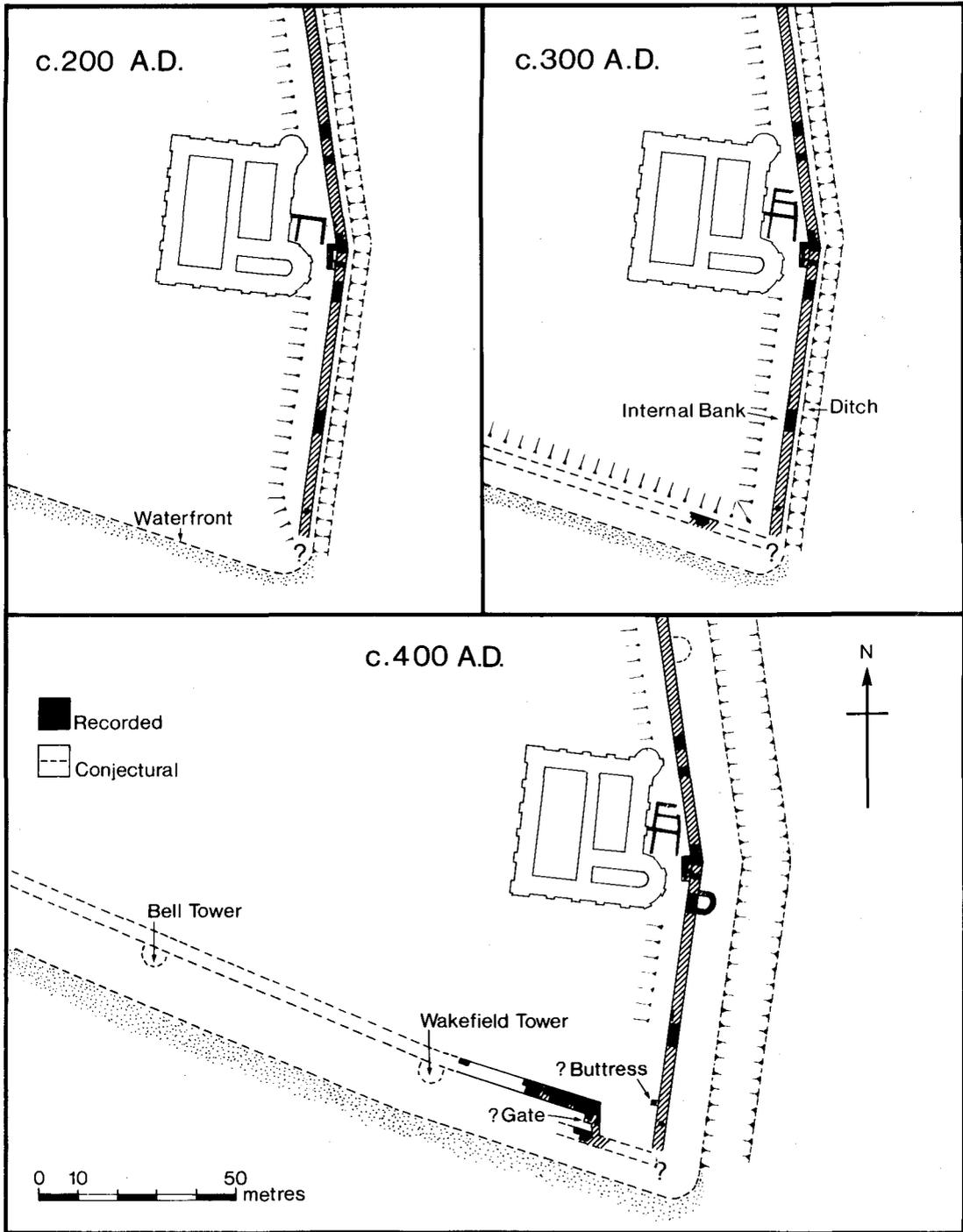


Fig. 15 Inmost Ward 1955-77: Development of Roman defences in south-east corner of city c. AD 200-400.

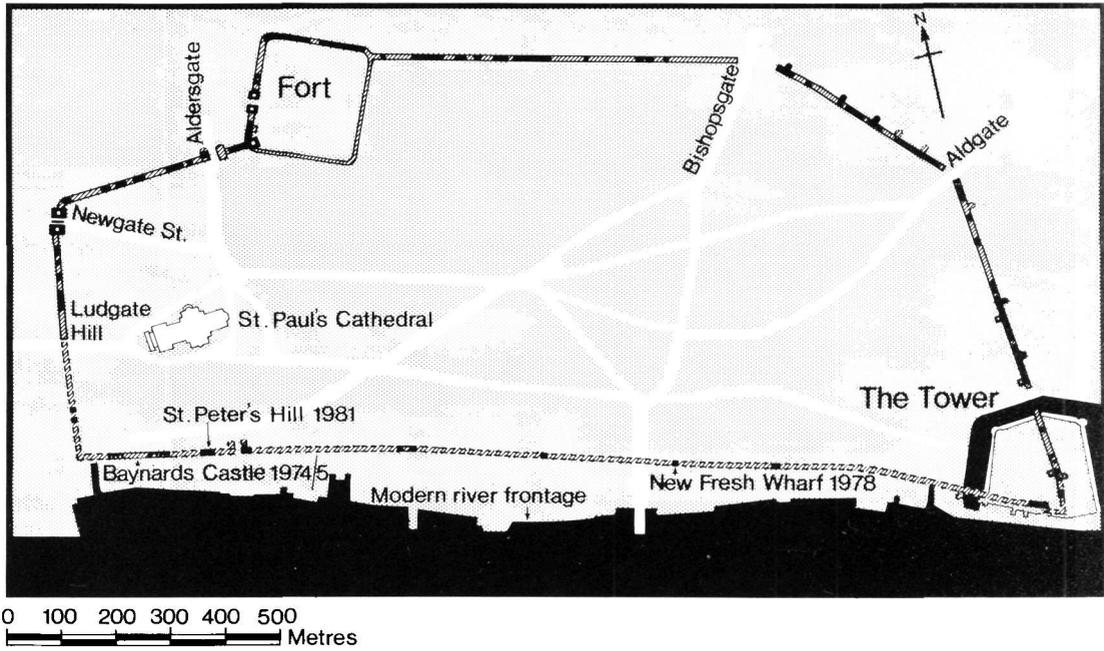


Fig. 16 Inmost Ward 1955-77: Plan of Roman city defences.



Plate 7 Inmost Ward 1977: Angle of late 4th-century riverside wall showing reuse of architectural stone (1m scale).



Plate 8 Inmost Ward 1977: Angle of late 4th-century riverside wall showing positions of internal timbers (20cm–1m scales).

bing of the earlier river wall in 13th century (see below).

Against the north face of the second wall was a mass of dumping from which the principal dating evidence for the wall was obtained (Figs. 10 & 13 L32). Two main observations support the interpretation that deposition was contemporary with the completion of the wall. Firstly, the mortar pointing on the face of the wall was in such a remarkable state of preservation that it must have been concealed immediately after application: this was clearly illustrated by the sharpness of the mason's trowel marks which included two inscribed herringbone designs (Plate 10). Secondly, no evidence of silting or intervening activity was found between the wall's construction surface and the dumping—something which might have been expected if the site had remained open for any appreciable period of time. Similarly there was no indication of delay during the construction stage, as the extensive layer of stone chippings and mortar, which represented the builders' working surface, was clearly homogeneous.

In addition to a large and comprehensive

assemblage of late 4th-century pottery, the dumping produced twenty two fully identifiable 4th-century coins. Peter Curnow adds 'these ranged through the Constantian issues of AD 321–48 [7], three *Fel Trix Reparatio* (fallen horseman) to the House of Valentinian I represented by eleven coins. The series closed with an AE 4 Victoria Augga of Valentinian II (AD 388–92). The evidence of this coin supported by the weight of the previous issues of the House of Valentinian I (AD 364–78) is undoubtedly consistent with a date for the deposition of this dumped material in the 390s'.

Owing to subsequent Saxo-Norman terracing it is not certain whether the dumping represented a bank or simply a raising of the ground surface. Against the east end of the wall the deposits survived to a depth of 1.20m, but the limited amount of weathering on the wall face above indicates that they must originally have been at least 1.90m deep. The surviving deposits were identified extending continuously 9.50m behind the wall, and were suspected another 2.50m further to the north, where similar material appeared beyond a massive 18th-

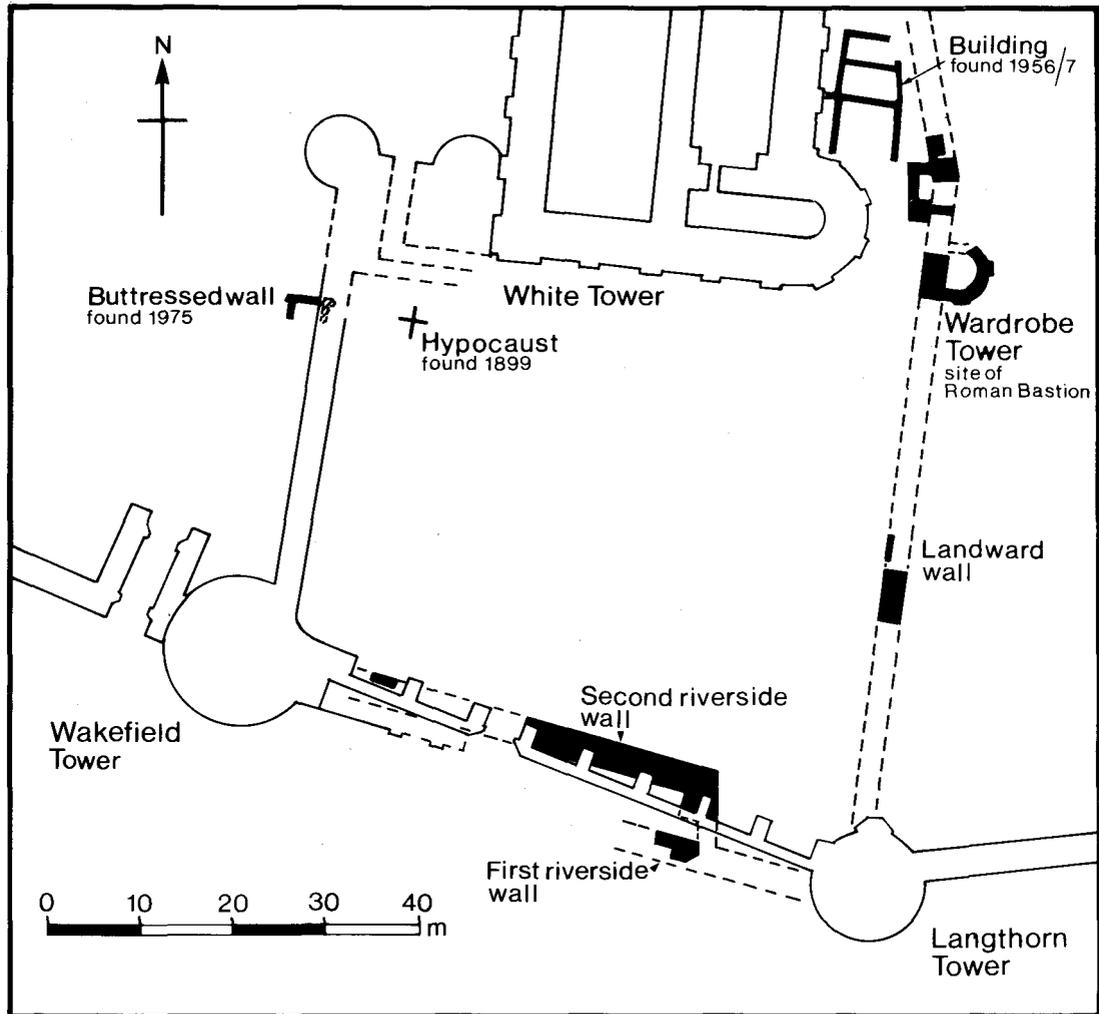


Fig. 17 Inmost Ward 1955-77: Plan of Inmost Ward showing locations of excavated Roman remains.

century wall. If these northernmost deposits do in fact represent a continuation, then overall the dumping extended at least 15m and as such would equate more easily with a general raising of the ground surface rather than the formation of a bank.

PHASE VIII. SUB-ROMAN

Little evidence for activity on the site between the 5th and middle of the 11th centuries was recorded. The bottom of a pit cut into the infilling of the late Roman clay pit was observed (Fig. 3 F13), but elsewhere north of the second river wall, Saxo-Norman and later activity had evidently removed all.

A small, but tantalising, glimpse of the situation on the south side of the later river wall was gleaned from the sides of the post-medieval (?) inspection pit cut through the late medieval thickening (Fig. 11 F.19). Here the clay foundations of the Roman wall appeared to be sealed directly by a weak mixture of sandy yellow mortar and ragstone, which included one or two pieces of *tegulae* (Fig. 11 W7). The material sealed the bottom five courses of the wall which, though showing signs of weathering, could not have been exposed for long since trowel marks were still evident in the pointing. By comparison, the coursing above was much weathered. At some stage dark soil had either accumulated



Plate 9 Water Lane 1977: Abutment of Roman riverside walls viewed from west. North (landward) face of 3rd-century wall to right, southern extension of late 4th-century wall behind ranging rod; 13th-century curtain overrides junction (1m scale).

or been dumped against the masonry and this had percolated into the open joints. Evidence of a similar situation was recorded in the top of the wall face further to the east. Unfortunately the date of the dark earth is not known, as most of it was removed when the wall was thickened in the late medieval period.

PHASE IX. SAXO-NORMAN

During the middle of the 11th century, in what might best be described as a terracing operation, the ground surface behind the second riverside wall was significantly reduced. The scarping was traced at least 15m north of the wall, the limit of the excavation. Generally speaking the new ground surface appeared reasonably level north-south, but from a point near the western end of the excavations rose approximately 1m to the east over a distance of some 17m; there were signs of a similar rise

towards the west. With regard to these slopes it is interesting to note that the lowest point coincided with a large breach in the Roman wall (Fig. 11). Gullies either side of the opening indicate that running water had collected here from east and west (Fig. 13 F14). This might suggest that the breach marked the position of an outlet in the wall, though confirmation was denied by the 19th-century curtain builders who infilled the gap with concrete while preparing their foundations.

A careful examination of the ground surface failed to reveal any features. In fact the only evidence for activity was immediately up against the river wall where a spread of mortar, with a few pieces of ragstone, extended up to 2m northwards. Analysis of the mortar has shown that it was derived from the Roman fabric, and though some might have slipped from the masonry without assistance, clearly there was sufficient to indicate human activity.

Whatever the purpose of the terracing, the limited weathering on the Roman wall face, together with the small amount of silting along its base, indicates that it was a short-lived affair. A mass of soil, clay and gravel, found up to 2m deep, was then deposited across the site (Figs. 7 & 10, 13 L35). The large quantities of predominantly late Roman pottery and at least seven 4th-century coins recovered from these layers might suggest that this was the same material that had been removed from the site shortly before (pp. 58–9).

Cut into the top of the dumping was a small east-west ditch whose course was established over a distance of at least 14.50m (Fig. 13 F15 and 16). The feature had evidently been open for only a short period before being backfilled with clay and a large amount of animal bone (p. 75). Part of a Thetford-type storage jar recovered from the fill suggests a pre-conquest date, while other shelly and sandy fabrics from both the ditch and the underlying deposits, compare favourably with pre-c. AD 1080 pottery recovered from excavations in 1963–4 on the site of the Jewel House, north of the White Tower. Dumping overlying the ditch, arbitrarily truncated by the late 19th-century concrete surface (Fig. 10 L38) produced similar wares (pp. 76–7).

PHASE X. LATE ELEVENTH—THIRTEENTH CENTURES

Perhaps the earliest structural evidence for this period was a fragment of wall built on the line of the first river defence at a height of 1.10m above the foundations (Fig. 11 W8). The



Plate 10 Inmost Ward 1977: Detail of pointing on north (landward) face of late 4th-century riverside wall showing incised herringbone design (5cm scale).

masonry was encased within later work and therefore only partly accessible. The visible section comprised a rough protruding foundation below three courses of ragstone standing to a height of only 50cm. The appearance of the masonry—a pitched course beneath two rows of roughly squared blocks, was suggestive of an early medieval date. Whether this represents a rebuilding of the river defence or simply a localised repair is not clear.



Plate 11 Inmost Ward 1976: Large medieval foundation probably associated with early 12th-century palace building.

During a subsequent phase further alterations to both Roman riverside walls were carried out. Initial work involved the excavation, and then the robbing down to its foundations, of most of the first wall that lay to the west of the later extension. This act encouraged the remains of the first wall to slump southwards, thereby opening up the junction with the extension to the north (Plate 9). Afterwards the ground level was raised again with dumps of soil and clay (Figs. 12, 14 L39) some of which contained pottery of the 13th century. The surface of the dumping was sealed by construction waste associated with a wall built upon the remains of the Roman masonry. Since there was no evidence for activity between the raising of the ground surface and the building of the wall it might be supposed that the dating of the dumping also dates the wall. The fact that the robbing of the first river wall stopped short of where it would interfere with the new masonry is further evidence for the two events being carried out in conjunction.

The new wall represented a rebuilding of the southern extension of the second Roman riverside wall that was carried onto the remains



Plate 12 Inmost Ward 1977: Later medieval addition to south face of late 4th-century riverside wall. Associated chamfered sandstone plinth can be seen in top left hand corner (20cm and 1m scales).

of the 3rd-century defence, and later medieval work, before turning eastwards at right angles (Fig. 11 W10, Plate 4). Presumably this undertaking represented a major reconstruction of part of the castle's southern curtain which, until then, had possibly retained the suggested Roman watergate.

To the north, the west face of the projection within the outer angle of the second river wall was cut back and largely rebuilt (Fig. 11 W10). Immediately to the west repairs to the face of the Roman masonry might also belong to this phase (Fig. 10, Section I–J).

In colour and composition, the mortar used in the new wall was very similar to that found in the second Roman riverside defence. The core of the medieval wall, however, revealed none of the alternating bands of stone and mortar that characterised the Roman masonry. Instead, both materials had been mixed together and poured into position *en masse*. Furthermore, the coursing

in the medieval face, composed of ragstone with a few pieces of chalk and Roman tile, was irregular, and quite different from the methodical layering of the Roman build (Plate 4).

Other than work associated with the defences, the only medieval masonry recorded was a large foundation cut into the Saxo-Norman deposits (Fig. 13 W9). This footing survived to a depth of 2.15m and a width of 2.10m. It was composed of courses of ragstone, with a few pieces of Reigate, flint, chalk and Roman tile, alternating with bands of sand and gravel. The uppermost 30cm was mortared ragstone (Plate 11). 3m to the north of where the foundation butted against the inner face of the second Roman riverside wall a feature some 1.50m wide and 1.30m deep, projected westwards. Integral with the main foundation this is perhaps best interpreted as evidence for a buttress.

The foundation must have been associated with the building of some considerable size—in all probability one of the palace buildings which occupied the Inmost Ward from at least the 12th century (see below). No dating evidence was recovered, but the construction technique is early and analogous to foundations recorded elsewhere in the city, notably from the original build of All Hallows Barking (*c.* AD 690) to the mid 13th-century and at Milk St in an excavated 12th-century building (S. Roskams and J. Schofield, 1978).

PHASE XI. LATER MEDIEVAL

During the later medieval period further alterations to the southern defences of the ward were carried out. The principal task involved a thickening of the second Roman riverside wall along the south face and a further reduction of the projection within its outside angle (Fig. 11 W11, Plate 12). The widening of the wall might have been precipitated by subsidence, as both the Roman masonry and its medieval refacing exhibited a 5° list southwards (Fig. 10). Dating evidence for this operation is lacking, though it is perhaps significant that the remains of a shallow plinth of Reigate sandstone along the south face of the addition indicates that the contemporary ground surface corresponded with the level at which a substantial buttress of presumed 15th-century date was constructed to the south.

The buttress was sited against the corner of the 13th-century curtain wall (Fig. 11 W12, Plate 4). The top of its foundation indicates that the ground surface west of the curtain had risen some 70cm since the 13th century. The massive foundation, which was not fully accessible,

appeared to be composed entirely of ragstone; it was 2.40m wide and up to least 2.80m deep and rested on the remains of the first Roman riverside wall. Of the superstructure, only three courses of hammer-dressed ragstone belonging to the east face survived; the ghost line of the west face indicates that masonry had evidently been 1.50m wide. Pottery recovered from both within and above the construction trench suggests a late 15th-century date (p. 77).

PHASE XIIa. PRE 1777 POST-MEDIEVAL FEATURES

Little evidence of the post-medieval history of the site survived the Ordnance reconstructions of 1777–92, though events are well-documented (see below). The lower fifteen courses of a second half of the 17th or early 18th-century pit were recorded within a courtyard of the 1672–3 Ordnance office and partly beneath the footings of a 1777 brick wall (Fig. 13 F17 & Plate 3). The brick built feature had a diameter of 1.50m and rested on a base plate comprised of two layers of 3.5cm thick pine planking. The bricks were neither bonded or lined and the pit could never have held water.

To the south, and cut into the second Roman river wall and later medieval addition, were the truncated remains of two small brick cellars of late 17th or 18th-century date (Fig. 3). These can probably be attributed to the residence of the Clerk of the Works (Plate 14) and were demolished in advance of the reconstruction of the Ordnance office in 1789.

PHASE XIIb. 1777–80 ORDNANCE OFFICE

In the absence of any surviving drawings of the 1777–80 building the brick foundations revealed by excavation provide the only evidence for the layout of this office prior to its reconstruction in 1789–92 (Fig. 3). By comparing the plan of the foundations with surveys of the office dating from the mid 19th-century it is possible to demonstrate that most of the 1777–80 structure was incorporated within the reconstruction of 1789–82.

To ensure maximum stability the walls were equipped with wide spreading bases which rested on frames of brick and pine (c.f. Fig. 4). One foundation, which occupied the line of the Roman landward wall, and formed the east side of an internal court, was carried down to such a considerable depth as to suggest that remains of the Roman masonry were encountered (Fig. 7). Within the court was a large cess tank fed by various drains from inside the building. Against

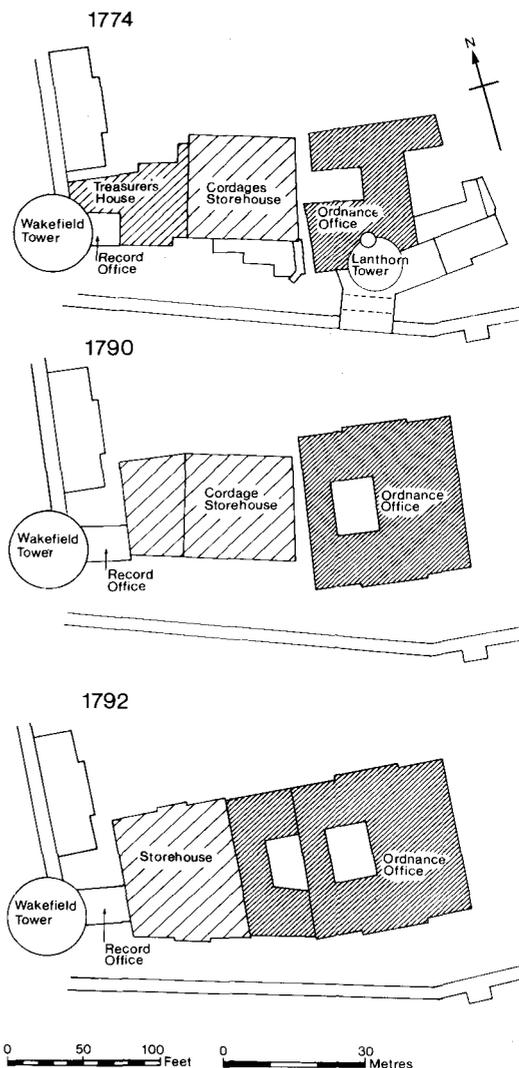


Fig. 18 Inmost Ward 1955–77: Development of Ordnance buildings along south side of Inmost Ward, 1774–1792.

the east face of the tank was a deep timber lined shaft which probably served as a sump during construction (Fig. 4). Contemporary building accounts do in fact record the use of pumps to draw water out of the foundations during building work⁸.

PHASE XII. 1789–92 ORDNANCE OFFICE

Most of the excavated foundations associated with this phase can be attributed to an extension built against the west end of the 1777–80 office (Fig. 3). The south wall of the new extension

was carried eastwards to replace the existing river elevation of the office which had been sited slightly further to the south. Within the 1777-80 building the only identified alteration was the addition of some brickwork on the west side of the internal court, where the accounts suggests a subsidiary staircase was installed. With the exception of the staircase all the foundations were composed of reused material, much of it architectural stone. Sadly, a considerable amount of masonry belonging to the Roman river defences and later medieval additions was removed when the site was levelled to receive the new extension.

PHASE XIIId. 1854 ORDNANCE OFFICE ALTERATIONS

Two parallel lines of inverted relieving arches represented a strengthening of the office in 1854 when a third storey was added (Fig. 3). The brickwork was constructed on foundations of friable concrete, with the tops of the arches capped with slabs of re-used Portland stone supporting granite blocks. The latter were bored to receive iron columns. These remains, together with the rest of the office complex, were concealed beneath a concrete surface that was laid over much of the ward following the reconstruction of the curtain wall in 1888 (see below).

NOTES

1. Harwell 2239.
2. The painted plaster was examined by Fiona Cameron. A copy of her report is lodged with the site records at the Tower of London.
3. At this level all of Roman Southwark and most of the city waterfront would have been under water c.f. H. L. Sheldon *et al* (1978), 45-7 and T. Dyson and J. Schofield (1981), 36.
4. For a more detailed account of the landward defences within the Inmost Ward and their dating evidence see G. Parnell *et al* (1982).
5. Archaeological excavations have demonstrated that by the 4th century the river level was below +0.40m OD, see C. Hill *et al* (1980), 66-7.
6. Mortar analysis was carried out by Dr Norman Davy and Dr John Evans. Copies of their reports are lodged with the site records at the Tower of London.
7. Petrological identification was carried out by John Ashurst of the Historic Buildings and Monuments Commission.
8. Public Record Office, WO51/280 p. 18 'To Mr Phillips Engine maker ... for use of a Copper Pump by him supplied for drawing water from the Foundation of the new office while laying the same in Sept 1777'.

C. DISCUSSION

PHASES I & II

Much has been written about the Thames during the prehistoric and Roman periods and river level estimates are constantly being reconsidered and refined. The evidence from the Inmost Ward suggests that the river was silting up to a height of 1.50m OD in the late Iron Age. Iron Age-early Roman river silts rising up to 1.50m OD have also been recorded in excavations against the Salt Tower in 1976, some 50m to the east (G. Parnell 1983a, 97). Together these levels compare favourably with those cited in the most recent review of the evidence for the Thames during the 1st century AD (G. Milne *et al* 1983).

A fall in the river level during the late Iron Age was followed by the first clear evidence for occupation in the form of a large pit cut by a shallow inhumation. These features appear to represent the first unequivocal evidence of Iron Age occupation so far discovered in the city, though it is doubtful whether they seriously threaten the generally accepted view that there was no pre-invasion settlement of any significance (RCHM 1928, 19-27).

PHASE III

The early Roman period was marked by fluctuations in river behaviour and on two occasions part of the site became marsh. In between these phases continuous flooding saw silts deposited up to a height of 1.70m OD before signs of occupation reappeared.

The subsequent reclamation of part of the site during the late 1st century might have been linked to a general development of the area, which included the laying out of a substantial stone building further up the hill by the south-east corner of the White Tower (G. Parnell *et al* 1982,

101–5). Though the purpose of the dumping cannot be demonstrated it is most likely to have been associated with the construction of a waterfront beyond the southern limits of the excavations. In any event, the available information is of interest because it indicates early ribbon development further downstream of the bridge than had been known. The late 1st or early 2nd-century waterfront excavated at the Custom House site some 350m to the west in 1973 was in fact the most easterly city riverside development previously recorded (T. Tatton-Brown 1974, 122).

PHASE IV

Unfortunately the timber foundations and gravel surface that superseded the late Flavian reclamation provide no clear picture of the nature of continuing occupation of this part of the site. By the middle of the 2nd century, however, the character was distinctly residential, as illustrated by the timber-framed building that fronted onto the river. The components of this building, together with its post-fire successor, include clay floors and narrow sleeper walls which are commonly paralleled elsewhere in the city and in Southwark during the 2nd century (H. L. Sheldon *et al* 1978, 30–1 & T. Dyson and J. Schofield 1981, 31–5). It is worth pointing out, however, that the size of the Tower structures is unusually large, while the use of chalk in the walls appears to represent an early use of this material in a London building context.

PHASE V

Though nothing whatsoever survived of the main body of the city landward wall the remains of its contemporary internal bank indicate that the defence terminated on, or close to, the site of the present Lanthorn Tower. Since we know now that the river defences were an innovation of

the 3rd century, this arrangement appears quite in order. Doubtless until the riverfront was closed the limit of the land wall would have been defined by a tower of some form, and a mass of inserted gravel recorded by the north-east corner of the Lanthorn Tower may in fact be associated with the foundations of such a structure (G. Parnell *et al* 1982, 92–4).

The remains of the internal bank show it to have been of considerable size. The best preserved section, though incomplete and located at a point where the bank was already beginning to narrow, indicates a width of at least 8.50m. Similar measurements have been recorded in earlier excavations near the White Tower, while more recent work on Tower Hill, north of the castle, have suggested a total width of up to 9.50m (D. Whipp 1980, 50). Such measurements however find little analogy with other sections of the bank recorded elsewhere in the city¹. Presumably the bank therefore was a variable feature, with concessions to pre-wall topography being perhaps one of the factors determining its size.

The archaeological evidence leaves little doubt that the late 2nd-century timber-framed building located west and north of the Lanthorn Tower was deliberately dismantled to make way for the city wall. This provides a sharp contrast with the situation further to the north where the substantial stone building on the east side of the White Tower is known to have been left standing against the rear of the wall (G. Parnell *et al* 1982, 100–15). Presumably the status of the stone building, or its owner, were taken into account during the planning of the defences.

One question, which it was hoped the excavations might resolve, was what factors influenced the siting of the wall. Near the south-east corner of the White Tower the wall diverges some 15° from its regular

north-south alignment, which extends continuously from Aldgate, towards the site of the Lanthorn Tower (Figs. 15). It now seems clear that the diversion was intended to take advantage of a point along the riverfront where developments during the previous 100 years or so, had created a promontory in the river. The precise location of the re-alignment was governed by the need to just clear the masonry building east of the White Tower, a diversion further to the south would have produced a more severe angle.

PHASE VI

The discovery of this wall, and the correlation of the timbers used in its foundation with those from other sections of wall at Blackfriars and New Fresh Wharf, leaves little doubt that Roman London was provided with an homogeneous and continuous riverside defence. William Fitzstephen writing in *c.* AD 1173, having described the landward defences, went on to say 'London formerly had walls and towers in the like manner on the south, but the most excellent river the Thames . . . has in a long space of time washed down, undermined and subverted the walls in that part' (J. Stow 1956, 591). The severely river-eroded walls excavated at Blackfriars and New Fresh Wharf seem to provide unequivocal confirmation of Fitzstephen's 800-year-old account. The fact that he did not mention the surviving masonry at the Tower is hardly surprising, since by the late 12th century these remains would have been regarded as part of the fabric of the castle.

The confirmation of Fitzstephen's account raises the question of where the river bastions were sited. In 1913, Sir Arthur Clapham made the attractive suggestion that the medieval towers along the line of the castle's inner south curtain (Lanthorn, Wakefield and Bell towers) originated in Roman bastions, as their

spacing is similar to those located against the landward wall (A. W. Clapham 1913, 3–5). Circumstantial evidence to support this theory has since been provided by the discovery of two early medieval ditches whose alignments appear to direct them to points along the defences where Clapham's theory would anticipate the presence of bastions. In 1963–4, excavations on the site of the Jewel House, north of the White Tower, revealed a ditch running south-west to north-east across the Parade Ground to the supposed site of the second landward bastion (B. K. Davison 1967), which Stow informs us was taken down during the reign of William the Conqueror (J. Stow 1956, 42). The second feature, on a north-south alignment, was directed towards the Wakefield Tower, the site of Clapham's proposed second river bastion (G. Parnell, 1983b). It is now clear that the Wakefield Tower occupied a position along the line of the second Roman riverside wall which, as argued below, probably represents a remodelling of the waterfront defences within the confines of the Tower. The second wall is sited a short distance to the north of the defences of *c.* AD 255–70, but there is no reason to suppose, however, that the spacing of the bastions was altered during reconstruction, as the distance between them was governed by the need to maintain effective covering fire.

The construction of the first riverside wall falls between AD 255–70, the felling dates for the timbers used in its construction, and the closing years of the 4th century when the river defences were remodelled (see below). In fact, since a great deal of fresh timber would presumably have been required for the original work, the felling dates probably reflect quite accurately the date of the wall. Historically these dates fall within a period of grave trouble for Roman Empire. For

Britain, following the usurpation by Postumus in AD 259 and the setting up of the Imperium Galliarum, this meant being served from the Central Empire for fourteen years (S. Frere 1974, 214–5). It was during the later part of this independence that the threat of sea-borne Saxon incursions first became acute and Frere points to the large number of coin-hoards that belong to the period AD 268–82 as an indication of crisis (S. Frere 1974, 220–1).

Though precise dates are still lacking, many towns in the south of England, including Canterbury, Silchester, Chichester and *Verulamium*, appear to have been equipped with stone fortifications between *c.* AD 220–80 (S. Frere 1981, 390). Moreover, a number of ‘Saxon Shore’ forts which were intended to combat a sea-borne attack, are thought to have been built in the AD 260s and 270s (B. Cunliffe 1977, 3). In this context, it may be significant that a signal station of similar date was discovered $\frac{3}{4}$ mile downstream of London at Shadwell in 1974 (T. Johnson 1975, 278–280). If as the excavator of the site suggests, Shadwell was part of a chain of Thames lookout posts to monitor military incursions, then the presence of contemporary river defences in London becomes a probability.

London’s position as a major commercial centre had evidently declined by the late 3rd century, so that the closing of the river frontage and the restrictions imposed on the wharf would have afforded a few problems, providing the wall was provided with adequate access points. The decline in activity along the wharf is strongly mirrored within the walls where large areas of the city lay empty beneath accumulating ‘dark earth’ (R. Merrifield, 1983, 140–8). During the second half of the 3rd century, however, a degree of restoration appears to have

been firmly underway. Significantly, the character of the recovery, as reflected in the type of buildings so far recorded, appears to be largely of a bureaucratic or religious nature, rather than a mercantile one (R. Merrifield, 1983, 183–92 & P. Marsden, 1980, 131–62). Perhaps, therefore, the closing of London’s riverfront should be seen as a measure to protect a city now principally concerned with administrative functions.

PHASE VIIIb

Undoubtedly the discovery of the second Roman riverside wall represents the most significant contribution that the present excavations have to offer. The numismatic evidence from dumping against the wall indicates a construction date during the last decade of the 4th century. This has been confirmed by additional dating evidence from the excavation of a second stretch of the wall in the south-west corner of the Inmost Ward in 1979 (G. Parnell, 1981). Here, deposits ante-dating the wall, produced 12 fully identifiable coins of the second half of the 4th century that terminate in an issue of the House of Theodosius I and another of Arcadius, both dated AD 388+. These two pieces effectively demonstrate that work on the wall could not have begun before AD 388 at the earliest. In fact, given the context in which the coins were found, there are good reasons for supposing that a start was made somewhat later.

Historically the building of the wall might relate to Stilicho, the Vandal general who held the reins of power behind the nominal Emperor Honorius in the closing years of the 4th century. Between AD 395 and 399, under Stilicho’s instructions, a final effort was made to restore order in Britain and reorganise the province’s defences (S. Frere 1974, 406–7).

This is reflected in an edict issued in AD 396, and reaffirmed in AD 408, authorising urban authorities to rebuild or repair their fortifications using, if necessary, material drawn from disused temples and other buildings (RCHM 1928, 82).

Whether or not the construction of the wall relates to the edict of AD 396, the dating evidence confirms for the first time in this country a major defensive work later than that of Count Theodosius, and as such has considerable consequences for the history of Roman Britain. The degree of organisation needed to facilitate such a large work, and the meticulous attention paid to construction techniques, are perhaps especially significant when considering the fact that the operation was undertaken in the twilight years of Roman rule.

The excavated remains of the first riverside wall at the Tower appeared structurally sound, and unless conditions had deteriorated further to the west, it might be supposed that alterations were brought about by design rather than defect. The probable intention was to transform the extreme corner of the city circuit into a salient which could only be approached by way of the narrow passage to the west. The possibility of a gate at this point was perhaps suggested by the discovery of part of an angular projection at the end of the passage (Fig. 15).

The later history of the wall along the rest of the waterfront appears also complicated. Excavations in 1974–6 at Baynards Castle, towards the western end of the City, revealed walling of two distinct constructions. The first, and that linked dendrochronologically with the earlier Tower section, comprised a 40m length of wall founded on a chalk raft supported by neat rows of oak piles driven-in to the underlying silts. The main body of the wall was carefully constructed and

accompanied by a contemporary clay bank against its inner (north) face. By comparison, the walling to the west employed no elaborate foundations, instead the masonry rested on large rag-stone blocks simply wedged into the sub-soil and natural clay (C. Hill *et al* 1980, 57–61). The excavator attributed this alteration to changes in the underlying ground surface (C. Hill *et al* 1980, 62–6). The western wall, however, differed in other respects too, and these cannot be attributed to ground conditions. There was, for example, no clear evidence for an internal bank, while the wall itself incorporated none of the tile courses found in the eastern section. Moreover, the western wall comprised numerous reused blocks of sculptured stone in its construction. Among the pieces were two altars one commemorating the rebuilding of a temple, probably Isis, by Marcus Martiannus Pulcher, governor or assistant governor of Britannia Superior and probably dated AD 251–3 or 253–9 (C. Hill *et al* 1980, 195–8). The inscription thus provides a *terminus post quem* for the construction of this particular section of wall, but in doing so the contemporaneous nature of the defences is effectively challenged, since the pillaging of temples and shrines for second-hand building material during the 3rd century must be regarded as a highly sacrilegious and improbable act². It may be assumed, therefore, that the two distinct types of construction at Baynards Castle represent different phases of build. Indeed clear evidence for two quite separate constructions was recorded in one section of wall at Baynards Castle, though it proved impossible to estimate the time scale separating them (C. Hill *et al* 1980, 38–40).

More recently the Museum of London has recorded a small section of the wall at the bottom of St Peter's Hill, to the east of Baynards Castle. Here the structure

appeared to revet a terrace on which a massive public building had been erected, possibly in the early-mid 3rd century. It is possible that this may have been the original function of the wall and that it was incorporated into the river defences at the subsequent date³. Further to the east, below Upper Thames St, Roach Smith recorded sections of the wall in 1841. Here the wall boasted the elaborate foundations of timber and chalk together with reused stone from public buildings in the main body of the wall itself (C. Roach-Smith 1859, 18–9).

One conclusion that seems to emerge from these various observations is that the river defences of AD 255–70, which might have incorporated earlier structures, were extensively repaired at some stage. The precise date might have been in the 390's when the river defences were remodelled at the Tower and when the demolition of pagan temples and other disused buildings was actively encouraged by the authorities in order to provide building material for the strengthening of urban defences.

It is tempting to relate the repair of the riverside wall with the addition of bastions to London's landward defences. These fall into two groups. The first, known as the western series have, with one exception, hollow bases of which at least one is known to be of medieval date (W. F. Grimes, 1968, 71–8). The second group, referred to as the eastern series have, with two exceptions, solid bases containing much reused sculptured and architectural stone and are almost certainly all of late Roman date (R. Merrifield 1983, 228–35). The building of the solid bastions is known to have necessitated the infilling of the city wall's original V-shaped ditch, since the towers project into its course. Excavations to the south-east of Bastion 6, near Aldgate, produced a coin of Constans AD 341–6 in the delib-

erate backfilling of the ditch (J. Maloney, 1979), while deposits resting against the face of the tower contained coins of the House of Theodosius AD 364–75 (P. Marsden, 1980, 72). It follows, therefore, that if all the solid bastions are of one phase, then the dating evidence from Bastion 6 lends weight to the suggestion first put forward by Wheeler (RCHM 1928, 82) that they form part of a late reorganisation of London's defences.

The fact that most of the bastions appear to be sited down the east side of the city only is curious. The bridge and the marshy Moorfields area on the opposing north side of the city have been cited as reasons why the regular spacing of the bastions was evidently not continued around the entire *enceinte*. While, however, these obstacles may indeed have prevented the city from being outflanked during a brief raid, they could hardly have been relied upon in the face of a determined assault.

The intention to equip the west side of the city with bastions is strongly indicated by the discovery in 1974 and 1982 of a late Roman, wide, flat-bottomed ditch in front of the city wall at Ludgate Hill (B. Hopley and J. Schofield 1977, 45 & Fig. 10, P. Rowsome 1983). Such a feature was a necessary accompaniment to the addition of bastions, since it provided an unrestricted field of fire for *ballistae* mounted on top of the towers (P. Corder, 1955, 20). There must, therefore, be a real possibility that the bastions belong to an ambitious programme of refortification that was never completed. It is perhaps significant that the two known hollow bastions that provide an exception to the eastern series are found at either end of the group. Bastion 11, located below the vestry of All Hallows Church, London Wall, contains re-used Roman stonework and was erected while the wall's original V-shaped ditch was a conspicuous feature

(R. Merrifield, 1965, 70-2). Bastion 1, nearest to the river, lies hard by the south-east corner of the White Tower where it forms the base of the early medieval Wardrobe Tower (Fig. 17). It was examined in 1879 (E. P. Loftus Brock 1882, 127-32) and again in 1962⁴ and found to contain a double course of broken Roman tiles set in a hard pink coloured mortar. The information available hardly supports the view that the two hollow bastions are of medieval date, they may, therefore, represent a hasty effort to complete the regular spacing of the solid bastions down the east side of the city in a late Roman or sub-Roman period.

The alteration of the river defences at the Tower might have been part of a much larger scheme to create some form of stronghold in the south-east corner of the city—clearly a position of strategic importance, since it guarded the river approach to the city. By the 16th century there was, in fact, a tradition that the Tower was founded on a Roman fortress (J. Stow 1956, 42) and as late as the 18th century the White Tower was still referred to as 'Caesars Tower'. If a defensive enclosure did exist it might have been expected to influence the development of the early medieval castle, and the alignments of two early ditches in relationship to the supposed sites of Roman bastions has already been commented upon (p. 29). There is no reason to suppose that these two features in themselves reflect any line of Roman fortification that cordoned off the south-east angle of the city, but they do illustrate the potential role that the Roman defences played in the formation of the Tower.

Circumstantial evidence associated with the AD 1190 Bell Tower—the most westerly of the inner curtain towers, and one of Sir Arthur Clapham's suggested river bastion sites—makes it a potentially attractive point for a landward return⁵.

The ground floor chamber of the tower occurs above a massive 18ft solid base. An excavation in the boiler room of the Queens House, a short distance to the north, revealed that the adjoining west curtain was inserted into a mass of clay to the east, the top of which occurred at about 7.50m OD. There is no doubt that this represents an artificial build up since a bore hole survey of Tower Green, immediately to the east, has shown that London clay is reached at 3.70m OD. Presumably this accumulation accounts for the abnormally high level of the ground floor of the Bell Tower and its presence here might be interpreted as part of a pre-existing bank running north along the line of the inner curtain. Of course such a feature might be associated with an earlier medieval phase, perhaps forming part of an outer bailey to the 11th-century castle. If, on the other hand, its origins are much earlier, the implications for Roman London could be considerable.

Of notable interest with regard to late Roman activity within the Tower was the discovery in 1777 of a stamped silver ingot of probable late 4th-century date. This was found, along with gold coins of Arcadius and Honorius, while 'digging the foundations of the new office for the Board or Ordnance' i.e. on, or close to, the site presently being discussed (Miles 1779). Recently three more stamped silver ingots (at least one, and probably all three, found on Tower Hill in 1898) have come to light (K. S. Painter 1981 and R. Merrifield 1983, 242-3). During the later empire officially stamped ingots were probably used for the payment of soldiers and officials and the presence of a late Treasury in London is recorded in the *Notitia Dignitatum*, a late 4th-century document with probable 5th-century additions (RCHM 1928, 7). This reference and the fact that a number of ingots

have been found either in, or close to, the Tower, might suggest the late presence of soldiers or officials in the extreme south-east corner of the city.

Finally there remains to consider what evidence there is for building activity within the hypothetical enclosure. As far as the present excavations are concerned information is sadly missing owing to the Saxo-Norman terracing of the site. The 1979 investigations to the west, however, were more fortunate insofar as part of a mortar floor, literally scraped clean by the terracing, survived to demonstrate that a building had been constructed as a probable appendage to the second riverside wall (G. Parnell 1981, 70–1). These scant remains do in fact represent the latest Roman building work as yet identified within the city.

Further north, the substantial stone building near the corner of the White Tower was refurbished in the mid 4th century, if not later, when new floors, including a tessellated pavement, were laid (G. Parnell *et al* 1982, 100–15). The main part of the structure presumably lies beneath the White Tower and it is interesting to speculate whether this relates to a channelled hypocaust and buttressed wall found near the opposing south-west corner of the keep (G. Parnell *et al* 1982, 132). If the plan of this complex could be established it might help to explain the location of the White Tower itself. The great keep seems curiously cramped against the city defences, and its alignment conforms better with the excavated parts of the Roman building rather than the city wall. In this respect it is worth pointing out that recent work at the White Tower's great counterpart—Colchester Castle—has shown that the plan of the keep, including that of the apse, was determined by the underlying Roman temple (P. J. Drury 1982, 391, fig. 36).

PHASE VIII

Sadly, owing to the Saxo-Norman terracing, little evidence of the sub-Roman history of the site survived. Mortared rubble against the south face of the wall had evidently been laid after the masonry had experienced only superficial weathering (Fig. 11 W7). The material, evidently corework, might belong to some form of platform or raft, though this, and other uncertainties, can only be resolved by further investigations.

PHASE IX

The disclosure of Saxo-Norman terracing on the north side of the second riverside wall provides an intriguing picture of the early medieval history of the site. Similar scarping has been recorded further west, near the Wakefield Tower, during excavations in 1979, and it now seems reasonable to suppose that the clearance extended across the width of the Inmost Ward, if not beyond. One possible explanation for this activity is that the site was levelled for building purposes. As no structural remains were found, however, it might be suggested that the scheme never reached fruition. In the event the clearance was of a temporary nature, with the ground level being raised again, possibly using the deposits that had been removed from the site in the first instance.

It is tempting to relate the terracing within the Inmost Ward with the evidence for a possible late Saxon defensive ditch located on the Jewel House site north of the White Tower. Here a post-Roman levelling of the area was followed by the excavation of a ditch on a north-west to south-east alignment, roughly parallel to the Roman river defences. The ditch was accompanied by the remains of a rampart to the south, which indicates that the enclosed area lay within the south-east angle of the Roman city. Shortly after being infilled the feature was cut by a

second ditch, on a south-west to north-east alignment, which almost certainly ante-dated the White Tower (begun *c.* AD 1080) and perhaps formed part of the original Norman enclosure erected during the emergency period that followed the invasion (B. K. Davison 1967).

The relationship between a potential pre-Norman defensive ditch north of the White Tower and the terracing within the Inmost Ward remains to be clarified, but the mere presence of early medieval activity provides further evidence for a continuing military presence in the south-east corner of the Roman city.

PHASE X

Little can be said about the traces of early medieval masonry that overlay the first Roman riverside wall. It should be noted, however, that the earliest documentary reference to the Tower being surrounded by a stone wall was in 1097 when work on the White Tower was probably nearing completion (H. M. Colvin 1963, 707).

Historically the partial remodelling and repair of the southern defences of the Inmost Ward during the 13th century would most readily equate with the large-scale reconstruction of the palace during the early reign of Henry III. Between *c.* AD 1220 and 1238 work within the ward included the building of the Wakefield and Lanthorn towers and the virtual reconstruction of the great hall located between them (H. M. Colvin 1963, 710–5). Given the scale of Henry III's work in this area, it seems reasonable to suppose that the curtain defences were refurbished at the same time.

Of the palace facilities within the ward, only the remains of a single foundation were found. If nothing else this isolated survival demonstrates that palace occupation was located at a level considerably higher than the south side of the ward

now appears. The footing, on a north-south alignment parallel to the Roman landward wall, had evidently formed part of the western limits of a very substantial structure. Its position does not conform with that of the Coldharbour storehouse—a building thought to have contained the carcass of Henry III's hall which occupied the site until the end of the 18th century (see below). This variance, together with the early appearance of the foundation construction, suggests that this foundation was associated with the 12th-century hall which Henry III had rebuilt.

PHASE XI

Of the later medieval additions to the curtain wall, the construction of a buttress against the re-entrant may have reference to the building of some form of tower against the Lanthorn Tower in 1501–2 (H. M. Colvin 1975, 263–4). The structure formed part of the complex of buildings which stood against the west and south sides of the tower, but about whose early history little is known (Plate 13). All these buildings, together with the buttress, were demolished in 1776 to make way for the new Ordnance office (see below).

NOTES

1. At Cooper's Row it was about 4.25m (R. Merrifield *The Roman City of London* 1965, 109 & Fig. 14) at Aldgate between about 4m (J. Maloney 'Excavations at Dukes Place: The Roman defences' *London Archaeologist* Vol. 3, No. 11, 1979, 295) and 7m (H. Chapman 'Excavations at Aldgate 1972' *Trans. London and Middlesex Arch. Soc.* Vol. 24, 1973, 10) and at King Edward Street (R. Merrifield *ibid.* gazetter entry W52, 313) and Central Criminal Court (P. Marsden 'Archaeological finds in the City of London 1966–9' *Trans London and Middlesex Arch. Soc.* Vol. 22, Part 3, 1970, 2–6) 5m.
2. I am grateful to Ralph Merrifield for discussing this matter with me.
3. Tim Williams *pers. comm.* For an interim account see *Popular Arch.* July, 1982, 26.
4. Peter Curnow *pers. comm.*
5. That the second riverside wall extended this far west is supported by the discovery in 1958 of a possible section of the earlier wall beneath Water Lane and to the south of the curtain between the Bell and Wakefield towers (i.e. the presumed line of the later river wall) see G. Parnell 1978, note 2 and Fig. 2).
6. Information kindly given by Brian Davison in advance of forthcoming publication.

II. THE DOCUMENTARY EVIDENCE

The earliest known reference to buildings within the Inmost Ward appears during the reign of Henry II when, in 1171–2, repairs to the ‘king’s apartments in the bailey’ are recorded¹. Subsequently, under the instruction of Henry III, these facilities were greatly improved when existing apartments were repaired and renovated and new buildings erected. This, together with much of the later history of the palace, is well documented and is extensively described in the *History of the King’s Works*².

Throughout the late fifteenth and sixteenth century the Tower became less and less a royal residence, largely because physical constraints prevented any major modernisation of the palace plan. Thus, when in 1532–3 Henry VIII ordered extensive repairs and alterations to the lodgings and apartments of the Inmost Ward, he became the last English monarch to attempt to renovate and improve the old medieval palace at the Tower³.

By the end of the sixteenth century much of the palace was evidently in a poor state of repair. A survey of 1597 depicts the great hall as not only ‘decay’d but roofless (Plate 13) a representation which might suggest that its demise was actively encouraged. No doubt the condition of the palace continued to deteriorate throughout the first half of the seventeenth century and much of it was gradually acquired by the various official departments operating within the Tower⁴.

Following the Restoration, control of the Inmost or ‘Coldharbour’ Ward passed almost entirely into the hands of the Office of Ordnance. Between 1666 and 1676 the Ordnance embarked upon a series of building operations which saw the ward converted into a complex of stores, offices and apartments. The course and extent

of this work has recently been described in detail elsewhere⁵ and for present purposes it will suffice to summarise only those buildings associated with the south-east corner of the ward and the area of excavation (Plate 14).

Immediately north of the Lanthorn Tower, incorporating vestiges of the palace in its build, was the principal office of the Board of Ordnance. West of the Lanthorn Tower, within the curtain re-entrant, stood a chamber block that had originally formed part of the palace complex, but which by now was integrated with the new office at first and second floor levels. The top third floor formed part of the Constable’s lodgings and this was connected to further rooms over a gate that spanned the narrow ward between the Lanthorn Tower and the outer curtain to the south. Both the Constable and the Board of Ordnance made use of the accommodation within the Lanthorn Tower at their respective levels. West of this arrangement, and separated at ground floor level by an alley, was a large storehouse whose basic construction comprised the carcass of the medieval great hall. This had been repaired during the building of the Ordnance office in 1672–3, but by 1685 needed further work on the floor⁶, walls and ceiling⁷, while new windows were punched through the back (north) wall in order to provide additional light⁸.

The Constable’s occupation of the lodgings in and around the Lanthorn Tower appears to have been brief and ownership of the property passed to the Lieutenant of the Tower. It is very doubtful whether the Lieutenant lodged there personally as he was provided with an official residence in the south-east corner of the Inner Ward (the present Queens House). Instead, at least from 1726, the Major of the Garrison appears to have been the occupant⁹, though a reference from 1756 makes it

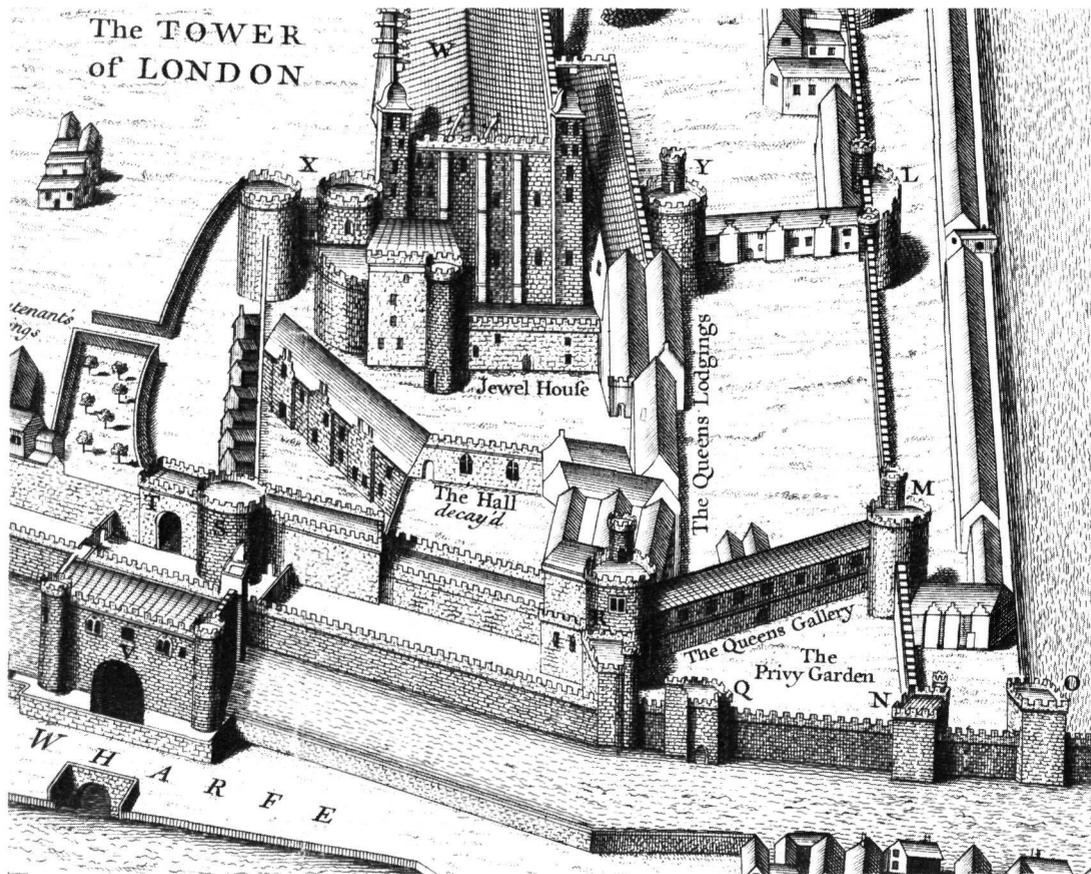


Plate 13 Part of Haiward and Gascoyne survey of 1597 showing south-east corner of Tower and palace plan.

quite clear that his superior the Lieutenant was still the owner¹⁰.

In 1741, the Office of Works, who were responsible for the maintenance of the Major's residence, ordered certain repairs to be carried out there. On 23 September however, their Clerk of Works reported that the property was 'in a much Worse Condition than he Imagined' and that 'the Ordnance had two Storeys under the said Apart, which appear to them so very ruinous, that they desire so much as belong to them may be rebuilt at their own Expense'. The Board of Works sanctioned the scheme with the proviso that the Ordnance 'agree to carry it up Initially at their own Expense to the top of the naked

Floor . . . And the Partition wall and Chimneys quite from bottom to the top'¹¹. There can be little doubt that this statement refers to that part of the Major's quarters located in the old chamber block west of the Lanthorn Tower, and not that over the gate to the south. The gate had in fact been the subject of an improvement scheme the previous year and a surviving survey of that date clearly demonstrates that all of the accommodation over it was occupied by the Major and the Lieutenant's clerk¹².

The awkward division of property in and around the Lanthorn Tower was only resolved some years later after a serious fire in 1774. The conflagration occurred

on 2 January¹³. It began in the apartments of Mr Joseph Sparrow, Clerk in Ordinary to the Ordnance, who lived immediately east of the Lanthorn Tower in part of the old Palace 'Queens Gallery' which was attached to the curtain wall between the Salt Tower and Lanthorn Tower (Plate 14). From here the blaze spread to the Lanthorn Tower and the Major's apartments. The latter was evidently now occupied by its owner—the Lieutenant, the Major having presumably taken up residence in the Queens House, where his successors lodge to this day. Some idea of the scale of the fire is provided by the number of men who attended the blaze from outside the Tower. Altogether the various fire offices and parishes sent 267 men; engines came from the Navy Office and the parishes of St Katherines, All Hallows, Barking and St Dunstan¹⁴.

The Ordnance office appears to have suffered little or no damage during the blaze¹⁵, but in order to reduce further risk the Board ordered an immediate examination of 'all the Chimnies in the Old Buildings in and adjoining the Office and report where any Timbers are improperly placed, and what Kind of Fire Grates are made use of'¹⁶. On 24 November 1775, the Board wrote to General Vernon, Lieutenant of the Tower, to 'acquaint him that the Damage done by the late fire in the Tower make it also likely necessary to rebuilt the present Office of Ordnance'. Therefore, they proposed that 'the Old [Lanthorn] Tower, which was partly occupied by him as Lieutenant of the Tower and partly intermixed with the Ordnance Buildings, being in Danger of Falling . . . it will tend to the good of His Majesty's Service if an Exchange be made betwixt the Garrison and the Ordnance

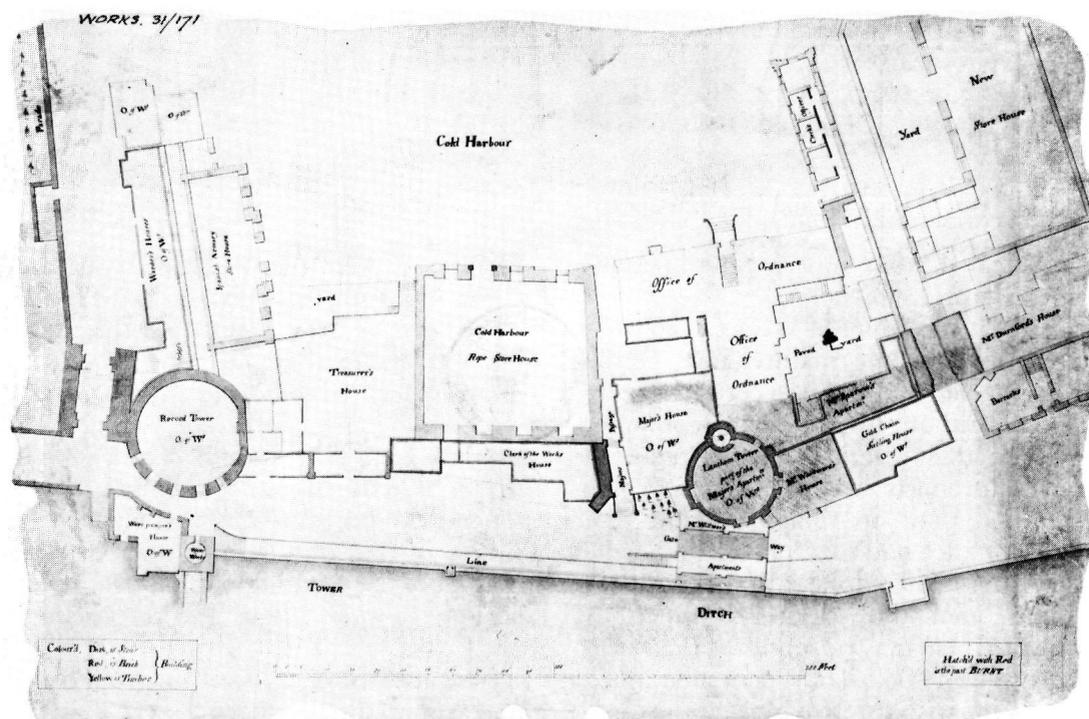


Plate 14 Ordnance plan showing extent of fire damage (hatched area) around Lanthorn Tower in January 1774.



Plate 15 Military arms of Office of Ordnance originally positioned in north front of 1777–80 office building.

by allotting to the Lt . . . the House now appropriated to the Treasurer of the Ordnance in lieu of the Apartments . . . which have been greatly damaged by fire'¹⁷. Shortly after, on 8 December, the Ordnance wrote to the Commissioners of the Board of Works to inform them 'that parliament have made provision for taking down and rebuilding the Office of Ordnance in the Tower' and that in order to expedite matters the Lieutenant had agreed to exchange his residence for that of the Treasurer¹⁸. The Treasury House, located between the old Coldharbour store and the Wakefield Tower (Fig. 18), was transferred to the Lieutenant on 3 June 1776¹⁹.

In order to obtain all the ground needed to accommodate their new office the Ordnance also sought the acquisition of the 'Golden Chain' sutling house which stood against the south side of the old Queens

Gallery 40 feet east of the Lanthorn Tower (Plate 14). This was the property of the Major of the Garrison and in return the Ordnance offered to establish him a new inn in 'part of the Old Barracks fronting the Devils Battery' i.e. a building lying to the east of his existing inn on the opposite side of a gate that passed beneath the centre of the gallery. In addition, the Ordnance sought from him a chandler's shop in the 'Old Tower' on the line opposite the Golden Chain, i.e. the upper chamber of the Cradle Tower²⁰. In response to these moves—which the Board had the power to exact—an indignant Major Collins replied that the 'House at present inhabited by him is the property of the Lieut of the Tower who has a right to possess it when he pleases' therefore he was sure that the Board would 'agree with him that a part of a Common Barracks intermixed with Common Soldiers [was]

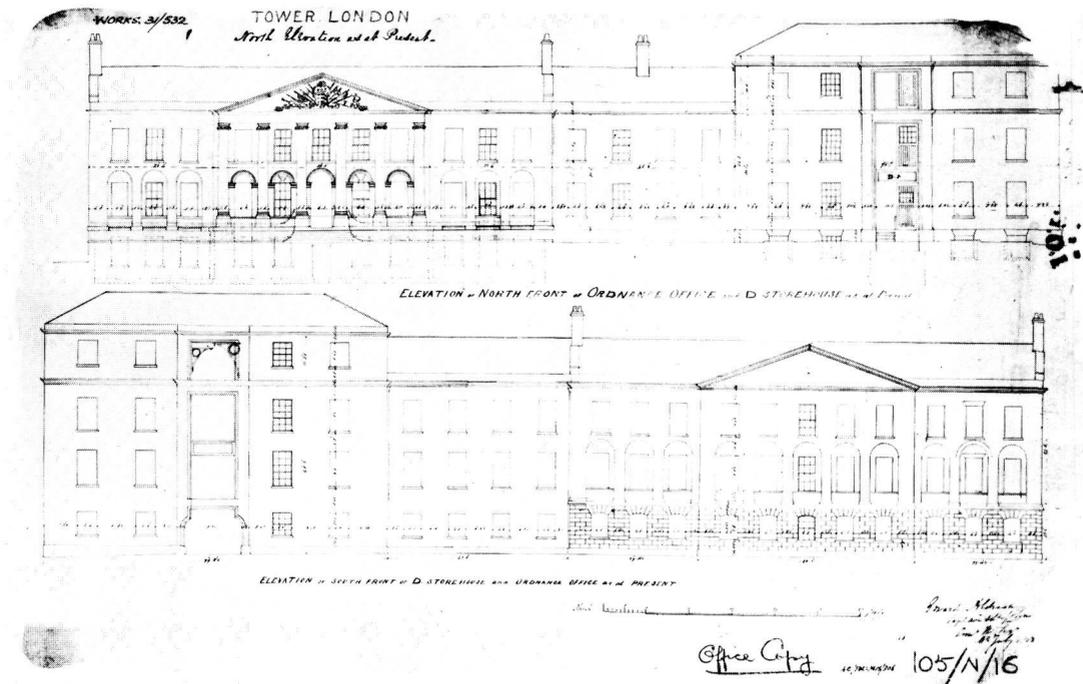


Plate 16 North and south elevations of Ordnance office and stores drawn in 1853.

an improper residence for the Major of the Garrison and his Family'²¹. Despite these objections the Board pressed ahead with their preparations and on 5 June 1776, Mr John Vidgen, their assistant Clerk of the Works at the Tower, reported that 'by pulling down the Old [Lantern] Tower a part of the Office will be laid open which would be attended with some inconveniences'. He suggested, therefore, that before any demolition took place a temporary office be established elsewhere. The proposal was agreed upon and it was ordered that a house occupied by the Surveyor General should be fitted out as a temporary office²². Although the building does not appear to have been ready to receive the office staff until January 1777²³ the dangerous state of the Lantern Tower demanded immediate attention, and on 19 June 1776, Mr Vidgen was able to report that 'the Old round Tower is

pulled down so low as to make it entirely safe'²⁴.

The order to proceed with 'taking down the old Buildings and Clearing the Ground for Building a New Office in the Tower' was issued on 3 December 1776²⁵. As the operation got underway the most immediate problem to arise was the disposal of large amounts of old building material and rubbish which began to accumulate on site. The situation reached a point whereby on 28 January the bricklayer reported that he could no longer continue with demolition²⁶. Evidently attempts were made to stock pile reusable material elsewhere in the fortress, for by April the Board was being informed of a mass of old timber from the site which 'greatly incumber Tower Wharf'²⁷. In fact, excluding material retained for re-use in the new building or offered for sale, nearly 11,000 cart loads of rubbish were

taken off the site between March and September 1777²⁸. Initially it had been proposed to take the rubbish onto the wharf where, in a similar operation 40 years earlier, 'Colliers and other Ships took it away for Ballast'²⁹. The scheme was never reinacted, however, since Trinity House refused Royal Navy participation while an estimate to engage alternative private shipping was deemed 'Slow and Tedious' and too expensive anyway at 3/6d per ton³⁰. In the event, therefore, it was decided to cart the rubbish a short distance outside the Tower where it could be spread over Little Tower Hill. This final decision was itself subject

to delay after the Governor of the Tower refused to allow the carts to pass over a drawbridge which had just been constructed near the south-east corner of the fortress (i.e. on the site of the extant East Drawbridge)³¹ and a hasty letter had to be despatched to his superior, the Lieutenant, asking him to 'give the necessary Orders for the Accommodation of the service since the Business is at a Stand'³².

On 21 April 1777 the Board was informed that most of the demolition had been completed and if the mason was supplied 'with a sufficient Quantity of stone the Basement Story might be got up



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ARCHITECTURAL PHOTOGRAPHERS TO THE QUEEN

Plate 17 Ordnance office and stores viewed from east end of Wharf in 1882.

this Summer'.³³ During the next three years work on the new building proceeded briskly and by August 1779 was sufficiently well advanced to enable an order to 'place the Office Arms in the Pediments . . . in the North front' to be issued³⁴. The arms are now in fact the only visible trace of the building, having survived the fire of 1788 and the subsequent heightening of the building in 1854 (see below) they were set aside during the final demolition of the office in 1882 and placed in the south wall of the New Armouries building where they have remained largely unnoticed to this day (Plate 15).

On the last day of December 1779, the assistant Clerk of the Works reported that the new office would be ready for possession in May or June of the following year³⁵. Accordingly, between January and June the carpenters were busy equipping the building with presses, bookcases and other office furniture³⁶. However, the estimated completion date appears to have been a little premature and between July and September the masons were still paving³⁷ while the bricklayers, amongst other things, were installing chimney pots³⁸. One reason for the delay appears to have been a 'misunderstanding' between the master carpenter and his team which resulted in the men walking off the site during January³⁹.

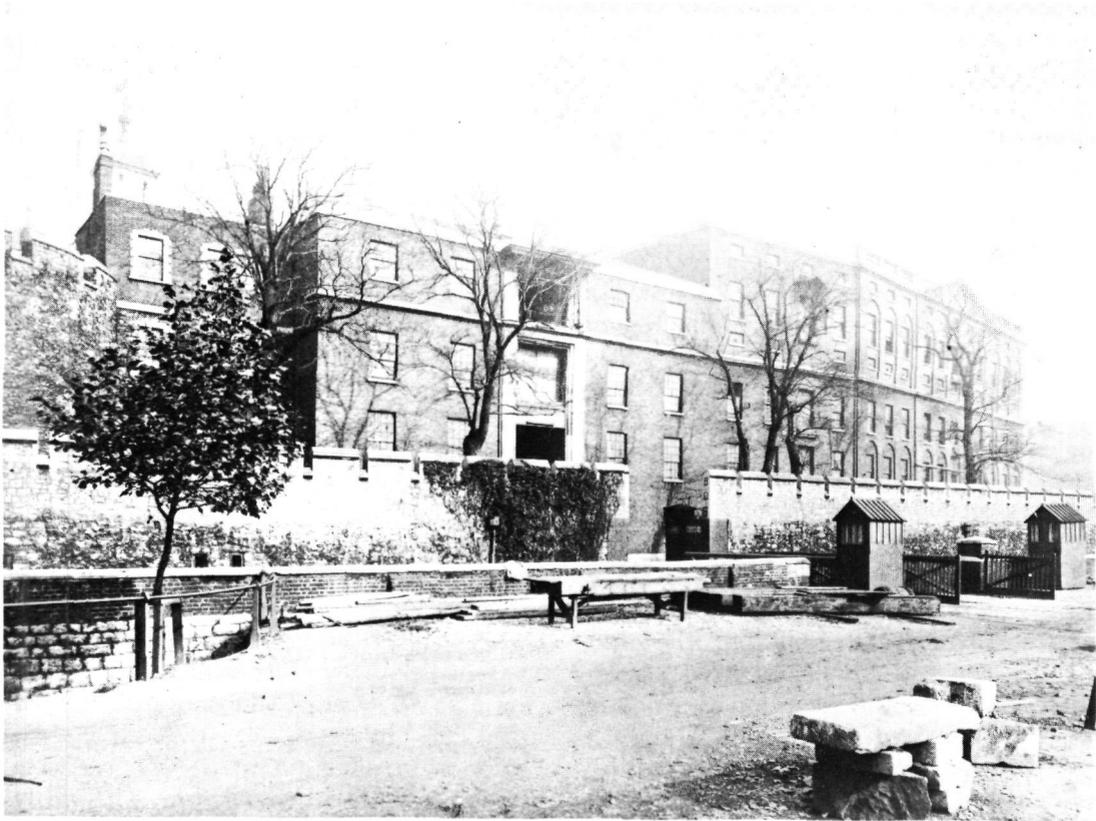
Though accounts itemising all labour and materials expended on the new building are extant⁴⁰, no contemporary drawings appear to have survived and as a consequence the plan and appearance of the office is not easily determined. The basic structure was probably some 100 feet square and comprised two storeys and basement. The walls were built of brick with elevational details picked out in gauged brickwork and stone. The principal entrance was located on the north front and was furnished with handsome portico *in antis*; almost certainly that

shown on the 1853 elevation (Plate 16).

At some stage after the construction of the office had begun, the old storehouse to the west (i.e. former medieval hall) was provided with a new extension. The first explicit reference to this is found on 18 November 1780 when the Ordnance ordered 'that the new addition to the Cordage Storehouse in Cold Harbour be covered with Plain Tyling'⁴¹. A month later a second directive authorising that '2 unstable Iron Guns be fixed at the door way of the new Building to the Cordage Warehouse' was issued⁴². The second order almost certainly relates to an estimate prepared during the previous April for 'a Pair of strong new Gates for the New Storehouse in the Tower'⁴³. The only other obvious reference to the work is by way of a plumber's account settled on 31 December 1780 for 'laying new gutters and supplying New Rain Water Pipes at the new additional Building adjoining to the Rope Storehouse in Cold Harbour'⁴⁴. Though the position of the new annex is not stated, there seems little doubt that it was against the west end of the store on ground previously occupied by the old Treasury House (Fig. 18)⁴⁵.

Only eight years after its completion the new office was seriously damaged by fire on 23 July 1788. The extent of the fire, like the earlier one of 1774, is indicated by the number of fire engines and men that came to the Tower to fight the blaze. No fewer than 13 appliances and 257 men were sent from the Royal Exchange Assurance, London Assurance, Westminster Fire Office, Phoenix Fire Office, Union Society, St Dunstons in the East, Guildhall and Navy Office. Their numbers were in turn swelled by the Ordnance's own fire fighting team together with soldiers of the garrison and a team of labourers⁴⁶.

Six days after the conflagration an Ordnance enquiry team reported on the likely



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Plate 18 View from Wharf in 1882 showing (from left to right) Wakefield Tower, Record office, 'D stores' and Ordnance office.

cause of the disaster. They found that the 'Fire originated in a Closet in the upper Storey . . . used as a Water Closet from whence it communicated to the Roof'. Whether the 'Closet was maliciously set on Fire or the Fire happened from Carelessness or Neglect' could not be established. In all probability, however, it was concluded that the fire was the result of an accident since 'no trace of any Combustible Ingredients was found in or about the Building'⁴⁷.

The 'reforming and rebuilding' of the office appears to have got underway by January 1789⁴⁸. Besides the restoration of the existing building one of the principal tasks was the construction of a new extension 20 feet to the west. To accommodate

this the old Cordage Storehouse had to be demolished, while the recently erected addition to it was retained as an appendage to the enlarged office. The archaeological evidence also indicates that the south wall of the 1777–80 building was re-sited slightly further to the north, presumably to bring the frontage in line with the new extension and thereby widening the narrow space between the office and outer curtain wall (Fig. 18). The reconstruction of the office was no less an undertaking than the work completed eight years earlier and not until December 1782, four years after work had begun, was the building nearly ready for occupation⁴⁹.

Even before the abolition of the Ord-

nance in 1855, the Board broke with a long tradition and moved their principal office away from the Tower. By 1854 the greater part of the Tower office was employed as a store and in that year was provided with an additional third floor⁵⁰. To an increasingly antiquarian-minded section of the general public this was viewed with alarm since it represented an obvious blight on the ancient fortress. For the building itself the inverted relieving arches forced through the heart of the structure (p. 27) to support the extra floor must have done much to destroy its internal plan and appearance. Externally the elegant proportions of the building were unbalanced while the portico on the north front suffered much damage with the removal of the pediment. In an act of vanity, which did little to improve the appearance of the building, the tympanum was hoisted into a new position high upon the south elevation overlooking the river (Plate 17).

Thirty years later, increasing hostility towards the former office culminated in the Board of Works pressing for the demolition of the 'storehouse which shuts out the Tower from the River'⁵¹. By now, in fact, the condition of the building was deteriorating so rapidly that the Board was able to state that it 'has now become so dilapidated in the upper stories it is no longer profitable to store goods of any baulk there'⁵². By November 1882 the materials of the main part of the building i.e. former Ordnance office, were auctioned off to a gathering of builders and other dealers, the vast amount of brick, stone, ironwork and lead fetching only the paltry sum of £1,320⁵³. Within weeks of the sale much of the site had been cleared and the Office of Works was able to begin its lamentable reconstruction of the Lanthorn Tower and adjacent curtain wall to the east. The 'D-Stores' at the west end of the building was retained for a few

years 'in order that facilities may be left for shipping purposes'⁵⁴. By September 1885, however, all its contents had been transferred elsewhere and demolition was underway. With the removal of the store and the adjacent 'Record Office' to the east (Plate 18, Fig. 18) the reconstruction of the curtain wall to the west of the Lanthorn Tower was set in motion. Work was completed in 1888.

NOTES

1. H. M. Colvin (ed) 'The Royal Castles' *The History of the Kings Works* Vol. II (1963), p. 708.
2. *Ibid.* pp. 706-79 & Vol. III (1975) pp. 266-69.
3. *Ibid.* Vol. III pp. 264-8.
4. G. Parnell 'The Tower of London: The Reconstruction of the Inmost Ward during the reign of Charles II' *Trans. London and Middlesex Arch. Soc.* Vol. 31 (1980) p. 147.
5. G. Parnell *Ibid.* pp. 147-56.
6. WO51/30 f. 138.
7. WO51.31 f. 109.
8. WO47/15 f. 121 and WO47/16 f. 29.
9. WORK 31/27.
10. WORK 6/17 f. 151.
11. WORK 4/8 entry dated 23 Sept.
12. WORK 31/158.
13. *Gentlemen's Magazine*, Monday 31 January 1774. Almost all subsequent accounts have confused this blaze with the second fire of 1788 (p. 42).
14. WO47/83 pp. 78-9.
15. *op. cit.* in note 13.
16. WO47/83 p. 11.
17. WO47/86 p. 280.
18. *Ibid.* p. 311.
19. WO47/87 p. 512.
20. *Ibid.* p. 477.
21. *Ibid.* pp. 528-9.
22. *Ibid.* pp. 480-1.
23. WO47/89 pp. 95-6.
24. WO47/87 p. 512.
25. WO47/88 p. 339.
26. WO47/89 p. 95.
27. *Ibid.* p. 461.
28. WO51/271 pp. 273 & 292. 276 p. 40. 277 p. 123. 278 p. 25.
29. WO47/89 pp. 24-5.
30. *Ibid.* pp. 63 & 96-7.
31. WO55/5 ff. 1-2, WO55 417 p. 95.
32. WO47/89 p. 161.
33. *Ibid.* p. 461.
34. WO47/94 p. 109.
35. *Ibid.* p. 409.
36. WO51/301 pp. 164-5.
37. *Ibid.* p. 125.
38. *Ibid.* p. 3-4.
39. WO47/95 p. 80.
40. WO51/266-302.
41. WO47/96 p. 915.
42. WO47/97 entry 1115.
43. WO47/95 p. 319.
44. WO51/297 p. 64.
45. The east wall of the extension together with remains of the earlier Treasury buildings were located by excavation in 1979.
46. WO47/112 pp. 129-30 & 175-6.
47. *Ibid.* pp. 110-1.
48. The building accounts for the entire operation are listed in WO52 31-61.
49. WO47/120 pp. 639-40.
50. *The Builder* Vol. 43, p. 604.
51. WORK 14/1/15 p. 7.
52. *Ibid.* p. 10.
53. *op. cit.* in note 50.
54. *op. cit.* in note 51, p. 79.

III. THE DENDROCHRONOLOGY by JENNIFER HILLAM

The oak timbers from the 1976 and 1977 excavations at the Tower of London (Parnell 1977, 1978) were examined at the DOE Dendrochronology Laboratory in 1979, and some preliminary results obtained (Hillam and Morgan 1979). Recent progress in tree-ring research (Hillam and Morgan 1981a; Sheldon and Tyers 1984) has resulted in the production of a 507-year London reference chronology for the Roman period, and this has made it possible to date the Tower timbers absolutely.

Six samples (192–4, 196–8) were taken from foundation piles of the first riverside wall (Phase VI). Piles from this wall have also been found at Baynard's Castle (Hill *et al* 1980), New Fresh Wharf and St Peter's Hill in the City of London. The samples were originally thought to date to the 4th century. The remaining three samples (199–201) came from the foundations of a structure, or structures thought from archaeological evidence to be late 1st or 2nd century in date (Phase IVa).

TREE RING ANALYSIS

The samples were reduced by sawing to thin sections. These were deep frozen and cleaned with a Stanley surform so that the individual rings were clearly visible in cross-section. The ring widths were measured on a travelling stage connected to a display panel. The timbers had between 42 and 93 annual growth rings (Fig. 21). At least 10 to 20 rings were lost from the beginning of the ring sequences because the centres of the piles were decayed at the pith. Samples 198 and 201 were rejected because they had less than 50 rings. The ring patterns of the remaining samples were represented as graphs, known as tree-ring curves, on semi-logarithmic recorder paper, which allows the curves to be compared visually by sliding one graph over another until the best fit is found.

PHASE IVa. THE SECOND CENTURY TIMBERS

Visual comparison of 199 and 200 showed that they correlated well with each other. A computer program (Baillie and Pilcher 1973), which gives an objective assessment of a tree-ring match, confirmed this result; it produced a *t*-value of 5.24. (A value greater than 3.5 indicates a match, provided the accompanying visual match is acceptable—for more details see Baillie 1982 82–5). Both timbers retained all their sapwood rings. They were felled during winter or early spring of the same year.

No precise dating was found for these timbers in 1979, but they have since been dated by comparison with City and Southwark 88. This chronology covers the period 252 BC to AD 255, and is made up from 88 timbers from Southwark and the City of London. The data for this chronology were provided by dendrochronologists at Sheffield, Southwark and Oxford, and were put together by Ian Tyers (Sheldon and Tyers 1984). The chronology dated timber 199 to AD 41–126 (*t* = 3.58), and 200 to AD 34–126 (*t* = 3.52). The two timbers were therefore felled in late AD 126 or early AD 127 (Fig. 20).

PHASE VI. THE FIRST RIVERSIDE WALL TIMBERS

Timber samples had previously been examined from sections of the wall found at Baynard's Castle (Morgan 1980) and New Fresh Wharf (Hillam and Morgan forthcoming), and relative dating obtained between the two sites. By examining the oak piles from the Tower, it was hoped to tie in a further stretch of the riverside wall.

The tree-ring sequences were compared with each other. Possible matches were found between 194, 196 and 197, but these have now been rejected. No crossdating was found with New Fresh Wharf, but 196 crossmatched with the Baynard's Castle chronology with a *t*-value of 3.51 (see Fig. 19 for relative dating).

Comparison with the new City and Southwark 88 chronology, and with its constituent chronologies, produced better results (Fig. 20). The last rings of 193, 194, 196 and 197 date to AD 238, 237, 241, and 217 respectively (192 was not dated). None of the dated samples had any sapwood except for 196, the last ring of which was the transition between heartwood and sapwood (AD 241). Allowing about 15–30 years for the missing sapwood, a felling date of AD 255–270 is obtained for the river wall timbers.

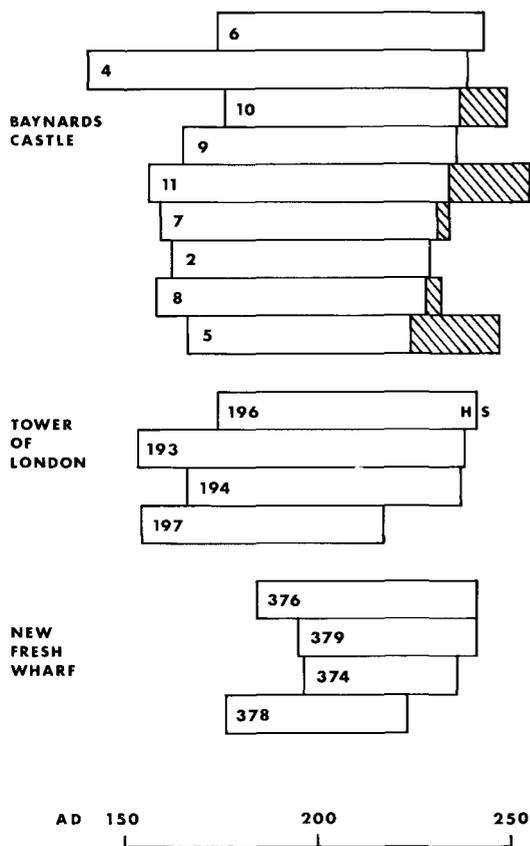


Fig. 19 Inmost Ward 1955–77: Bar diagram showing relative positions of riverside wall ring sequences from Baynards Castle, Tower of London and New Fresh Wharf. Hatching—sapwood; HS—heartwood-sapwood transition. The estimated felling date for the timbers is AD 255–70.

DISCUSSION

The riverside wall timbers come from young trees which were less than 120 years old when felled, and the quality of the crossmatching between the individual ring sequences from the Tower is very poor. This suggests that the timber resources, which produced a supply of fine timbers for the 1st and 2nd century revetments in the City (Hillam and Morgan 1981b), were diminishing, and that by the second half of the 3rd century only poor quality young trees were available.

The relative dating of the timbers from Baynard's Castle, New Fresh Wharf and the Tower of London (Fig. 19) shows that they were probably contemporary, although this does not necessarily indicate that the three stretches of wall were built simultaneously. The Tower and New Fresh Wharf timbers have outer rings which are very similar in date. The timbers may have been felled at the same time. The Baynard's Castle timbers, on

No.	Date span	H/S	Felled	t-value
199	AD 41–126	103	126/7	3.58
200	AD 34–126	107	126/7	3.52
193	AD 153–238	—	255–70	3.67
194	AD 166–237	—	255–70	4.12
196	AD 174–241	241	255–70	4.20
197	AD 154–217	—	255–70	3.60

Fig. 20 Inmost Ward 1955–77: Summary of tree ring dates.

the other hand, are more variable: the heartwood-sapwood transition of 5 BC is AD 224, whilst the outer measured heartwood ring of 6 BC is AD 243. This difference could be accounted for by varying amounts of sapwood, or alternatively the timbers may have been taken from a heterogeneous stock of timber. Riverside wall timbers from a fourth site, St Peter's Hill, will shortly be examined at Sheffield, and it is hoped that the results of that study will clarify the situation.

No.	No. of rings	Sapwood rings	Average width (mm)	Dimensions (cm)	Sketch
192	59	13	2.28	23 × 24	
193	86	—	1.53	18 × 25	
194	72	—	1.89	17 × 26	
196	68	1	1.79	18 × 26	
197	64	—	1.58	23 × 24	
198	42	—	2.40	18 × 22	
199	86	24	1.87	33 × 33	
200	93	20	2.26	36 × 40	
201	44	13	2.94	20 × 22	

Fig. 21 Inmost Ward 1955-77: Details of timbers.

IV. THE FINDS

PREHISTORIC

THE FLINT

by D. J. FIELD

A total of forty nine pieces of flint were recovered from the tops of the prehistoric river silts (Layer 1) and the fill of F1 (Layer 2), a large pit cutting through them. A single example (No. 11) derived from the fill of the late Iron Age burial (Layer 3), though its Mesolithic character indicates that inclusion was probably accidental.

Most of the pieces were in good condition with several having feather sharp edges. The raw material is mostly river pebble, though several pieces resemble Downs flint, and unrolled cortex on one suggests that some at least were carried overland from parent rock. The dominant colour is grey, though several pieces are stained through shades of amber. One or two pieces are glossed, though most retain a fresh opaque appearance, in some cases with mottled milky inclusions. No patination is evident except on the reused piece.

No discrimination appears to exist between the use of flakes and blades, both being present in roughly equal numbers, though it must be emphasised that the assemblage is too small to make any statistical analysis worthwhile. No tools in the formal sense are present, but a large number of flakes have been utilized in some way. The proportion of utilized pieces to waste is in fact so large as to suggest that the knapping site was some way distant. Significant pieces are described below.

(Figs. 22 & 23)

1. Pointed blade with signs of use of both edges at tip. (Layer 1).
2. Flake with no bulb of percussion visible. The tip has been worn to a round profile. (Layer 2).
3. Sturdy flake, possibly a core trimming. Distal end with spur or parrot's beak point that has signs of utilization. Minute spalling occurs on left side of the upper edge. (Layer 2).
4. Flake with signs of wear on right dorsal face for its entire truncated length. (Layer 2).
5. Flake with attrition at the distal end of the left edge extending to the extreme tip. Spalls removed across the burin face indicate that edge being used with pressure. (Layer 2).
6. Projectile shaped blade. Left dorsal edge portrays spalling and attrition for three quarters of its length. (Layer 2).
7. Waste flake with attrition between spurs and with steep retouch along two thirds of the right edge. (Layer 2).
8. A sturdy flake, wear on right edge of dorsal face. (Layer 2).
9. Shattered flake. Left edge and base have steep retouch. (Layer 1).
10. Blade of microlithic proportions. No retouch or apparent use marks exist. (Layer 2).
11. Blade of microlithic proportions. Very finely made but with indication of use, even at 100× magnification. (Layer 3).
12. Large blade with retouch extending along both edges. (Layer 2).
13. Angular flake with attrition extending along the right edge. (Layer 1).
14. Blade with signs of wear along right concave edge. (Layer 2).
15. Thin transparent flake utilized on its left edge. (Layer 2).
16. Blade with no obvious signs of use, but with burin blow across the back right edge. (Layer 2).
17. Backed blade with spalls detached from left edge of the bulbar face. (Layer 2).
18. Blade with evidence of wear at bulbar end of right edge. (Layer 2).
19. Distal portion of snapped blade, with left edge displaying signs of wear, while the snapped end portrays severe crushing as if used as a fabricator. (Layer 2).
20. Core trimming flake. (Layer 2).
21. Core trimming flake with signs of crushing on left edge. (Layer 2).
22. Fragment of pebble with steep retouch on one edge. (Layer 2).
- 23-26. Series of waste flakes that because of their regular occurrence may have been produced for a particular purpose or as part of a particular method of knapping. The axis of impact is apparently at an angle to the striking platform, with shear waves producing a hinge fracture parallel to the platform and at right angles to previous flake scars, yet retaining force to carry through and follow the course of the adjacent arris. The result may simply be a manner of cleaning the core platform, but alternatively the spurned flake produced would make a ready usable awl. (Nos. 23 and 25-31—Layer 2, No. 24—Layer 1).

Typologically the assemblage could fit easily into any period between the Neolithic and Iron Age. The two small blades Nos. 10 and 11 would normally be considered of Mesolithic character. The association of Iron Age pottery in the same levels however makes this unlikely.

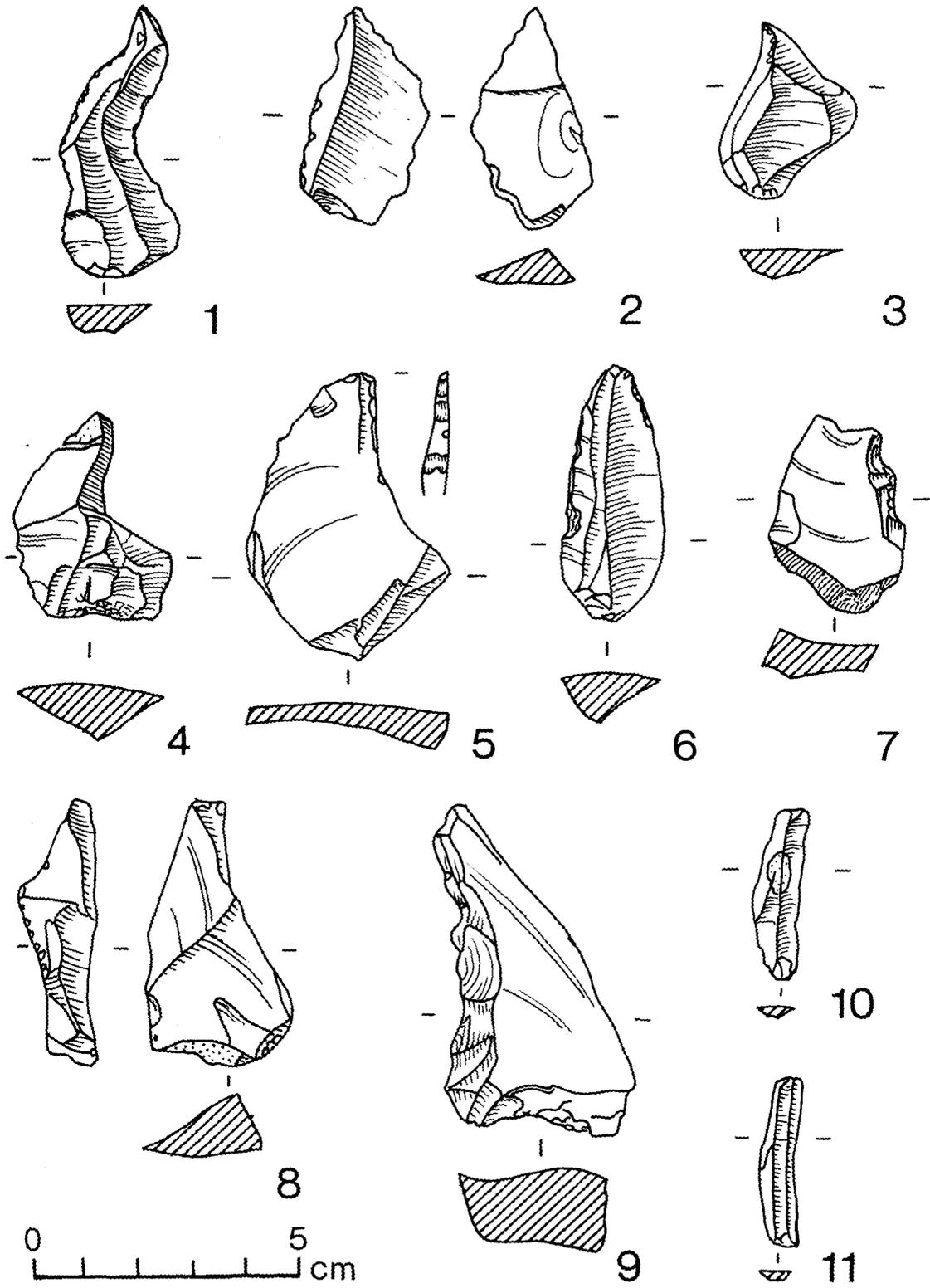


Fig. 22 In most Ward 1955-77: Prehistoric flint Nos. 1-11.

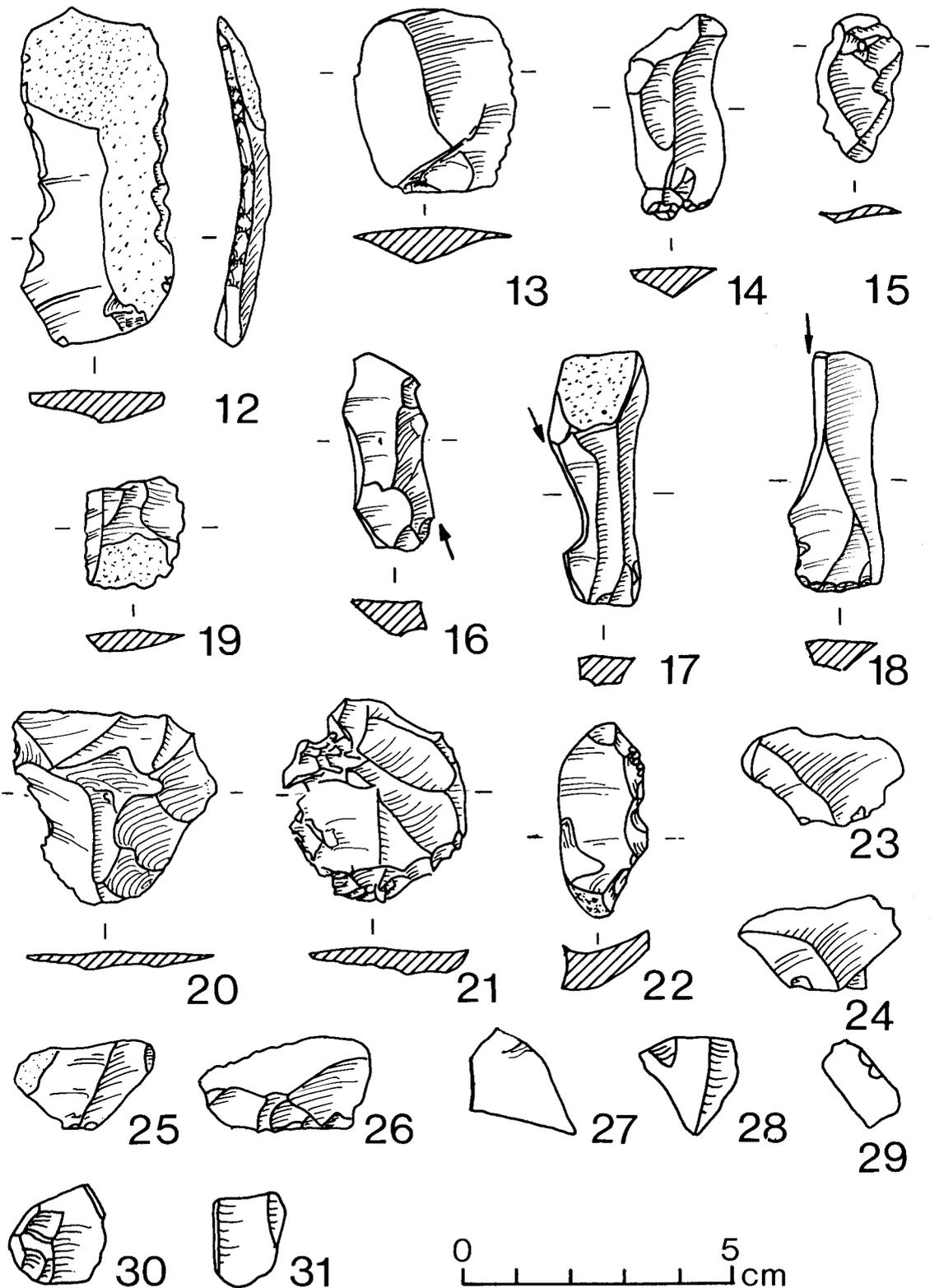


Fig. 23 Inmost Ward 1955-77: Prehistoric flint Nos. 12-31.

THE PREHISTORIC POTTERY

by D. J. FIELD

Twenty one fragments of coarse prehistoric pottery were recovered. Thirteen from the tops of the pre-Roman river silts (Layer 1) and eight from the fill of F1 (Layer 2), a large pit cut into the river deposits. Most sherds are abraded, and all but one contain sparse to medium crushed flint tempering. The core is dark grey, in some cases almost black, with brown to reddish buff exterior. Several pieces have a charred interior. Only four sherds give an indication of form. A simple upright rim, thickening towards the shoulder (Fig. 24 No. 1) from Layer 1, and a footing base (Fig. 24 No. 2) from Layer 2 are illustrated. In addition one sherd from each layer exhibited signs of a slight rounded shoulder. Dating of such an assemblage is difficult. The rim and base would fall easily within Cunliffe's Darmsden Linton group (Cunliffe 1974) which dates from the fifth to third centuries BC. The rounded shoulders are more difficult to place and may correspond to a number of PRIA groups.



Fig. 24 Inmost Ward 1955-77: Prehistoric pottery Nos. 1-2.

HUMAN BONE

by JUSTINE BAYLEY

One skeleton (Fig. 4 F2) dating to the first century, was examined *in situ* then lifted as individual bones and submitted for examination.

The bones were the remains of an immature individual aged 13-16 and almost certainly a male. A probable maximum stature of about 162cm (*c.* 5' 4") was calculated from the formulae of Trotter and Gleser (1958). This can only be a rough estimate as almost all the epiphyses were unfused.

No congenital abnormalities or pathological changes were noted. The skull was slightly cracked and warped, especially around the orbits and on the squamous part of the temporal bones.

All the third molars were present but, as one would expect in an individual of this age, unerupted. The upper left canine was also unerupted, probably because of the retention of

the corresponding milk canine which was unfortunately missing, although its socket was clearly visible. Caries were noted in two of the molars and also slight calculus deposits.

ROMAN POTTERY THE SAMIAN WARE

by JOANNA BIRD

Much of the samian pottery from the excavations came from later levels associated with the Roman city defences and subsequent Saxo-Norman activity. There were some 30 decorated bowls, including a stamped Dr 37 by Censor of Trier and 15 stamped plain vessels.

The South Gaulish wares included material associated with the 1st-century reclamation (Phase IIIb); this was mainly of pre- to early Flavian date, and several pre-Flavian plain forms were present, but none of the vessels need be earlier than *c.* AD 50. Trajanic samian from Les Martres was extremely rare, and the bulk of the samian from the site came from Lezoux and was of Hadrianic-Antonine date. Much of this pottery was mid-late Antonine date, having links with the late material from Pudding Pan Rock, both among the potters represented by stamps or decorative style and in some of the plain forms (notably the later examples of Dr 31: *c.f.* Smith 1907, Fig. opp. 279). East Gaulish wares were present in small quantities and included several unusual plain forms; both Trier and Rheinzabern were represented among the decorated bowls, with a single bowl from the earlier factory at La Madeleine.

Apart from the Gaulish samian wares, the assemblage included two other imported fine-ware sherds of interest. The fragment of wall and applied medallion from a Rhone Valley jar (Layer 32) is only the second example of this ware to be recognised from Britain (see below). The sherd from an African red-slip dish (Layer 35), though less unusual (*c.f.* Bird 1977) is sufficiently uncommon to be worthy of note.

Fig. 25 No. 13.

Fragment of jar (probably as Déchelette 1904, Vol. 2, Fig. on 236) with part of applied medallion, manufactured in the Rhône Valley. The scene on the medallion cannot be certainly identified, as only part of a body and a lock of hair survive, but it is closely similar to the figure of Scylla on Déchelette's No. 88. The dating of these vessels depends largely on certain of the inscribed medallions, which include a bust of Geta and a presentation of Armenia which probably refers to the wars of Marcus Aurelius (Déchelette's Nos 93

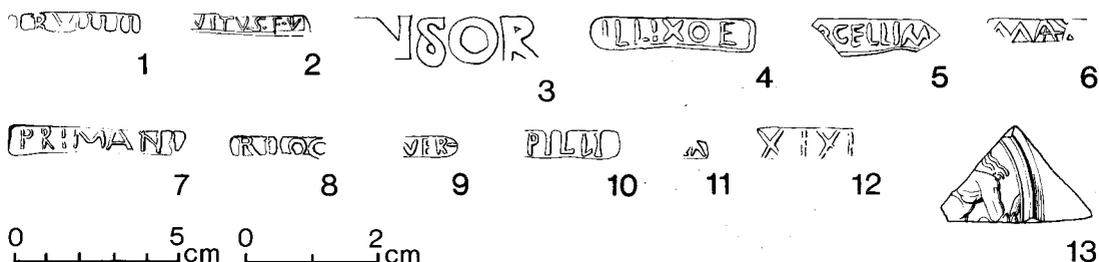


Fig. 25 Inmost Ward 1955-77: Samian Nos. 1-13.

and 96): i.e., at least Antonine to early 3rd century. Apparently the only other example of a Rhône Valley vase from Britain was found at Fishbourne (Cunliffe 1971, Vol. 2, 152, No. 4 and pl. 22b) and depicts a gladiatorial scene. (I am grateful to Dr Kevin Green for discussing the identification and date of this sherd.)

THE SAMIAN POTTERS' STAMPS by BRENDA DICKINSON

1. Albucianus, 6a, 31 [A] LBVIANI Lezoux¹. Albucianus is one of the potters whose work occurs at Pudding Pan Rock, and at least seven examples of this stamp come from there. It has also been recorded at Catterick. *c.* AD 165-200. (Layer 35).
2. Avitus ii, 1a, 33 (tiny), [∧] VITVS.F.V. Les Martres de Veyre¹. He apparently only made cups and may have used one die. The significance of ... F.V. is not known (it was also used at Les Martres by Dagomarus). There are eight examples of this stamp in the London Second Fire deposits. *c.* AD 100-125. (Layer 32).
3. Censor ii, 1a, 37, [CĒ]NSOR Trier¹, Haute-Yutz¹. Censor was one of the later Trier potters, and bowls with this stamp occur at the late-Antonine foundations of Holzhausen and Niederbieber. Late 2nd or early 3rd century. (Layer 35).
4. Illixo, 6a, 33, ILLIXO.E Lezoux¹. This stamp appears on forms 18/31, 18/31R and 27, but also on forms 80 and Ludowici Tx. It has been noted at Old Kilpatrick, as has another of his stamps. Illixo also made decorated bowls with decoration belonging to the early or mid-Antonine periods. *c.* AD 145-175. (Layer 35).
5. Marcellus iii, 1b, 18/31R,]RCELLIMA Lezoux². This stamp has not been noted by us before. His forms and distribution show that Marcellus' main activity was before *c.* AD 150, but he occasionally made forms 79R and 80. A range *c.* AD 130-160 should cover the possibilities. (Layer 17).
6. Maximinus i, 9a, 31R, M X [MI] Lezoux¹. There are examples of this stamp from Bainbridge, Chesterholm, Cramond (presumably from the Severan occupation) and South Shields. *c.* AD 180-200. (Layer 27).
7. Primanus iii, 6d, 33, PRIM NI Lezoux¹. Primanus' work belongs mainly to the late Antonine period. It occurs in the Wroxeter Gutter and

at forts in the Hadrian's Wall system. This particular stamp has been recorded from the Brougham cemetery and Pudding Pan Rock. *c.* AD 160-200. (Layer 35).

8. Reogenus, 1b, 31, RIIOG[ENIM] Lezoux¹. This stamp is probably one of his later ones, since it was used on forms 31R and 79R. It appears only once on form 27, which was not uncommon in his output. It occurs at Catterick and on Hadrian's Wall, but not in Scotland, though there are many stamps there from one of his other dies. *c.* AD 155-175. (Layer 27).
9. Severus i—Pud(ens), 3a, 18, [OF.SE] VER+. The first potter of this association is clearly (from the lettering) Severus of La Graufesenque. The other is quite likely to be Pudens, though the name never goes further than PUD ... The die originally ended in ... R.P, but the P was chipped almost immediately, and subsequent impressions, which are much more common than the original, give ... R+. The site recorded is entirely Flavian, and includes Caerleon, Cardiff, Corbridge and the Nijmegen fortress. *c.* AD 70-90. (Layer 9).
10. Uxopillus, 6a, 33, [VXXO] PILLI Lezoux². Uxopillus' forms include 31, 31R, 38, 80 and Ludowici Tr. This particular stamp occurs on forms 31R and 38 and has been noted at Catterick. Another comes from the destruction deposits of the Wroxeter forum. *c.* AD 160-190. (Layer 32).
11.]M on form 18/31 or, more probably, 31, Central Gaul. Presumably Antonine. (Layer 27).
12.]X[XI on form 18/31R, Central Gaul. Almost certainly illiterate. Hadrianic or early Antonine. (Layer 32).

¹ Indicates a die found at the kiln site; ² shows that another die, but not this one, of the potter have been found at the kiln site.

THE AMPHORAE by CHRIS GREEN

Over 75kg of amphora sherds were recovered in the course of the excavations. Although they cannot in themselves do more than help to confirm the dating of contexts and phases, the

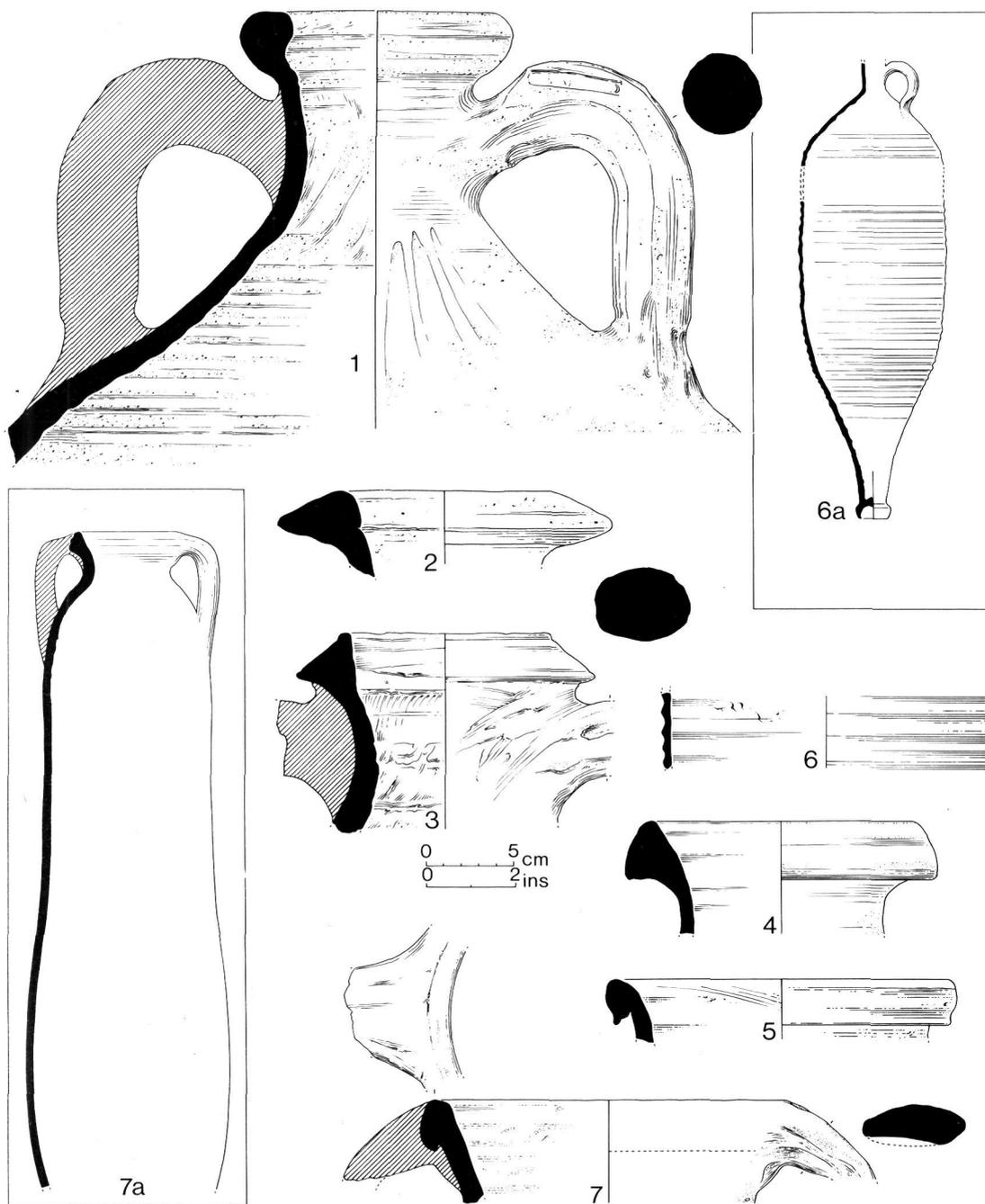


Fig. 26 Inmost Ward 1955-77: Amphorae Nos. 1-7a.



Fig. 27 Inmost Ward 1955-77: Stamped Amphorae Nos. 1-2b.

amphorae provide further useful information on the sources of commodities reaching London after *c.* AD 200, and have provided an example of a late Roman type (Almagro 50) previously unknown in Britain.

The stratigraphical distribution of the types found (excluding unidentified sherds, many of which may belong to large flagons rather than amphorae) is shown in Fig. 28.

Dressel 20 amphorae Fig. 26, 1-3; stamps Fig. 26, A1-2.

The familiar globular olive oil amphora from the Gradalquidr Valley of southern Spain, imported from pre-conquest times until the ? early 3rd century AD (see Peacock 1971). As usual in London it is represented by large quantities of sherds, mostly in residual contexts.

1, with a rounded profile, is from the reclamation deposits of phase III (context 10) and is probably Flavian in date; it bears stamp A1.

2 and 3, with angular rim profiles, are typical of later vessels, (Phase V and later) and 3 is probably associated with stamps A2a-b.

Stamp A1: Much abraded but almost certainly the CSEMPOI (die illustrated by Callender (1965) Fig. 6, No. 25 (472b)). CSEMPOI is a contraction of *C. Sempronii polystiti*, and further variants are dated by Callender to *c.* AD 50-90; this example, from Phase IV, is associated with a coin of Domitian, AD 81-96.

Stamps A2a and b: Probably from the handles of a single vessel: a. F SCIM/NIANO (Callender Fig. 16, No. 41 (1579) and b. LIVNI.M/ELISSI.P (die as Callender Fig. 9, No. 23 (879a)). There are continental examples of SCIMINIANO and IVNI MELISSI

stamps occurring on the same vessel, and it is possible that they were always used together. Callender dates them to *c.* AD 160-190, but both the present examples are from post-Roman contexts.

Dressel 30 amphorae (not illustrated). A wine amphora imported from the 1st and 2nd centuries AD, largely from the area around Marseilles (Peacock 1978). Present in most phases, but particularly common in post-Roman contexts, suggesting that importation may have been greatest in the late 2nd century and later.

Camulodunum 186 amphorae (not illustrated). See Peacock 1971. A 1st-2nd century AD type from the Mediterranean coast of Spain, associated with the transport of *garum* and similar products. Occurrences post-Phase 5 are likely to be residual.

Camulodunum 185a amphorae (not illustrated). A 1st century AD form, fairly common in London, from the same source as Dressel 20 amphorae (see Peacock 1971). Represented by residual sherds only.

Dressel 2-4 (koan) amphorae (not illustrated). Wine amphorae, normally of Italian origin, common in London in the 1st century AD (Peacock 1971). A single residual occurrence here.

African cylindrical amphorae Fig. 26; 4 and 5. Large cylindrical amphorae characterised by a red sand and limestone-tempered fabric and a distinctive knife-trimmed or vertically wiped grey or yellow surface produced by washing the vessel in brine before firing (Peacock 1977b). Undoubted sherds are present in Phases IV and VI, which, together with evidence from New Fresh Wharf (Richardson, in press) suggests importation to London on some scale by the early

	Phase							Total
	III	IV	V	VI	VIIa	VIIb	IX-XV	
Dressel 20	6.66	1.58	27.73	2.00	1.10	3.95	25.00	68.02
Dressel 30	0.03	—	0.10	0.24	0.04	0.07	5.00	5.48
Camulodunum 186	0.87	0.17	0.56	—	0.11	0.34	—	2.05
Camulodunum 185a	—	—	—	—	—	0.03	0.03	0.06
Dressel 2-4	—	—	—	—	—	—	0.09	0.09
African	—	0.04	0.03	0.18	—	0.14	1.92	2.31
Micaceous jars	—	—	—	—	—	—	0.01	0.01
Almagro 50	—	—	—	—	—	0.25	—	0.25
Palestinian	—	—	—	—	—	—	0.07	0.07
	7.56	1.79	28.42	2.42	1.25	4.78	32.12	78.34 kg

Fig. 28 Inmost Ward 1955-77: Stratigraphic occurrence of Amphora types (kg).

years of the 3rd century AD. Most of the material, however, was recovered from post-Roman deposits. It included rimsherds 4 and 5 which, although of apparently North African fabric, are not typical of the forms most commonly found in Britain.

Micaceous jars Fig. 26, 6, 6a. Post-Roman deposits produced a single sherd of highly micaceous red-brown thin-walled amphora, readily recognisable as one of the single-handled vessels of eastern Mediterranean origin described by Peacock (1977a). They occur from the 3rd century AD in south-east England, although there appear to be rare instances of earlier vessels. A 3rd century example from Bath (after Cunliffe 1970) is shown as Fig. 6a, at $\frac{1}{4}$ scale.

Almagro 50 amphora. Fig. 26, 7, 7a. The single sherd, identified by Dr D. P. S. Peacock, was recovered from a late 4th century pit (F.12) associated with the second river wall (Phase VIIb), and seems to be the only known example of the type from Britain. The most immediately distinctive feature of Almagro 50 is the tall narrow cylindrical body and the attachment of the handles flush with the top of the rim. The fabric is fine, grey-brown with beige surfaces, and without distinctive features in the hand specimen. Thin sectioning of this example does however provide some possible guides for recognition: the dark brown, almost opaque clay matrix is packed with well-sorted inclusions, c. 0.1mm, among which angular/splintered quartz predominates, but limestone fragments and very many fossil foraminiferae form some 30% of visible inclusions. Laths of muscovite mica are common, and a few fragments of feldspar and ferromagnesian minerals can be seen. Opaque inclusions (iron ore etc) are not visible.

Fig. 7a shows a near-complete specimen from Ampurias, Tarragona, Spain, after Beltran Lloris, 1970, Fig. 220. Beltran dates the form to the 3rd and 4th centuries, and gives Spain as the likely area of production (*ibid*; also Beltran 1978). A well dated 3rd century example is known from a wreck at Marseilles (Gassend 1978).

Palestinian amphorae (not illustrated). Five small sherds of rilled amphorae in red or grey fabrics with abundant inclusions of wind-polished quartz sand and limestone. These amphorae are found in Dark Age contexts in western Britain (Thomas 1959) but it is now known that they occur in 4th-early 5th century contexts in London, as was presumably the case here, although all the sherds are from post-Roman contexts.

THE OTHER ROMAN POTTERY by FIONA CAMERON

INTRODUCTION

The most important group of Roman pottery from the excavations came from material which had been dumped behind the second riverside wall at the time of its construction (Phase VIIb). It is a well-stratified group, securely dated by

numismatic evidence to the final years of the fourth century AD, and although it included a certain amount of residual material, its significance for the study of late Roman pottery in London is evident.

The pottery from the first and second-century phases (Phases III and IV) was not significant and need not be discussed here. That derived from the internal bank of the c. AD 200 landward defensive wall (Phase V) has been published in detail elsewhere (Parnell 1982) while the pottery probably associated with the construction of the first river wall (Phase VI) and subsequent dumping (Phase VIIa) is here confined to a discussion of the diagnostic pieces which help provide the dating evidence for these contexts.

PHASE VI (Layer 27)

The majority of the fine wares in this group consist of colour-coated vessels from the Nene Valley but there are some, especially from the earlier periods, which may have been produced locally or at Colchester and others which were imported from the Continent.

The Nene Valley vessels include: a beaker with a plain rim and rouletted decoration on the exterior c.f. Howe *et al* (1981) Fig. 29, No. 34 late 2nd to early 3rd century; a beaker with everted rim (c.f. Nene Valley Guide Fig. 5, No. 48), 3rd century; a beaker with a bead rim c.f. (Nene Valley Guide Fig. 5, No. 50) 3rd century. There is also a sherd from a beaker with under-slip barbotine lattice decoration probably late 3rd century and another from a beaker with curvilinear underslip barbotine decoration which is probably not later than late 3rd century (Howe *et al* 1981, 8). There are two beakers which seem from the fabric to come from the Colchester area rather than the Nene Valley and may date to the mid to late 2nd century (Anderson 1980, Fig. 13). There are several body sherds which are probably from vessels in 'Rhenish' fabrics, more precisely from Central Gaul and Trier, including one with white painted decoration on the exterior which is probably from Trier late 2nd to mid 3rd century AD. It seems that these wares were probably not being imported into Britain much after mid 3rd century (Greene 1978, 19). There is one sherd from a beaker with rough-cast decoration, a type which was actually being produced in Britain in the 2nd century but this example is probably imported and therefore from an earlier period (c.f. Green 1978, 17). There are two sherds of mica-dusted ware which may have been produced in London though not after mid 2nd

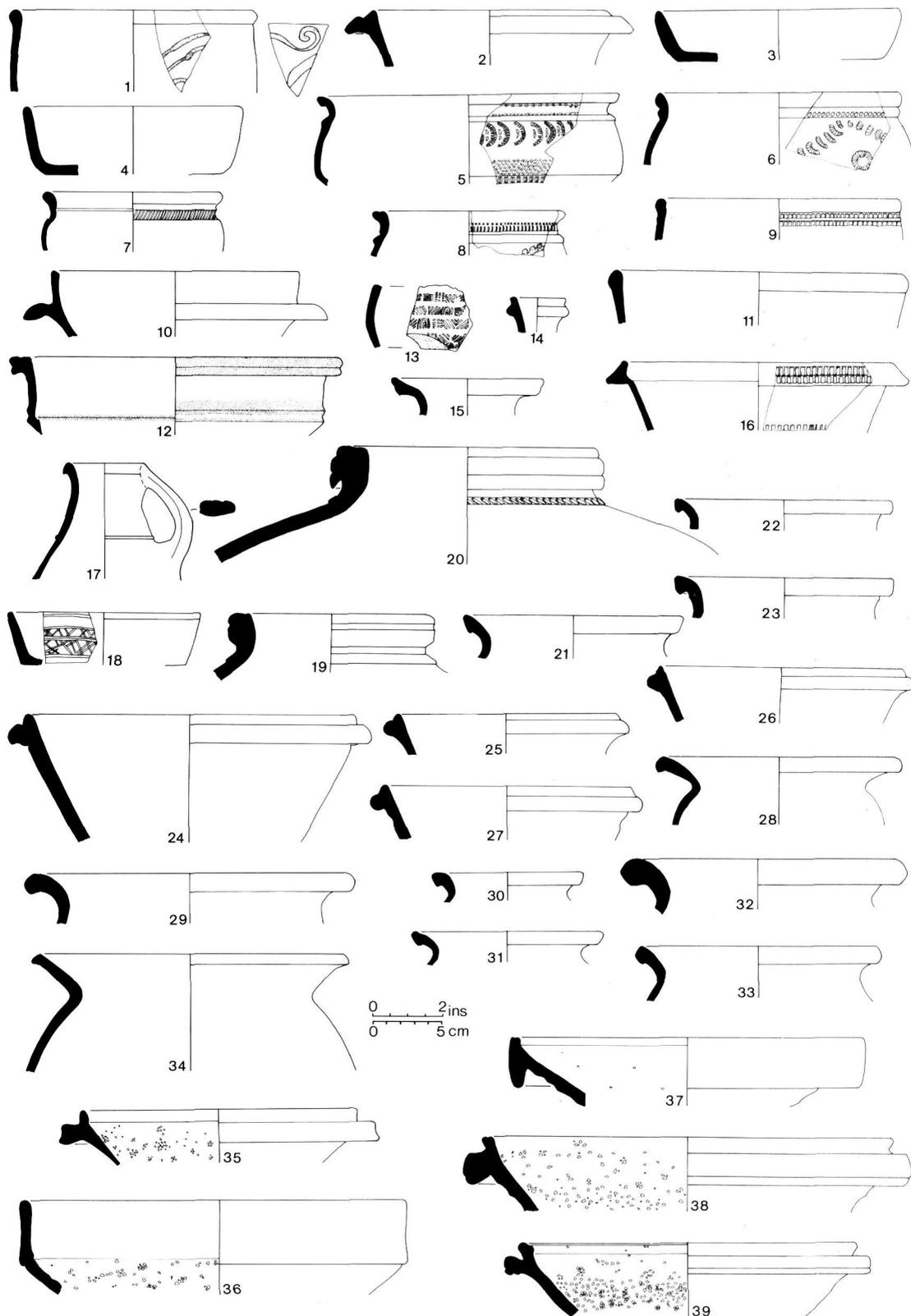


Fig. 29 Inmost Ward 1955-77: Other Roman pottery.

	<i>No. of Sherds</i>	<i>Percentage</i>	<i>Total for Group</i>
<i>Reduced Wares</i>			395 = 51.4%
Alice Holt	34	8.6%	
Black-burnished	3	0.8%	
Mayen	4	1.0%	
Overwey	5	1.3%	
<i>Fine Wares</i>			174 = 22.6%
Oxford	93	53.4%	
Nene Valley	33	19.0%	
? Colchester	5	2.9%	
Argonne	2	1.1%	
Other Imported	13	8.4%	
<i>Oxidised Wares</i>			180 = 2.3%
Overwey	48	26.6%	
Oxford Parchment	1	0.5%	
<i>Other Wares</i>			
Shell-gritted	4		
Mortaria	15		
			<i>Total of Group</i> 769

Fig. 30 Inmost Ward 1955-77: Pottery Quantification table.

century, and one of London ware which is probably late Flavian in date (see Southwark p. 536 for a discussion of these fabrics). Poppyhead beakers may also be included here, since they occur in both reduced and oxidised fabrics. There are several sherds of this type which occur in Southwark in the early to mid 2nd century (c.f. Southwark types III.F.4-6).

The course wares in this group occur in both oxidised and reduced fabrics though mainly the latter. Grey sandy fabrics predominate, some probably from the Alice Holt kilns, but there are also a good number of BB1 vessels. Bowls or dishes with rounded or triangular bead rims occur frequently c.f. Southwark type IV.H. which is common from the late 2nd century onwards although there are some examples similar to Southwark Nos. 1763 and 1767 which are found in second half of 3rd-century contexts. Dog-dishes are also common c.f. Southwark type IV.J of mid 2nd century onwards, but there are also variants e.g. Southwark 1345 in a 3rd-century context and Angel Court Nos 191 and 192 with a groove beneath the rim in a late 3rd to 4th-century context. There are several flanged bowls all in BB1 fabrics with parallels in Southwark Nos. 1808, 1861 and 1865 which are in second half of 3rd-century contexts, and No. 568 in a mid to later 3rd-century context. Jars with everted rims sometimes 'cavetto', usually occur in grey sandy fabrics although there is one BB1 example, and are paralleled at Angel Court

No. 152, in the late 3rd to 4th century. They are also similar to Alice Holt type 3.C c. 220-mid 4th century and Southwark No. 943 in a late 3rd to 4th-century context. There are also some small jars or beakers with short everted rims c.f. Southwark No. 1745 in a second half of 3rd-century context as well as a jar with a slight lid-seating c.f. Southwark No. 1840 of the second half of the 3rd century also. There are two vessels among the reduced wares which are probably residual, a jar of Southwark type II.G. 2 dated AD 100-150, also similar to Alice Holt type 1.28 dated AD 150-180 and another jar rim with a parallel in Southwark No. 768 in a Flavian context. There is a single BB1 tankard similar to Angel Court No. 158 of late 3rd to 4th-century date and Southwark No. 1691 of early 3rd century although Gillam (1976, Fig. 2) dates the type to mid to late 2nd century.

Among the other wares is a flagon rim in a gritty off-white fabric of Southwark type I.B.5 dated to the Hadrianic period and therefore residual. There are two unidentifiable fragments of mortaria as well as a rim sherd with a form very similar to some made at Colchester in Kiln 25 (c.f. Fig. 89, No. 13) possibly, as has been suggested for other mortaria, a 2nd century innovation, and type No. 498 of the late 2nd to 3rd century (Hull 1963, 116). It is also paralleled internally to Group 12 dated to the late 4th century. There is also a single body sherd of shell-gritted fabric.

Several of the vessels in this group are of long-lived types such as dog-dishes and bead-rimmed bowls which can go back as far as the middle of the second century, but the predominance of late 3rd century or later types, such as flanged bowls and cavetto rim jars, probably indicates that they are all contemporary. The latter variants of the dog-dishes and the tankard seem to support this conclusion. There are also several Nene Valley colour-coated types characteristic of this period, whilst the Colchester and Rhenish colour-coated vessels are probably residual. A late 3rd-century date for the group would thus seem most likely.

PHASE VIIa (Layer 28)

The majority of the fine ware sherds from this group are from the Oxford region and include a bowl of Young type C.46 dated AD 340–400, a body sherd from a vessel with white-painted decoration only common in the last quarter of the 4th century (Young 1977, 133) as well as a colour-coated mortarium. There is also a bowl in Hadham ware of late 3rd to 4th century (c.f. Orton 1977), colour-coated ware with the white overslip barbotine decoration characteristic of the later periods of production and a funnel-necked beaker with a bead-rim c.f. Nene Valley Guide Fig. 5, Nos 51 and 52, probably 4th century. Imported fine wares include a sherd of Argonne ware which is probably 4th century and a beaker rim, probably from Trier and not likely to be later than c. AD 250 (Green 1978, 19) and therefore possibly a survival in use.

There are few diagnostic sherds among the oxidised wares but they do include a large number of fragments of Overwey ware, datable to the 4th century (Lyne and Jeffries, 37).

The reduced wares consist mainly of dog-dishes as well as a BB2 pie-dish—both are long-lived types beginning c. mid 2nd century in London c.f. Southwark types IV.H. and IV.J. There is another variety of dog-dish, however, with a groove below the rim similar to Southwark No. 1368 in an early to mid 4th century-context and a flanged bowl of Alice Holt type 5.B.8 dated AD 270–420. Also probably from Alice Holt is a grey ware jar with cavetto rim covered with a whitish slip c.f. Alice Holt type 3.B. dated mid 3rd century onwards. The other grey ware jars are probably residual and include several rims of Southwark II.D. and II.C types which are usually 1st or 2nd century, as well as an unusual jar with a heavy bead rim with internal thickening similar to 1st-century forms, in a coarse, gritty pale grey fabric.

As a whole this group is clearly late 3rd to 4th century but includes a certain amount of residual material.

PHASE VIIb (Layer 30, 31 and 32)

This group has been presented as it stands, since the independent dating evidence eliminates the need for parallels, although pieces which are known to be residual have been omitted from the illustrations. Fig. 30 shows the proportions by count of the various recognizable wares which occur in this group, in relation to the total number of sherds from the whole site. It should be noted, however, that the identification of Alice Holt ware has suffered from the fact that the pottery was processed before the publication of Malcolm Lyne's corpus (Lyne and Jeffries 1979) and it is not always possible to distinguish them from the other reduced wares. It is probable, therefore, that the proportion of Alice Holt sherds is, in fact, much greater than that which is shown here. This bias is somewhat redeemed by the proportions of the much more distinctive Overwey products of the Alice Holt industry, sometimes known by Fulford's appellation of 'Porchester D' ware (Cunliffe 1975, 299). The fact that these vessels were so readily identifiable, means that the figures in this case give a much more accurate picture.

The identification of the fine wares presented no major problem, with the exception of some of the colour-coated sherds, which are not from the Nene Valley, but whose attribution to the Colchester kilns is by no means certain.

PHASE IX (Layers 35 and 38)

Although all the Roman pottery in this group is residual in its medieval context, its similarity to the pottery of Phase VIIb seems to bear out the stratigraphical evidence for the excavation and redeposition of the material in its original location. A comparison of the proportions of the wares in this group (Fig. 31) with those of Phase VIIb (Fig. 30), will serve to confirm this interpretation. It is almost certainly due to the problems of the identification of Alice Holt grey wares that the figures for the two groups of reduced wares do not relate to each other except in their overall totals and percentages for the group as a whole. In the case of the fine wares, however, where identifications are much more certain, the proportions of the various wares are strikingly similar, as is the occurrence of fine wares on the site as a whole. Although the far greater numbers of oxidised wares in Phase IX is difficult to explain, it is interesting to note that

the proportion of the Overway sherds within this category, are almost identical.

Fig. 29

1. Bowl: orange fabric with grey core, orange colour-coat with white painted decoration on exterior. Probably Nene Valley. (Layer 32).
2. Flanged bowl or dish, white fabric, red-brown colour-coat. Nene Valley. (Layer 32).
3. Dish: pale orange fabric, brown-orange colour-coat. Nene Valley. (Layer 32).
4. Dish: white fabric, brown colour-coat. Nene Valley. (Layer 32).
5. Bowl: orange fabric, red colour-coat with rouletting and rosette stamps on exterior. Oxford region c.f. Young type C75. (Layer 32).
6. Bowl: orange fabric, red colour-coat with rosette stamps on exterior. Oxford region, c.f. Young type C75. (Layer 32).
7. Bowl: orange fabric, red colour-coat with rouletting on exterior. Oxford region, c.f. Young type C77.4. (Layer 32).
8. Bowl?: orange fabric, red colour-coat with rouletting and white painted decoration on exterior. Oxford region. (Layer 32).
9. Dish or bowl: orange fabric with grey core, orange colour-coat, with rouletting on exterior. Oxford region, c.f. Young type C86. (Layer 35).
10. Bowl: imitation Drag. 38, brownish fabric with brownish colour-coat. Oxford region, c.f. Young type C51. (Layer 32).
11. Dish or bowl: sandy orange fabric with red colour-coat. ? Oxford region. (Layer 32).
12. Bowl: fine cream fabric with orange painted decoration. Oxford Parchment ware, c.f. Young type P24.3. (Layer 30).
13. Decorated sherd: orange fabric with brownish core, orange colour-coat with roller-stamped decoration on exterior. Argonne ware. (Layer 32).
14. Flagon: micaceous pink fabric with buff surfaces. (Layer 32).
15. Flagon: gritty reddish fabric, cream slip on exterior and upper part of interior. (Layer 35).
16. Dish or bowl: gritty orange-buff fabric with thin grey core and roller-stamping on top of rim. (Layer 32).
17. Flagon: sandy grey fabric, burnished on rim. Alice Holt c.f. type 8:10. (Layer 32).
18. Dish: pale grey sandy fabric, darker, burnished interior with two rows of criss-cross burnished lines. Alice Holt? (Layer 32).
19. Large storage jar: pale grey sandy fabric with burnished exterior. Alice Holt c.f. type 1A.16. (Layer 32).
20. Large storage jar: pale grey sandy fabric, darker surfaces with burnished exterior. Alice Holt c.f. type 1A.20. (Layer 30).
21. Jar: gritty buff fabric, partially reduced exterior. Overwey type. (Layer 32).
22. Jar: gritty grey fabric. Overwey type. (Layer 32).
23. Jar: gritty grey fabric. Overwey type (Layer 32).

	<i>No. of Sherds</i>	<i>Percentage</i>	<i>Total for Group</i>
<i>Reduced Wares</i>			1514 = 50.7%
Alice Holt	14	0.9%	
Black-burnished	26	1.7%	
Mayen	2	0.1%	
Overwey	13	0.8%	
<i>Fine Wares</i>			711 = 23.8%
Oxford	312	43.9%	
Nene Valley	132	18.6%	
? Colchester	24	3.4%	
Argonne	2	0.28%	
Other Imported	104	14.6%	
<i>Oxidised Wares</i>			655 = 22.0%
Overwey	162	24.7%	
<i>Other Wares</i>			
Shell-gritted	48		
Mortaria	52		
			<i>Total of Group</i> 2982

Fig. 31 Inmost Ward 1955-77: Pottery Quantification table.

24. Flanged bowl: sandy grey fabric with burnished interior, partially oxidised. (Layer 30).
25. Flanged bowl or dish: pale grey sandy fabric with dark grey burnished surfaces. (Layer 32).
26. Flanged bowl or dish: sandy fabric with finely burnished surfaces. (Layer 32).
27. Flanged bowl or dish: pale grey sandy fabric with dark grey burnished surfaces. (Layer 32).
28. Jar: Pale grey sandy fabric, burnished on exterior and inside rim. Alice Holt? (Layer 32).
29. Large jar: gritty grey fabric. (Layer 32).
30. Jar: gritty grey fabric with darker surfaces. (Layer 32).
31. Jar: gritty grey fabric. (Layer 32).
32. Large jar: coarse, gritty brownish-grey fabric. (Layer 32).
33. Jar: pale grey sandy fabric. (Layer 32).
34. Jar: sandy grey fabric with burnished surfaces. (Layer 30).
35. Mortarium: grey fabric, orange surfaces, red colour-coat, pink and white quartzite grits. Oxford region c.f. Young type C100.2. (Layer 32).
36. Mortarium: orange fabric with grey core, orange colour-coat, pink and white quartzite grits. Oxford region, c.f. Young type C98.3. (Layer 32).
37. Mortarium: gritty pale pink fabric with white surfaces, ? white quartzite grits. (Layer 32).
38. Mortarium: gritty off-white fabric with pink core, darker slip on exterior, pink and white quartzite grits. Oxford region c.f. Young type M22.18. (Layer 31).

SMALL FINDS

by HUGH CHAPMAN

(Unless otherwise stated, objects are of Roman date)

COPPER-ALLOY (Figs. 32, 33)

1. Miss Jean Macdonald writes:

Brooch, corroded and incomplete, made in one piece. The arched, D-sectioned bow has two short wings at its head, and at the other end is broken off at a point where it appears to be expanding into a moulding. The spring presumably had four coils: two remain on the left-hand side. The external chord is held down by a hook terminating slightly above the bow. The rest of the spring and the pin are missing. A longitudinal groove down the bow is presumably a remnant of decoration. Length 29mm, width across wings 5mm.

The brooch is apparently a Camulodunum Type XV (Hawkes and Hull 1947, 320, Pl. 95, Nos. 117-9). It would originally have had a long foot with catch-plate, separated from the bow by the now fragmentary moulding, and the hook over the chord would probably have been finished off with a knob.

Calmulodunum Type XV has been identified as a La Tène III (late Iron Age) form developed mainly in Germany in the later 1st century BC-early 1st century AD, the series ending in the Claudian era (AD 41-54) (Hawkes and Hall 1947, *loc. cit.*; and for the Aylesford and Swarling brooches, Stead 1976). The brooches seem rare in Britain. A typologically late example from the Sheppen site, Colchester, came from a context dated about AD 49-65 (Hawkes and Hull 1947, 56, 101, 320, No. 119). The Tower brooch appears to resemble more closely another, typologically earlier, Colchester specimen, collected during pipe laying at Sheepen Road (Hawkes and Hull 1947, 22, 320, No. 118). It is redeposited therefore in a gravel surface associated with the early second century timber foundations. (Layer 14).

2. Brooch, much corroded, pin missing; short arms formed by spring corners; bow decorated by raised ridge; catch plain and originally unperforated. Collingwood Group H, 'Dolphin' brooch. 1st-2nd century AD, redeposited therefore in pit (F12) associated with construction of second river wall. (Layer 30).
3. Brooch, pin and half of spring coil missing; short arms formed by spring covers; bow decorated by raised ridge; catch-plate plain and unperforated. Collingwood Group H, 'Dolphin' brooch. 1st-2nd century AD, redeposited therefore in 3rd century river wall construction trench. (Layer 27).
4. Fragment of finger ring (?); thin strip of metal; half of surviving length decorated with transverse incised grooves. From Saxo-Norman dumping and therefore redeposited. (Layer 35).
5. Finger ring (?); heavily corroded; thin strip of metal, surface details unclear; ends overlapped to compress to smaller diameter. From dumping contemporary with construction of second river wall. (Layer 32).
6. Fragment of bracelet; approx. 25mm of total circumference surviving; D-shaped section with beaded decoration, c.f. Clarke (1979, 307, Nos. 164 & 165, Fig. 37 and other references cited) where two late 4th-century graves at Lankhills cemetery had similar bracelets. From dumping contemporary with construction of second river wall. (Layer 32).
7. Fragment of bracelet; approx. 60mm of total circumference surviving; oval cross-section of main strip body with one stylised animal snake head terminal surviving; method of fastening not clear. From Saxo-Norman dumping. (Layer 35).

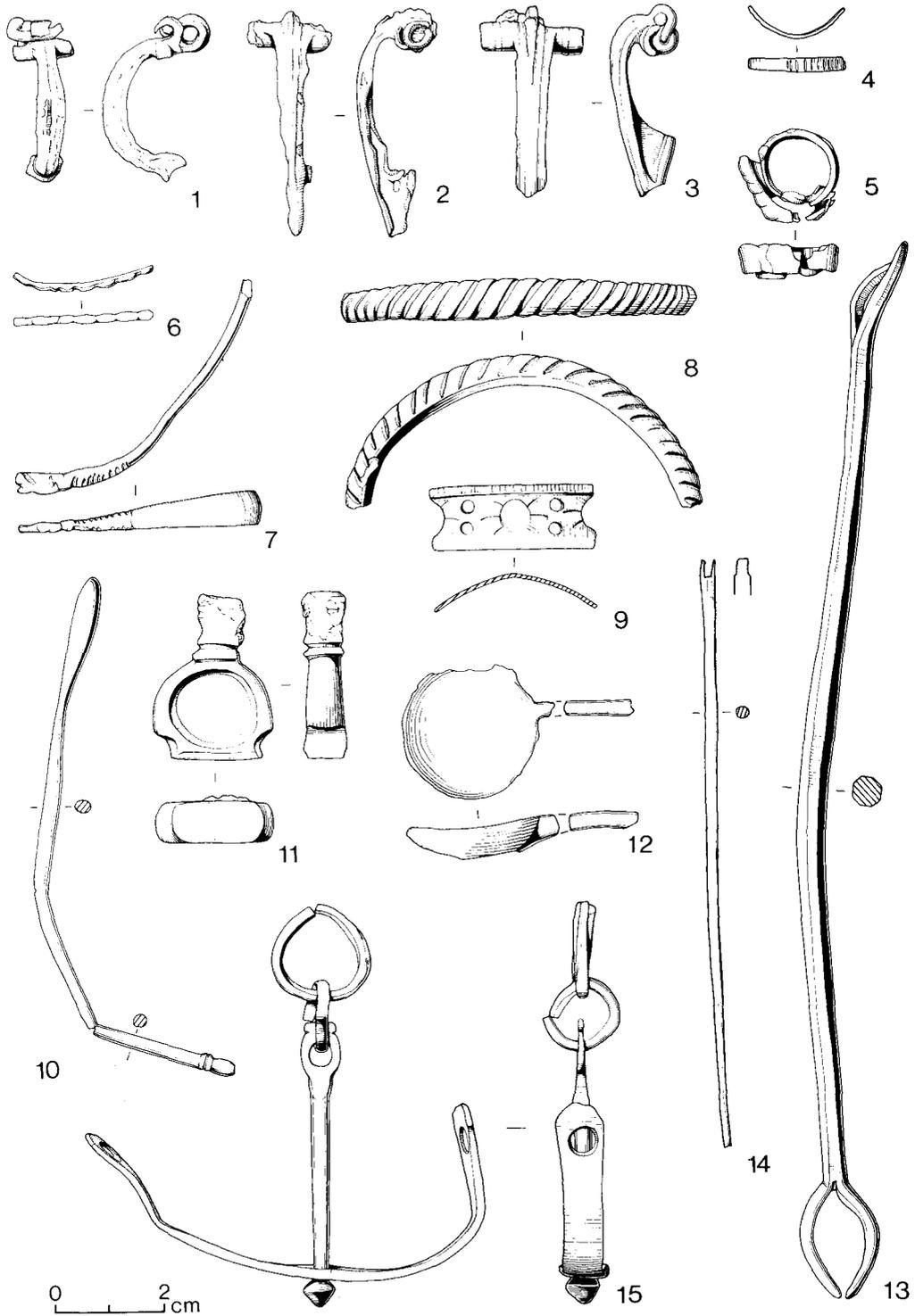


Fig. 32 Inmost Ward 1955-77: Objects of copper alloys Nos. 1-15.

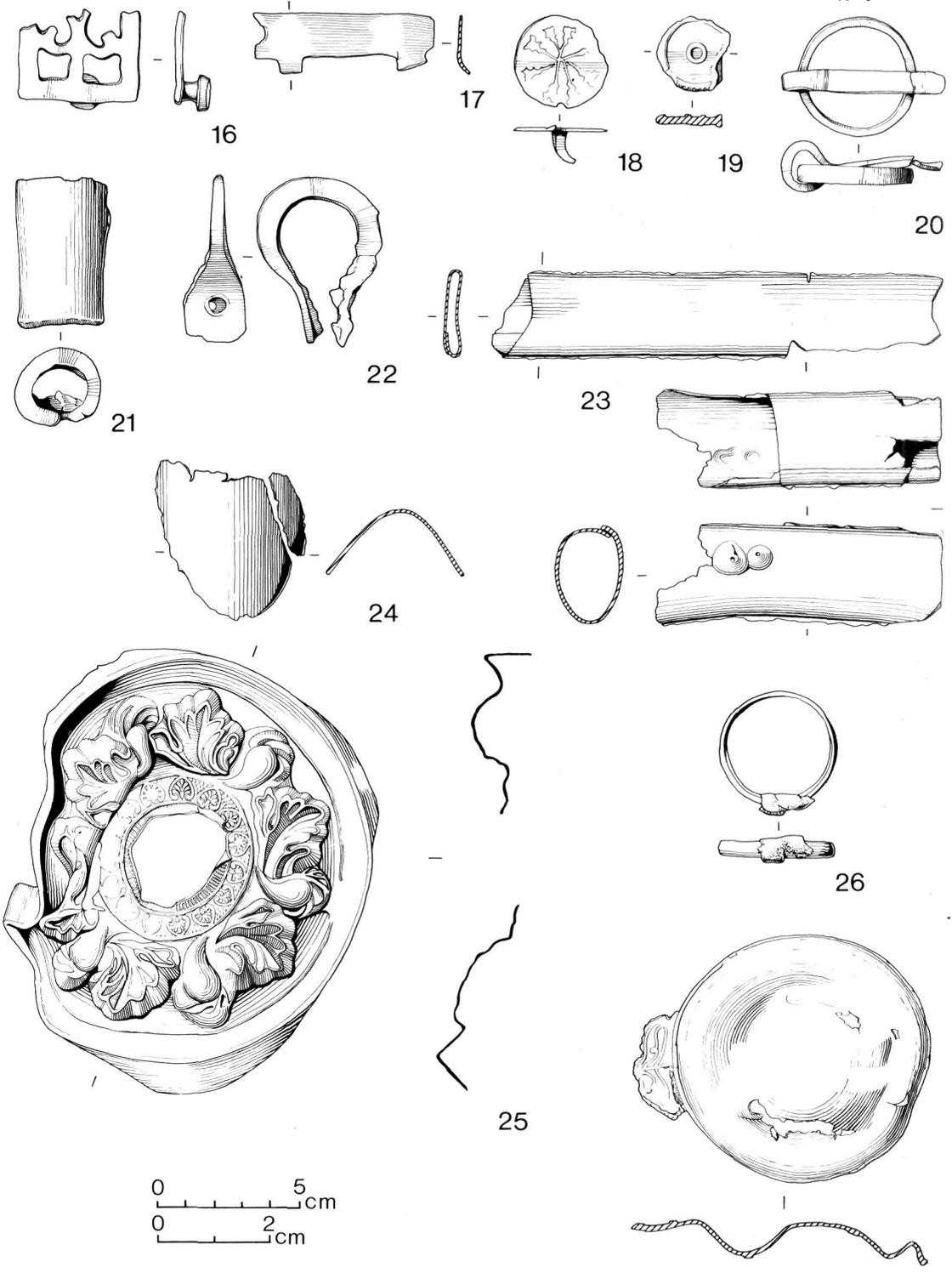


Fig. 33 Inmost Ward 1955-77: Objects of copper alloy Nos. 16-26, lead alloy No. 27.

8. Fragment of bracelet; approx. half of total circumference surviving; solid cast bracelet with incised grooves to represent cabling. From dumping contemporary with construction of second river wall. (Layer 32).
9. Fragment of strip bracelet; approx. 30mm of total circumference surviving; open-work decoration with six grooves radiating from circular punched holes with two smaller in-line holes between each main hole; five transverse grooves along with raised edges. For a bracelet with identical detail and spacing of the decoration from a late 4th-century grave at Lankhills, *v. Clarke* (1979, 306, No. 506, Fig. 37). From Saxo-Norman dumping. (Layer 35).
10. Instrument with rounded probe at one end, now bent shaft with single traverse moulding at other. This originally would have joined to a long oval bowl. A common object, often thought to be surgical, but there are so many from London and elsewhere, that their primary purpose must have been domestic, e.g. the extraction of cosmetics from unguent bottles. Probably 1st-2nd century date, redeposited in pit (F.12) associated with construction of second river wall. (Layer 30).
11. Handle of key of tumbler-lock; iron shaft; teeth missing. From internal bank of landward city wall. (Layer 25).
12. Spoon, *cochleare*, partially flattened circular bowl and short length of circular sectioned handle surviving. From internal bank of landward city wall. (Layer 25).
13. Netting needle; complete though prongs bent; faceted shaft; c.f. *Cunliffe* (1968, 105, No. 212, Pl. 47). From late Flavian reclamation levels. (Layer 9).
14. Needle. Laboratory reports that microscopic examination shows sign of gilding. From late Flavian reclamation levels. (Layer 9).
15. Strip fitting with swivel pivot and two attached chains. The main body of the fitting is bent but presumably formed a semi-circular hoop. No precise parallel for the fitting has been found and its use remains uncertain, though it may be suggested that it had a personal domestic function (perhaps as a *chatelaine*, or similar) rather than as part of a harnessing system or other apparatus requiring great strength. From dumping contemporary with construction of second river wall. (Layer 32).
16. Military belt-plate; approx. one third of openwork plate and single back fastening stud surviving; see *Griffiths* (1983, 52, No. 7) for other parallels from Britain; probably of 2nd-century date. From Saxo-Norman dumping. (Layer 35).
17. Flat strips, two projecting square lugs; fragment of buckle (?). From Saxo-Norman dumping. (Layer 35).
18. Circular stud with radiating spoked decoration on upper surface, short (now bent) shank on underside. From late Flavian reclamation levels. (Layer 9).
19. Circular stud, probably originally enamelled, raised central boss and outer notched edge. From Saxo-Norman dumping. (Layer 35).
20. Ring and attached split pin. From Saxo-Norman dumping. (Layer 35).
21. Tube, one end broken, the other flattened by force; originally circular section; ferrule? From infilling of Saxo-Norman ditch F.15. (Layer 37).
22. Semi-circular loop, with both ends flattened to form lugs and pierced with a circular hole; holding handle from toilet-set, the individual pieces of which were suspended from a rod through holes in the lugs. From Saxo-Norman dumping. (Layer 35).
23. Two lengths of thin-walled hollow tubing; perhaps sheathing; one piece flattened. From infilling of 3rd-century river wall construction trench. (Layer 27).
24. Sheet fragment, perhaps originally in tubular form. From late 4th century-dumping. (Layer 28).
25. Originally circular repoussé plaque (lid?) with down-turned rim; 18th-century date. From demolition of late 18th-century Ordnance Office.
26. Miss Jean Macdonald writes:
Copper-alloy finger-ring, a continuous circle of thin metal, tapering in width from 2.5mm to 1.0mm. The taper may be intentional, but no trace of a bezel could be detected, and the irregularity of the surface seems to be due to corrosion, not decoration. Internal dia. 19mm, external dia. 21mm.

It is difficult to put a date on this simple ring or to suggest a satisfying parallel. The normal and indigenous finger-ring type of the British Iron Age seems to have been a bronze spiral (*Bulleid* 1911, 209-17; *MacGregor* 1976, 135). Some taper in width like the Tower ring (*Gray* 1953, 209; *Wheeler* 1943, 267, No. 21, Fig. 86). A few rings made as continuous circles are known from the late Iron Age sites and some incomplete specimens may originally have been continuous. Examples have been published from the Glastonbury and Meare lake villages, but the complete specimens illustrated are thicker than the Tower ring and usually have a horizontal groove, perhaps reminiscent of the spiral-ring tradition (*Bulleid* 1911, 212-7, 227, Nos. E38, 49, 104, 120, 137, 245, 264, Pls 41, 44; *Gray* 1953, 208-12, Nos. E14, 37, 100, 106, 111, 142, 162, 164, 182). Maiden Castle has produced, in contexts dated to the first half of the 1st century AD, a fragmentary, possibly continuous, plain thin bronze ring, and plain bronze and iron rings with ends apparently butted closely together and so superficially similar to the Tower (*Wheeler* 1943, 266-7, No. 22, 278-9, Nos. 4, 9, Figs 86, 92).

Romano-British finger-rings, on the other hand, are generally complete circles, often

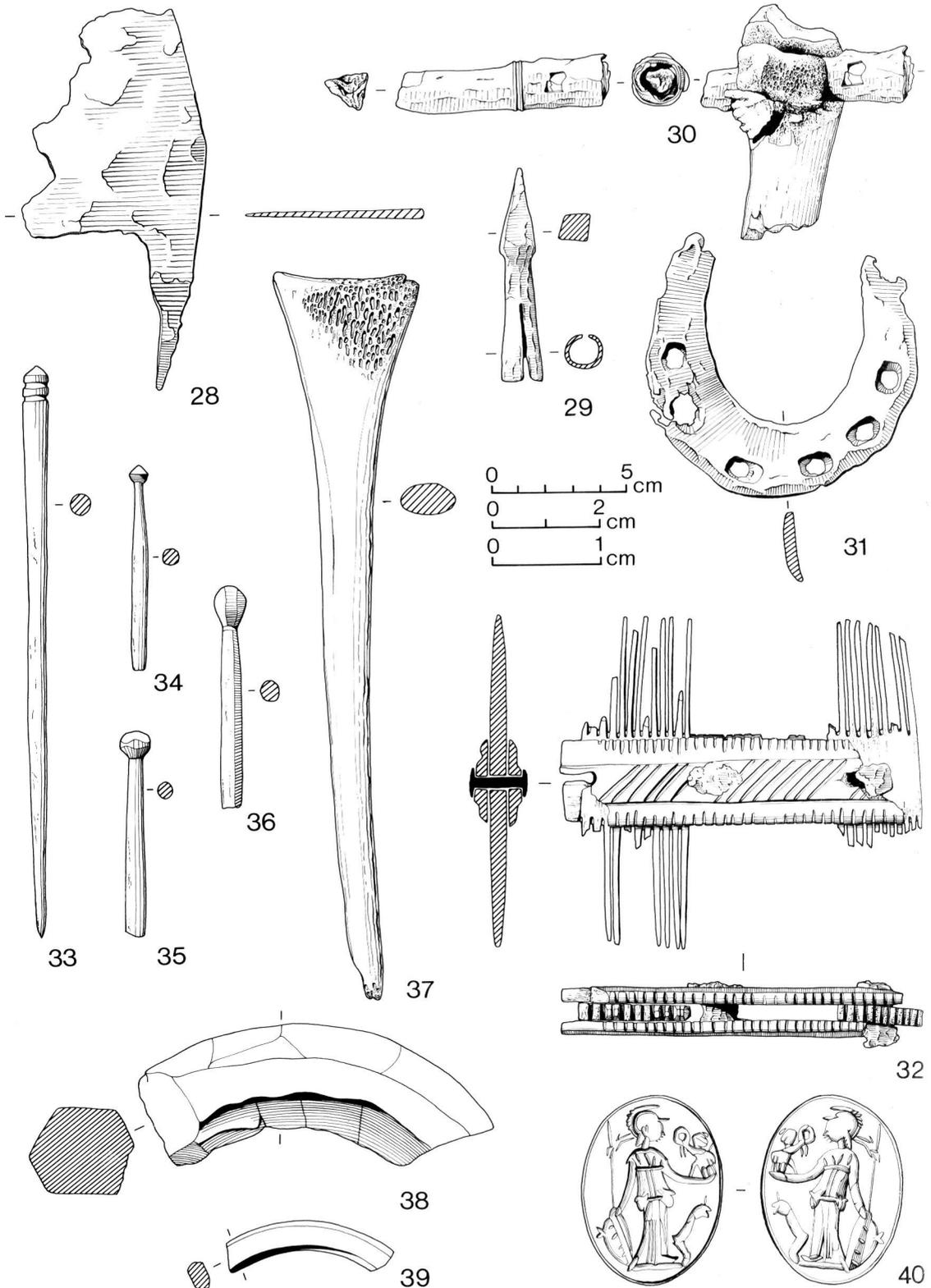


Fig. 34 Inmost Ward 1955-77: Objects of iron Nos. 28-31, bone Nos. 32-37, shale Nos. 38-39, stone No. 40.

expanded at the front to take additional decoration (British Museum 1958, 22-6, Fig. 13), and a variety of fairly plain bronze rings of Roman types is known from Roman sites in southern Britain (Down 1971, 47, Fig. 3.17 12; 1978, 302, Fig. 10.38 106; Neal 1974, 136-8, Fig. 60, 146-7, Fig. 65, Nos. 254-6, 258; Bushe-Fox 1949, 127, Nos. 99, 101, Pl. 35; Partridge 1981, 105, 260, 265, Fig. 54, No. 5). An example that looks fairly similar to the Tower ring came from a late Roman burial at Verulamium (Wheeler 1936, 136, 207, Pl. 60.5).

Unless more exact Iron Age parallels emerge, then, the Tower ring seems on balance more likely to have originated in the Roman world than in the British Iron Age tradition. Recovered from burial F.2.

LEAD-ALLOY (Fig. 33)

27. Small circular cup or dish; now flattened and misshaped, but original profile must have had a rim with thickened edge, and a shallow bowl with slight raised foot ring; two cast ear-handles (one now detached) were separately soldered to the rim opposite each other; differential corrosion of the surface of the handles has caused the decoration on their upper surfaces to become indistinct, but a foliage-based design is suggested. The main body of the vessel was cast and subsequently turned on a lathe; a central chuck mark is visible in the centre of the base. A spot test applied to the body of the vessel and one of the handles indicated the presence of lead in the body, and lead and tin for the handle. Detailed metallurgical analysis is required to establish the proportions involved and whether or not the body of the vessels consists of pure lead. If such analysis indicated an alloy of lead and tin in significant proportions, this vessel, coming as it does from a context dated to the second half of the 2nd century, would be a significant early piece in the history of the development of the Romano-British pewter industry. From the robbing of the west wall of the earlier Phase IV clay and timber building. (Layer 17).

IRON (Fig. 34)

28. Knife; approx. two thirds of the blade and tang survive; a typical common (1st-2nd century AD) shape and form with the back of the blade arched, see for example Manning (1976, 37 ff.). From late Flavian reclamation levels. (Layer 9).
29. Split socketed ballista or catapult bolt with square cross-section head, c.f. Manning (1976, 21 ff.). From late Flavian reclamation levels. (Layer 9).
30. Socketed ballista or catapult bolt with triangular cross-section head; wood remains survive within the socket; the surviving bolt pierced and lodged in part of a right tibia of a domestic ox. From dumping contemporary with the construction of the second river wall. (Layer 32). Mr Philip Armitage writes:

Distal extremity of a right tibia of domestic ox *Bos* (domestic) comprising the distal epiphysis (fused) and part of the shaft. The fusion of the distal epiphysis indicates that this animal was at least 2½ years old at the time of death, and may have been much older than this; probably a fully grown adult.

Comparison with the reference collection of cattle skeletons held by the BM(NH) reveals that the London specimen came from an animal similar in stature and build to a modern Chillingham ox (withers height about 120cm) i.e. a medium sized beast by Roman standards.

The ballista bolt entered from the rear (posterior side) just above the distal articular surface and slightly to the right of centre of the longitudinal axis of the bone i.e. towards the lateral side (- lateral malleolus). Penetration by bolt at this point is complete with the tip protruding beyond the anterior face of the shaft. Entry of the bolt 'exploded' the distal articulation which broke into five pieces.

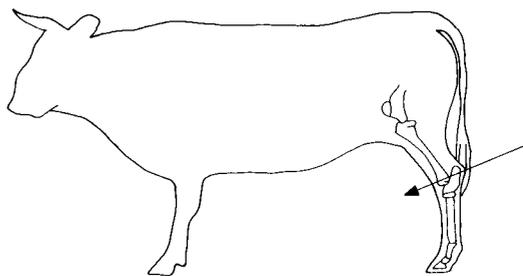


Fig. 35 Inmost Ward 1955-77: Diagram showing position of ballista bolt in hind limb of Ox.

Interpretation:

Fig. 35 shows the position and angle of entry into the right hind limb of the ? living animal or ? hanging carcase (see below). This region of the hind limb is often called the 'hock joint'.

Because the bolt was travelling from the rear when it struck the leg it must have caused damage to the calcaneum before it actually entered the tibia.

The effects of the entry of the bolt into the 'hock joint' probably included severance of the superficial flexor tendon and damage to the flexor muscle. If the injury was caused to a living animal the bolt would have effectively 'hamstrung' the beast and permanently crippled it. An alternative explanation would be that the hind limb of the ox was used for 'target practice' much in the same way that ox skulls (= heads) were used for training Roman troops in the art of spear throwing at Vindolanda. From dumping contemporary with the construction of a second river wall. (Layer 32).

31. Mr John Clark writes:

Horseshoe made from thin, broad bar, with six nailholes, equally spaced. The nailholes are countersunk, the countersinking being rectangular; in each case the hole seems to be deliberately placed towards one end of the countersunk depression. The punching of the holes has produced a slightly wavy edge to the shoe. Although from a Saxo-Norman context, this shoe differs in many respects from the 'standard' early medieval form, made of a thin, narrow bar with heavy calkins and with nailholes, in two groups of three, with slot-like countersinking (to take nails of fiddle-key form) producing a decidedly wavy outline (for example, London Museum 1940, 11-7, Fig. 37, Nos. 1-3; Godall 1982, 230, Fig. 41, Nos. 126-30). Earlier Saxon shoes seem to have been less standardised (Rahtz 1979, 267, Fig. 91, Nos. 7, 94; Cunliffe 1976, 197, Fig. 131, No. 9), but none seems quite to match the form of the present example.

Given the range of residual material present, it may be necessary to look for parallels in the Roman period, such as those from late 4th-century contexts at Maiden Castle (Wheeler 1943, 290, Pl. XXXB) or an example in the Museum of London (Acc. No. 24607, from Dowgate in a 1st-2nd century context) which has the same broad form and equal spacing at the six large nailholes. From Saxo-Norman dumping. (Layer 38).

BONE (Fig. 34)

32. Composite double-side comb; the surviving lengths of the connecting plates are held together by two iron rivets; two sections of the teeth plates remain, together with some of the individual teeth; diagonal grooves on the main sides and vertical notches on the edges decorate both connecting plates; parallels for similar bone or antler late Roman combs can be found from Colchester (Crummy 1983, 55 ff.), Lankhills Roman cemetery (Clarke 1979, 247 ff.) and Richborough (Bushe-Fox 1949, 147, No. 216). From Saxo-Norman dumping. (Layer 35).
33. Hairpin; complete, two groves below conical head, Crummy Type 2 (1983, 21). From landward city wall internal bank. (Layer 25).
34. Hairpin; conical head and length of shaft. From Saxo-Norman dumping. (Layer 35).
35. Hairpin; spherical head and length of shaft, Crummy Type 3 (1983, 21). From Saxo-Norman dumping. (Layer 25).
36. Hairpin; as No. 35 above. From Saxo-Norman dumping. (Layer 35).
37. Tool; thick crudely shaped shaft, spatulate triangular head; date of object uncertain. From modern level.

SHALE (Fig. 34)

38. Part of the circumference of an extremely crudely knife trimmed armlet. From late Flavian reclamation levels. (Layer 10).
39. Fragment of plain undecorated lathe finished

armlet. Roman from post-medieval pit F17. (Layer 43).

STONE (Fig. 34, 35)

40. Martin Henig writes:

Intaglio; Oval with flat upper surface (Henig 1974, part i, Fig. 1). 17mm × 13mm × 2mm. Material: red jasper. There are a few dark patches and a slight chip on the right side of the stone which appears to be a result of a flaw.

The device is Athena (i.e. the Roman Minerva) who is depicted standing with her body towards the front and her head turned to the left. She wears a belted peplos with overfold and a crested Attic helmet. On her extended right hand stands Nike (Victoria) who holds a wreath towards her; her left hand is lowered to support an upright shield and spear on the ground beside her. In the field, below Nike, is a rearing serpent.

It is clear that the type is that of Pheidia's masterpiece of the mid- 5th century BC, the Athena Parthenos (c.f. M. Robertson 1975, 311 ff.). To judge from the 'Varvakeion' statuette, the goddess looked straight before her and the serpent—perhaps a relic of an early Athenian snake-cult—stood between her body and the shield (A. W. Lawrence 1972, 134f. Pl. 30a). However, it is clear that from the very beginning considerable licence was used by gem-engravers in their treatment of the type. Perhaps the first intaglio to reflect the influence of the Parthenos, a cornelian scarabid from Kourion, already depicts the head in profile and transfers the serpent to the goddess's right (J. Boardman 1970, 198, 288, Pl. 486). On gems of the Roman period, where the serpent is included in the composition at all, it is usually on the shield side although an amethyst in an American collection provides an exact parallel to the type of the London gem (Richter 1971, 34, No. 94 (sard from Athens). Furtwangler 1896, 270, No. 7243 (cornelian). c.f. especially the catalogue, *Ancient Gems from the Collection of Burton Y Berry*, Indiana 1969, 28, No. 47).

Apart from the snake, the type is easy to parallel and there are examples from every part of the empire, including Britain where gems showing Minerva seem to have been especially popular with soldiers (Henig 1974, part i, 90f; part ii, 36f and Pl. viii Nos. 234-8. *Ibid.* 37, No. 245 for another type of Athena with a serpent. From elsewhere c.f. M. Gramatopol 1974, 49 and Pl. vii Nos. 131-3. and Richter 1971, 33f. Nos. 93-5).

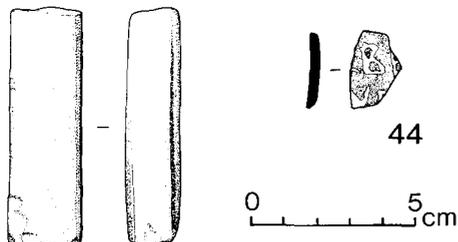
Red jasper seems only to have become a common material for intagli in the second century AD and the 'patterned' treatment of Athena's garments, her hair, crest of her helmet, rim of

the shield and above all the body of the snake are characteristically Antonine (Henig 1974, part i, 44f. discussing Sena Chiesa's 'Officina dei Diaspri Rossi'—G. Sena Chiesa, *Gemme del Museo Nazionale di Aquileia* 1966, 60. Although a cornelian and not a jasper, the style of the Minerva gem found, conveniently in a late 2nd century context at Caerleon (Henig No. 234) is broadly similar). From Saxo-Norman dumping (Layer 35).

41. Rectangular section of calcareous sandstone (?); both ends broken. From landward city wall internal bank. (Layer 25).

CERAMIC (Fig. 36)

42. Spindle whorl cut from pot base and pierced with central hole. Roman object from Saxo-Norman dumping overlying ditch F14. (Layer 38). Not illustrated.
43. Counter, roughly circular and cut from convex wall of orange-red fabric Roman vessel with internal white slip. From construction trench of 1777 Ordnance office foundations. Not illustrated.
44. Small body sherd of colour-coated Roman vessel with two line graffiti, .B.. From Saxo-Norman dumping. (Layer 35).
45. Rim sherd of colour-coated beaker with decoration *en barbotine*, with graffiti scratched below rim, VIDIC. From infilling of 3rd-century river wall construction trench. (Layer 27).



41

44

0 5 cm

45

LEATHER (Fig. 36)

46. Mr John Thornton writes:

Shoe bottom unit: left foot, heavily nailed. Appears to consist from top to bottom of insole, two or three middle sections and sole.

Nailing: two marginal rows all round, two more rows forming a lenticular loop in the forepart and several (now missing, but holes remain) in waist and seat.

There are also traces of thonging (some still *in situ*) where the middle sections were held together before nailing.

Length: 272mm; Width (max.): 93mm.

The specimen is typical Romano-British and the nails where detached show the curvature caused when they struck the iron last used during the nailing operation. From pit F12 associated with construction of second river wall. (Layer 30).

DECORATED ARCHITECTURAL STONEWORK

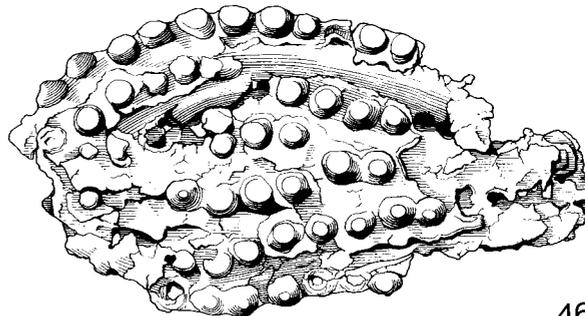
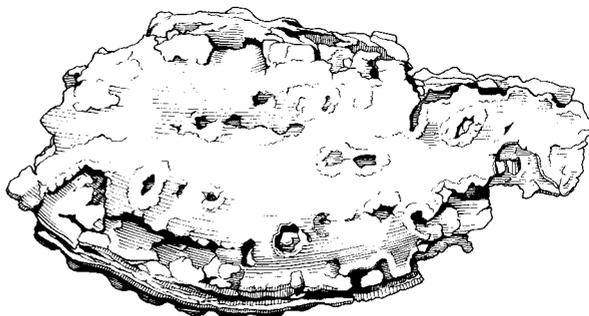
by T. F. C. BLAGG

Imbricated Column Shaft. Fig. 37

(From fill of post-medieval pit F18.)

Fragment, 0.29m wide, 0.145m deep and 0.28m high, from the top of a drum originally about 0.6m in diameter. (Bathstone.)

It is carved with shield-shaped leaves overlapping in the manner of roof-tiles or fish scales. Their surface is



46

Fig. 36 Inmost Ward 1955-77: Objects of stone No. 41, ceramic Nos. 44-45, leather No. 46.

gently concave on each side of a central ridge. The back and side from a rough right angle which, if not accidental, may have been shaped for re-use of the fragment as a building stone.

Column shafts decorated in this way are relatively uncommon in Britain: I know of sixteen other examples. In Gaul, where they are more frequent, the majority came from free-standing votive columns, usually dedicated to Jupiter (Walter 1970). Evidence for the original use of most British examples is absent. The most certain is the imbricated votive column from the temple precinct at Springhead, Kent, which was 0.52m in diameter (Blagg 1979). From London a smaller shaft, 0.24m in diameter, found built into Bastion 8, was decorated in part with a lattice and in part with imbricated leaves carved in a similar manner to those of this fragment (RCHM 1928, pl. 19). If the latter did not come from a votive column, its size suggests that it belonged to a major public building. The detail of the leaves is not diagnostic of date.

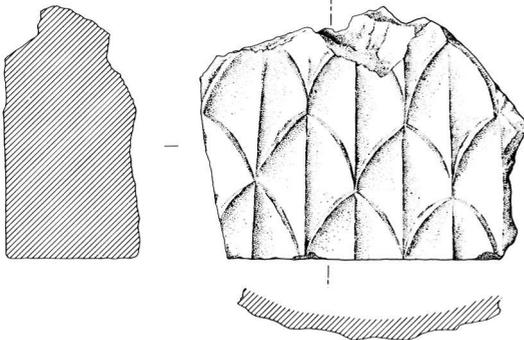


Fig. 37 Inmost Ward 1955–77: Imbricated column shaft.

Cornice Moulding. Fig. 38.

(From 18th-century demolition rubble overlying second Roman riverside wall.)

A corner piece, 0.82m long, 0.38m wide and 0.225m high, moulded on two adjacent sides, the other two broken. (Kentish ragstone.)

It is decorated with a *cyma recta* and a *cavetto* moulding separated by two fillets. The edges of the mouldings are still quite sharp, and the *cyma* and the *cavetto* have horizontal marks of a broad-bladed chisel. The fascia at the top has been more exposed to damage and weathering. The top and bottom are level and fairly smooth; there are no lewis- or cramp-holes.

The cornice came from a medium-size structure. Quite possibly this was a funerary monument, to judge from the architectural stonework re-used in the bastions; Bastion 10 produced similar, though not identical mouldings (RCHM 1928, pl. 17).

THE GLASS

by JOHN D. SHEPHERD

Three hundred and fifty-two fragments of glass were retrieved from the site, all of which can be dated to the Roman period. Of this total, two hundred and ninety four are vessel or window glass fragments—the remaining fifty eight being associated with the processing of glass and the actual manufacture of glass vessels.

Below are catalogued all the vessel and window glass fragments according to glass metal (e.g. polychrome, monochrome, colourless, naturally coloured). The incidence of the glass working waste is noted below.

THE VESSEL GLASS POLYCHROME GLASS

1. (Fig. 39 No. 1) Phase V

Fragment from the rim and flange of a wide bowl or plate. Cast, polychrome glass consisting of opaque white circlets set in a deep bluish-green background. The glass is slightly pitted and in places is covered by an off-white iridescence. Broad flange with a small overhanging lip. Early to mid 1st century.

This is the only fragment of this distinctive first century metal from the site. The form itself is similar to Harden's 'Karaniš' type (Harden 1936, 64f, 83, Nos. 166–8, pl. xii—other references *ad loc*), vessels more commonly manufactured in good colourless metals from the Flavian period until the early 2nd century—e.g. Fishbourne (Harden and Price, 1971, 332, No. 26, pl. xxvi, Fig. 138), Tongeren (Vanderhoeven 1962, 70, Fig. 194) and Conimbriga (Alarcao 1968, 19, No. 24, Fig. 1). That we have here an example in a millefiori metal would suggest that it belongs to the earliest period of the forms production.

MONOCHROME GLASS

2. (Fig. 39 No. 2) Phase V

Fragment from the rim of a bowl of plate. Blown, thin green glass. Horizontal rim with a small lip folded under. Mid to late 1st century.

3–4. (Fig. 39 No. 3) Phase V

Two fragments from the rim and side of a bowl (Isings 1957, 59f form 44a). Blown, thin green glass. Insloping rim with an out-turned lip. Mid to late 1st century.

5. (Not illustrated) Phase V

Small fragment of deep brown glass from a vessel of indeterminate form. Mid first to early 2nd century.

With so little of the body surviving of No. 2 it is very difficult to make any observations on its exact form. Nos. 3–4, however, are from a well-attested bowl form of the mid to late 1st century (cf. Czurda-Ruth 1979, 59–62, Nos. 493–496 for examples from Magdalenburg and also for references to bowls from Muralto, Koln, Pompeii, Aquileia, Richborough etc).

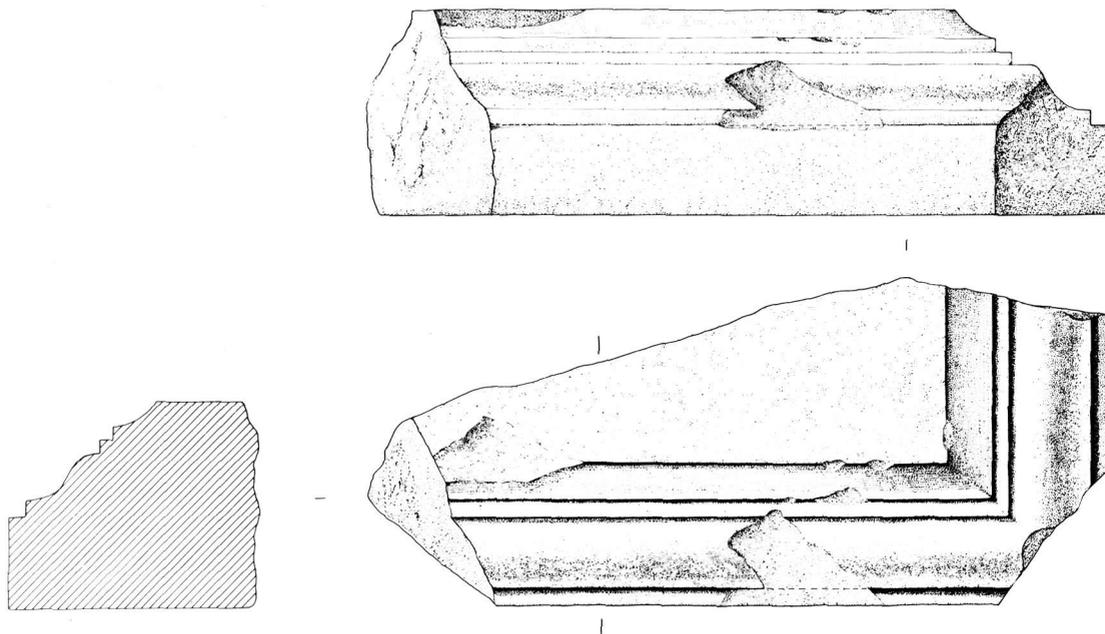


Fig. 38 Inmost Ward 1955-77: Cornice moulding.

COLOURLESS GLASS

6. (Fig. 39 No. 4) Phase V

Fragment from the foot or the shoulder of a large flask or ewer. Blown, thick colourless glass with a faint greenish tint. Decorated with a single broad horizontal wheel-cut line with a row of wheel-cut facets above of which just parts of three are extant.

7. (Fig. 39 No. 5) Phase IX

As for No. 6 but a small fragment. Decorated with circular facets.

8. (Fig. 39 No. 6) Phase VI

Fragment from the side of a bowl. Blown, colourless glass with a greenish tint. Decorated with two horizontal wheel-cut lines.

9. (Not illustrated) Phase IX

Fragment from the lower part of a bowl. Blown, thick colourless glass with a milky iridescence. Side decorated with two groups of two horizontal wheel cut lines and a row of wide-spaced oval facets, horizontally orientated, between. Only two are extant.

10. (Fig. 39 No. 7) Phase IX

Fragment from the side of a bowl. Blown, good colourless glass with a faint greenish tint. Decorated with rows of oval wheel-cut facets with wheel-cut lines between in a hexagonal pattern.

11. (Not illustrated) Phase V

Fragment from the rim of a bowl. Blown, colourless glass, ground and polished on both surfaces. Ground, rounded rim, slightly outplayed, with a horizontal wheel-cut line below. Late 1st or 2nd century.

12. (Fig. 39 No. 8) Phase XIII

Fragment from the base of a small beaker or bowl. Blown, colourless glass. Hollow tubular base ring.

Late 1st to 3rd century.

13. (Fig. 39 No. 9) Phase V

Fragment from the base of a beaker or bowl. Blown, good colourless glass. Pushed-in base with a flattened hollow tubular base-ring. Late 1st to 3rd century.

14. (Fig. 39 No. 10) Phase IX

Fragment from the rim and side of a bowl—probably of 'Airlie' type (Isings 1957, 102, form 85b). Blown, good colourless glass. Rim thickened and fire-rounded. Late 2nd or 3rd century.

15. (Fig. 39 No. 11) Phase V

Small fragment from the rim and part of the body of a small beaker. Blown, colourless glass. Fire-rounded rim with a thin applied and marvered horizontal trail of dull blue glass below. Late 2nd or 3rd century.

16. (Not illustrated) Phase V

Fragment from the rim of a flask/bottle (Isings 1957, 120, form 102 for rim style). Blown, thick colourless glass with a slight greenish tint. Rim fire-rounded and outplayed. Applied horizontal trail of the same metal below. Late 3rd or 4th century.

17. (Not illustrated) Phase V

Fragment from the neck of a small flask or unguentarium. Blown, colourless glass with a milky surface. Neck tapers towards an outplayed rim, the lip of which is missing. 2nd or 3rd century.

18-72 (Not illustrated)

Fifty-five fragments of colourless glass, many with a milky iridescence, from the bodies of an unknown number of vessels of intermediate form.

Phase III (×2)

Phase V (×25)

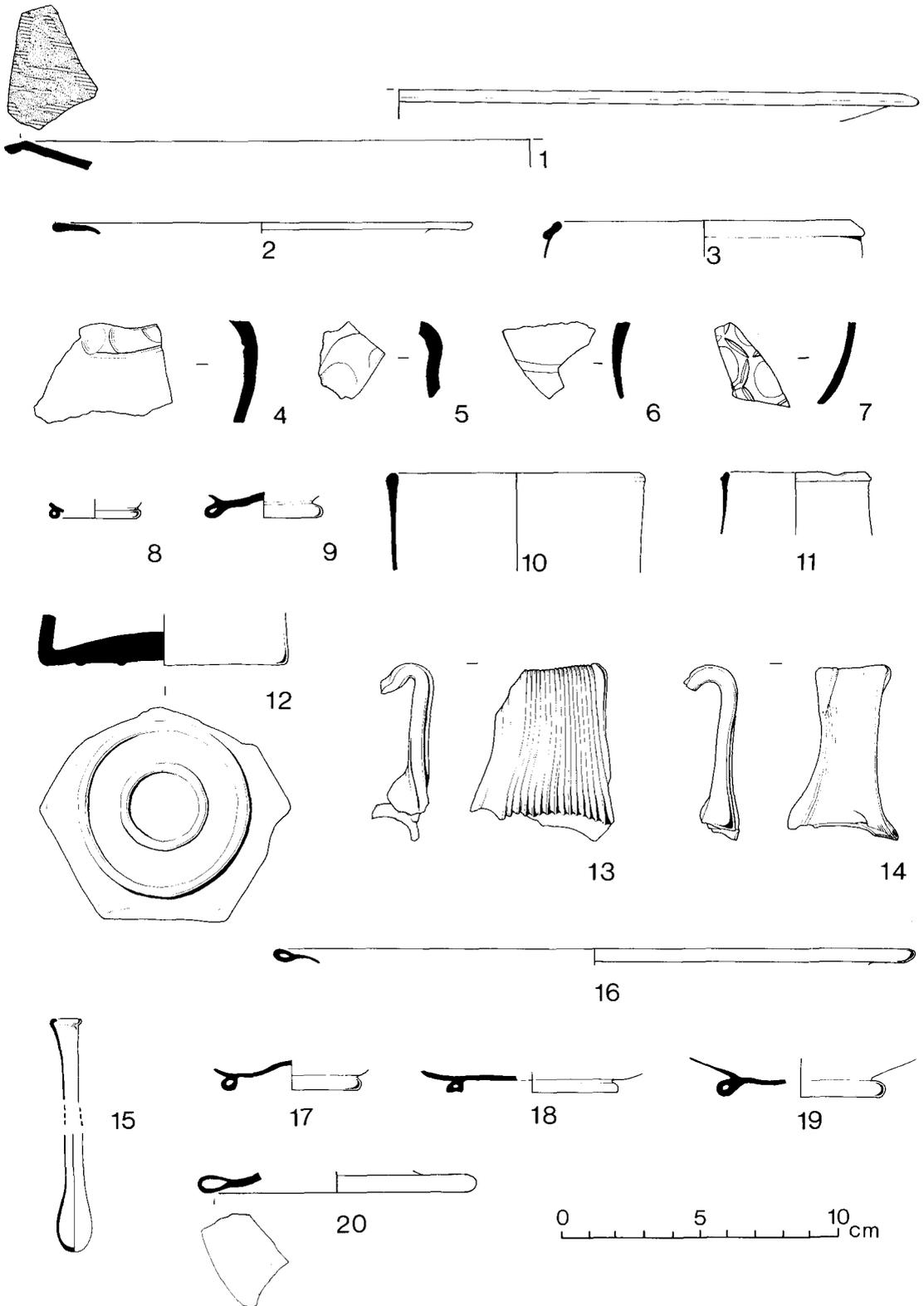


Fig. 39 Inmost Ward 1955-77: Roman glass Nos. 1-20.

Phase VI (×5)
 Phase IX (×21)
 Phase XIII (×2)

The majority of the distinctive colourless fragments come from 2nd to 3rd century wheel-cut bowls. These, usually hemispherical (Isings 1957, 113-116, form 96), bowls occur in large numbers as fragmentary finds throughout the north western provinces. Their concentration around Koln might suggest that this was the region of their manufacture. The remainder of these fragments come from the fashioned parts of simple, long-lived bowls (e.g. Nos. 12, 13). The flask/bottle rim fragment (No. 16) and the case fragment (No. 120 below) are the only fragments from the whole assemblage which might suggest some actual late supply of glass to the site rather than simple dumping. The style of this rim, with the applied trail below the lip, is distinctive of bottles from late 3rd or 4th-century repertoires.

NATURALLY COLOURED GLASS

73. (Fig. 39 No. 12) Phase V

The base of hexagonal sectioned bottle. Mould-blown, thick bluish-green glass. Base decorated in high relief, with two concentric circles. Late 1st or early 2nd century.

74. (Not illustrated) Phase V

Small fragment from the base of a bottle (e.g. Isings 1957, 63f, form 50). Mould-brown, greenish-blue glass. Base decorated with a high relief design of which just parts of two concentric circles are extant. Late 1st or 2nd century.

75. (Not illustrated) Phase XIII

As for No. 74 but the base design consists of a circle with four unconnected internal arcs of which just two are extant.

76. (Fig. 38 No. 13) Phase V

The handle from a square or hexagonal sectioned bottle. Applied to a mould-blown vessel. Thick bluish-green glass. Combed surface. Late 1st or 2nd century.

77. (Not illustrated) Phase V

Small fragment as for No. 76.

78. (Not illustrated) Phase V

Small fragment as for No. 76.

79. (Not illustrated) Phase IVc

Small fragment as for No. 76.

80. (Not illustrated) Phase V

Small fragment from the rim of a bottle (e.g. Isings 1957, 63-69, forms 50/51). Blown, thick bluish-green glass with surface decomposition. Lip folded out and flattened down. Late 1st or 2nd century.

81-108. (Not illustrated)

Twenty-eight fragments from the sides of an indeterminate number of prismatic bottles in naturally coloured glass.

Phase V (×19)

Phase VI (×5)

Phase VIIb (×1)

Phase XIII (×3)

109. (Fig. 39 No. 14) Phase V

The handle from a bulbous flask (Isings 1957, 69f, form 52). Applied to a blown vessel, thick greenish-blue glass. Plain strap hand. Late 1st or early 2nd century.

110-111. (Fig. 39 No. 15) Phase V

A small unguentarium. Blown, thin bluish-green glass. Fire-rounded lip, slightly bulbous body.

112. (Not illustrated) Phase V

Fragment from the rim and part of the neck of a trefoil-mouthed jug (Isings 1957, 74f, form 56). Blown, bluish-green glass. Fire-rounded rim. Late 1st or 2nd century.

113. (Not illustrated) Phase V

Small fragment as for No. 112 but with an infolded lip.

114. (Fig. 39 No. 16) Phase V

Small fragment from the rim of a bowl. Blown, bluish-green glass. Horizontal rim with the lip folded inwards to give a flattened hollow tubular profile. Late 1st to 3rd centuries.

115. (Not illustrated) Phase VI

Small fragment as for No. 15.

116. (Not illustrated) Phase V

Small fragment as for No. 15.

117. (Fig. 39 No. 17) Phase V

Fragment from the base of a small beaker or bowl. Blown, good quality greenish-blue glass. Pushed-in base with a hollow tubular base-ring. Late 1st to 3rd century.

118. (Fig. 39 No. 18) Phase V

As for No. 117.

119. (Fig. 39 No. 19) Phase V

As for No. 117.

120. (Fig. 39 No. 20) Phase VIIb

Fragment from the base of a flask. Blown, poor greenish colourless glass. Pushed-in base with a flared flattened hollow tubular base-ring. 3rd or 4th century.

121-282. (Not illustrated)

One hundred and sixty-two fragments of naturally coloured glass from free-blown vessels of indeterminate number and form but exclusive of mould-blown bottles (see Nos 81-108 above).

Phase IIIb (×3)

Phase IVc (×10)

Phase V (×118)

Phase VI (×7)

Phase VIIb (×6)

Phase IX (×17)

Phase XIII (×1)

283-289. (Not illustrated) Phase V

Seven fragments, as for those body fragments listed above, but all heavily distorted as a result of contact with fire.

WINDOW GLASS

290-293. (Not illustrated) Phase V, VIIb and IX

Four fragments of window glass of the blown cylinder variety. Greenish-blue. Thickness *c.* 2.5mm.

294. (Not illustrated) Phase V

A fragment of window glass of the cast matt/glossy variety. Greenish-blue. Thickness *c.* 5mm.

As one might expect, the naturally coloured

metals by far outnumber those fragments in polychrome, monochrome and colourless metals. The forms represented here are also as one might expect, bottles (Nos. 73–108), a flask (No. 109) and bowls and beakers (Nos. 73–119) the exact forms of which can not be ascertained. There are, however, also two fragments of trefoil-mouthed jugs (Nos. 112–113) which, by no means uncommon, appear to be the only vessels of any real note amongst this naturally coloured assemblage.

The bottle fragments are, in the main, from square-sectioned forms (Isings 1957, 63f, form 50). The complete base, however, is from a hexagonal example. Such bottles, though well-known, are not as common as their square-sectioned counterparts and the date for their production appears to be limited to the late 1st and very early 2nd century with an emphasis on the late 1st century (Shepherd 1982, 227f), whereas the bottle continues to be produced well into the 2nd century. The base design of this example is one of the commonest to be found on hexagonal sectioned bottles, sometimes with a small dot at the centre (this example does have such a dot but it was not intentional design, merely the traces of a compass point to mark out the concentric circles). Eight examples are known to me, all of similar size to this example but none an exact mould-link. There are five from Koln (Fremersdorf 1965/66, 31—these are not illustrated and may well have additional motifs to the designs), an unpublished fragment from Cirencester (Corinium Museum Inv. C870) and unpublished French examples from Bourges and St Medard des Pres.

The base design on the fragment (No. 75) is also of interest since such designs are not relatively common. Since the centre and the corners of the design is lacking it is not possible to tell if there was any central motif such as a circle or a point or any angle motif but designs which compare with this are known from Portugal (Alarcao 1975, 49 No. 23 and 24—Milreu and Conimbriga respectively), the lowlands (Mesch—Isings 1971, 30, No. 99) and France (Amiens, Bourges and Plessis—all unpublished—and Bois de Buis—Isings 1971, 30). Again no direct mould link exists.

Of the remaining vessels, the bowl and beaker fragments can not, sadly, be elaborated upon. As with the colourless fragments their forms were long-lived. The fragments from the jugs, however, are of particular interest. Since evidence of glass vessel manufacture exists on this site (that is, evidence of nearby

manufacture) it is possible that these fragments represent the rims of vessels that were wasted but escaped being recycled as cullet. This possibility is noted also by Isings for similar fragments from the *Canabae Legionis* at Nijmegen (Isings 1980, 303–304), where glass working is also attested. If they are, in fact, jug fragments they may be compared to those jugs dating from the early 1st century to the end of the 2nd century (Isings 1957, 74f form 56; Czurda-Ruth 1979, 140, ff).

In conclusion, the forms represented amongst this naturally coloured group—and also for the colourless group—are well-attested, expected types but concerning Nos. 73–289 above, the large number should be noted and, also, the actual volume. Taken in association with the pot-metal waste and glass working waste of the same metal discussed below, the possibility that most of this material represents cullet, collected from the hinterland of the site and not actually delivered to the site as complete vessels is more than a possibility.

THE GLASS-WORKING WASTE by JUSTINE BAYLEY & JOHN SHEPHERD

The waste material from the *c.* AD 200 internal rampart of the city wall (Phase V) (p. 12) consists of four categories of fragments—A. Furnace fragments, B. Pot-metal, C. Droplets, and D. Cuttings and wastings. (A pellet of Egyptian blue was also found.)

FURNACE MATERIAL:

Six large fragments were recovered. This was all hearth or furnace lining, coarse sandy clay that was vitrified on one surface. This happens when siliceous material is exposed to high temperatures, especially in the presence of fuel ash. The pieces are probably parts of a glass furnace as they were found associated with the waste glass and without any evidence for metal-working or other high temperature processes. Most of the pieces are very deeply vitrified (up to 4cm from the surface is glassy) and so must come from a part of the furnace such as the fire-box that was very hot for long periods at a time. The less deeply vitrified pieces probably came from relatively cooler areas further from the fire. The colours of the slag (buff through to black and blue) are due to the presence of iron, most probably coming from the sandy clay.

POT-METAL:

Thirty-six fragments were recovered, one of which is colourless, the rest naturally coloured. These fragments, very thick and of no particular form or shape, represent the contents of crucibles or tanks which have been allowed to cool, emptied (by smashing) to be remelted, presumably along with cullet, one piece has a thick layer of well fired sandy clay adhering to one side, similar in fabric to that of the hearth lining. This presumably represents the containing in which the glass was melted or it may be part of the furnace structure on which the glass was spilt.

DROPLETS:

Twelve were recovered; all were naturally coloured. These small droplets presumably fell accidentally from crucibles, furnace openings or blow-pipes onto the glasshouse floor and were not deemed worthy of retrieval for recycling.

CUTTINGS AND WASTINGS:

Only five identifiable fragments were recovered. Others, however, may be included among those distorted by fire (Nos. 283-289) above.

These five fragments, all truncated cones, have a fire-rounded lip at the narrow end and a thicker knocked off and rough lip at the opposite end. These represent the waste material either from the blow-pipe ends of empontilled vessels or the actual waste from around the mouth of the blow-pipe itself. As mentioned above, some of Nos. 283-289 may well be clippings from lips or vessels removed in the course of their manufacture which has been discarded and escaped recycling.

Taking the collection of waste glass and vessel fragments as a whole, it would appear that what has been found is part of the debris associated with a glass-blowing workshop where vessels and/or window glass were being produced. It is unlikely that the material was brought far so the glasshouse was probably fairly local to the site, though with the river close by, long distance transport was of course possible.

There is no evidence that glass was made at the workshop that was the source of these finds, only that it was melted and blown there.

Most of the glass being worked was of the natural coloured variety but there is some evidence to suggest that colourless glass was also being worked.

These finds represent one of the best deposits indicative of the glass working and, perhaps, ves-

sel glass production during the Roman period in this country, but sadly the nature of its deposition means that the actual location of any furnace and its date cannot be precisely ascertained.

The naturally coloured vessel glass associated with this waste is, primarily, of the late 1st and 2nd centuries and, if the pot-metal and the other waste fragments can be used as an indicator for a date, the colour of their metal would suggest a late 1st to early 3rd (or even late 2nd) century date, rather than later, which agrees with the date of *c.* AD 200 for the context in which they were found. If much of the glass found in association with the waste was cullet there are further dating problems since the time span between the circulation, an ultimate breakage of a vessel and its collection, sorting, storing and eventual reuse is never constant.

Before a whole industry is built on the glass finds described above it should be remembered that the total weight of the glass waste (plus vessel sherds) was only just over one kilogram.

THE COINS.

by PETER CURNOW

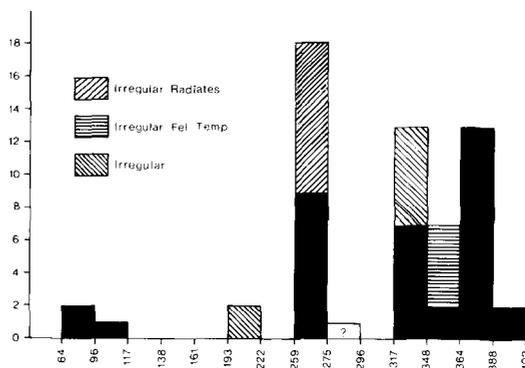


Fig. 40 Inmost Ward 1955-77: Roman coins. Total No. coins 61, coins identified 59.

THE COINS, by PETER CURNOW

No.	Obverse type	Date	Denomination	Reference (R.I.C.)	Layer
1	Vespasian	69-79	As	cf. 746	18
2	Domitian	81-96	As	354	9
3	Trajan	98-117	Dup	494	27
4	Irregular Geta	c. 200+	Irregular plated Denarius	(Obv: type of AD 200-2. Rev. Providential)	22
5	? Elagabalus	early 3 cent.	Base Denarius	—	35
6-7	Postumus	259-68	Ant	67, 85	35, 38
8	Victorinus	268-70	Ant	115	32
9	Posth. Claudius II	270	Ant	266	32
10-11	Tetricus I	270-3	Ant	cf. 100-2, 136	32, 35
12	Tetricus II	270-3	Ant	—	32
13-15	Uncertain Radiates	c. 270	AE.3 [3] (1? Carausius)	—	35
16-24	Irregular Radiates	c. 270	AE.3 [2] AE.4 [6] + minimum	—	32[2] 35[7]
25	Uncertain AE.3	—	—	—	35

No.	Reverse type	Date	Mint	Obverse type	Reference (L.R.B.C.I,II)	Layer
26	BEATA TRANQVILLITAS	321	Lyons	C II	R.I.C. VII, 150	32
27	Irregular Beata Tranquillitas	321+	cf. Trier	C I	R.I.C. VII, 303s	32
28	PROVIDENTIAE CAESS	324-30	Trier	Cs II	I 40s	Unstratified
29	GLORIA EXERCITUS (2 stds)	330-5	—	C I	—	32
30	Irregular Gloria Exercitus (2 stds)	c. 330-5+	cf. Trier	cf. Cs II	I. cf. 64	32
31	Wolf and Twins	330-7	—	U.R.	—	32
32	Irregular Wolf and Twins	330+	cf. Lyons	U.R.	cf. I, 184	38
33	Irregular Victory on Prow	c. 330+	cf. Lyons	C'opolis	cf. I, 356 etc	35
34-35	GLORIA EXERCITUS (1 std)	337-41	H of Const	Cs II	I 249	32
36	Irregular Gloria Exercitus (1 std)	35-41	Const	—	Minimum	32
37	H of Constantine—uncertain	c. 340	—	—	AE3	35
38	Irregular Vict dd Aug. nn (2 Victories)	341-8	—	Cs II	—	32
39	FELTEMP REPARATIO (th3)	353-61	—	Cs II	AE3	32
40-42	Irregular Fel Temp Reparatio (th3)	353+	—	—	AE4 [2] + Minimum	35, 32, 32
43-44	? Irregular Fel Temp Reparatio (th3)	353+	—	—	AE4 [2]	35, ?
45	VOTIS V MVLT X	361-4	—	Julian	—	35
46-48	GLORIA ROMANORVM	364-78	Rome	Vr	II 727	32
49-55	SECVRTAS REIPVBLICAE	364-78	Aquileia	VI [2]	II 996, 1032	32, 32
56-57	GLORIA NOVI SAECVLI	367-75	Lyons	G	II 345	32
58	H of Valentinian I	364-78	Arles	Vn, H of VI	II 516, 518-23	32, 32
59	VICTORIA AVGGG	388-92	Rome	G	II 726/31	36
60	SALVS REIPVBLICAE	388+	Aquileia	Vn	II 1012	32
61	Uncertain 3rd or 4th century	—	Siscia	Vn	II 1417	32
			Arles	G [2]	II 529 [2]	32
			Lyons	V II	II 389	32
			—	H of II	—	35
			—	—	—	32

Fig. 41 Inmost Ward 1955-77: Roman coins. Summary table.

THE ANIMAL BONES

by PAT NICOLAYSEN

The bones presented were found in two contexts, which were distinct both environmentally and chronologically. Both groups were examined in order to see which species were present, and for signs of any special activities. For each species, the minimum possible number of individuals present is stated; this is unlikely to be much higher in view of the small assemblage. The range of bones identified was insufficient to allow any estimation of age or sex.

PIT 12

At most, perhaps 25% of this late Roman quarry pit associated with the construction of the second Roman riverside wall was excavated, the fill being moist and stagnant—optimum conditions for the preservation of organic remains.

A total of 99 bone fragments, weighing 9.40kg, was examined. Of these, 86 (85.6%) were identifiable species; identification was uncertain for the remaining 13 fragments (14.4%), but these were all cattle size.

The bones were well preserved. No part of any animal was found in disproportionately high numbers. Butchery cuts were present on 10 of the cattle bones, including 2 scapulae, 3 humeri, 1 radius and 1 tibia. The absence of sheep bones in this context is noted.

Species present (inc. teeth)		No. of Fragments	Minimum No. of Individuals	% of Whole
Cattle	(<i>Bos</i> sp.)	59	3	59.6
Horse	(<i>Equus</i> sp.)	8	2	8.0
Pig	(<i>Sus</i> sp.)	4	1	4.0
Dog	(<i>Canis</i> fam.)	12	2	12.1
Bird	(<i>Gallus</i> sp.)	3		

DITCH 15 and 16

The second group of bones was found packed into a Saxo-Norman ditch. A total of 435 bone fragments was recovered, weighing 11.69kg. Of these, 275 (62%) were from identifiable species; identification was uncertain in a further 20 (4.3%), and there were 140 fragments (33.7%) which could be recorded as cattle-size or sheep-size.

The bones were fairly well-preserved. No part of any animal skeleton was found in disproportionately high numbers; bovine mandibles form the largest group.

Butchery marks were observed on a total of 18 bovine skull, limb and foot bones; on 4 sheep bones, and on 5 equine limb and foot bones. One sheep metatarsal had apparently been worked by man; a hole had been made in the proximal articular surface, and another in the lower posterior surface of the shaft, but the reason is unknown. The human skeletal remains consisted of the first 2 vertebrae, the atlas and axis; their presence here, in isolated from other human bones, is difficult to explain.

Species present (inc. teeth)		No. of Fragments	Minimum No. of Individuals	% of Whole
Man	(<i>Homo sapiens</i>)	2		
Cattle	(<i>Bos</i> sp.)	143	3	32.9
Sheep	(<i>Ovis</i> sp.)	84	3	19.3
Sheep/goat	(<i>Ovis</i> sp./ <i>Capra</i> sp.)	1		
Horse	(<i>Equus</i> sp.)	32	2	7.3
Pig	(<i>Sus</i> sp.)	11	2	2.5
Red deer	(<i>Cervus elaphus</i>)	1		
Bird	(<i>Gallus</i> sp.)	1		
Cattle-size fragments		55		
Sheep-size fragments		85		

MEDIEVAL

THE MEDIEVAL POTTERY

by STEPHEN NELSON

The post-Roman deposits associated with phases IX, X and XI included much residual Roman material and they presumably also present mixed later contexts as well. Although the quantity of material included in these medieval levels is small it is possible to suggest a broad dating for them.

PHASE IX

Fig. 41

The earliest phase is that concerned with the raising of the ground level behind the second Roman riverside wall. The material comes from two groups of general layers of backfilling, which were separated by the excavation of a small ditch (Fig. 3, F15 and 16). From the dumped layers there is a high percentage (some 84%) of shelly wares—fairly soft, grey fabrics with red to brown surfaces and varying amounts of shell filler. Other sherds are of soft sandy fabrics of various types. The pottery from the ditch fill (Layers 36 and 37) is significant in that there are 3 sherds from a small Thetford-type ware storage jar (No. 1); the complete side of a small hand-made cooking pot (No. 3); a thumbled rim from similar, but larger, cooking pot (No. 4) and many sherds from a sandy bowl (No. 7). From the earlier group (Layer 35) are the shelly rims (Nos 2 and 5) and the apparently wheelmade sandy rim (No. 6). The later group sealing the ditch (Layer 38) produced the shelly rims (Nos. 8 and 9), of similar fabric to No. 4, and the heavy, everted rim (No. 10). A late Saxon date is suggested by the Thetford-type ware but this may be residual, although the sherds are unabraded, and a slightly later date might be attributed to the cooking pot shapes and thumbing on rim No. 5. However pottery from the early phases (1–3) of the Jewel House excavations 1962–3 (Rednap 1983) does show vessels of similar form, especially those in Saxo-Norman sandy-shelly fabric, in contexts of the second half of the 11th century. Phase Ib also contained Thetford-type ware sherds.

(Nos 2 and 5) and the apparently wheelmade sandy rim (No. 6). The later group sealing the ditch (Layer 38) produced the shelly rims (Nos. 8 and 9), of similar fabric to No. 4, and the heavy, everted rim (No. 10). A late Saxon date is suggested by the Thetford-type ware but this may be residual, although the sherds are unabraded, and a slightly later date might be attributed to the cooking pot shapes and thumbing on rim No. 5. However pottery from the early phases (1–3) of the Jewel House excavations 1962–3 (Rednap 1983) does show vessels of similar form, especially those in Saxo-Norman sandy-shelly fabric, in contexts of the second half of the 11th century. Phase Ib also contained Thetford-type ware sherds.

1. Three large, unabraded sherds from near base of Thetford-type ware storage jar. Even dark grey fine sandy fabric with applied thumbled strip and evidence of fettling on lower inner surface. (Layer 37).
2. Two sherds from straight everted, slightly expanded rim of sparse shelly dark grey cooking pot. Slightly lumpy hand-made appearance. (Layer 35).
3. Various sherds making up complete side of small cooking pot. Fabric similar to previous sherds but slightly sandy and shelly and oxidised brown internal surface. Completely hand-made and heavily sooted on outer surface. Shape is typical of the squat medieval baggy form but very small. (Layer 37).
4. Large everted rim with outer thumbing; fabric sandy/shelly as No. 3 but a cooking pot of larger size. (Layer 36).

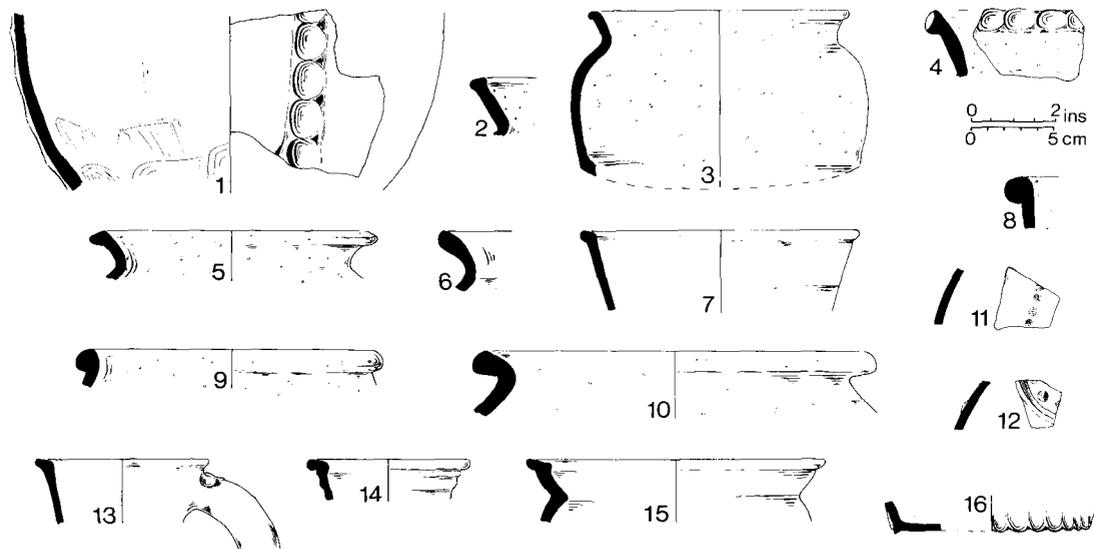


Fig. 42 Inmost Ward 1955–77: Medieval pottery Nos 1–16.

5. Simple everted squared rim sherd in even brick-red fabric, oxidised throughout—sparse shell content. (Layer 35).
6. Simple everted, very slightly expanded rim in smooth, even sandy dark grey reduced fabric with blotchy brown outer surface. Irregular profile apparently wheelmade. (Layer 35).
7. Many small sherds from fine sandy deep bowl in grey fabric with brown inner surface; hand-made. (Layer 37).
8. Rolled rim from bowl in brick-red shelly fabric similar to No. 5. (Layer 38).
9. Another in similar fabric but grey core. (Layer 38).
10. Large heavy expanded rolled rim in very fine sandy, very slightly shelly, light grey fabric with light brown outer surface. Both this and No. 6 are apparently wheelmade—fine horizontal rilling is just visible—and shape seems to be of Saxo-Norman upright cooking pot form. (Layer 38).

PHASE X

Fig. 42

The group of material associated with the robbing of the first Roman riverside wall (Layer 39) was very fragmentary and included many residual medieval shelly ware sherds but also, significantly, a high proportion of decorated, glazed jug sherds mostly Mill Green type ware (Nos. 11–13) very similar to the examples published from the nearby Wakefield Tower. The pottery there is described fully by Thorn and Moorhouse (Apted, Gilyard-Beer and Saunders 1977) and a mid to late 13th-century date demonstrated. Only two sherds of medieval Surrey White ware were recovered from the 13th-century levels associated with the tower and it is significant that only one possible sherd of this fabric occurred in the deposits associated with the robbing of the Roman river wall. There is also one very small scrap of Andenne glazed ware (unillus) in smooth, orange/buff fabric with light orange outer glaze and typical brown flecking. A much larger group of similar 13th-century material was found in 1974–5 in a sequence of defensive ditches on the north side of the Wakefield Tower (Redknap 1983). The infilling of these features was dated by documentary evidence to c. 1190–1220 and c. 1225–35.

11. Body sherd from jug in fine, sandy light grey fabric with brown surfaces, outer surface glazed and decorated with white slipped pellets and strip. (Layer 39).
12. Similar sherd with white slip circle and pellet decoration and dark green glazing. (Layer 39).
13. Jug rim and handle in fine, sandy red fabric with light grey core and traces of white slip on inner surface and green glaze on outer, applied 'ears' on handle. (Layer 39).

14. Jug rim sherd in light grey off-white sandy fabric with pale watery light yellow-green glaze on outer surface. (Layer 39).

PHASE XI

Fig. 42

From the construction trench for the late medieval angle buttress W.12 (Layer 41) and overlying deposits (Layer 42) came a small group of material comprising, as expected, residual medieval sherds including a small fragment of plain green-glazed Saintonge jug (unillus) in characteristic smooth off-white fabric with creamy inner surface. There were also 3 sherds of Surrey White Ware and a sherd from a post-medieval redware white-slip jug. The Surrey ware rim (No. 15) is a 15th century rather than 14th century type and the continuously thumbled base (No. 16) is of creamy-buff colouring more typical of the later Surrey White Wares. This latter sherd shows the rounded red quartz inclusions characteristic of the Kingston kiln products which are probably of 14th century date. The group would seem to indicate a late medieval date for the buttress construction sometime towards the end of the 15th century.

15. Angular rim sherd in coarse sandy off-white fabric showing moulded internal ledge, presumably for lid seating. Unglazed and heavily soot blackened on outer surface. (Layer 41).
16. Thumbled base of jug in creamy/buff sandy fabric, red inclusions and specks of green glaze on under side (another small sherd in same fabric, but with deep green glazing, occurred in this layer). (Layer 42).

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EXCAVATIONS AT ELSTREE HILL SOUTH, 1981–1983

GEORGE SALVESON and LYN BLACKMORE

SUMMARY

Chalk and pebble surfaces overlay two ditches, pits and post-holes of 13th/14th-century date, which produced a quantity of medieval pottery in the South Hertfordshire tradition. Elsewhere a pebbled surface with a possible beam slot was uncovered.

INTRODUCTION

Elstree is situated on a low hill of Claygate beds capped with pebble and gravel (Wooldridge 1969, 2), with an elevation at its highest point of 138m OD at approximately one mile north of Brockley Hill (Fig. 1b). The present-day village has a complex topography. It straddles the boundary between Middlesex and Hertfordshire, and on the Middlesex side is further divided between the boroughs of Barnet and Hendon by the A5/Elstree Hill South, which follows the line of Watling Street from Brockley Hill, the probable Roman settlement of Sullonicae, c. $\frac{3}{4}$ mile to the south-west, to Verulamium (The Viatores 1964, 21–2). The northern side of the village borders onto the large estate of Aldenham Park, but the remainder is surrounded by farmland. The greater part of the village, including the oldest standing buildings, lies in Hertfordshire, but the excavations described below show that part at least of the Middlesex side was occupied in the medieval period. That part of the village which lies in Harrow now consists almost entirely of modern council developments. In 1980 these surrounded a large playing field which formerly belonged to a private school accommodated in the 18th-century property Elstree Hill House situated opposite the field on the Barnet side of the A5 (now used as a rehabilitation centre for patients from Shenley Mental Hospital).

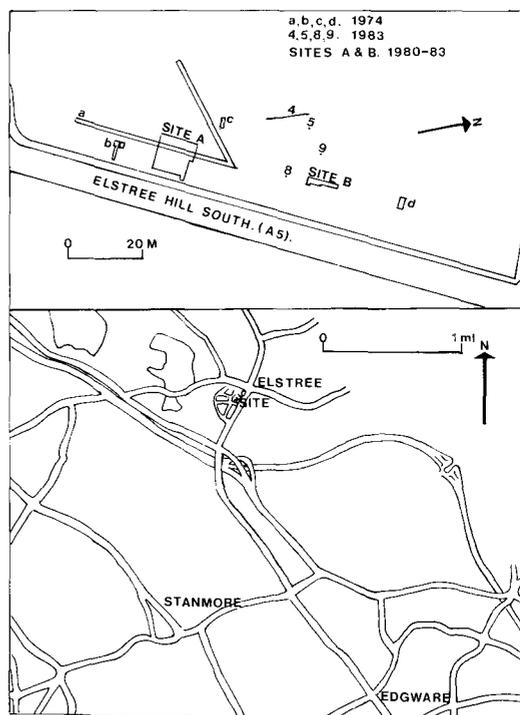


Fig. 1a) Elstree 1981–83: Location of excavations. Fig. 1b) Elstree 1981–83: Location of site within the immediate locality.

In 1980 the Harrow Borough Council were considering plans for the development of the playing field as a council estate. Previous archaeological work and documentary evidence suggested that there were potential Roman and medieval sites in this area, and at the suggestion of Mr S. Castle that further investigation of the field was required, the Stanmore and

Harrow Historical Society obtained permission from the Council to carry out rescue excavations in advance of the proposed development of the site. These were carried out between 1980–83, mainly at weekends, by members of the Society, who excavated a total of 67.5sq.m by hand. The finds are housed in the Harrow Museum and Heritage Centre; the site records are with the director of the excavations (G. Salvesson). In 1983 further site-watching was undertaken by Robert Ellis of The Museum of London, Department of Greater London Archaeology (Fig. 1a, Nos 4, 5, 8, 9; see below); site records are with the D.G.L.A.

DOCUMENTARY EVIDENCE.

The name of Elstree derives from the Anglo-Saxon 'Tidwulf's tree', the 'T' being lost in a wrong division of 'aet Tidwulfes treo' (Gover *et al* 1938, 74; Ekwall 1960, 165). The earliest mention of 'Tidulfres treow' is in an 11th-12th century transcript of a charter dated AD 785 (Birch 1885–93, No. 245; Sawyer 1968, 103, No. 124), in which lands at Altenham (Aldenham) were granted by Offa to the Abbey of St. Peter at Westminster. The authenticity of this document, however, is doubtful (*ibid*, 103). The name alters from Tythufes in the 10th century through Tydolvestre in 1188 (Gover *et al* 1938, 74), Tydulnestre in 1253 (Webb 1921, 485), Idelstree in 1374 (Webb 1921, 169), to Ilstrey in the 16th century (*ibid*, 356). At the time of the Norman conquest the village was divided between Cashio Hundred (Herts.) and Spelthorne Hundred (Middx.). The latter, which lay in the Manor of Stanmore Parva, or Little Stanmore, was granted by William I to Roger de Rames, who also held the Manor of Charlton, Middlesex, and other estates in Essex and Suffolk (Pinder 1969, 100, 109, 116). The Manor of Little Stanmore was valued at 9.5 Hides in 1066, and at 9

Hides and 2 Virgates in 1086 (*ibid*, 137–8). By 1130 Little Stanmore was divided between Roger II de Ramis and Robert de Ramis (Bayliss, 1957, 5). The northern part of the estate was held by Robert, while Roger II held that part which lay to the south of a road leading from Stone Grove, on Watling Street, towards Watford. Both Roger II and Robert gave grants of land and church buildings to the Cannons of St. Bartholomew's Priory, Smithfield, including the church of St. Bartholomew's at Tydulfnestre, given by Robert. The church of St. Lawrence at Little Stanmore was donated by Roger II, while further grants of land in Eggesware and in Essex were made by Roger's son William de Rames, or Reymes (Webb 1921, 102). These grants (and others made to the monastery during the first 64 years after its foundation) were later confirmed in a charter of Henry II, dated to between 1175–79 (*ibid*, 100, 102, 354), and are also referred to in a charter of Henry III, dated 1253 (*ibid*, 485, No. 16). There appears, however, to have been some confusion over the possessions of St. Bartholomew's in the Elstree area (*ibid*, 357). There is no record of a church or chapel in the Rental for Elstree itself; instead this appears in the Rental for Aldenham, although the latter place is not mentioned in any charter. This Rental (Bodleian Library, MX Roll 1), thought to be a transcript made in the reign of Henry VII of the Rental of 1306, refers to two crofts in the parish of Boshey (Bushey), for which the rent was 2s 6d to be paid yearly on the feast of St. Bartholomew's, at the 'cappella' at Idelstree (*ibid*, xxv, 456).

PREVIOUS WORK

Interest in the archaeological potential of this field was initially raised by the existence of a low bank running along the west side of Aldenham Park, identified as

the ‘agger’ of a minor Roman road, route 169 (The Viatores 1964, 201–203–4). It was suggested that if the line of this bank were projected through the field, it would meet Watling Street at the approximate midpoint of the field’s frontage with the road (*ibid.*, 203, Map 405). Other Roman sites in the area include the settlement at Brockley Hill, the probably site of *Sullonicae*, where excavations have revealed evidence for occupation from the Belgic period until the 4th century (Vulliamy, 1930, 300–07; Celoria and Macdonald, 1969, 66 and refs. therein; see also publications by S. Castle in these *Transactions*, 1972–1976). Tile and pottery kilns, exploiting the natural sandy clays of the area, were in operation at Brockley Hill *c.* AD 70–80; other kilns have been found *c.* 5 miles to the north at Radlett, in Herts, (Page 1897–99, 261–70), while in Elstree itself Roman pottery and a tile kiln were found only 520m to the north of the present site (O’Neil 1951, 229–33). In the medieval period, charters referring to a chapel of St. Bartholomew at Elstree (see above) suggest that this was on the Middlesex side of the village, and to the west of Watling Street. In 1950 finds of redeposited sherds of 13th-century pottery, some apparently wasters, derived from road-works nearby in Barnet Lane (Biddle 1961, 65–9; finds now in Watford Museum), also suggested medieval occupation in the area. In 1974, therefore, when plans for the development of the field were first before the Borough Council, it was decided to mount a trial excavation to assess the evidence for the Roman roads and medieval chapel (Castle and Hammerson 1978, 151–2). Two machine trenches and three small hand-cut trenches were examined (Fig. 1a, a–d). These produced no evidence for the features being sought, but two shallow ditches containing small amounts of medieval pottery were revealed in one of

the hand-dug trenches, while Roman and medieval sherds were found in a pit excavated in the north-eastern part of the field. The following year gypsy encroachment onto the site led to the excavation in 1976 of a ditch immediately alongside the pavement of Elstree Hill South in order to prevent motor access to the field. This produced a further quantity of medieval pottery, including an almost complete cooking pot (Castle and Hammerson 1978, 151–152). This pottery, and that recovered from the 1980–83 excavations is very like that derived from Barnet Lane (Biddle 1961, 65–9).

THE EXCAVATION

The 1980–83 excavation was designed to examine a wider area than was possible in 1974, and to recover further information for the two medieval ditches. Two areas were examined (Fig. 1, Sites A and B), both excavated entirely by hand. Site A (*c.* 67.5sq.m) comprised four trenches, Areas 1–2, excavated in 1980–81, and Areas 2–4, excavated in 1982–83. Area 1 (*c.* 20sq.m) lay *c.* 45m north of the south-east corner of the playing field and 10m in from Elstree Hill South (A4); this was later extended to the south-east by a further 12.5sq.m (Area 2), and northwards by Area 3 (25sq.m), leaving a 1m baulk between Areas 1 and 3. Area 3 was later extended towards the south-east by Area 4 (10sq.m adjacent to Area 2). Following exploratory auger tests in 1983, Site B, a trench 2m by 8m, was excavated 43.75m to the north of Site A and 10m in from the road.

SITE A

PHASE 1a (Figs 3, 8)

The earliest features were eight post-holes (F26, F38–F44), and a shallow ditch (F32). The post-holes would appear to represent the south-west end of a post-built rectangular timber structure constructed on a NE–SW alignment. F42 is slightly misaligned with post-holes F26 and F41,

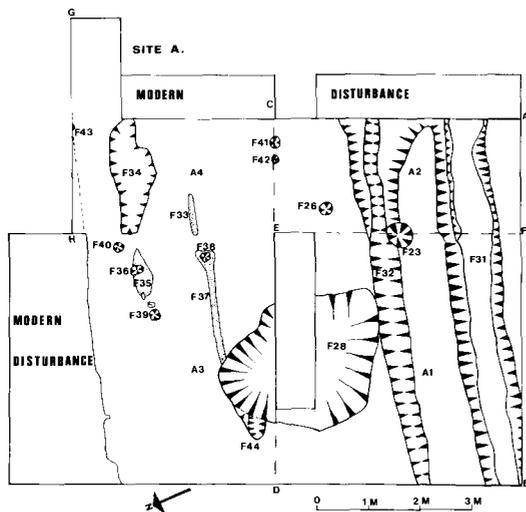


Fig. 2 Elstree 1981-83: Site A. Composite plan of Phases 1a, b and c.

but is probably also a part of this structure. A ninth post-hole, F36, may also be a part of this phase (see Phase 1b).

No pottery was found in the fill of the post-holes, and only one sherd of S. Herts. grey ware was found in F37, but the structure lay just to the north of, and appeared to be contemporary with, a narrow east-west ditch (F32). The eastern end of this ditch produced a quantity of pottery dating to the mid 13th-century, including an almost complete cooking pot, and numerous

large sherds up to 14cms across (Figs 13, 14). The ditch was *c.* 1.0m deep at the eastern end, where the ground level rises toward the present road, but became very shallow toward the western limit of excavation, where it was barely visible. Other finds from this feature include a fragment of a Niedermendig lava quern, and an iron arrow-head (Fig. 19). This ditch may have served as a drainage ditch, or as a boundary to the property. It appears to have been left open, rather than deliberately backfilled, but eventually silted up with two silty deposits (L119, lower and L118, upper), distinguished by slight variations in colour.

PHASE 1b (Figs 4, 8)

Cutting into L118 was a large post-hole, F23. This post-hole, which was filled with a silty clay (L64), may be aligned with two smaller post-holes (F36, and F38). Two gullies (F33, F37, both 5cm-10cm deep), a pit or sump (F44) and a silty deposit (F35) around F36 may also belong to this phase. The first gully (F33, *c.* 75cm long) lay to the north-east of, and stopped *c.* 35cm short of, F38; the second (F37) continued the line of F33 towards F44. The fill of F44, like that of F33 and F37, was of a silty nature, with only a few pebbles and occasional small fragments of Roman tile. Gully F37 was cut by a large pit (F28), which destroyed all evidence of its relationship with F44. The association of post-holes F36 and F38 with areas of water collection is unclear. It is possible that water collected around posts F36 and F38, and

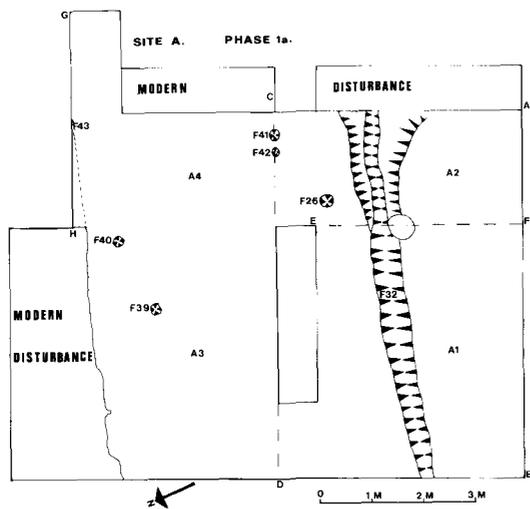


Fig. 3 Elstree 1981-83: Site A. Phase 1a.

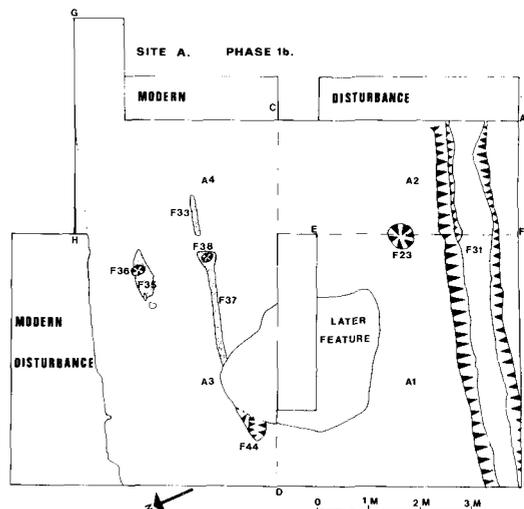


Fig. 4 Elstree 1981-83: Site A. Phase 1b.

that gully F38 was cut in order to drain water off into F44; F36, however, appeared to be cut through F35, and may therefore be a part of the Phase 1a rectangular structure.

To the south of F23 was an east-west ditch (F31), broader and deeper than F32, which may indicate a slight enlargement of the property. The ditch, which was 0.75m deep, and 1.0m wide, was filled with silts (L117) which seemed to extend over the surrounding area.

PHASE 1c (Figs 5, 8)

Three features (F24/25 and F28 and part of a pebble surface (L68, over L117), are clearly later than those in Phase 1b. A long shallow pit (F34) c. 40cms deep, just to the north-east of post-holes F36 and F40, however, although cut at the eastern end by a modern feature (F3), has no stratigraphic association with the earlier features, and its function is obscure. Pit F34 contained two deposits, the lower (L121) a dark grey silt, the upper (L122) an orange-grey silt with flecks of charcoal, and fragments of Roman tile. This pit is dated to the 13th century by one sherd of S. Herts grey ware, but may belong to either Phase 1b or Phase 1c.

F24/25 was a complex feature cut into the silty deposit sealing the Phase 1b ditch (F31), which comprised two elements. F24 was a shallow bi-lobed pit (max. 50cm deep) which overlay L117 and partly cut through the fill of ditch F32. It was filled with a deposit of silt with ash (L225) which contained numerous pebbles and much charcoal, including beech (*Fagus* sp.), willow (*Salix* sp.), oak (*Quercus* sp.) and hawthorn (*Pomoidiae*). The western half of F24 was sealed with a circular pad of clay (L75). F25 was a long, narrow feature extending from the south-east corner of F24, filled with a fine silt with occasional pebbles. F25 appears on plan to be cut by F24, but it also cut L117, and seemed to be contemporary with F24. F24/25 produced a quantity of 13th-century pottery (mainly located in F24), including substantial fragments from two cooking pots with soot-blackened outer surfaces (Fig. 18, Nos 22, 25). These, together with the lack of wasters, suggest that F25/25 was a hearth, rather than a kiln.

F28 was a large deep pit (max. depth c.1.50m), which cut gully F37 and also F44. It apparently extended through the baulk between Areas 1 and 3, and was therefore not totally excavated. The greater part of the pit lay in Area 1, where the upper fill consisted of numerous tips of silty material (L105, L108-L113), differentiated by slight variations in

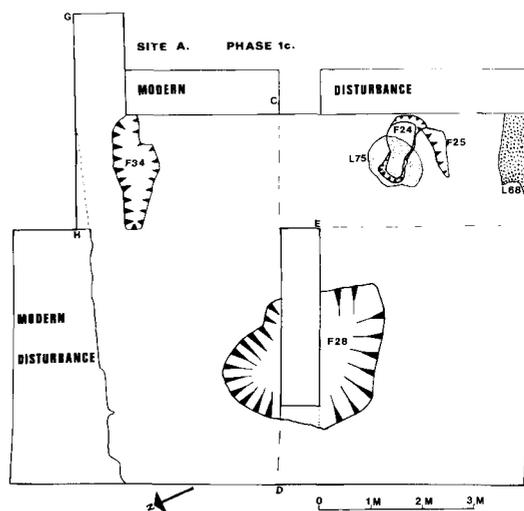


Fig. 5 Elstree 1981–83: Site A. Phase 1c.

colour. The lower fill (L114, L114a) comprised layers of reddish silty clay with much charcoal, including oak (*Quercus* sp.), beech (*Fagus* sp.) and willow (*Salix* sp.), suggesting that some burning had occurred in the pit. These deposits were not seen in Area 3, where there were fewer layers in the pit (L115, L116, L107, L106); these slumped down towards Area 1. The very wet conditions at the time of excavation (winter 1980–81) and the collapse of part of the baulk prevented a section drawing of the pit in Area 1, but a section was obtained in Area 3, which was excavated later in the year (Fig. 9). The pit contained a few fragments of Roman tile, some quite large (c. 20cm by 30cm), and also a rim sherd from a Brockley Hill, type mortarium. Only a small amount of medieval pottery was found in F28, compared with that found in the eastern lobe of F24, and the function of the feature is unclear.

The dating of this phase is problematical, since the pottery from F24/25 is very similar to that from the ditches; it would appear that there was a frequent change of land-use, and that all three phases may be dated to the 13th century, with Phase 1c possibly continuing into the early 14th century.

PHASE 2a (Figs 6, 8)

At some time between Phase 1c and Phase 2b a thin pebbled surface was laid (L48, 5–10cm deep), which sealed the site. This produced a few small sherds of S. Herts. grey ware, and a silver 3d coin of Elizabeth I, dated to 1582. If

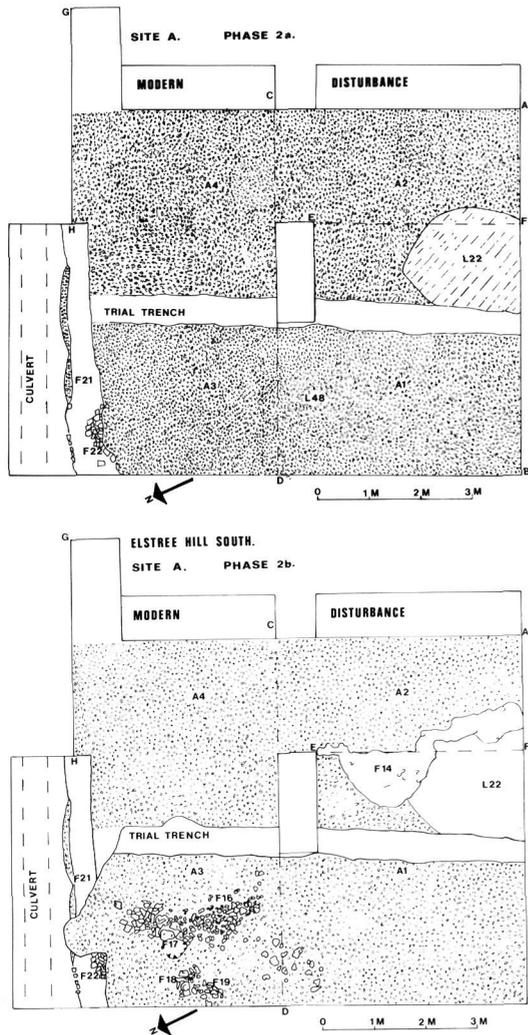


Fig. 6 Elstree 1981-83: Site A. Phases 2a and 2b.

not intrusive, this suggests that the site lay undisturbed for some 250 years before the surface was laid, probably shortly before the development of the site in the late Tudor or early Stuart period. During Phase 2a most of the excavated area appears to have served as a yard; the pebbled surface (L48) survived in patches, and a layer of compacted peg-tile (L22) over part of the ditch F31 may have been laid in order to consolidate the possibly less stable or wetter ground in this area. This deposit produced a small amount of late 16th-/early 17th-century pottery, including fragments of blackglazed tyg and green glazed white wares.

The area was bounded by an east-west wall on the northern side of Area 3. This had been robbed out (F21), but survived at the western end as a line of bricks (F20) and a small area of poorly laid foundation (F22) comprising three courses of incomplete brick laid untidily and without mortar. This structure cannot be closely dated since the deposits in the immediate vicinity of the wall had been greatly disturbed in the late Georgian period by the construction trench for a brick culvert from Elstree Hill House, which ran parallel to the north-eastern side of the wall. The small amount of pottery from the undisturbed levels consisted of red wares typical of the 17th-18th centuries. Part of F22 was sealed by a small extension of the pebbled surface (L60) which was interleaved with Phase 2b deposits. It would appear, therefore, that the wall was constructed in the early Stuart period, and demolished some time before the later buildings on the site were constructed.

PHASE 2b (Figs 6, 8)

Following the demolition of the wall the rubble was apparently cleared away, since there was no destruction level; the pebbled surface (L60) was partly repaired. An enigmatic pile of flints (F14) around the tile layer (L22), and in some places sealing it, may represent some Phase 2b building material surplus to requirements. The main features in this phase comprise a number of flint clusters lying on the later pebble surface (L60). Four large flints (F17) were evenly laid in a roughly square arrangement. A second group of seven flints (F18) lay *c.* 1.0m to the west of F17, adjacent to which was a cluster of smaller flints (F19). Numerous isolated flints lying on the pebbled surface were revealed in the excavation of the baulk between Areas 1 and 3, but these formed no coherent pattern, and perhaps represent later demolition debris. An area of brick and flint rubble (F16) between F17 and the south-east edge of Area 3, and a further pile of tile fragments with some brick and flint (L58) to the north of F17 may also constitute further demolition rubble. It is suggested that these features represent the destruction of part of a timber-framed building. The date of this activity depends on a George II halfpenny, lost no earlier than the 1720s, and a knife handle of mid-late 18th-century type. There was very little pottery.

PHASE 2c (Figs 7, 8:E-F)

In the mid-late 18th century the Phase 2b structure was demolished and two layers of chalk

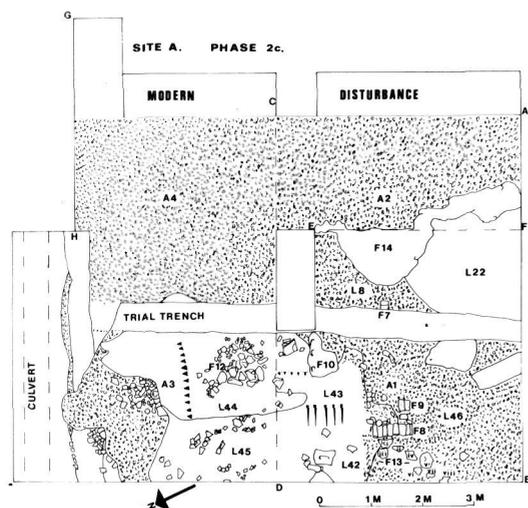


Fig. 7 Elstree 1981–83: Site A. Phase 2c.

were laid. The lower, *c.* 25cms thick (L42 in Area 1; L45 in Area 3) extended some 5m along the western limit of excavation through Areas 1 and 3, and some 1.5–2m to the east, where it was partly overlain by a second deposit, *c.* 20cms thick, of fairly clean chalk (L43 in Area 1; L44 in Area 3). The western edge of L44 was defined by a step of *c.* 25cm down onto L45. A quantity of brick and tile rubble lay against this edge, and also covered much of L45. The transition between the two deposits in Area 1 was again a steep slope. Lying along the eastern edge of L43 and L44 was a line of flint nodules of unknown function (F10 in Area 1; F12 in Area 3). The southern edge of the chalk surface in Area 1 was partly overlain by a pebble surface (L46), which extended across Area 1. Constructed on layers 43 and 46 was the corner of a brick-built feature. The north-south wall (F8) survived as two courses, of which the upper comprised seven complete bricks laid header fashion; the east-west wall (F9) consisted of two headers only. There was a gap between F8 and F9, which was filled with a loose half-brick. Two half-bricks (F7) embedded in a pebble layer (L8) may represent part of an eastern continuation of F9. To the west of F8 were a number of flints (F13i–viii) which continued into the western edge of the excavation. The quantity of bone and the mundane nature of the pottery (mainly kitchen-wares with slipware dishes and some green-glazed white-ware) from the deposits sealing these features suggest that they were associated with one, or possibly two out-buildings.

Towards the end of Phase 2c the large bricks culvert from Elstree Hill House was constructed in a deep trench which ran east-west across the northern side of Area 3. The construction trench for the culvert contained sherds of red-ware with some black-glazed wares; the culvert itself was not excavated.

PHASE 2d

The destruction of the Phase 2c building(s) was evidenced by a tumble of large brick and tile fragments (L19, L21) over the brick sill (F8) and the flints adjacent to it. The demolition debris (L40) over the chalk surfaces in Area 3 was sealed by a layer of pebbles with some tile fragments (L32, max. depth *c.* 25cm). This deposit was also found to the east of the flint nodules (F12), although here it contained more gravel and seemed to be part of a thick pebble layer (L12) which covered the eastern part of the site. The distinction of two deposits here was prevented by the location of the 1974 trial trench. This pebble layer and the destruction debris L40 were later covered and levelled with dumps of clay of variable depth (L9, L10, L11, L12, L18, L20, L31), on which a final pebbled surface was laid (L8, partly shown on Fig. 7).

Modern features include a sand-pit, probably used by the school, a service trench (F3) back-filled with yellow clay, and a shallow feature (F5), *c.* 3m long and with rounded ends, which lay on an east-west alignment.

SITE B (Figs 9, 10, 15–18)

Exploratory auger core tests carried out by G. Salvesson some 40m to the north of Site A produced quantities of medieval pottery from all depths, and revealed a hard surface 0.75m below the modern ground surface. It was therefore decided to investigate this area.

The initial trial trench (1m by 2m) revealed that the area had been greatly disturbed by the construction of a modern concrete floor. This was sealed by a mixed deposit (L2) of clay, loam, turf, brick and concrete rubble. In the southern part of the trench, however, a small area of pebbled surface (F17) survived, sealed by deposits of silt (L16, grey; L3 and L4, darker blue grey) which contained medieval pottery. Following this discovery the trench was extended by a further 4m to the south, where it was found that the pebbled surface (L17) continued across the entire area examined, with patches of natural hard grey, ferruginous concretion. A small extension from the south-east corner of the trench showed that the pebble layer became thicker at

this point, but that it was cut away by a post-medieval ditch filled with mixed clay and building debris. In the main trench, L17 was cut by an east-west feature (F3, 20–40cm wide, *c.* 25cm deep), possibly a beam slot, which was filled with a fine blue-grey silt with some large pebbles (L18). Along the northern edge of F3 was a line of larger pebbles, flint nodules and some large fragments of Roman tile, perhaps part of the packing still in place. It was not possible to extend the excavation in order to obtain a fuller plan, but two possible hearths observed during the subsequent building works (Fig. 1a, 8, 9; Fig. 11, F8, F9) suggest that there may have been a timber building of some kind in this area. As in the first trench, layer 17 was sealed by a silty deposit ranging from grey to dark grey streaked with orange (L16); this contained much medieval pottery similar to that from Site A, although the sherds were generally smaller in size. The greater part of L16 was sealed by a deposit of light-tinger-coloured sandy clay (L10), and a fine ginger-grey soil just below the turf-line (L3). These layers contained a quantity of medieval pottery together with later material.

DISCUSSION

The medieval features revealed suggest that in the 13th and early 14th centuries the village of Elstree covered a more extensive area than in later periods (until 20th century), and that the area fronting onto the west side of Watling Street may have been divided into various properties by boundary ditches. On

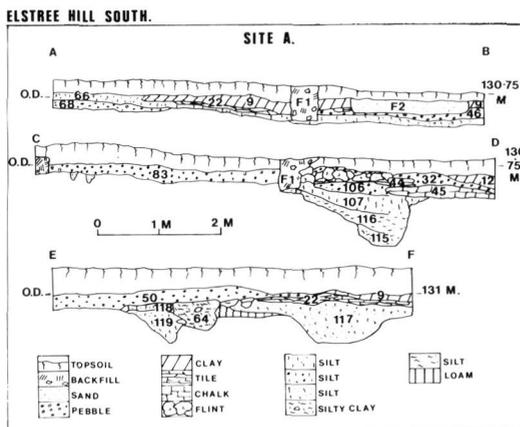


Fig. 8 Elstree 1981–83: Site A. Sections A-B, C-D, E-F, Phases 1 and 2.

ELSTEE HILL SOUTH.

SITE B.

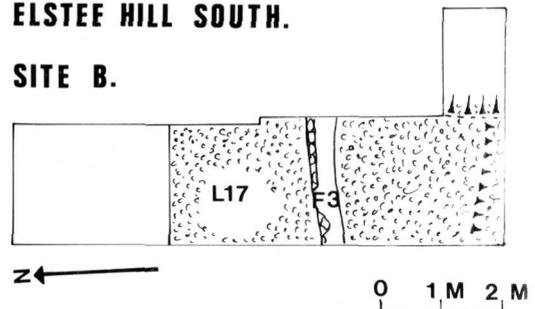


Fig. 9 Elstree 1981–83: Site B. Plan.

the northern side of the village low mounds and a possible causeway, noted previously (O'Neil 1951, 10, 232) and visible to this day (1986), suggest that the medieval settlement may have extended further in this direction also.

Three phases of medieval features were identified, although their precise chronology is hindered by the homogeneous nature of the pottery recovered; it is suggested however that Phase 1a dates to the early-mid 13th century, Phase 1b to the mid-late 13th century, and phase 1c to the late 13th-early 14th century. The association of the Phase 1a building with the early ditch F32 is tentative, but similar post-built structures adjacent to shallow boundary ditches have been noted on a number of sites, such as Broadfield, Phase 1, dated to *c.* 1220 (Klingelhofer 1974, 8, 17, Fig. 8), and Wythemail, Phase 1, dated to the early 13th century (Hurst and Hurst 1969, 173–4, Fig. 52). At Elstree one or two fragments of burnt daub with wattle impressions were found, but the archaeological remains gave no conclusive evidence for the nature of the superstructure, which can only be deduced from other sites. At Goltho, in Lincolnshire (Beresford 1976, 21, Fig. 11), and at Barton Blount, in Derbyshire (Beresford, 1976, Figs 9, 10), where the plans of similar structures were recovered, it was postu-

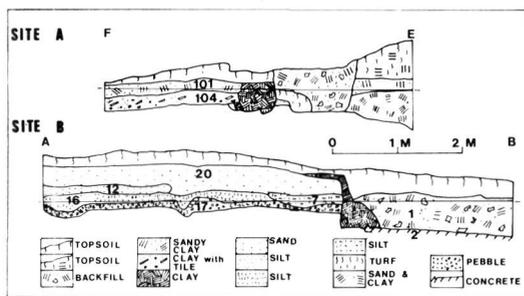


Fig. 10 Elstree 1981-83: Site A. Section G-H, Site B. Section A-B.

lated that the timber uprights were enclosed in a thick clay wall (Beresford 1976, 37-40). The association of the Phase 1b features is tentative, but is supported by the homogenous nature of the deposits found in them. Conclusive

evidence for a later building is lacking, but it is clear that the property was slightly enlarged by a new, deeper drainage ditch, perhaps an attempt to cope with the apparently wetter conditions at this time. The silty deposits associated with the end of this phase all point to a deterioration in climate such as has been noted elsewhere in the late 13th and early 14th centuries (Beresford 1979, 142-6). The Phase 1c features may have been related to occupation outside the area of excavation, but appear to have been short-lived, and the area was then abandoned until the post-medieval period. The cycle of mild wet winters and cold damp summers and resulting poor harvests attested at this time (Beresford 1979, 142-6), the onset of cattle murrain (Davis 1973, 6, 12), and the later Black Death may all have contributed to a shrinkage in the size of the village, but an excavation inside No. 12 High Street produced evidence for continuing occupation of this site in the medieval period (Castle pers. comm., showing that Elstree was never fully deserted. The post-medieval structures revealed during the 1980-83 excavation were ephemeral, but suggest yard surfaces and out-buildings associated with a farm.

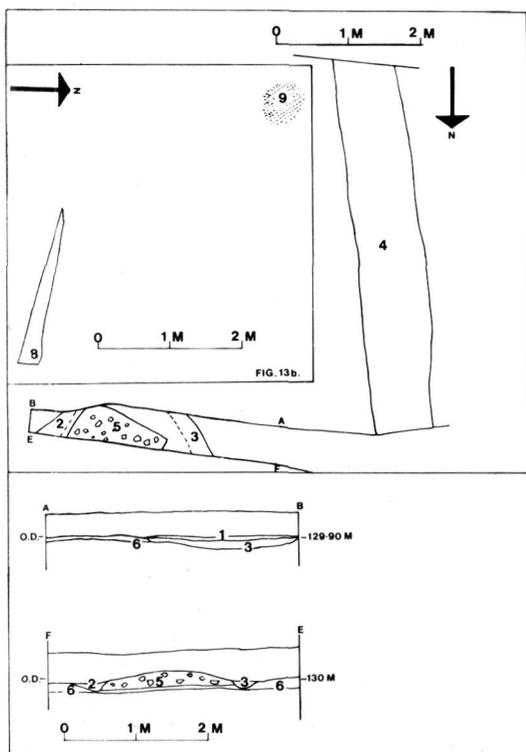


Fig. 11 Elstree 1981-83: Features noted during site watching. Fig. 11a, hearth (5) and ditch (4). Fig. 11b features (8) and (9), Fig. 11c Sections A-B and E-F.

SITE-WATCHING AT ORANGE HILL PLAYING FIELDS, ELSTREE, 1983

by ROBERT ELLIS

Between May and July 1983 the Department of Greater London Archaeology carried out site-watching during redevelopment at Orange Hill Playing Fields, Elstree (TQ 1765 9515). Extensive trenching took place for the foundations of houses, provision of services, and construction of roads.

A number of features of archaeological significance were recorded, principally a hearth and a probable ditch dating to the 13th century (Figs 11a, b, c). A portion of what appeared to be the remains of a hearth (5) was exposed and examined (Fig. 11a). This comprised a central raised plinth of clay, burnt red on its upper surface, with cobbles, tile fragments, and one large flint fragment. It may originally have been square (*c.* 1.95 m. width), with what appeared to be a surrounding gully containing ash (2 and 3). It was not possible to ascertain its function; pottery recovered from 2, 3, and 5 was dated to the 13th century (fabric types 2ib, 2ii, 3). To the south-west of the hearth was a linear feature, apparently a ditch, running *c.* N-S. It was exposed for *c.* 5 m of its length and was *c.* 1 m wide (plan 2). It was not possible to determine its depth; a small quantity of 13th century pottery was recovered from the fill (pottery groups 1, 2, and 3), and also a fragment of ? Roman tile. A layer of grey-brown mottled clay (8) was also exposed (Fig. 11c). It had the appearance of being composed of dumped material rather than being associated with an occupation level. Some 175 sherds of 13th-century pottery were recovered from 8 (fabric types 1, 2, 3), including poorly fired examples and some daub. An area of burnt clay (9), perhaps another hearth (Fig. 11c), was noted by a member of the Stanmore and Harrow Historical Society (Barry Wilson), and a quantity of 13th-century pottery was recovered (Fig. 18), Nos. 89–94, fabric types 2 and 3) together with some fired clay waste and daub.

CONCLUSIONS

The extensive trenching which took place gave the opportunity for a large portion of the site to be examined. The means of excavation (mechanical excavator) precluded the possibility of discerning archaeological features of an insubstantial nature which may have been present, such as post-holes or beam slots. It is probable, however, that more substantial remains normally associated with occupation in the medieval period, such as rubbish pits, or industrial activity such as a kiln, would have been observed had they been present. The features observed during site-watching suggested limited activity,

perhaps including occupation, during the 13th century. Although much of the pottery recovered appeared to be waste material, no evidence was observed for the presence of a kiln on the site.

DESCRIPTION OF CONTEXTS

1. Burnt clay (? daub) mixed with small gravel, some charcoal, and brown loam.
2. Charcoal, ash, burnt clay with small gravel.
3. Charcoal, ash, burnt clay with small gravel.
4. Linear feature running N-S *c.* 5 m long by *c.* 1 m wide filled with grey-brown sandy clay with numerous small—medium pebbles and occasional charcoal flecks; not excavated; appears to be a ditch.
5. Hearth, possibly square, of clay, burnt red on upper surface, with large cobbles, tile fragments, and large flint fragment; gully containing ash (filled with 2 & 3) around central raised plinth.
6. Clayey loam with numerous small—medium pebbles baked in parts (from heat of hearth).
7. Grey-brown sandy clay and loam with small gravel; bottom of top soil/plough-soil lying immediately over 1. Possibly belonging to 1, but not certain.
8. Grey-brown mottled red-brown clay with numerous small—medium pebbles and organic inclusions; some ash and charcoal; contains frequent pottery sherds; has the appearance of a dumped layer.
9. Area of burnt clay (? hearth), not seen by M. O. L., recorded by Barry Wilson; eroded pottery and fired clay waste recovered.

THE POTTERY

The excavations produced a total of 11,074 sherd of medieval pottery which probably date to the mid-late 13th century. A sample of the pottery from Site B and the hearth area was examined by Lyn Blackmore who prepared the following fabric descriptions; the remainder was processed by the author. A full pottery catalogue is included in the archive.

FABRIC ANALYSIS

by LYN BLACKMORE

Three basic fabric types were identified with ten to eleven sub groups. Precise identification is in some cases prevented by the small size and

Fabric	1	2ia	2ib	2ii	3i	3iia	3iib	3iic	3iiaa	3iiib	3iiic
Site A											
Quantity	53	193	164	131	50	19	17	12	62	10	8
Percent	7.4	26.8	22.8	18.2	7.0	2.6	2.4	1.7	8.6	1.4	1.1
Site B											
Quantity	794	1838	1818	1342	950	1766	497	273	842	182	53
Percent	7.7	17.7	17.6	13.0	9.2	17.0	4.8	2.6	8.1	1.8	0.5

Fig. 12. Elstree 1981-83: Fabric Analysis For Medieval Pottery From Sites A and B.

abraded state of many sherds. The pottery ranges in colour from reduced grey to dull red and brown oxidised wares. The pottery is almost certainly the product of the same kiln. Many sherds are poorly and unevenly fired and some are misshapen. These would appear to be substandard products, possibly wasters.

- 1) Sand-tempered (fine). Finely sand-tempered ware with very rare flint inclusions.
- 2ia) Sand-and-flint tempered (medium). Sand-tempered ware with occasional fine/medium flint grits and moderate/abundant rounded quartzsand

- 2ib) As above, but slightly less sandy and more highly fired.
- 2ii) Sand-and-flint tempered (coarse). Sand tempered ware with moderate medium/large flint grits and abundant medium/large rounded quartzsand grains.
- 3i) Flint-tempered (fine). Flint fabric with sparse medium and occasional large flint grits.
- 3iia) Flint-tempered (medium). Fine body with moderate fine/medium and occasional large flint grits. Some fine quartzsand. Badly fired.
- 3iib) Flint-tempered (medium). Fine body with moderate flint grits of all sizes and more sand than with type (a). Better fired.

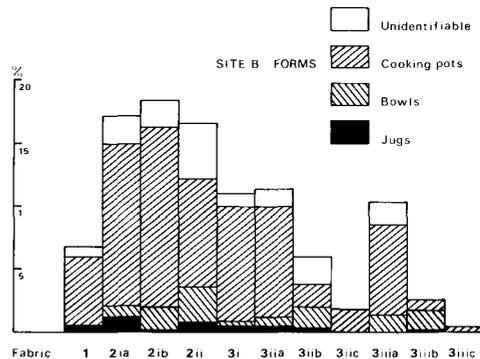
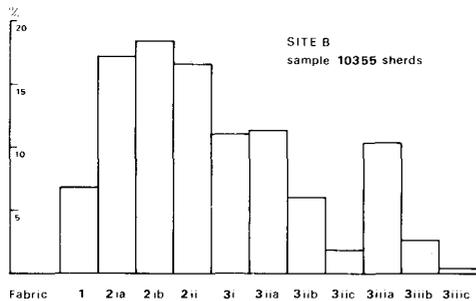
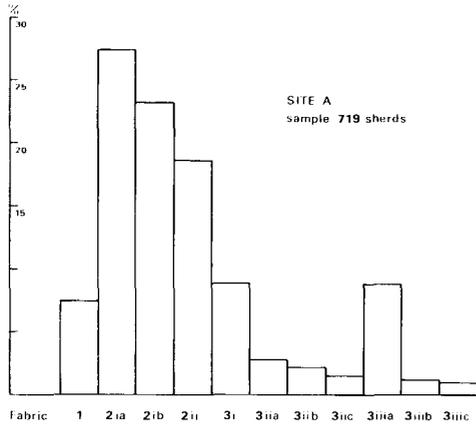


Fig. 13 Elstree 1981-83: Histograms. Fig 13a pottery from site A. Fig. 13b pottery from site B. Fig. 13c Ratio of Cooking pot, jug and bowl rims from site B.

Fabric	1	2ia	2ib	2ii	3i	3iia	3iib	3iic	3iia	3iib	3iic
Quantity	48	125	133	121	80	81	43	12	74	19	2
Percent	6.5	16.9	18.0	16.4	10.8	11.0	5.8	1.6	10.0	2.6	0.3
Cooking											
Pots	41	110	117	86	68	68	28	12	63	7	2
Percent	5.5	14.9	15.9	11.7	9.2	9.2	3.8	1.6	8.5	0.9	0.3
Bowls	0	7	13	26	7	9	14	0	11	11	0
Percent	0	0.9	1.8	3.5	0.9	1.2	1.9	0	1.5	1.5	0
Jugs	4	9	2	7	4	4	1	0	0	1	0
Percent	0.5	1.2	0.3	0.9	0.5	0.5	0.1	0	0	0.1	0

Fig. 14. Elstree 1981–83: Total Rim Sherds From Site B (738 sherds = 7.13% of total)

- 3iic) Flint-tempered (medium As types (a) & (b) but highly-fired.
 3iia) Flint-tempered (coarse). Fine body with abundant medium/large flint inclusion and some quartzsand. Generally poorly fired.
 3iib) Flint-tempered (coarse). As (a) but more sand and better fired. Flint-tempered (coarse).
 3iic) As (a) and (b) but very highly fired.

The assemblage has affinities with ceramics produced in South Hertfordshire and North Middlesex throughout the 13th century and found on sites in the surrounding area.

The sand-and-flint-tempered wares resemble Northolt Fabric K (Hurst 1961, 255, 263–5) and sherds from Euston Road Fabrics HFc and HFd (Whytehead and Blackmore 1983, 84). The flinty wares resemble Northolt Fabric J and Euston Road HFa and HFb.

The above parallels suggest a date between AD 1150–1325, for the assemblage, probably mid to late 13th century. This agrees well with the later 13th-century date proposed by Biddle for redeposited pottery from Barnet Lane (Biddle 1961, 65–69), which may have come from the same kiln(s) as the 1980–83 assemblage. A number of similar forms are represented in both groups, including a tubular spout from an open bowl. Other traits include thumbled strips, stabbing on the rim, and thumbing on the handles. Biddle, however noted, that a number of sherds in his group were micaceous, (this is not noticeable in the present group) and that the tubular spout was not in the same fabric as the rest of the material (Biddle 1961).

During excavations and site watching in 1983 a total of 392 sherds of pottery was recovered together with a quantity of daub, tile, and kiln furniture. The pottery consists mainly of oxidised, underfired, laminated body sherds; a few of these are decorated with applied thumb strips but no glazed sherds were found. Some thirty rims were found, three from bowls, the remainder from sagging-based cooking pots with

simple everted, or everted and seated rims typical of the mid-late 13th century. Rim diameters range between 26–30cm for the bowls and 19–28cm for the cooking pots; of the latter seventeen examples are of 20–24cm diameter. The fabrics represented conform entirely to those described above, the most common being types 2ib and 2ii. A number of coarse flint-tempered wares (type 3) are present but finer wares (type 1) are very much in the minority.

The pottery from the second hearth discovered during the 1983 site watching (9) (Fig. 20, Nos 89–94), is basically the same as the above but shows less variety in fabrics/inclusions.

DISCUSSION

by G. SALVESON

Apart from the medieval pottery, one sherd of a Roman mortarium was found in the top layer of F28 and a quantity of post-medieval pottery was recovered from the later layers. This material is not dealt with in this report but is available for inspection on contacting the author.

The pottery analysis covers all the medieval pottery from sites A and B and from the hearth (9). There are only minor differences between the fabric distribution patterns in each sample, but there is however a difference in the spatial distribution of the fabrics between sites A and B.

The fabric distribution analysis for sites A and B is illustrated in Fig. 12, and the associated histograms (Figs 13a, 13b and 13c), which show that the sand-and-flint-tempered medium range fabrics 2ia and 2ib are most common, with the sand- and flint-tempered coarse fabric 2ii coming a close second.

The only departure from a general conformity for the two groups is the high peak of 17.00% for the flinty coarse fabric (3iia) from site B. The flinty fabrics are generally not well represented and indeed the more highly fired products (3iic

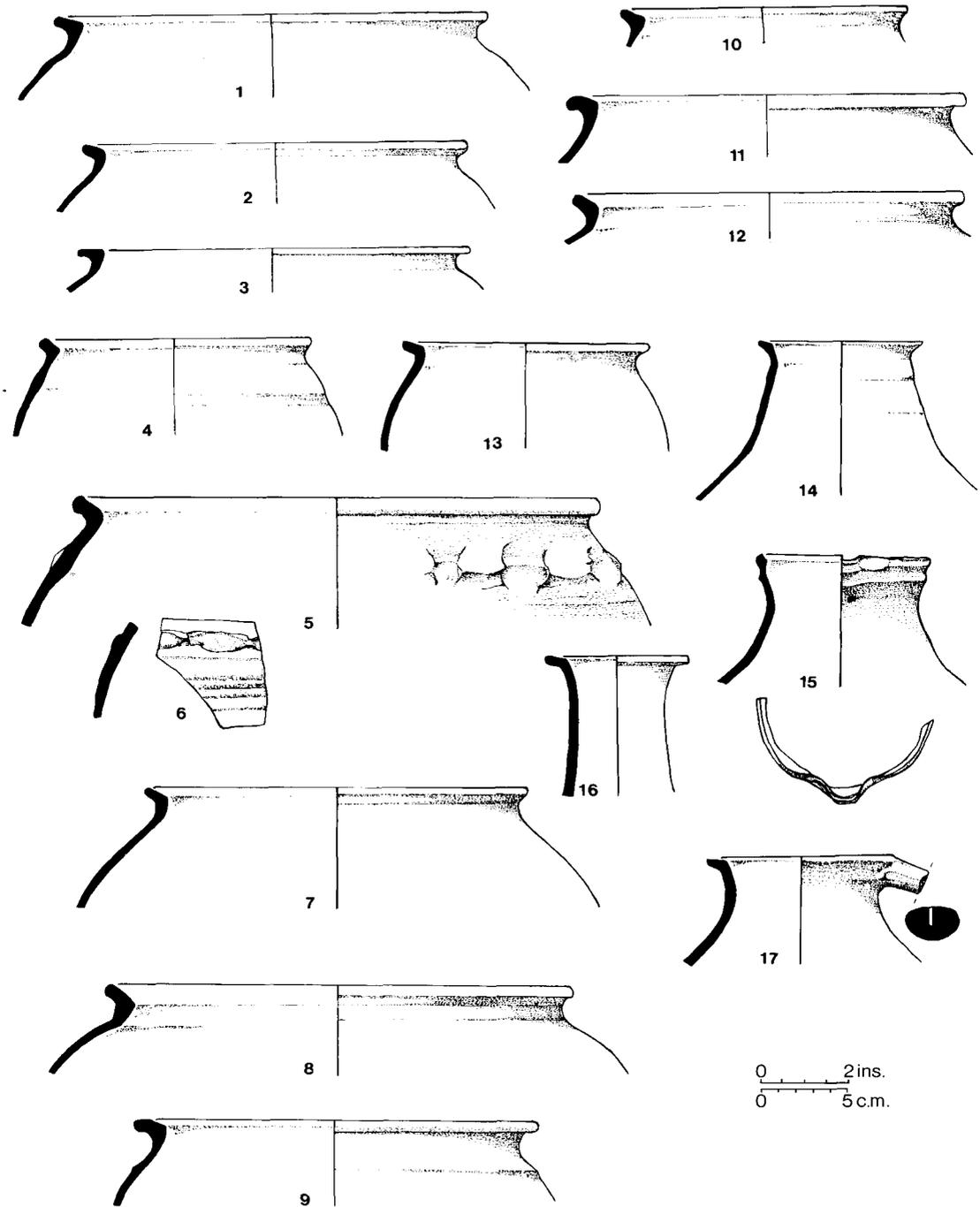


Fig. 15 Elstree 1981-83: Medieval pottery from Site A, F32, 1:4.

and 3iiic) are rare on both sites. However, as the sample sizes are so diverse it could be argued that were the size of sample A closer to B then the anomaly of the high peak for fabric 3iia would be resolved.

The assemblage from site A consists mainly of large sherds, many of which join. The material from site B comprises much smaller sherds which appear to derive from a large number of vessels, as very few joining sherds were found. Most sherds from Site A were found in sealed contexts, whereas with the exception of a concentration of pottery in the silty layer (L16) just above the pebbled surface (L17), the pottery from site B was randomly distributed across the whole area.

The fact that the sherds from Site A were protected from further damage in sealed contexts such as the early ditch, (F32), whereas those on Site B were exposed on the surface on which they were deposited, may go some way to account for the differences in the sherd size and vessel equivalents in the two groups, and the number of reconstructable vessels from Site A. It is nonetheless suggested that there is a real difference in the distribution patterns which reflects differences in the original sources and disposal of the material. The pottery from Site A appears to represent domestic refuse deposited in convenient ditches and pits just outside dwellings, whereas that from Site B represents a large quantity of waste material, possibly from a kiln, being deposited on a dumping ground, rather than occupation scatter.

The information from the fabric analysis can be interpreted in two ways. The emphasis on the sand-and-flint-tempered fabrics might suggest that the kiln(s) were producing much more of this type of pottery and that this was the general form of Elstree pottery; the finer flinty wares would this be a departure from normal, or even accidental overfired wasters. This assumes that the sample size for each fabric represents the proportionate waste from the quantity produced. Comparison of the material from Site A, which represents a usage pattern, with the possible production pattern from Site B supports this interpretation.

However, it may also be argued that the kiln(s) were producing two types of pottery, a sand-and-flint-tempered ware for local usage and a harder, flint-tempered, highly fired product for sale outside the area, and that possibly lower temperatures and different types of inclusion used for the local wares produced a greater num-

ber of badly fired vessels. Of the total sample of 10,355 sherds from Site B, 738 (7.13%) were rims. Of this total 81.57% were from cooking pots, 13.28% from bowls and only 4.34% were from jugs. These statistics are illustrated in Table 2, and the associated histogram (Fig. 13c). As the sample from Site A was so dissimilar with regards to the vessel equivalent factor, and because of the small size of the sample (719 sherds), it was felt that little useful information would be gleaned from comparative analysis with group B, and so no table or histogram were drawn up for group A.

The most useful information for dating the assemblage comes from the jug handles, of which 35 were found. These include both plain undecorated rod and strap handles, and examples (of both types) with the thumbled decoration typical of the South Hertfordshire tradition. A number of these closely resemble examples from a range of handles from excavations at Trig Lane and Seal House (held in the Museum of London), which came from contexts associated with timber wharfing which has been dated by dendrochronology.

The earliest dateable handle is (Fig. 20. No. 95) which is paralleled by a handle from Seal House SH 74 (386) dated to *c.* AD 1240. This handle is a typical S. Herts. ware form with a double row of thumbled depressions, each with an oval stab mark in the centre. This is very similar to the two handles included in the pottery found at Barnet Lane in 1950 (Biddle 1961, 67, Nos 1 and 2). A second example was found with other S. Herts ware material at Otterspool, near Watford in 1934 (Biddle 1961, 75, No. 44).

Similar handles have been found at Northolt (Hurst 1961, 272, No 26), and at the Customs House excavation in 1973 (Tatton-Brown 1973, 149, No. 410).

A variation of this type is the strap handle with only one row of thumbled depressions, with or without stab marks (Fig. 20 Nos 96 to 100). Although not noted in the Trig Lane and Seal House groups these are probably of a similar date. This is quite a common form at Elstree which is noted elsewhere at Kings Langley (Neal 1977, 151 No. 31) and at the Customs House (Tatton-Brown 1973, 149, No. 424).

The simplest form is the plain rod handle with no decoration an example from the Elstree collection (not illustrated) can be paralleled with an example (TL No. 74 47) from Trig Lane dated to between AD 1283 and AD1305.

Overlapping this date range are rod handles with three rows of stabbing (Fig. 20 Nos 105,

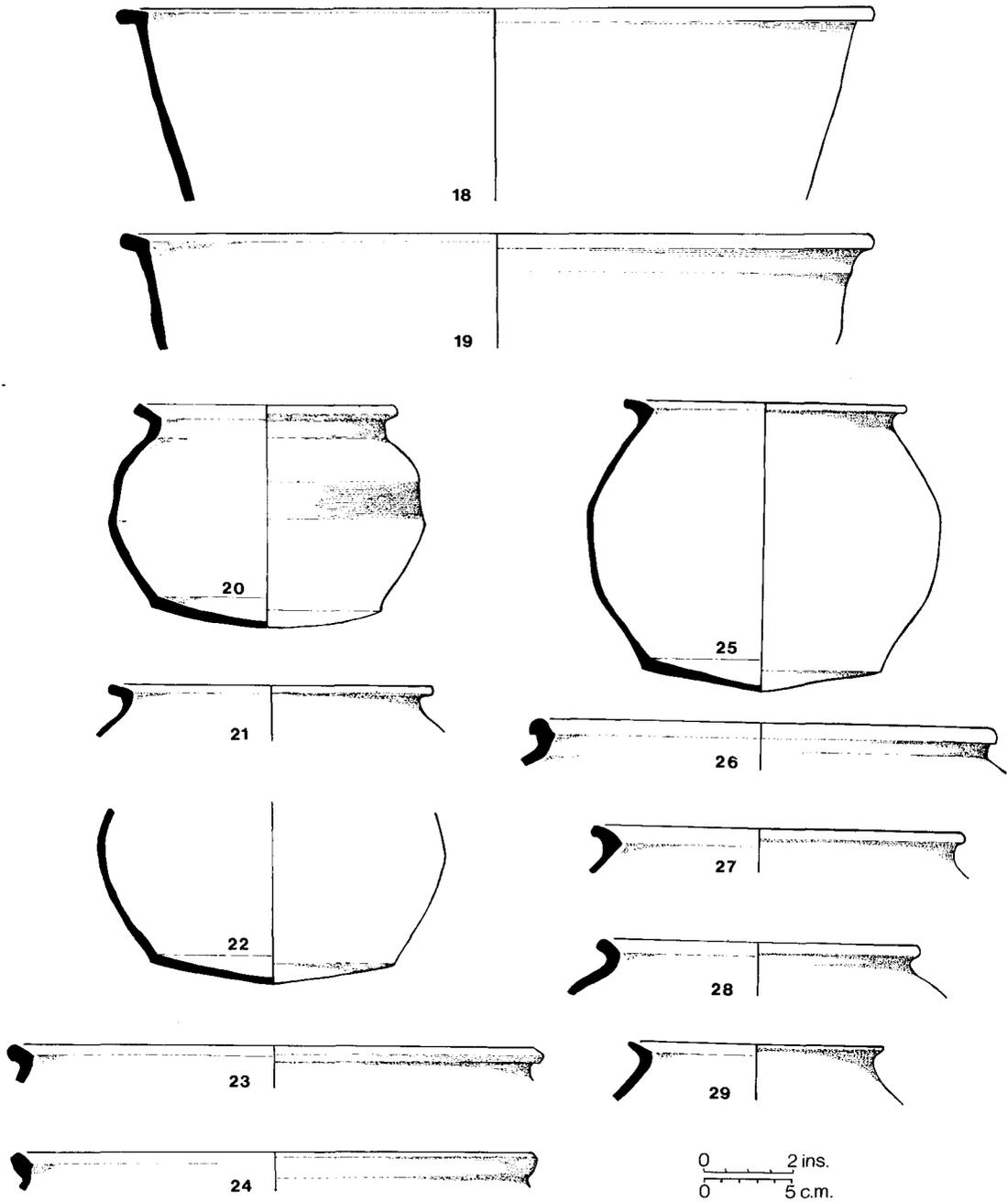


Fig. 16 Elstree 1981-83: Medieval pottery from Site A, F32. 1:4.

106 and 108) paralleled by an example from Trig Lane (TL No. 74 2417) dated to between AD 1270 and 1290. An intermediate example is the rod handle (Fig. 20 No. 103) with a row of intermittent stabbing. This form is paralleled at Kings Langley (Neal 1977, 149, No. 15), although this is of a different fabric and is glazed.

The pottery from Site B, which on the whole is very much abraded and includes almost certain waster material, is best explained as dumped wasters from a kiln. However, the majority of the sherds are smaller than 50mm measured across the longest axis and may represent secondary dumping of kiln waste removed some distance from the site of production.

It has been stated (Haslam 1978, 20) that Elstree was a pottery producing village, but with little actual proof. The pottery found in 1950 in Barnet Lane, reported to have come from a road works trench was actually found in soil from the trench dumped some 0.5 mile away. As the trench had been backfilled by the time the source of the pottery was traced, the type of features producing the material is unknown, (Biddle 1961, 65). However, as Biddle noted that some of the sherds were underfired examples, he suggested that there had been a kiln in produc-

tion somewhere nearby (Biddle 1961, 66).

The only feature observed in the 1980–83 excavations which could possibly be interpreted as a kiln is F24/F25. If so, the small size of the feature (1.5m in length) suggests that it would have been of clamp or bonfire type rather than a single flue-kiln such as was found at Pinner (Sheppard 1977, 31–35), which was over 2.5m in length. In view of the shallowness of F24/25, and the lack of burning in it, it is more probable that this feature was a hearth rather than a kiln, but further work on the local pottery industry is required in order to establish whether bonfire kilns were used as well as the more developed flued-kilns in the medieval period.

The wasters found in 1980–83 and previously, suggest that there may well have been kilns in the area, although none were noted during site watching by the Department of Greater London Archaeology when two areas of burnt clay were noted: one (F8) was almost definitely a hearth; the second (F9), noted by Mr Barry Wilson on a weekend and destroyed before it could be properly recorded was also probably a hearth, although some sizeable pieces of pottery (F19, Nos 89–94), together with some burnt clay and possible kiln bars were recovered from its vicinity.

CATALOGUE OF ILLUSTRATED POTTERY.

(Figs 15–20)

A). Site A. Pottery from Feature No 32.

No.	Fabric	Diameter in cm's	Number of sherds	Comments
1.	2ib	22	2	Cooking pot, flanged rim, shirt neck; light grey.
2.	2ia	20	2	As 1; yellow-brown core, blue grey surfaces.
3.	2ia	20	3	As 1, undercut; light-grey to grey-brown.
4.	2ia	14	4	Everted CP rim; slight external girth marks; brown.
5.	2ic	28	1	Flanged undercut CP rim with heavy applied thumbled strip; light-grey int., pale grey-brown ext.
6.	2ic	—	1	Applied thumbled strip, girth marks; as 5,? same pot.
7.	2ii	20	6	Everted CP rim, grey-brown int., red core, brown ext.
8.	2ii	24	1	CP flanged rim, undercut; grey core, red margins, surfaces red-brown to brown-grey.
9.	3iic	20	5	As 8, slightly undercut, rilled; grey throughout.
10.	3iia	14	2	CP rim, everted; grey throughout.
11.	2ia	20	2	CP rim, flanged; pale grey.
12.	2ib	20	4	CP rim, everted pale grey.
13.	2ii	12	2	CP, flanged rim.
14.	2ia	8	8	Jug, flanged rim; pale grey.
15.	2ii	9	1	Beaded jug rim; grey-brown to red-brown.
16.	3iia	6	1	Jug/bottle, flanged rim; brown, reddish ext.
17.	3iia	9	7	Jug, flanged rim; grey.
18.	2ii	40	1	Flanged bowl rim, undercut; grey.
19.	3iib	40	6	Bowl, flanged rim; dark grey.
20.	3iib	12	25	Almost complete CP; everted rim, girth marks; pale brown.

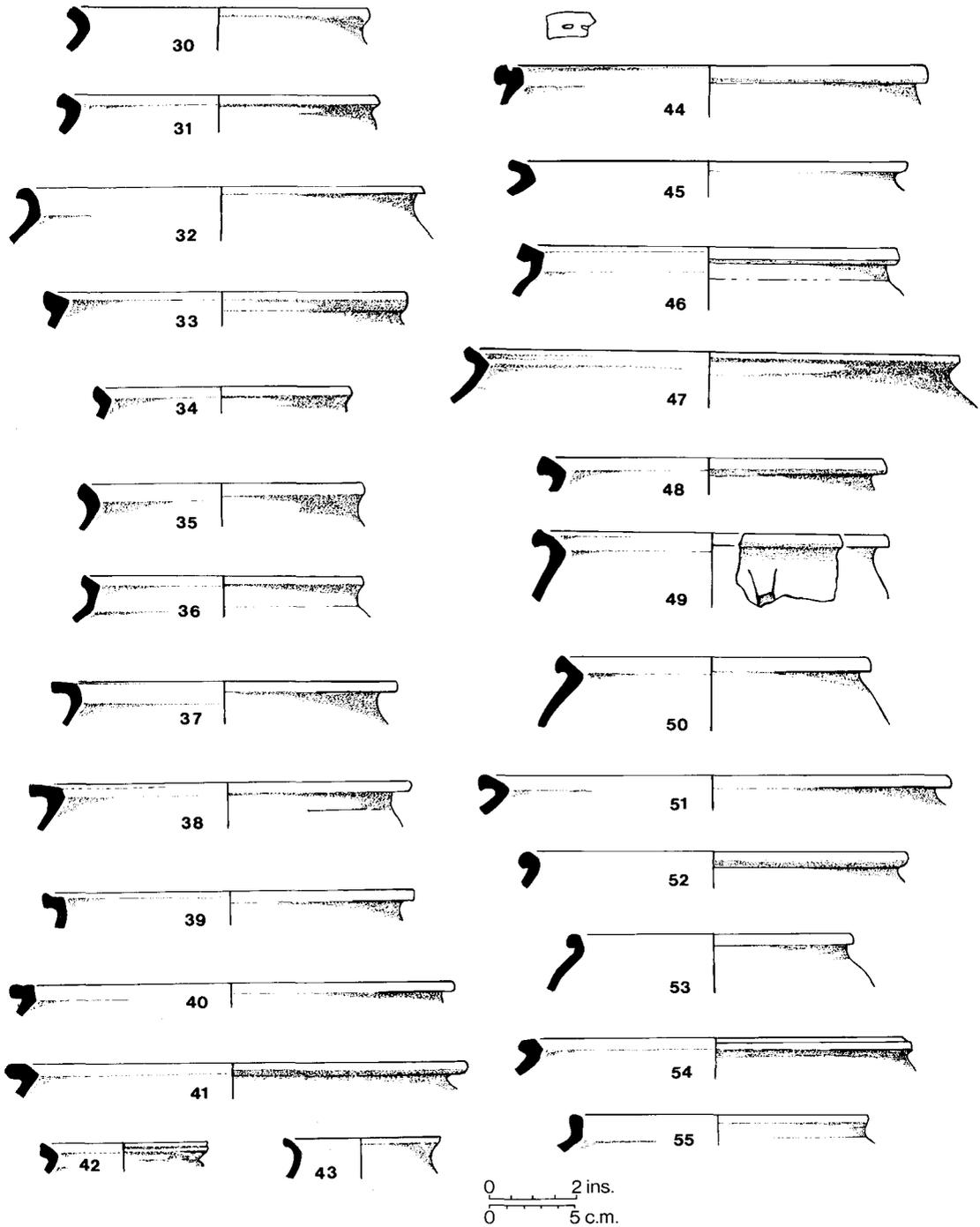


Fig. 17 Elstree 1981-83: Medieval pottery from Site B. 1:4.

No.	Fabric	Diameter in cm's	Number of sherds	Comments
21.	2ib	16	3	CP, flanged rim, slightly undercut; grey core, yellow brown margins, light grey surfaces.
22.	2ib	—	18	CP, soot-blackened around base; as 21; no margins.
23.	3i	28	1	Flanged CP rim, undercut; dull grey.
24.	3i	28	1	Bevelled CP rim; pale grey.
25.	2ia	13	52	CP, flanged rim; yellow-brown body and int., grey-brown ext., soot-blackened.
26.	3i	24	1	CP, flanged rim, undercut, short neck; grey.
27.	2ia	16	2	CP, flanged rim, undercut; grey.
28.	2ii	16	2	CP, everted rim; red-brown body, yellow-brown surfaces.
29.	2ia	14	1	CP, everted rim; yellow-brown body, dark grey surfaces.
B. Pottery from Site B.				
30.	3iiia	15	1	CP, everted rim; dull grey core, yellow-brown margins and surfaces.
31.	2ib	16	1	CP rim; blue-brown; (Klingelhofer 1974, Fig. 18 No 18, No 39).
32.	3iiia	21	1	Everted CP rim; grey core, brown surfaces; (Klingelhofer 1974, Fig. 21 No. 78).
33.	1	18	1	Bevelled CP rim; grey.
34.	2ib	13	1	As 34.
35.	2ib	14	1	As 34.
36.	2ii	14	1	CP rim, bevelled, neck; red-brown, dull blue-brown surfaces; (Biddle 1961, Fig. 2 No. 5, and Sheppard 1977, Fig. 3 No. 9).
37.	1	16	1	Flanged CP rim; grey.
38.	2ii	19	1	Flanged CP rim; grey-brown, black int.; abraded.
39.	3iia	19	1	As 38; yellow-brown body, brown surfaces.
40.	2ii	23	1	As 38; dull pale brown.
41.	2ia	23	1	As 38; red-brown, blue-brown to grey int.
42.	1	8	1	Everted small CP rim; light grey.
43.	2ia	7	1	As 43; grey-brown.
44.	3iib	22	1	Flanged CP rim, stab marks; greyish-red, black surfaces.
45.	2ib	21	1	Flanged CP rim; dull blue-grey.
46.	2ib	19	1	As 45, undercut; grey core, light grey surfaces.
47.	1	26	1	Everted CP rim; light grey core, yellow-brown surfaces.
48.	2ii	17	1	Flanged CP rim, undercut; black body, red-brown surfaces. (Sheppard 1977, Fig. 3 No. 1).
49.	3iiia	17	1	CP, flanged rim, applied thumbed strip; light grey core, grey-brown surfaces.
50.	3iiic	15	1	Flanged CP rim, undercut; dark blue-grey.
51.	2ib	24	1	As 50; dull grey.
52.	2ib	19	1	Beaded CP rim; grey.
53.	3i	19	1	As 52; grey brown.
54.	3iiib	20	1	CP, square rim; light grey; abraded.
55.	1	18	1	Beaded CP rim; body dull yellow-brown, surfaces blue-brown.
56.	2ii	17	1	Beaded jug rim, rilled; Greyish-red.
57.	1	17	1	Jug, upright rim, rilled; light grey.
58.	3iib	16	1	Jug, everted rim, rilled; yellow-brown body, black surfaces.
59.	2ia	10	1	Jug, everted rim; grey; abraded.
60.	2ia	9	1	Jug, upright rim; rilled.
61.	2ii	7	1	Jug, bevelled rim; grey core, yellow-brown margins, grey-brown surfaces.
62.	2ii	7	1	As 61, rilled; greyish-red. Jug, upright rim, rilled; grey core, yellow-brown margins, brownish-grey surfaces.
63.	2ia	12	1	As 63; grey.
64.	2ib	14	1	As 63; grey.
65.	2ia	16	1	Small bowl, flanged rim; blue-brown body, black surfaces.
66.	3iiib	15	1	As 65, thumbed on inner rim edge; core yellow-brown, surfaces blackened. Small bowl, bevelled rim, stab marks, thumbed inner edge; light grey core, reddish-grey surfaces.
67.	2ii	21	1	Bowl, bevelled rim; dark brown body, blue-brown to black surfaces.
68.	3iib	34	1	As 68; grey.
69.	3iiia	30	1	As 68; yellow-brown body, black surfaces.
70.	2ib	27	1	As 68; yellow-brown.
71.	2ia	40	1	As 68, stab marks, thumbed inner edge; light grey.
72.	3ia	36	1	Flanged bowl rim, stab marks; brown.
73.	3iib	40	1	Flanged bowl rim, wavy line on rim and inner surface; brown.
74.	3iib	40	1	

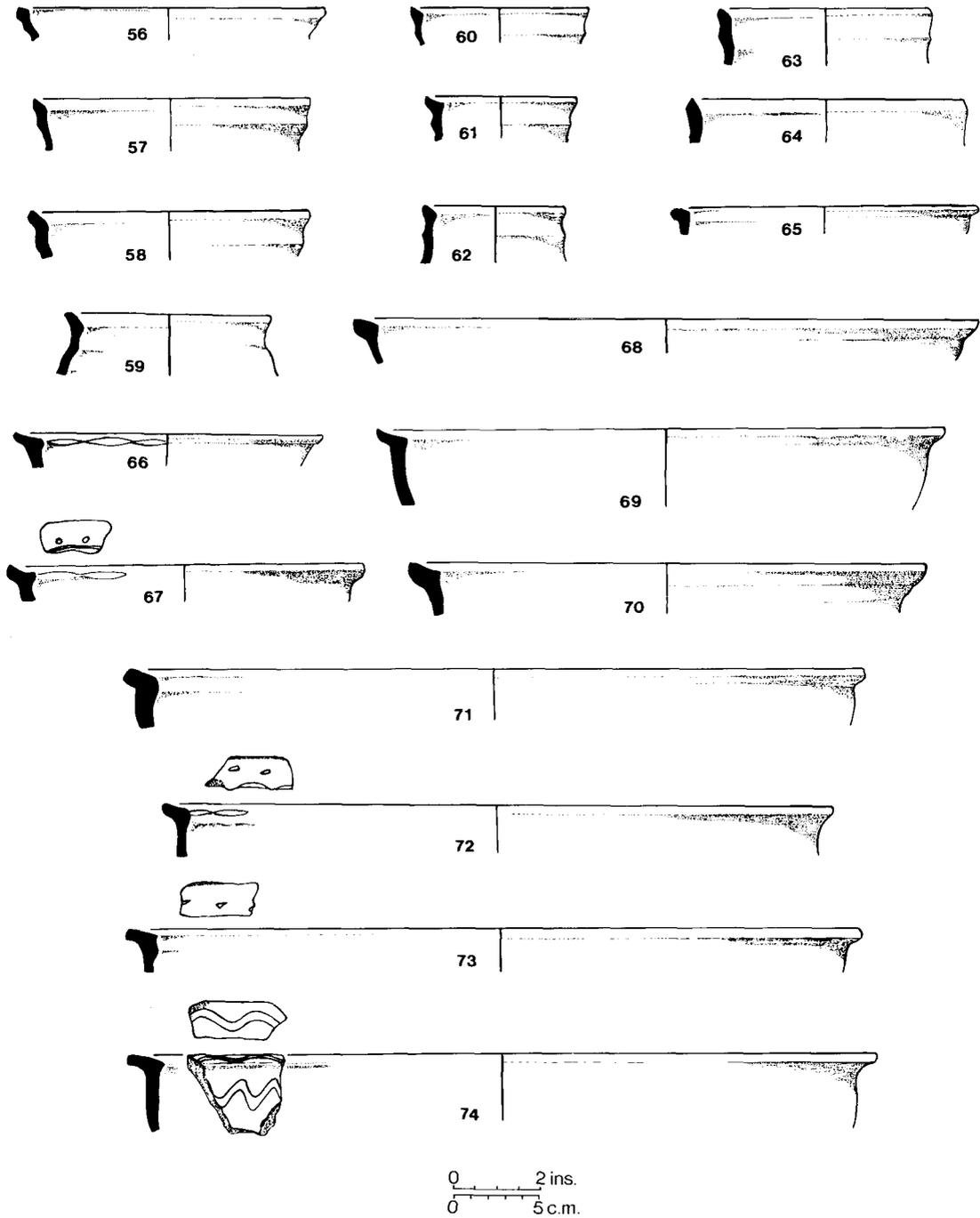


Fig. 18 Elstree 1981-83: Medieval pottery from Site B. 1:4.

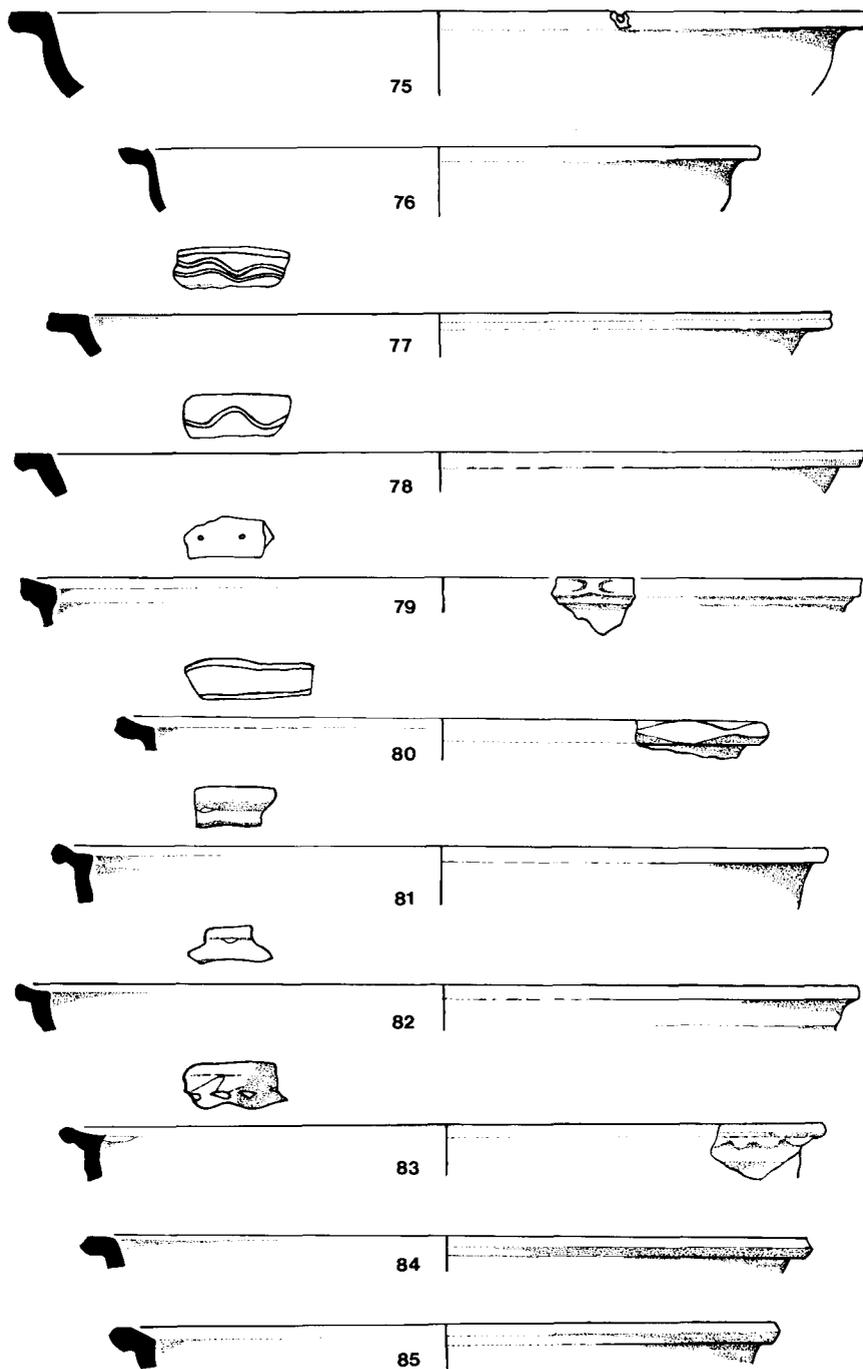


Fig. 19 Elstree 1981-83: Medieval pottery from Site B. 1:4.

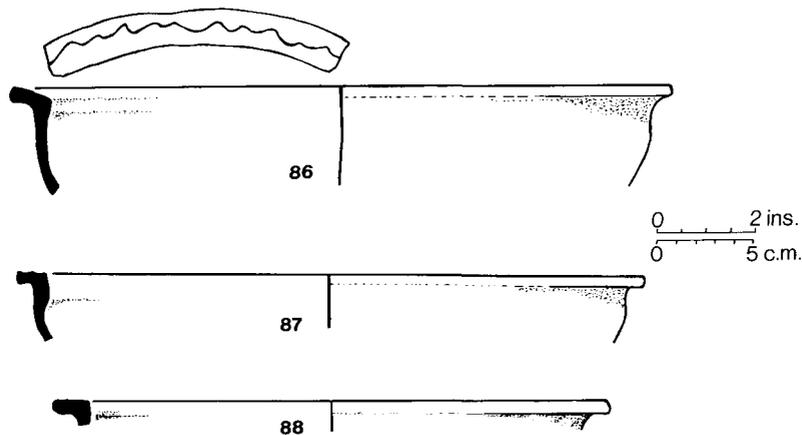


Fig. 20 Elstree 1981–83: Medieval pottery from Site B. 1:4.

No.	Fabric	Diameter in cm's	Number of sherds	Comments
75.	2ib	38	1	Flanged bowl rim; yellow-brown core, blue-grey margins and surfaces.
76.	3iia	20	1	As 75; yellow-brown.
77.	3iia	40	1	As 75, double wavy line on rim; core and int. grey, ext. red-brown.
78.	3iib	40	1	As 75, wavy line on rim; dull brown, ext. soot-blackened.
79.	2ib	40	1	As 75, stab marks, thumb inner edge; blue-brown body, greyish surfaces.
80.	2ii	30	1	As 75, fluted and faceted rim, yellow-brown core, brown surfaces, ext. blackened.
81.	3iib	40	1	As 75, stab marks; red-brown to black, dull reddish-black surfaces.
82.	3iib	40	1	Bowl, stab marks; brown, ext. blackened.
83.	2ib	35	1	Bowl, flanged rim, undercut, stab marks over wavy line design; grey throughout.
84.	3iia	34	1	Flanged bowl rim; yellow-brown.
85.	3iib	30	1	As 84; yellow-brown, blackish surfaces; abraded.
86.	2ia	20	1	As 84, wavy line design; dull yellow-brown.
87.		29	1	Flanged bowl rim.
88.	2ia	25	1	Flanged bowl rim, undercut; yellow-brown core and surfaces, margins dark grey.
89.	3iia	22	1	Everted CP rim, applied thumb stripe; abraded.
90.	2ia	20	1	Flanged CP rim, undercut, rilled; grey-brown core, yellow-brown surfaces.
91.	1	17	1	As 90, core brown, bluish-brown ext.
92.	2ib	22	1	Bevelled CP rim; yellow-brown.
93.	1	17	1	Flanged CP rim; grey core, yellow-brown margins and int., blue-brown ext.
94.	2ib	16	1	As 93, necked; brown core, dark brown surfaces.
95.	3iib	—	1	Handle, double row thumb depressions with oval stab marks; red-brown body, surfaces black; (Biddle 1961, Fig. 2, Nos 1 and 2).
96.	3iia	—	1	Strap handle, single row thumb depressions with oval stab marks; grey; (Tatton-Brown 1973, 149 Fig. 24 No. 424).
97.	3ii	—	1	Strap handle, single row thumb depressions with stab marks; grey.
98.	2i	—	1	As 97; yellow-brown.
99.	2ia	—	1	As 97; grey.
100.	2ib	—	1	Strap handle with rim portion, single row thumb depressions with stab marks; body yellow-brown, surfaces blue-grey.
101.	2ib	—	1	Strap handle with rim portion, double row of thumb depressions; grey.
102.	2ib	—	1	Rod handle with rim portion, double row thumb depressions; grey.
103.	2ia	—	1	Rod handle, single irregular row of stab marks; light grey; (Neal 1977, 149, Fig. 55 No. 15).
104.	2ib	—	1	Strap handle, fluted; yellow-brown, grey surfaces.
105.	3iia	—	1	Rod handle, three rows triangular stab marks; greyish yellow-brown surfaces.
106.	3iic	—	1	Rod handle, three rows stab marks; blue-grey.

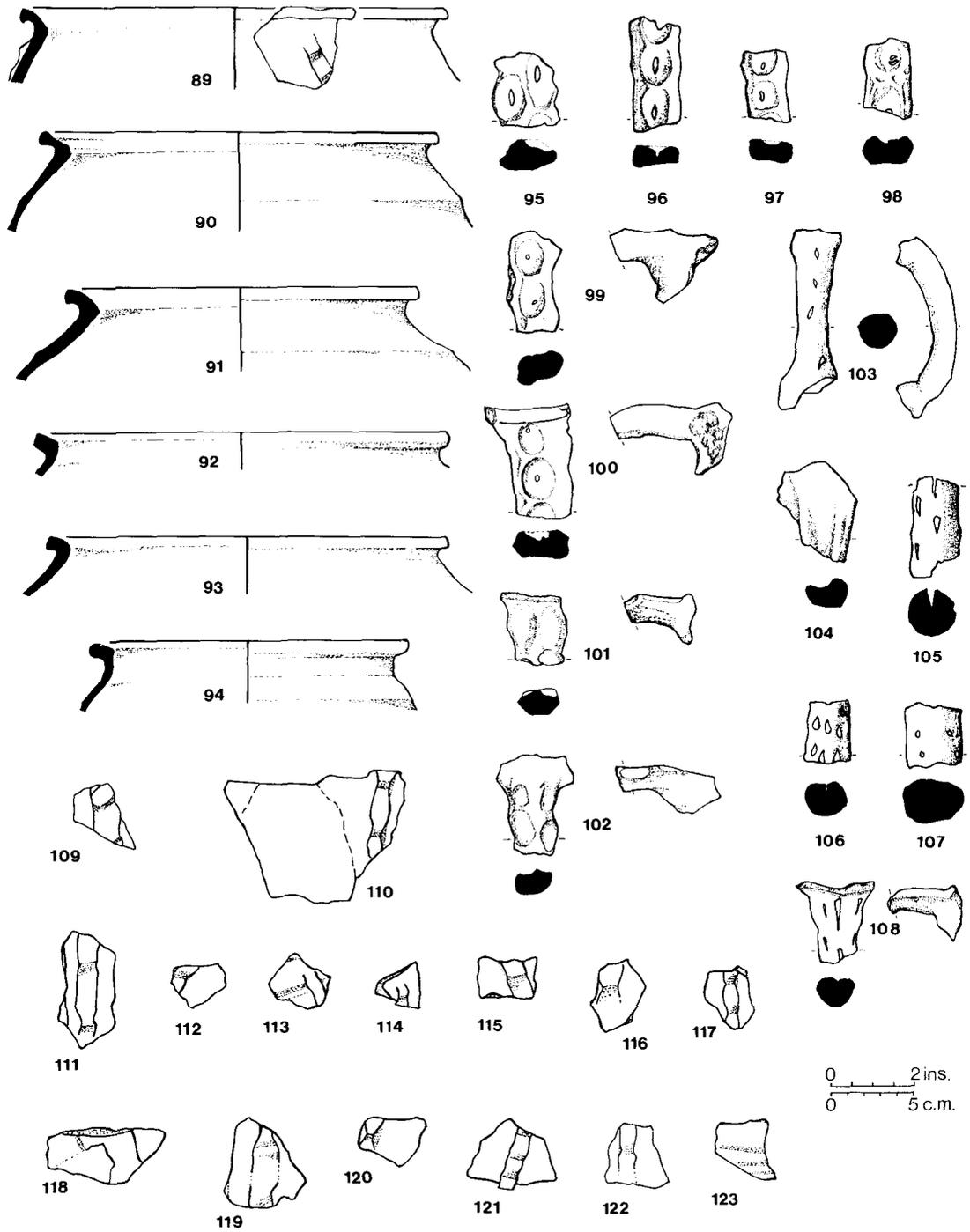


Fig. 21 Elstree 1981-83: Medieval pottery from hearth (Site watching F9) 89-94, and from Site B, 95-123.

No.	Fabric in	Diameter cm's	Number of sherds	Comments
107.	2ii	—	1	Rod handle, two rows stab marks; blue-grey to brown.
108.	3i	—	1	Rod handle with rim portion, three rows of triangular stab marks; grey.
109.	2ia	—	1	Sherd, applied thumbed strip; brown.
110.	3iiib	—	3	Applied thumbed strip.
111.	2ib	—	1	Applied thumbed strip; brown-grey.
112.	1	—	1	As 111; brown.
113.	2ia	—	1	Applied thumbed strip over rilling; brown.
114.	2ii	—	1	Applied thumbed strip; brown-red.
115.	2ii	—	1	As 114; brown.
116.	3iiia	—	1	As 114; yellow-brown.
117.	2ii	—	1	As 114; core brown: surfaces grey-brown.
118.	2ii	—	1	As 114; brown; ext. black.
119.	3iia	—	1	As 114; core yellow-brown, int. brown, ext. grey.
120.	3i	—	1	As 114; grey.
121.	3i	—	1	As 120.
122.	3i	—	1	Rilled; grey.

THE SMALL FINDS

A small number of iron, bone and stone artifacts were recovered, none of which are illustrated, but are listed below.

IRON

1. Arrow head, probably 13th century, found in feature F32, the early ditch, associated with 13th-century pottery.
2. Pair of scissors, late 18th or early 19th-century.
3. Portion of rowel spur, terminals missing, possibly early to mid 18th-century.

4. Claw hammer head, weight 1lb, late 18th-century.
5. White bone knife handle, late 18th-century.
6. Speckled bone knife handle, mid to late 18th-century.

STONE

- (geological identification by Paul Wilthew).
1. Fragment of quernstone, Neidermendig basalt; imported.
 2. Honestone, micaceous sandstone.
 3. Honestone, micaceous sandstone.
 4. Possible hammerstone.

Reign	Date	Value	Comments
George VI	?	Farthing	
George V	1912	Penny	
Victoria	1889	Halfpenny	
Victoria	1876	Penny	
Victoria	1865	Penny	
Victoria	1860	Halfpenny	
Victoria	1860	Penny	
Victoria	1839	Silver 3d Piece	
?	1873	Halfpenny	
Georgian	?	Penny	Very corroded
Georgian	?	Penny	Very corroded
Georgian	?	Penny	Very corroded
Georgian	?	Penny	Very corroded
Georgian	?	Penny	Very corroded
George II	1720-1760	Halfpenny	
William / Mary	1694	Copper Farthing	
Charles I	1635	Silver Half Groat	Obr. Illegible. Rev. IVSTITIAT. . . . Tower Mint.
Elizabeth I	1582	Rose Silver 3d	

Fig. 21 Elstree 1981-83: Summary of coin finds.

THE COINS

by G. SALVESON

A small range of coins were found on both sites covering the Post-Medieval period which were identified by S. Castle and conserved by the British Museum. Excluding coinage of the present Reign of which a few 1/2 and 1p pieces were found in the topsoil the list is as below.

EXAMINATION OF TECHNOLOGICAL MATERIAL

by PAUL WILTHEW

(Ancient Monuments Laboratory)

The material examined included slag, hearth

lining, corroded iron objects, mortar, fired clay and natural concretions and deposits. Only a small proportion of the material was of any direct technological significance.

Two samples of iron smithing slag (123), (419) were found. Several small samples of iron slag (4), (20), (24), (25), (101) and (325) were also found, but it was not possible to say with certainty if they were produced during iron smelting or iron smithing, although it is highly probable that they were all iron smithing slag. Samples of fuel ash slag (20) which result from a high temperature reaction between silica rich material such as clay or sand and ash, and hearth lining (7) were also present. They may have been associated with iron working, but

Group	Ox	Ox-size	Ovicap.	Ovicap.-size	Pig	Horse	Unident.	Total
1	4	5	3	—	1	—	15	22
2	15	13	7	4	1	3	60	103
3	8	10	3	1	3	—	16	41
4	6	12	4	1	—	1	26	50
5	5	12	4	—	2	—	17	40
6	6	11	1	1	—	1	21	41
7	2	2	—	1	—	—	2	7
8	4	3	2	—	3	1	12	25
9	—	7	1	—	1	—	—	9
10	8	10	1	—	—	—	—	19
11	3	14	—	—	—	—	—	17
12	1	—	—	—	—	1	—	2
13	1	4	1	—	2	1	25	34
14	10	17	5	—	5	2	51	89
15	6	5	1	—	1	—	31	44
16	5	—	—	—	—	—	42	47
17	—	—	2	—	—	—	4	6
18	1	1	—	—	—	—	—	2
Total	85	126	35	8	19	10	321	604

- Group 1 = Context Nos 4,308
 Group 2 = Context Nos 8, 13, 311, 321
 Group 3 = Context Nos 12, 20, 33, 61
 Group 4 = Context Nos 310, 313, 315, 319
 Group 5 = Context Nos 66, 328, 329
 Group 6 = Context Nos 340, 345, 347, 352, 367, 371, 375
 Group 7 = Context Nos 325, 326, 327
 Group 8 = Context Nos 26, 29, 32, 41, 44, 60, 65
 Group 9 = Context Nos 330, 331, 332, 333
 Group 10 = Context Nos 336, 337, 338
 Group 11 = Context Nos 27
 Group 12 = Context Nos 25, 62
 Group 13 = Context Nos 63, 64
 Group 14 = Context Nos 322
 Group 15 = Context Nos 72, 79
 Group 16 = Context Nos 17, 14, 25
 Group 17 = Context Nos 18
 Group 18 = Context Nos 16

Fig. 22 Elstree 1981-83: Animal Bone Summary.

could have been produced in any sufficiently hot fire. The amount of iron slag found suggests that blacksmithing took place on or near the site, but probably only on a small scale.

None of the four stone objects were made from a stone which was likely to have been found in the area of the site, (113) was a quernstone made from Niedermendig basalt, a vesicular stone imported for use as quernstones. (20) and (26) were probably hones, made from a micaceous sandstone and (225) might have been a hammerstone.

The remaining material was of no technological significance and consisted of natural ferruginous concretions (L61), (42) and (43), iron nails and fired clay (8), a calcite (CaCO_3), hard water deposit (65) and two very similar samples of lime mortar with quartz filler, (30.3) (30.4).

THE ANIMAL BONES

by ALISON LOCKER

A total of 604 animal bones were recovered by hand during excavation. The following species were identified: ox (*Bos* sp.). Ovicaprid (*Ovis* sp./*Capra* sp.). pig (*Sus* sp.) and horse (*Equus* sp.). The table represents the number of bones found in each group.

Most of the bone was post-medieval in date, including groups 3, 4 and 5, which form part of an 18th century farm complex. The exception is context 25 in group 16 which contained 13th century pottery.

On the whole the bone was in poor condition, both eroded and friable; this is probably due to the nature of the deposits which are mainly layers containing pebbles and fragments of building material.

Ox, (including ox-sized fragments) was the most frequently occurring species: many of these bones were butchered as were the bones of ovicaprid and pig. All the measurable pig bones were within the large domestic size range. These bones all came from the farm complex. Horse bones were confined to loose teeth and first and third phalanges. The small size of the sample and its poor condition restrict any interpretation; all that can be stated is that the bone represents domestic food debris, all butchered, except horse which is probably an incidental inclusion. Details of individual identifications are lodged with the author.

THE CHARCOAL

by JOY EDE

Charcoals were identified from four contexts.

Context No. 151 (C13th pit F28).

Quercus sp. Oak.
Fagus sp. Beech.
Salix sp. Willow.

Context No. 221 (C13th Shallow Pit F24).

Pomoideae Hawthorn type
Fagus sp. Beech
Salix sp. Willow

Context Nos 228 / 9 (C13th Shallow Pit F24).

Fagus sp. Beech
Salix sp. Willow
Quercus sp. Oak

Context No. 105 (C13th pit F28).

Quercus sp. Oak
Fagus sp. Beech
Salix sp. Willow
Betula sp. Birch

All these species were probably obtained locally.

THE SHELLFISH

by ALISON LOCKER

Fragments of oyster (*Ostrea edulis*) were found in the following contexts:

Context No. 8, 2 fragments.
Context No. 12, 1 fragment.
Context No. 327, 5 fragments.
Context No. 14, 1 valve.
Context No. 41, 1 valve.
Context No. 68, 2 valves.
Context No. 32, 2 fragments.
Context No. 355, 4 fragments.

ACKNOWLEDGEMENTS

Thanks must go to the London Borough of Harrow for granting a licence allowing the excavation to take place, to Stephen Castle, whose insistence on the importance of the site led to the excavation, and for his continued help and comments throughout. Harvey Sheldon's help in the initial negotiations for the Licence, and help and advice given at various stages of the excavation were greatly appreciated, as were the helpful suggestions given throughout the excavation by the then Inner London Archaeological Unit (now the Department of Greater London Archaeology). Their help in the preparation of this report also warrants the gratitude of the writer. Special thanks must go to David Whipp for his support and comments. Rob Ellis is also thanked for conducting the site watching after the contractors had started work. Facilities for the storage of equipment were provided by the Warden of Hill House. Jonathon Cotton of the West London Archaeological Unit is also than-

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FAUNAL EVIDENCE FROM A LATE MEDIEVAL GARDEN WELL OF THE GREYFRIARS, LONDON

PHILIP L. ARMITAGE and BARBARA WEST
with contributions by BARRY T. CLARKE, TONY DYSON,
MICHAEL F. W. FESTING and ALISON LOCKER

SUMMARY

The Excavation in 1979 of a well shaft within the area of the former eastern garden of the London Greyfriars produced exceptionally large assemblages of faunal remains whose deposition can be dated to the period c. 1480 to c. 1500, corresponding with the friary's final decades before its dissolution in 1538. These assemblages are of especial general interest in two quite separate respects. They comprise on the one hand discarded food debris in the form of large mammal, bird and fish bones: evidence of a diet which contrast significantly with the more luxurious fare of the regular, monastic orders as attested by similar assemblages found elsewhere in Britain. The presence, on the other hand, of garden fauna represented by small mammal and amphibian bones points to wild, wet overgrown conditions very different from the traditional conception of the formal, orderly monastic garden, but perhaps more consistent both with the friars' characteristic preference for orchards and timber trees and also with the declining numbers and resources of the last decades of their existence.

1. INTRODUCTION

by P. L. ARMITAGE

In 1979, excavation carried out by the Department of Urban Archaeology, Museum of London, in the west central area of the General Post Office site (Post Office Middle = POM 79) TQ 32068136¹ uncovered a deep chalk-lined well (Context 2033) which had once been associated with the Greyfriars' convent garden. Of cylindrical shape approximately 1m in diameter, the well was excavated to a depth of 9.135m OD (7.55m excavated depth), and the faunal material was recovered from the grey-black silt of context 2014 (level: 11.185 to 9.335m OD; excavated depth: 4.6m). Although the well was not bottomed due to dangerous working conditions, the consistency of the deposit (as well as the one below: 2101) suggested that it was at or very close to the original bottom.

According to the pottery evidence from the fill, this well had apparently fallen out of use sometime between c. 1480 and 1500 (Vince 1985)², and thereafter was used as a convenient refuse dump. The faunal remains of discarded food debris from the Greyfriars' kitchens provided important evidence of the friars' diet in early Tudor times. The disused well also acted as a natural pit-fall trap which collected unwary small wild animals and amphibians from the surrounding garden area, and this material provided a unique insight into the ecology of the garden in the period immediately prior to the dissolution of the friary.

Apart from the faunal remains from the 11th to the 16th century levels excavated in the collegiate grounds at Beverley, Yorkshire (Scott and O'Connor, forthcoming), the authors know of no other British monastic site

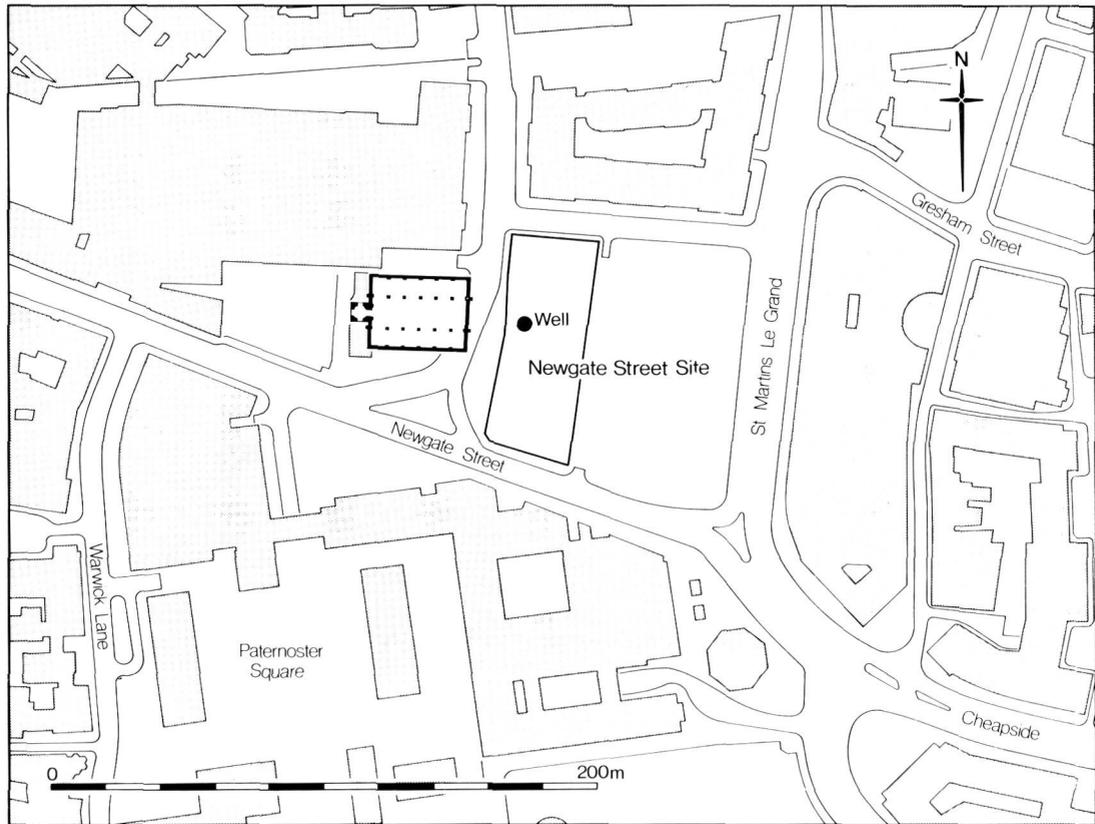


Fig. 1 Greyfriars Well: Location of the POM 79 site.

that has yielded both small and large mammal bones in such quantities³, as well as an unusually large group of skeletal elements from a wide variety of wild bird species. For this reason, the faunal material from POM 79 has been the subject of a detailed study⁴, the results of which are presented here in two parts under the following categories:

A. **FOOD DEBRIS:** large mammal, bird and fish bones

B. **GARDEN FAUNA:** small mammal and amphibian bones

HISTORICAL BACKGROUND TO THE GREYFRIARS GARDEN

Until its dissolution by Henry VIII in 1538⁵, the order of the friars minor

known as the Greyfriars occupied much of the triangle of land within the City wall between Newgate and Aldersgate, extending to the east just beyond the line of the former Pentecost Lane (Figs 1 and 2) (Honeybourne 1932). The Friars Minor first moved to this part of London from a temporary site in Cornhill in 1225, following a gift of land in Stynking Lane (now King Edward Street) made to their community by John Iwyn, a wealthy London merchant. Through further generous benefactions they acquired adjacent areas of land including ground lying to the west of King Edward Street, a gift from Queen Margaret, second wife of Edward I, on which the friars erected their great church

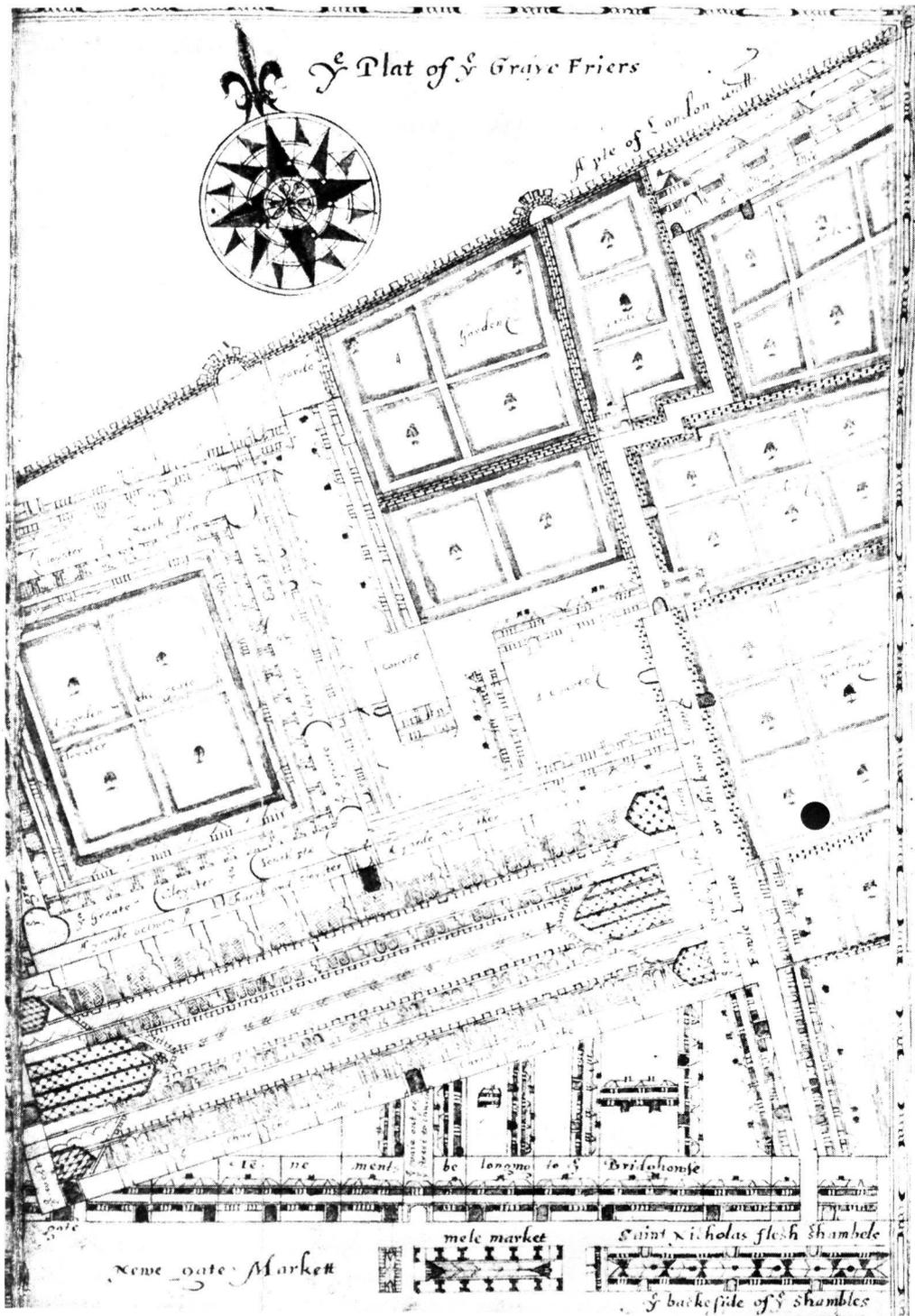


Fig. 2 Greyfriars Well: Modern street plan with outline of the Greyfriars' church, and the well.

(completed by about 1350) (Shepherd 1902, 238–245).

Traces of the southern aisle of the conventual church (later of the parish church of Christchurch) were discovered by P. Herbert of the Museum of London's Dept. of Urban Archaeology in 1976 (Herbert 1979). This excavation complemented an earlier one carried out by T. Johnson in 1973, which investigated the east end of the church (Dyson and Schofield 1981, 78).

From documentary sources it is known that in addition to smaller gardens within the Great Cloister and along the south side of the conventual church, the friars also had a much larger garden, on the site of which the present excavations took place, to the east of the church and which was referred to in the deeds of adjoining properties as 'the garden of the friars minor'. Kingsford (1915, rept 1965, 28) believed that as the convent garden was situated to the east of Stynking Lane (which linked Newgate Street and the lane along the City wall to the north) it was therefore separated from the main precinct of the Greyfriars. However, in a later documentary survey carried out by Honeybourne (1932, 27), evidence was found showing that Stynking Lane had been blocked up by the friars in 1274–75 and thereafter had ceased to exist, until 1600 when a footpath once more allowed passage northwards through the garden area.

There is very little more known about this garden, despite the existence of the well-known *Plat of ye Graye Friars*, which although dated 1617 incorporates material collected 70 years earlier, and therefore provides valuable information on the layout of the precinct at the time of the dissolution (Kingsford 1915, rept 1965, 52; Honeybourne 1932, 11).

Unfortunately much of the eastern part of the friars' precinct, which includes the convent garden, is not shown on the plan. In the small portion lying to the east of the conventual church which has been included in the 1617 plan, the cartographer has clearly made no attempt to depict flower beds, orchards, paths, etc. Instead, as with other gardens shown elsewhere in the plan, the garden is portrayed stylistically, taking the form of square and rectangular blocks of hedges enclosing a single, centrally placed tree of indeterminate species (see Honeybourne 1932, Plate 1).

The only other extant documentary evidence relating to the convent garden during the time of the Greyfriars is to be found in the records of the Assize of Nuisance, in which two private lawsuits mention the garden. In the first, dated 15 February 1370, the guardian of the Friars Minor, Brother Robert de Madyngton, complained that a local butcher, Richard Bayser, living in nearby Pentecost Lane, had allowed water mixed with the blood, hair and 'other filth' from his slaughterhouse to enter the Greyfriars' garden, 'causing a stench in many places there'. Seven years later, on 2 October 1377, it was the friars who caused a nuisance when they blocked up the 'kennel' (drain) that ran northwards across their garden, forming an extension of the drainage gutter that collected rain water from Pentecost Lane to the south. John Norhampton, draper, and other local inhabitants of Pentecost Lane complained that the friars' action had prevented rainwater from emptying through this drain into Houndsditch as it should, and, they claimed, in bad weather the street gutter overflowed, causing their possessions to rot as well as drowning children in the nearby ten-

ements (Chew and Kellaway 1973, 142 & 161). Apart from bare references to the garden in the deeds relating to property in Pentecost Lane, the extant documents are silent until 1562, when a grant shows that by this date the garden was being leased by Sir Martin Bowes to John Launde, butcher, for a term of forty years at the annual rent of 53s. 4d. (Colin Taylor *pers. comm.*).

The precise location of the convent kitchens is unknown, but they probably lay, like the beerhouse, in the service area beyond the far end of the friars' church. It is true that this would have been almost at the opposite end of the precinct from the excavated well of the eastern garden, but the latter's relative remoteness and seclusion from the central area of the buildings presumably meant that the well provided a more suitable repository for kitchen waste than either the cloister garden or that immediately to the south of the church.

2. THE FAUNAL REMAINS

A. FOOD DEBRIS

LARGE MAMMAL BONES

by BARBARA WEST

A total of 4939 large mammal bones (weighing 49,440g) was recovered, 65.5% of which were unidentified fragments; thus, the sample of identified bones was reduced to 1638. The species, bone elements, fragments, weight and sieving percentages are included in Fig. 13. According to Boessneck's (1970) method, most of the sheep/goat bones were probably sheep. The percentages recovered by sieving increased as the identified animal size decreased, but reached 96–97% in the three fragment categories (cattle-size, sheep-size and unidentified).

As can be seen from Fig. 3, the relative proportions of species represented

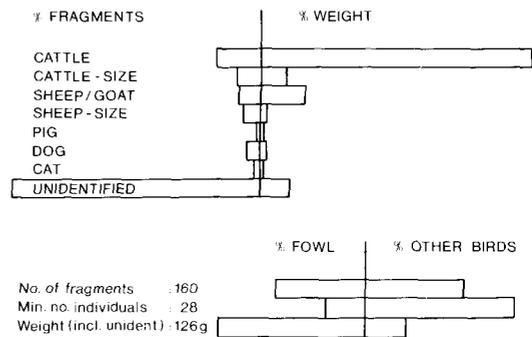


Fig. 3 Greyfriars Well: Double histogram comparing species by percentages of weight and fragments.

depended on the method of quantification; however, the only drastic discrepancies occurred in cattle and unidentified fragments. For reasons discussed in detail elsewhere (Uerpmann 1973), the weight method was preferred as more accurate; thus, while cattle predominated, sheep played a minor role and pigs were so scarce as to be outnumbered by the few dogs. Cats, fallow deer, and rabbits were present in small numbers.

Using initial categories of carcass components outlined by Uerpmann (1973) and Maltby (1979) according to the relative quality of meat yield, the data were combined for the two main food animals in Fig. 4. As can be seen, the lesser quality meat provided by the skull predominated in the weight and fragment percentages for both species, while proportions of high quality meat were consistently small.

Butchery marks were recorded on 16% of the cattle bones and 23% of sheep, with only 1–2 instances among pigs, cattle-size, fallow deer and rabbits. The single rabbit skull bore skinning marks across the nasal bones. Although the general butchery patterns for cattle and sheep were similar to those from other medieval sites (for example, vertebrae cleaved along the sagittal plane), the sample was too small for useful comparisons.

16% of the identified bones bore a black stain that could be mistaken for burning, 5 bones were stained green, and only 7 bones had been gnawed by dogs.

	Cattle		Sheep	
	% weight	% fragments	% weight	% fragments
<i>High quality meat:</i> (scapula, humerus, pelvis, femur, vertebrae)	23	16	10	16
<i>Lesser quality meat:</i>				
A (tibia, radius, ulna)	3	2	4	5
B (skull, maxilla, mandible, loose teeth)	59	74	83	66
<i>Lowest quality meat:</i> (metapodials, phalanges, etc.)	15	8	3	13

Fig. 4 Greyfriars well: Relative quality of meat yield.

Age ranges were estimated using epiphyseal fusion, dental eruption (Silver 1969) and dental attrition (Grant 1975 and Payne 1973). Dental attrition patterns were assessed using methods devised by O'Connor (1983a) and West (1984a). Estimates for cattle indicated that most were killed at 3–4 years. The few pig bones were from individuals under one year. Although the fusion data for sheep indicated that the majority were less than 3½–4 years, with a peak slaughter age at 2½–3 years, the dental attrition data suggested that half the sheep were killed at 3–4 years, and half at 4–5 years. These contradictions illustrate the problems associated with small samples. Among the dogs were a few bones of puppies, although most were from adults over 1½ years. The cat bones represented individuals under 2 years, with a few 6–12 months old, as well as one foetal and two newborn kittens⁶.

The only bones recovered for which sex could be determined were the horn cores and innominate of sheep (using the descriptions of Armitage 1977), which indicated 14 males and 1 castrate, representing surplus stock not required for breeding or wool production.

PATHOLOGY

Evidence for pathology was found in 6 cattle bones: 1 metatarsal with a small swollen area near the distal posterior foramen indicating an injury to the back of the hind foot; and 4 proximal metacarpals and 1 distal first phalanx, each with a small circular pit of irregular resorption in the articular surface. Not only are these pits similar to those found occasionally in bovine mandibular hinges, but also to the 'osteochondritis dissecans' in human tibiae (Wells 1974), and it is possible that they all represent similar necrotic reactions of bone to stress upon the joint (in the cattle, this stress was probably caused by traction).

One sheep radius bore an exostosis near the proximal articulation, indicating a ligament which probably ossified in reaction to elbow

injury, similar to those found in York (O'Connor 1984). Two sheep mandibles exhibited severe periodontal disease, which both Maltby (1979) and O'Connor (1982) attribute to poor nutrition: an assumption for which there is no evidence. Periodontal disease in both humans and animals is caused by deposits of food debris (calculus) on the teeth; however, one interesting phenomenon is that cattle teeth from archaeological deposits often exhibit large quantities of adhering calculus yet suffer less periodontal disease than sheep, which bear little calculus yet far more frequent periodontal disease. This can be explained by the unpublished work of Hardwick (Manchester Dental School, Armitage, *pers. comm.*), who studied calculus on modern sheep teeth and found that a major component was silica grains, not from the opal phytoliths of plants (Armitage 1975), but from the *soil*. Because sheep crop plants much closer to the ground than cattle, they ingest large quantities of soil, from which the silica grains irritate and inflame the gum tissue.

Pathologies among the dog bones included one humerus with arthritic deposition and eburnation around the distal articulation (indicating an arthritic 'elbow' joint), one maxilla with irregularly-healed alveoli (indicating infection after the loss of the first incisor), and one lumbar vertebra in which the left transverse process never developed, while the right one grossly overdeveloped in the wrong direction, forming a long projecting spine curving backwards (towards the tail)⁷.

MEASUREMENTS

Measurements (Fig. 14) were taken using the method of von den Driesch (1976). Using conversion factors listed by von den Driesch and Boessneck (1974: Fock, for cattle; Teichert, for sheep), the mean withers height for the 19 cattle metapodials was 132.9cm (standard deviation: 15.7; coefficient of variation: 3.6), ranging from 114.3 to 156.3cm. These cattle were generally

larger than those from all periods at Exeter (Maltby 1979), 9th–13th century Lincoln (O'Connor 1982), 9th–10th century York (O'Connor 1984), 13th–15th century London (Trig Lane: West, unpublished), and the medieval periods at Portchester and Northolt (Grant 1977), but similar in size to those from medieval hospital of Maison Dieu, Ospringe, Kent (Wall 1980) and to the largest specimens from 16th century Baynard's Castle, London (Armitage 1977).

The few sheep bones yielded a mean withers height estimate of 60.5cm, which is similar to those at Exeter, Lincoln and Maison Dieu. The mean shoulder height for dogs (Harcourt 1974) was 45.1cm, indicating medium-sized animals.

BIRD BONES

by BARBARA WEST

A total of 416 bird bones (weighing 125.5g) were recovered by sieving, 61.5% of which were fragments of indeterminate species (see Fig. 15).

The relative proportions of species represented was unusual in that domestic fowl did not invariably dominate the collection. As can be seen in Fig. 5, fowl accounted for only 48% of the identified fragments, and a mere 21% of the minimum number of individuals. However, a more accurate estimate was probably given by the weight of bone (see section 2.1), in which fowl outweighed all other fragments including the unidentified.

No evidence of butchery or burning was found on any of the bones, and only 2 fowl bones had been gnawed by dogs. All the bird bones represented adults except for 1 juvenile rock dove, 1 sub-adult jackdaw, and 1 newborn, 2 juvenile and 1 sub-adult fowl. Sex in domestic fowl bones can be determined by three methods: measurement comparisons within large samples (inapplicable here), the presence of medullary bone (a deposit within the limb bones of laying hens; Driver 1982) and the presence of tarsometatarsal spurs (West 1982, 1985). Although no medullary bone was found, 4 of the tarsometatarsi were female and 1 male/capon.

Domesticated birds were represented by fowl, goose, and probably rock dove (pigeon). Measurements of the few complete fowl limb bones (Fig. 16) indicate that these birds were generally larger than the Roman, Saxon and medieval material from Exeter (Maltby 1979), Lincoln

(O'Connor 1982), and London: General Post Office and Watling Court (West, 1983), St. Magnus (Carey and Armitage, 1979). Similar in size to those from the London sites of Aldgate (17th–18th century, West 1984b), Crosswall (18th century, West 1981) and the palace deposits at Baynard's Castle (c. 1520–40, Carey 1982), they were also within the wide range of mid-15th century fowl bones from Trig Lane (West, unpublished). Thus the measurements provide additional confirmation of the general size increase of domestic fowl in the late medieval to post-medieval periods.

The habitats of the wild birds were represented by a fairly even distribution of coastal, marsh, field and woodland species. Resident birds which could be caught year-round (using nets, snares, birdlime, etc.⁸) were the robin, skylark, song and mistle thrushes, ringed plover, snipe and jackdaw. The grey plover and green sandpiper were only available in Winter, while the garden warbler (a visitor from Africa) could only have been caught in summer (Peterson, Mountfort and Hollom 1979). Rather surprising was the absence of duck and woodcock, which were relatively common at Exeter, Lincoln, Beverley (Scott 1984), Kirkstall Abbey (Ryder 1965), Maison Dieu and three of the other London sites mentioned above.

FISH BONES

by ALISON LOCKER

Most of the fish bones were recovered by sieving. Over 50% of the sample were vertebrae. A complete list of the elements identified is given in tabular form in Fig. 17.

The following species were identified: roker (*Raja clavata*), eel (*Anguilla anguilla*), conger eel (*Conger conger*), herring (*Clupea harengus*), sprat (*Sprattus sprattus*), smelt (*Osmerus eperlanus*), dace (*Leuciscus leuciscus*), roach (*Rutilus rutilus*), cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), whiting (*Merlangius merlangius*), hake (*Merluccius merluccius*), tub gurnard (*Trigla lucerna*) and plaice (*Pleuronectes platessa*).

These species represent a wide variety of habitats and suggest a number of fishing methods (as discussed by Wheeler, 1978). With regard to the marine fish, mature cod would be the deepest water fish present, being found in depths of up to 600m in a variety of habitats. Immature individuals may be found closer inshore. Hake, a

MODERN

MEDIAEVAL & TUDOR

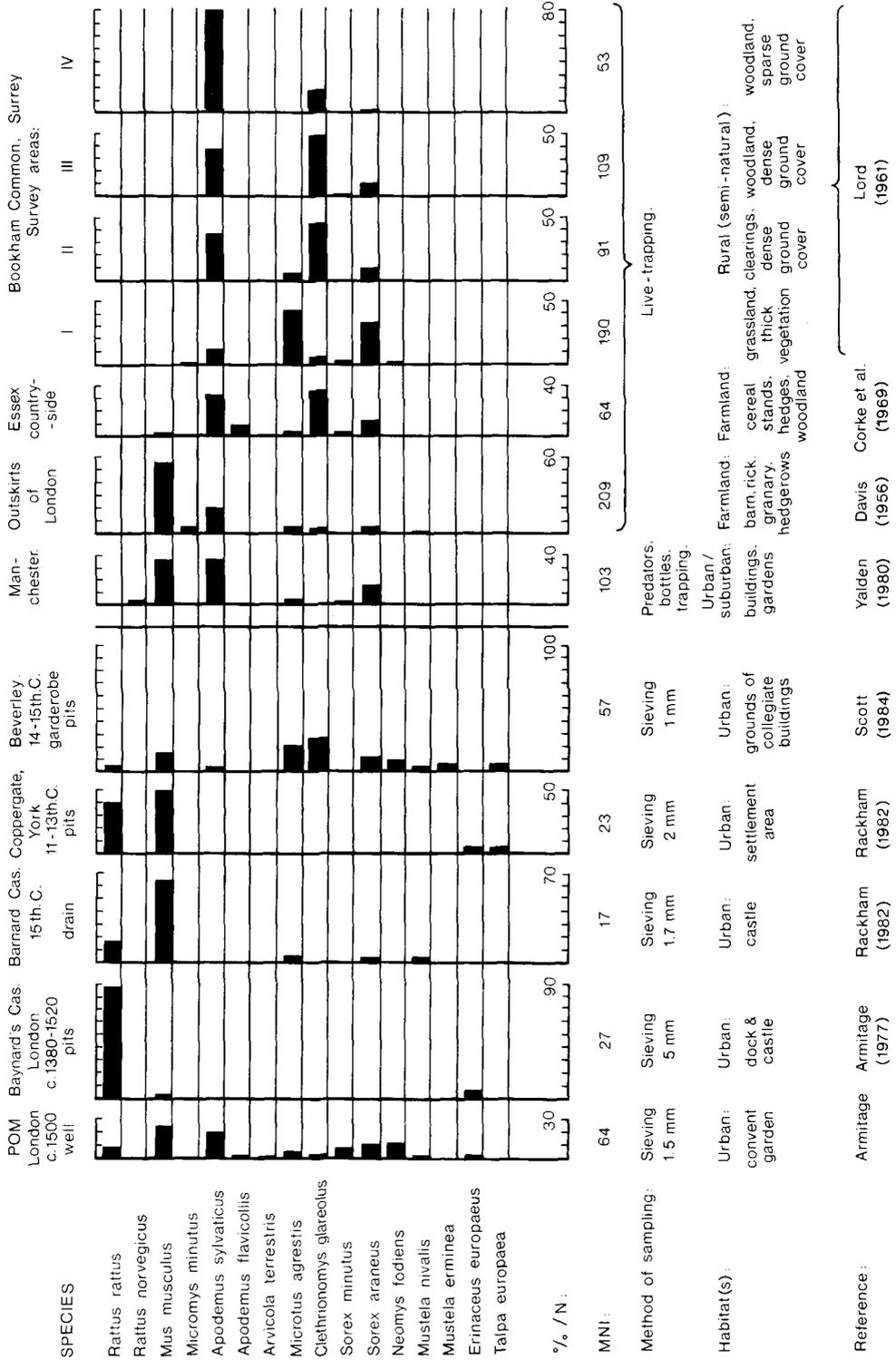


Fig. 5 Greyfriars Well: Double histogram comparing the relative percentages of domestic fowl with other birds using three methods.

moderate-to-deep water fish, is found near the bottom, and haddock live close to the seabed in depths of up to 300m. These three species would have been mainly taken on lines. Whiting is a shallow water, inshore fish and may have been caught by a combination of lines and nets.

Surface shoaling fish found in coastal waters and which are seasonally netted include herrings and sprats. The use of draft nets gave rise to the herring fleets and their associated industries (which developed on a large scale in the 14th century) from which herrings were marketed smoked or pickled (packed in barrels). Sprats were salted, and are especially common in inshore coastal waters, the young being found in estuaries and at certain times of the year are particularly abundant. The sprat fishery of the Thames is very ancient and was usually carried out using stow nets (Wheeler 1979, 77) in which large numbers of fish can be caught. Sprats were pickled in brine, and salmon were also pickled and salted⁹. Fish were often put into cold pies, which preserved the fish as they were filled with clarified butter which set and excluded the air¹⁰. Saltfish and herrings were put into pies with fruit¹¹.

Similarly the smelt, being very good to eat, has also been an important tidal fishery of the Thames. The largest catches were made in winter and early spring when the adults are migrating¹².

Rays and skates would also be caught on lines as bottom dwelling fish, but the shallow-water dwelling species were also caught in kiddles (shoreline traps) which prevented the fish returning to deeper water after feeding on the shoreline at high tide¹³. The tub gurnard although quite edible is likely to have been an incidental catch with other bottom living fish.

The conger eel prefers rocky coastlines with niches it can inhabit, and would be caught on lines. Eels are often caught in rivers and streams in eel-bucks, which trap them as they are going downstream. These traps were often used in the Thames strung across a weir or millstream. Eels were also kept in fishponds¹⁴.

The salmonid vertebrae may belong to either salmon or trout, but both species could have been caught in the Thames, salmon-bucks trapping the fish on their migration upstream¹⁵.

All the marine fish could have been caught in the North Sea off the southeast coast except the hake whose range extends to the northern North Sea and the Western Channel, and which was probably brought to London from a northern fishing port probably salted or dried.

Although the preserving of fish made it available cheaply throughout the year the position of the site with access close to the largest port in Britain makes it very likely that at least some of the fish was consumed fresh, especially fish in season such as herrings, sprats and smelts. Comparisons were made against modern reference specimens of known size and weight. None of the archaeological material proved to be remarkable in size and no knifecuts or other cut marks were observed.

B. GARDEN FAUNA BONES OF SMALL WILD MAMMALS

by PHILIP L. ARMITAGE

A total of 2,911 skeletal elements from twelve species of small wild mammal¹⁶ was recovered. Identification of this material was made by comparison with modern specimens in the mammalian osteological collections in the British Museum (Natural History). Reference was also made to Lawrence and Brown (1973). A complete inventory of the skeletal elements identified is given in Fig. 18. The minimum number of individuals (MNI) represented by the sample collected was estimated at 64¹⁷.

The small mammal remains are described below in systematic order under species. Only a basic summary of each species is presented. More specific information, including details of epiphyseal fusion in the limb bones, is available in the level II archival record at the Museum of London.

The species represented:

Mus Musculus house mouse

MNI = 17. Sex could be determined in 7 innominate bones after the method of Brown & Twigg (1969); these were identified as 6 males and 1 female. Using dental eruption and attrition, the ages of 4 maxillae were estimated as follows (using the method of Lidicker, 1966, 38): 1–2 months (2 individuals); 2–4 months (1 individual); and 4–6 months (1 individual). 15 out of the 20 mandibles (lower jawbones)

collected were sufficiently intact to allow measurement by Dr. Michael Festing, who subjected the data to multivariate analysis. From this study, it was discovered that the jawbones from the Greyfriars' well are significantly smaller than the sample of modern house mice from London in the collections of the BM(NH) (see Appendix I). As all the modern mice had been caught by means of live-trapping, while those from POM represent a pit-fall sample, this disparity in size probably simply reflects sampling bias¹⁸, and there is no reason to believe that the overall range in size in the Tudor mice was any different from that of modern London mice.

Apodemus sylvaticus wood mouse

MNI = 13. All immature (either juveniles or sub-adults). Sex could be determined in 9 innominate bones (after the method of Brown & Twigg 1969); these were identified as 4 males and 3 females.

cf. *Apodemus flavicollis* yellow-necked mouse

MNI = 1. Young subadult represented by 1 complete tibia and 1 incomplete (anciently broken) femur. The length of the tibia compares favourably with the specimen of *Apodemus flavicollis* in the collections of the BM(NH) (reg. no. 1958.6.18.2). The Greyfriars animal is an interesting historic record as this species today is no longer found in London and is only known from localities further away, in Kent, Surrey and Essex (Corke 1977a, 127; 1977b, 219).

Microtus agrestis field (short-tailed) vole

MNI = 3. All immature. 2 males and 1 female were identified from the innominate bones using the method of Brown & Twigg (1969).

Clethrionomys glareolus bank vole

MNI = 2. Both immature. 1 right mandible is from an animal less than 3 months old (age estimated after the method of Alibhai, 1980).

Arvicola terrestris water vole

MNI = 1. Immature.

Rattus rattus black rat

MNI = 6. All immature: 4 subadults and 2 very young juveniles.

Sorex minutus pygmy shrew

MNI = 5. All immature (juveniles and subadults).

Sorex araneus common shrew

MNI = 7. By inspection of the degree of wear in the molar teeth, the ages of 6 animals could be determined (after the method of Crowfoot

1957) as follows: 4 juveniles and 2 sexually mature animals. Using the description of Brown & Twigg (1970), the innominate bone of 1 sexually mature male was identified.

Neomys fodiens water shrew

MNI = 7. Using the method of Crowfoot (1957, 110–113), the ages of 6 individuals could be determined from their teeth wear: 5 juveniles and 1 sexually mature animal. 2 sexually mature males were recognised among the innominate bones (using the method of Brown & Twigg 1970).

Erinaceus europaeus hedgehog

MNI = 1. Immature.

Mustela nivalis weasel

MNI = 1. Fully grown adult (dentally and skeletally mature).

AMPHIBIAN BONES

by BARRY CLARKE

Careful examination of the assorted small bones obtained by sieving yielded a total of 59 frog bones (genus *Rana*) (see Fig. 19). These bones were identified by comparison with specimens in the amphibian osteology collection in the British Museum of Natural History (B.M.(N.H.)).

At the time the well fell into disuse, the British frog fauna was even more restricted than it is today, with probably only common frog (*Rana temporaria*) and possibly also pool frog (*Rana lessonae*) and edible frog (*Rana esculenta*) being found¹⁹. The edible frog is probably not a native of this country, but the history of its introduction is rather sketchy (Smith 1973, 141). Boulenger (1898, 286–7) also suggested that edible frogs were an introduced rather than a native species, and cited records of introductions of edible frogs from France and Belgium in 1837, 1841 and 1842; pool frogs possibly 'of Italian origin' and, interestingly in the present context 'perhaps introduced by monks'; and also marsh frogs (*Rana ridibunda*)²⁰

from Berlin, probably in the 1880s. The evidence suggests that the marsh frog was not a part of the fauna of this country in 1500, but one cannot so easily discount the possibility of casual, localized introductions of edible and pool frogs.

The sample of 59 bones represents a fairly small proportion of the remains of a minimum of 6 frogs. Although for most, specific identification is not possible, some elements compare very closely with B.M.(N.H.) specimens of *R. temporaria* and in these cases there can be little doubt of the identification. There was no sign of newt bones (*Triturus* spp.) and no unequivocal evidence of toad bones in the sample.

Elements found (numbers of individual elements in brackets):

Right mandible (1). Right angular (angulo-splenic of some authors) only, dentary and Meckel's cartilage absent. Combination of size and degree of curvature suggests *Rana* rather than *Bufo*. Sub-adult to adult.

Humeri (6). Size and condition suggests 3 individuals represented: 1 adult and two juveniles, but in the case of the 2 largest humeri the size, elongate nature of the crista medialis (medial crest or ridge) and its situation relative to the eminentia capitata (ball joint articulation with forearm or radioulna) suggests these elements are both right humeri from adult male *Rana*; therefore probably between 4 and 6 frogs are represented. The nature of the crista ventralis (ventral crest or ridge) suggests *R. temporaria* rather than *R. esculenta* or *R. lessonae*.

Radioulnae (8). It is possible to differentiate between isolated left and right radioulnae as follows: Hold the bone so that the proximal end (i.e. the end which articulates with the humerus) is uppermost, turn it so that the olecranon (terminology of Ecker 1887, 51, Fig. 39 and see Fig. 6 in this paper) or humeral facet is pointing away from you. If the olecranon is directed to the right, it is a right radioulna, and vice versa. In addition, the groove separating the distal radial and ulnar heads of the radioulna is deeper on the right in a right radioulna and on the left

in a left radioulna, when the bone is held as described above. Thus there are 6 right and 2 left radioulnae present in the sample, giving the minimum determination of 6 frogs in the total sample mentioned above, including at least 1 adult. These elements have the general appearance, size and proportions of *Rana* rather than *Bufo* radioulnae, but it is not possible to distinguish between *Rana* spp. on radioulnae alone.

Metacarpal/metatarsal/phalangeal bones (21): It was not possible to distinguish between these as isolated bones; probably *Rana* rather than *Bufo*.

Urostyle (or *coccyx*) (4). Clearly *Rana* rather than *Bufo* (see Fig. 6): the sacrococcygeal cotyles are round rather than oval as in *Bufo* and the dorsal crest is more fully developed than in *Bufo* (virtually absent). In one, the dorsal crest is more obvious than in the other three. This may be variation or a possibility that the sample consists of 3 *R. temporaria* and 1 *R. esculenta* or *R. lessonae*. 4 urostyles indicate 4 frogs present in the sample, size indicates 1 adult and 3 juveniles.

Ilium (1). Left ilium only present; ischium and pubis absent. The size and nature of the dorsal crest, dorsal and ventral acetabular expansions, relative position of the acetabular fossa and positions of the dorsal prominence and dorsal

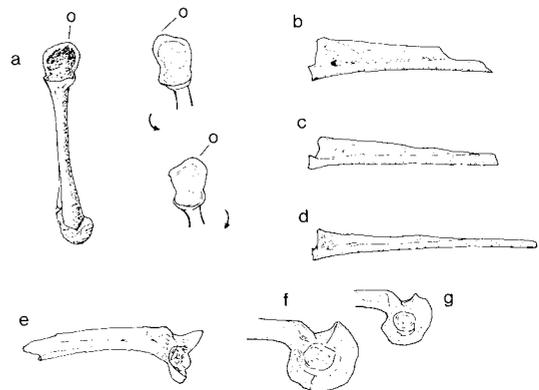


Fig. 6 Greyfriars Well: a. (left): Right radioulna of *R. temporaria*; (top right): close-up of left radioulna; (bottom right): right radioulna showing proximal head of humeral facet. b-d. Urostyles of (top to bottom) POM site specimen, *R. lessonae* and *R. temporaria*. Note that some specimens of *R. esculenta* (not illustrated) show at least as high a crest as the POM specimen. e-g. Ilium of POM site specimen, *R. temporaria* and *R. lessonae*. o = olecranon, arrow indicates side of bone with deeper groove. (Drawings by Barry T. Clarke)

protuberance relative to each other and to the dorsal crest indicate that this is a left ilium from a young-to-halfgrown *R. temporaria* (see Fig. 6).

Femora (5). Slender, degree of curvature suggests *R. temporaria*. While 5 femora in the sample indicate the presence of a minimum of 3 individuals, the appearance of these elements suggests it is more likely that they came from 4 or 5 common frogs.

Tibiae (9). Slender, not *Bufo* but not possible to distinguish between *R. temporaria* and *R. esculenta/R. lessonae* on the tibia alone.

Assorted bones (6). From their general appearance, particularly the curvature of the inner and outer margins and slight dorsoventral flatness that are probably 3 calcanea and 3 astragali of *Rana* sp. representing a minimum of 2 (possibly 3) individuals.

In conclusion, it seems likely that all these bones are the remains of at least 6 common frogs, including adult, halfgrown and juvenile frogs, with the remote possibility (based on the slender evidence of the state of the dorsal crest of a single ilium) that a young edible or pool frog may have been present.

According to Smith (1973, 122–3), the name of *Rana temporaria* has pre-Linnean origins and means ‘temporary frog’ which was an allusion to their apparent disappearance outside the breeding season. Common frogs are strongly terrestrial at other times of year, being less dependent upon ponds, etc., than is commonly supposed. While some may spend much of the summer in the water, most ‘spend the greater part of their active life on land, in fields, gardens, meadows and woods’ (Boulenger 1898, 309). The situation of the friary garden and surrounding countryside suggests a suitable habitat for common frogs, more suitable than for edible or pool frogs which show a greater preference for water, particularly in the case of adults. The well may have acted as a pitfall trap or as a temporary habitat.

3. INTERPRETATION

A. FOOD DEBRIS

THE DIET OF THE GREYFRIARS by BARBARA WEST

The evidence (sections 2.1–2.3) suggests that the meat in the diet of the London Greyfriars (calculated by weight) consisted primarily of beef. Mutton played a minor role and pork was relatively rare, followed by chicken and small amounts of fallow deer, wild birds and rabbit²¹. If fragment numbers are used for the calculations, however, a rather interesting list results, in order of importance in the diet:

1 cattle	15 rock dove
2 sheep	garden warbler
3 chicken	16 roach
4 rabbit	17 salmonid
5 herring	18 haddock
6 robin	hake
7 eel	elasmobranch
8 whiting	19 song thrush
9 sprat	20 green sandpiper
10 plaice	21 ray
11 pig	conger eel
12 snipe	dace
cod	skylark
13 smelt	mistle thrush
14 goose	ringed plover
jackdaw	grey plover
gadoid	fallow deer

Fig. 7: Relative importance using fragment counts.

When one considers that the robins high on the list in Fig. 7 represent approximately seven individuals, and that the fallow deer at the very bottom represents a large hind leg joint, the fallacy of mere fragment-counting becomes clear. Unfortunately, fragment numbers must be used in order to compare the Greyfriars data with that of five other medieval monastic sites: Kirkstall Abbey (16th century: Ryder 1956, 1957), Maison Dieu (1470–1550: Wall 1980), Beverley (11th–16th century: Scott 1984), Westminster Abbey (12th–

13th century: Jones 1976; Locker 1976) and Coventry (mid-16th century Whitefriars' school: Holmes 1981, in which bone weight was also used).

Rather surprising is the scarcity of pork in the Greyfriars' diet, since it is well-represented at Westminster, Beverley, Maison Dieu and particularly suckling pigs at the Coventry Whitefriars; however, Ryder (1956) explains the small numbers of pig bones at Kirkstall Abbey by suggesting that pork was considered a luxury in 16th century Yorkshire. Wall (1980) mentions historical records stating that in 1235, fifty hogs were sent to Maison Dieu by the king for the establishment of a herd. Scott (1984) has also found faunal and historical evidence for an elevated social status of the monks at Beverley, and the numbers of deer, rabbit, swan, peacock and suckling pig found at Coventry suggest that the Whitefriars' students were eating rather well indeed (although Holmes 1981, did not recognise it).

Another surprising feature is the very high proportion of lesser quality meat represented by skulls, which remains consistent for cattle and sheep in both weight and fragment analysis (Fig. 4). By contrast, Maison Dieu produced 2–3 times as much high quality meat for these two species as the Greyfriars site, and less than one-third the proportion of skulls. Coventry also yielded large percentages of high quality meat (65%–84% for cattle, sheep and pigs). Scott, however, mentions unusually high proportions of sheep skulls and feet at Beverley, while Ryder reports very high percentages of sheep and pig skulls at Kirkstall Abbey.

All the species of animals, fish and birds in the Greyfriars' diet would have been readily available in London. The heads of cattle and sheep would have

been particularly cheap and easy to obtain from the adjacent Shambles. The variety of fish consumed was undoubtedly due to the large number of religious fasting days when eating of meat was forbidden, amounting to almost half the days of the year (Wilson 1973). Wilson also notes that herrings and eels (high on the list in Fig. 7) were the poor man's fare. Although these species were also important at Westminster Abbey, several other species of rare and highly-valued fish found there indicated the extreme wealth of the Benedictine order (Jones 1976).

Many of the bird species consumed (thrush, plover, lark, robin and warbler) were not found on any of the other monastic sites. Larks were recommended by physicians for their digestibility, and were the second most expensive of the small birds in the price lists of the City Poulterers described by Wilson²². Other small birds, however, could be bought cheaply²³. Jackdaw, 'that most urban and ecclesiastical of birds'²⁴, appears on all but one of these six monastic sites, and though usually dismissed as a scavenger, it could also have been eaten like its cousins, the rook and magpie. Rook pies were popular with poorer folk²⁵, and magpies were on the bill of fare drawn up for the monks of Waltham Abbey, Essex in 1059 (Fitter 1945).

In summary, the paucity of pig bones, the very high proportion of lesser quality meat provided by skulls, and the numbers of cheap fish and small birds on this site suggest that the London Greyfriars were restricted to a rather economical diet, compared to the more luxurious fare of some of their contemporaries, particularly at Maison Dieu and Coventry. Even Maison Dieu, however, suffered poor fortune during

this period (1483–1516), and most of the evidence for a wealthier status for Beverley is of an earlier date (13th century). The diet of the London Greyfriars most clearly resembles that of the monks of Kirkstall Abbey: rather frugal fare, enlivened by occasional gifts such as venison or goose, as well as the odd skylark ‘for medicinal purposes’.

This marked contrast in quality of diet with that of the more self-indulgent regular monastic orders elsewhere (with the exception of Coventry) is also consistent with what little is known of general conditions of life at the London Greyfriars in the late 15th and early 16th centuries, as studied by Kingsford. Despite evidence of a certain relaxation of their original ideals (especially in respect of personal possessions) and also of a decline in the number of inmates (at the Dissolution there were only 25 friars compared with at least four times that number two centuries earlier), their standards remained essentially intact. The house maintained its reputation as a leading school, and relations with both City and Crown remained cordial. In the present context it is interesting that in 1522 the friars for the first time entertained the City’s rulers to dinner. On that occasion, no doubt, the fare was lavish, but all the indications are that general standards were more austere. As a counterpart to the dietary evidence presented here, and as testimony to an abiding ideal of poverty, the Greyfriars in 1502 resolved to exchange the brown russet of their dress for a kennet russet which cost half the price (Kingsford 1915, 19–23).

B. GARDEN FAUNA THE GREYFRIARS’ CONVENT GARDEN by PHILIP L. ARMITAGE

SOURCE OF THE SMALL MAMMAL BONES

Given that one is dealing with a garden well the discovery of frog bones in the fill came as no great surprise and clearly these are the remains of animals that had lived in or near the shaft. Interpretation of the small mammal bones on the other hand was not so straightforward and it required a considerable amount of research and consultation with fellow zoologists before the assemblage was finally identified as a natural pit-fall deposit.

Concentrations of small mammal bones found at archaeological sites derive from one (or combination) of the following sources:

(i) SCATS OF MAMMALIAN PREDATORS

Bones of small prey (mice, voles and rats) caught and eaten by foxes, dogs, cats and weasels will pass through the digestive tract and are expelled with the other undigested waste food products in the faeces. It may therefore be postulated that one or more of these carnivorous predators when visiting or living in the garden deposited scats in the vicinity of the well. Later, presumably during clearance of the garden, earth containing the scats was collected and together with other garden refuse dumped into the disused well. If part of the assemblage did indeed originate in this way from scats, a proportion of the bones in the fill could be from prey caught and eaten *outside* the City walls rather than within the garden and the usefulness of the small vertebrates for ecological interpretation would consequently be reduced. Careful microscopic examination of the skeletal elements, however, failed to reveal any similarities with the bones documented by Andrews (1983) and Andrews & Nesbit Evans (1983) that were obtained from scats of various mammalian predators. Nowhere in this sample was there the degree of fragmentation and corrosion (caused by digestive juices) that is generally associated with such material.

(ii) PELLETS OF AVIAN PREDATORS

A number of birds regurgitate the bones and other undigested parts of their prey in the form of a pellet (see Glue 1970; Bang & Dahlstrom 1974). It may be suggested therefore that an avian predator when visiting or nesting in the Greyfriars' garden perched on the edge of the protective wall around the well (if indeed such structure was present) or sat in the rafters inside the well house or canopy protecting the winding gear (again if this was present)—or, perhaps even in the branches of an overhanging tree. In any of these locations a bird would have been in a good position to deposit its pellets directly into the well shaft.

Listed below are the species of avian predators who roost or nest in towns and would therefore be most likely suspects for depositing small mammal bones in this well, in the form of regurgitated pellets:

CROWS: Family *Corvidae*, *Corvus* spp.

FALCONS (birds of prey): Family *Falconidae*, kestrel *Falco tinnunculus*

OWLS: Family *Tytonidae*, Barn owl *Tyto alba*
Family *Strigidae*, tawny owl *Strix aluco*²⁶

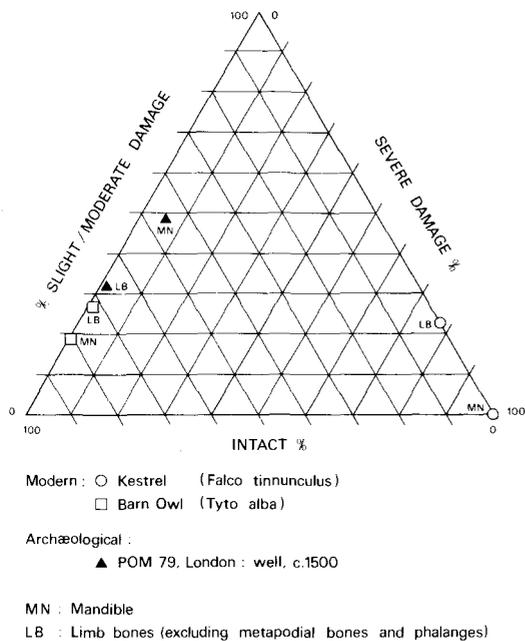


Fig. 8 Greyfriars Well: Degree of damage in small mammal bones from kestrel and owl pellets compared with specimens from the Greyfriars' well (POM 79).

Taking each of these birds in turn, it can be demonstrated that this small mammal assemblage could not have come from their pellets and the scenario of pellet deposition described above must therefore be rejected.

CROWS—Dr Derek Yalden, who was invited to comment on the assemblage, is firmly of the opinion that the presence of large skulls from hedgehog, rat, water vole and weasel rule out the possibility of crow pellets (Yalden 1985 *pers. comm.*).

KESTREL—Dr Yalden also says that diurnal raptors like the kestrel are generally unlikely to capture many nocturnal animals such as mice, whose skeletal elements dominate the assemblage (Fig. 9). The possibility of kestrel pellets is also discounted by the pattern of breakage in the assemblage (Fig. 8). From Fig. 8 it is seen that the majority of the specimens are intact and in a good state of preservation, in marked contrast to the bones from modern kestrel pellets examined by the author²⁷, many of which were so comminuted that only unidentifiable slivers of bone remained and whose surfaces were badly pitted and corroded by the action of digestive juices. Final evidence supporting the rejection of the possibility of kestrel pellets is provided by the species composition of the assemblage which bears no identifiable relationship with the diet of this bird. In the kestrel diet the most frequent mammalian prey item is *Microtus agrestis* (Shrubb 1980, 112–113) but this small mammal species forms only a relatively small proportion (4.8%) of the total number of animals collected (Fig. 9) in this sample.

BARN OWLS AND TAWNY OWLS—While the pattern of breakage and general condition of the small mammal bones from the present site appear similar to that found in the barn owl pellets from Tring, Hertfordshire, examined by the author (Fig. 8) and to the descriptions of owl pellets given in Bang & Dahlstrom (1974: 195–196) and Dodson & Wexlar (1979), microscopic inspection of the bones failed to detect any sign of erosion on the articular heads (proximal epiphysis) of vole femora or corrosion in isolated vole teeth which have been recorded by Dr Peter Andrews in bones extracted from modern owl pellets (Andrews 1984 *pers. comm.*).

It is also important to note that the relative proportions of the different species present in the sample do not match the known diet of either the barn owl or tawny owl documented by various workers (Fig. 9). In both of these birds the

BARN OWL
(*Tyto alba*)

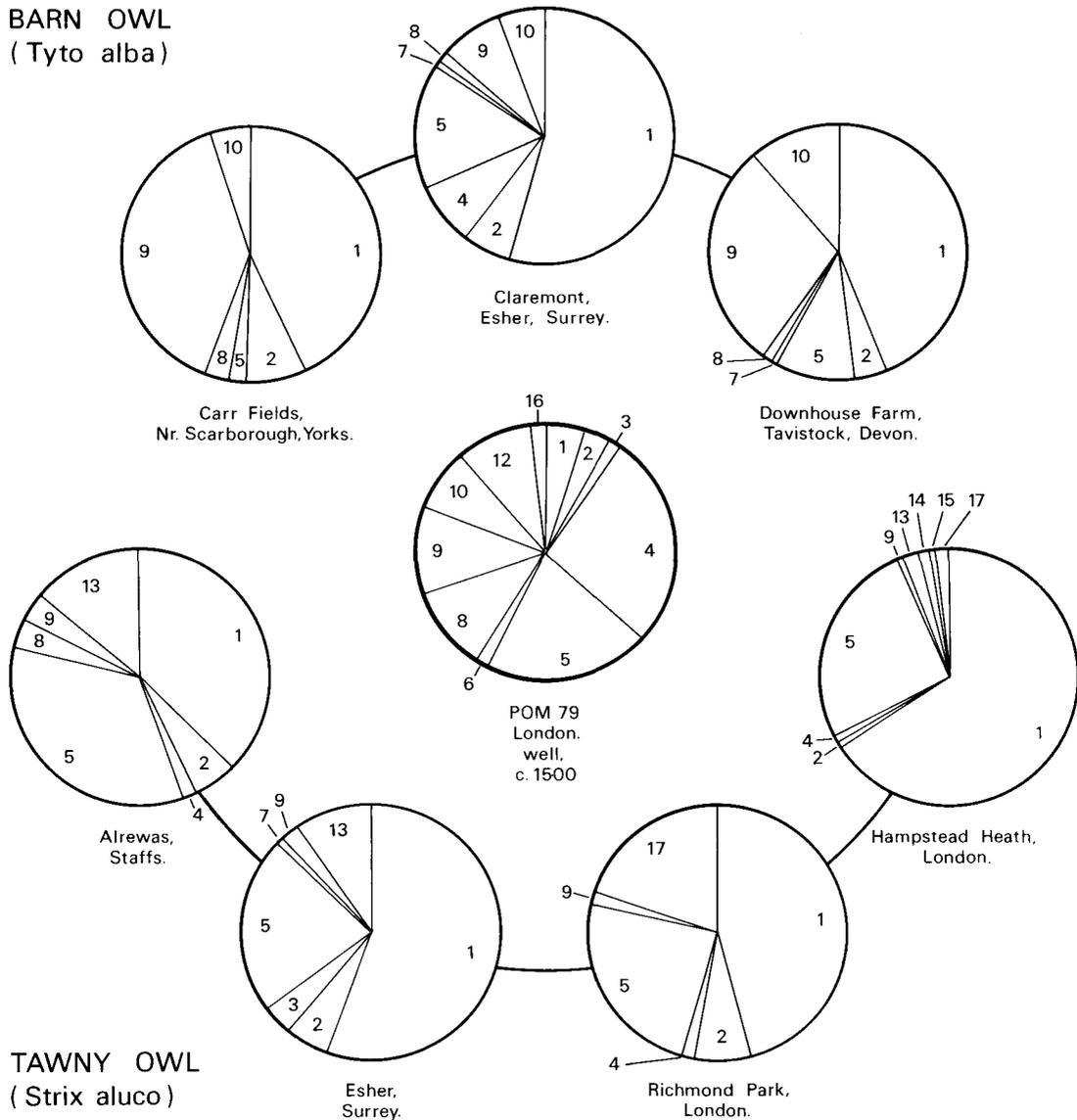


Fig. 9 Greyfriars Well: Percentage composition of small mammalian species found in samples of barn owl and tawny owl pellets compared with the assemblage from the Greyfriars' well. Hedgehog has been omitted from the POM sample as this animal does not generally constitute a potential prey for owls, and rabbit has also been omitted, as this animal in Tudor times was mainly confined to warrens and was therefore presumably not readily available to owls (Southern 1954, Teagle 1962, Glue 1970, Lawrence and Brown 1973, Bevan 1982).

most frequent major prey item is the field vole *Microtus agrestis*, which in this assemblage only forms 4.8% of the total number of animals collected.²⁸

(iii) PIT-FALL DEPOSIT

Having carefully considered and eliminated the possibility of mammalian and avian predators as the sources of the small mammal assemblage it must be supposed that the animals accidentally fell into the well shaft and, being unable to climb out owing to the depth of the shaft, perished. Supporting evidence for the conclusion that the well acted as a giant pit-fall trap is provided by the preponderance of immature animals in the collected sample. 59 out of the total of 64 individuals present (92.2%) were classified as either juveniles or subadults, and such animals are well documented as being prone to falling into wells and other sunken man-made features. Young hedgehogs in particular are frequently found drowned in ornamental ponds, lakes and sewage farm tanks (Morris 1966, 48). Although the discovery of this species in the well therefore came as no surprise, it is strange that given the abundance of this animal in gardens, only a single individual was present in the sample collected.

If the well acted as a natural pit-fall trap, how were the small mammals able to approach close enough to the well shaft to fall in? The answer to this depends very much on whether or not the well head was originally protected by a wall. Unfortunately, modern building activity had truncated the later medieval and early Tudor levels at the site removing the top part of the well structure and leaving only the buried stone-lined shaft intact. Faced with the problem of the lack of any direct archaeological evidence, the possibility that there was originally either a stone or a brick wall around the well head (opening) must be considered. Contemporary illustrations of medieval garden wells (Fig. 10) indicate that most were usually only protected by a low circular wall, probably about 2.5–3 feet (0.6–1m) in height. This would not have presented an insurmountable obstacle to most small mammals, which are generally agile climbers and jumpers (Lawrence and Brown 1973). After the garden well had fallen out of use, its protective wall may have been removed entirely (robbed), or the stone blocks or bricks may have become dislodged, creating gaps in the structure through which small animals could pass.

Alternatively, there might not even have been a wall. Instead, the well opening could have been marked only by a single or double course of stone-work forming a raised rim less than one foot in height (0.30m) with a hinged metal grill over the top of the shaft to prevent people from falling in. A surviving example of this type of well, dating from the 13th century, may be seen in the cloister yard of Michelham Priory, East Sussex; inspection of this particular well reveals just how easy it would have been in the absence of a protective wall for the small mammals in the Greyfriars' garden to approach and fall into the well shaft. It should not be imagined, however, that there was a 'mad scramble' to reach the well shaft and that all the small animals present in the fill had fallen in in the space of a few days. From the pottery evidence (Vince 1985) it is seen that the timespan for the accumulation of the small mammal deposit in the well may have extended over 50 years, which would mean that on average only one or two animals were falling into the well each year.

While it is not possible to ascertain the exact rate of collection, the time of year when the majority of the small mammals were 'captured' is suggested by their ages at the time of death and by the sex of the animals. The preponderance of immature animals together with the relatively high numbers of males indicate most were 'caught' during the summer months. This interpretation is based on modern studies of the behaviour and population dynamics of small mammals in the wild and is best illustrated with reference to the shrews, wood mice and black rats in this sample:

SHREWS: As described by Crowfoot (1957, 113–125) investigations into shrew populations have revealed evidence of an annual turnover. After August adult animals born in the previous year begin to become increasingly rare and between October and February they have disappeared completely, possibly due to their failure to compete with the new generation for scarce food resources during the winter months. It follows that only during the summer would one expect to find old and young together in the population as is the case in this sample which includes two adult *Sorex araneus* and one adult *Neomys fodiens* in addition to the juvenile animals. The relatively large numbers of immature animals also points to summer 'capture' for it is during this time of year that the young range over large areas actively searching for a territory, and being inexperienced, are more likely to fall

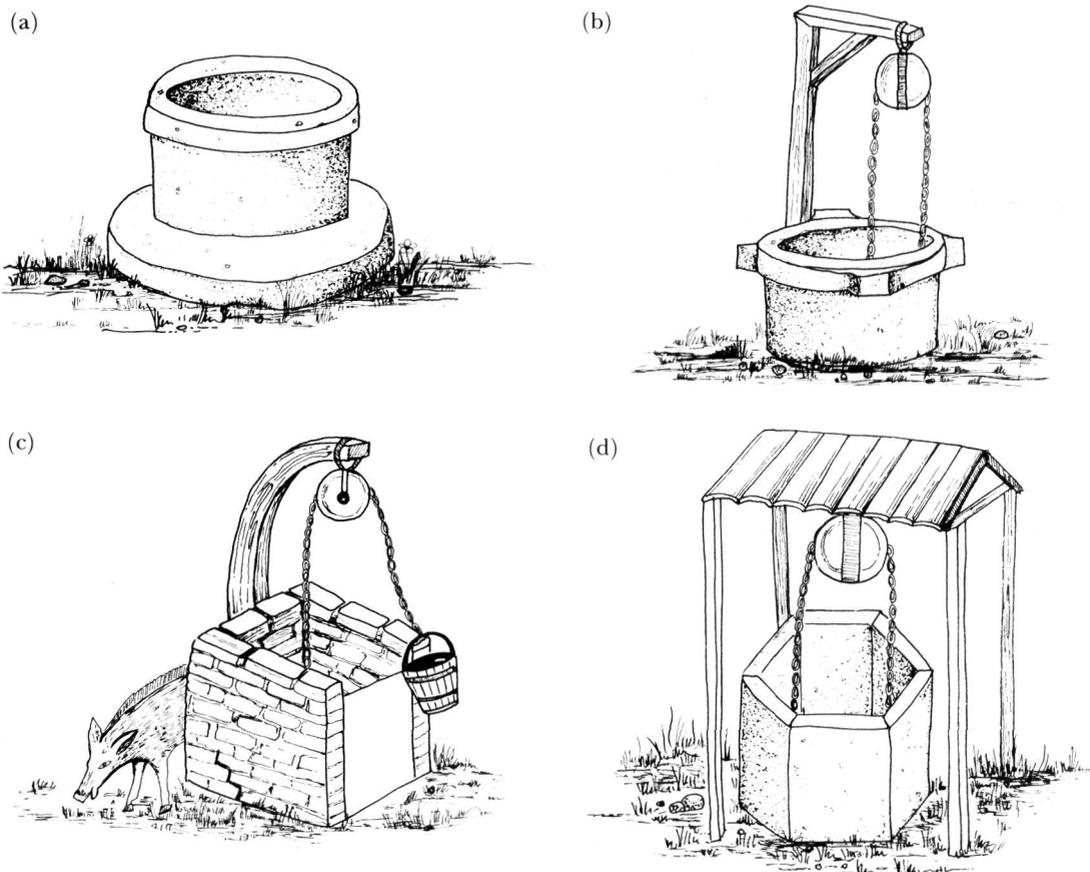


Fig. 10 Greyfriars Well: Details of four garden wells and one street well taken from later medieval and 16th century manuscripts and paintings: (a) *Grimani Breviary* c. 1510; (b) book of French romances given to Queen Margaret of Anjou by the Earl of Shrewsbury in 1445; (c) *Cocharelli manuscript*, late 14th century; (d) 'Battle between Carnival and Lent' by P. Bruegel. (Drawings by Kate Armitage)

into natural pit-fall traps than the more cautious adults (Ellenbroek 1983 *pers. comm.*).

The relative members of the shrew species present in the sample also merit special mention. Although it is well known that the three species *Sorex araneus*, *Sorex minutus* and *Neomys fodiens* are able to live sympatrically in the same area (Barrett-Hamilton & Hinton 1914–21; Ellenbroek 1980, 119; Churchfield 1984, 211), the water shrew is generally outnumbered by the common shrew in most habitats (Churchfield 1983 *pers. comm.*) but in this sample both of these species occur in equal numbers (MNI = 7). Two explanations may account for the unusually high number of water shrews found in the well. From

his experience of shrew behaviour, Dr Ellenbroek has suggested that *Sorex araneus* and *Sorex minutus* may indeed have been more abundant than *Neomys fodiens* in the Greyfriars' garden (as would be predicted from modern ecological studies), but because both common and pygmy shrews are better at sensing and therefore avoiding pit-fall traps, proportionally less of them were 'caught' in the well (Ellenbroek 1983, *pers. comm.*). Dr. Sara Churchfield has suggested that the number of water shrews present may be biased by their more gregarious behaviour, which has led two or more animals to fall into the well at the same time (Churchfield 1983 *pers. comm.*).

Species	Typical habitat
1. COMMENSAL SPECIES:	
house mouse:	Found in close association with man; the presence of this animal reflects the proximity of the garden to human habitation.
black rat:	As for house mouse.
2. SPECIES REQUIRING GROUND COVER:	
field mouse:	Field mice are today abundant and widespread in gardens in the outer suburban areas of London where they often come into houses during the winter months (Burton 1974). This species has also been found in the flower-beds of Regent's Park, London (Barrett-Hamilton & Hinton 1914-21, 521). These mice would therefore have been quite at home in the Greyfriars' garden, provided there was some form of ground cover to conceal them from predators such as feral cats which were a common feature of later medieval and early Tudor London (Armitage 1977, 109).
yellow-necked mouse:	Basically a woodland animal which requires adequate ground cover.
field vole:	Prefers to live in rough, ungrazed grassland (Evans 1977, 189). Near London has been found on unowned commons and parks throughout the suburbs (Burton 1977).
bank vole:	Widespread in hedgerows and woods in the outer suburbs around London (Burton 1974). This timid creature tends to avoid those areas disturbed by man and its occurrence in the Greyfriars' garden must therefore mean that there was a low level of human activity and/or the environs of the well were sufficiently heavily overgrown to provide adequate cover (see König 1973, 110).
common shrew and pygmy shrew:	Both species prefer habitats with plenty of ground cover (Corbet 1977, 50-56) and their numbers tend to be depressed in areas disturbed by man's activities (Crowfoot 1957, 146). The relatively high numbers of these animals at the present site must therefore indicate thick grassland, scrub and/or hedges nearby, with very little disturbance by the friars.
weasel:	Today this animal is to be found in woodlands and hedgerows wherever there are voles and mice (King 1977, 340). Its presence therefore indicates that parts of the garden had sufficiently thick undergrowth to provide adequate cover.
hedgehog:	The ideal habitat is the quiet suburban garden rather than the open countryside, providing there is sufficient cover for nesting: fallen leaves; thick grassland; brambles or scrub (Morris 1966, 43-46).
3. SPECIES FAVOURING AQUATIC HABITATS:	
water shrew:	Mainly found by clear unpolluted streams and ponds wherever there is cover (Jenkins 1977, 59) and is rarely far from water (König 1973, 23). However, this animal has been observed in woods and pastures and even grubbing in the droppings of horses on a public road (Barrett-Hamilton and Hinton 1914-21; 139-140). Today, in the London area, increasing water pollution levels are driving water shrews away from rivers and streams (Burton 1966, 41) and it may be conjectured that similar circumstances forced water shrews living along the banks of the City ditch to seek new territory inside the walls, in the Greyfriars' garden.
water vole:	Although the water vole prefers to live on well vegetated banks of rivers and water-filled ditches, it is also found some distance from water, in gardens, and may be particularly abundant in orchards (König 1973, 111, Stoddart 1977, 199-200).

Fig. 11 Greyfriars Well: Summary of preferred habitats of the small mammals in the POM sample.

WOOD MICE: In early summer overwintered males become aggressive towards juveniles, as do adult females during pregnancy and care of their newborn offspring. This aggression promotes dispersal in juveniles whose chances of survival during this stressful period are drastically reduced (Montgomery & Gurnell 1984, Flowerdew 1984). It may be supposed that this social behaviour in mature males and females caused juvenile wood mice in the Greyfriars' garden to range more widely over previously unexplored and therefore unfamiliar territory, ultimately leading many of these inexperienced youngsters to their deaths through falling down the well.

BLACK RATS: Unlike its hardier cousin the brown rat *Rattus norvegicus*, which despite the temperate climate of Britain is able to live freely in the open countryside, the black rat is not really suited to living in northern latitudes, in a cooler and wetter environment than its sub-tropical homeland in southern Asia. Black rats living in Britain during the later medieval period would therefore have rarely ventured away from the warmth of human habitation (see Twigg 1984, 86-88) especially during the cold winter months. The presence of this species of rodent in the well must therefore indicate summer 'capture', the time when a few of the more

intrepid younger rats were tempted to leave their nests in the friary buildings and/or the tenements along Newgate Street and Pentecost Lane in order to scavenge in the nearby Greyfriars' garden. Unfortunately there are no surviving contemporary records to show that rats infested the Greyfriars' buildings, but their presence may be inferred from documentary evidence from other monastic houses in Britain. Two Account Rolls of Durham Abbey, for example, mention payments made to rat catchers for removing rats from the premises (rolls dated 1347 and 1356)²⁹.

RECONSTRUCTION OF THE GARDEN ENVIRONMENT CIRCA 1500

As discussed by Rackham (1982) small mammal bones from natural pit-fall traps such as those from the well may be used in reconstructing the site environment. However, as pointed out by Levitan (1984, 124–125), it is only comparatively recently that the merits of using such material for this purpose have been recognised; hitherto, environmental archaeologists preferred to base their conclusions on pollen and mollu-

scan evidence, where this was available, believing that since small mammals generally have a relatively small home range (up to 200 metres) they could only provide specific information relating to a limited area. As Levitan rightly says, it is the molluscs which should be regarded as reflecting the microenvironment; small mammals on the other hand are not so restricted in their activity (mobility) that they are unable to give a broader picture of the environment of a site. In this case, the small mammal fauna from the well can reveal important information not only about the condition of the ground in the immediate vicinity of the well opening but also much further away, thereby providing an overview of the whole of the convent garden. On the basis of modern ecological studies it has proved possible to identify some of the habitat preferences and niche requirements of the different species forming this small mammal assemblage and so construct a picture of the convent garden as it was *c.* 1500 (Fig. 11).

Site name/locality	Habitat(s)	References	N	S	H̄	D
TUDOR:						
Post Office Middle, City of London	Greyfriars convent garden	Armitage	55	8	1.80	1.71
MODERN:						
South Manchester	urban/suburban: built-up areas, suburban gardens and railway embankments	Yalden (1980)	140	5	1.13	0.96
Outskirts of London	farmland: barn, ricks, granary and hedgerows	Davis (1956)	206	6	1.29	0.98
Essex countryside	farmland: arable fields, hedges	Corke <i>et al</i> (1969)	64	7	1.51	1.36
Bookham Common, Surrey	rural (semi-natural): I grassland, thick vegetation II clearings, dense ground cover III woodland, dense ground cover IV woodland, sparse ground cover	Lord (1961)	190 91 109 53	7 4 4 3	1.42 1.13 0.99 0.58	1.21 1.02 0.90 0.42
Whipsnade Zoo, Bedfordshire	rural (semi-natural): strip of thick undergrowth, patches of willow herb and bramble	Reidy (1984)	50	4	1.12	1.07

Fig. 12 Greyfriars Well: Diversity in the small mammal fauna from the Greyfriars' well compared to modern suburban, agricultural and rural (semi-natural) habitats. N: total number of individuals; S: total number of species; H: Shannon-Weiner information function (Shannon and Weaver 1949); D: Simpson's index of diversity (Pielou 1977, 309–11).

	Cattle	Cattle-sized	Sheep/goat	Sheep-sized	Pig	Dog	Cat	Fallow deer	Rabbit	Unidentified
Horn Core	7		22							
Skull	253	263	89	159		1	6		1	
Maxilla	50		20			2	2		1	
Mandible	35		20		2	7	6		1	
Teeth	89		39			12	2			
Scapula	2	1	1			5	5		1	
Humerus	16		4	2	5	2	7		1	
Radius	4		8			4	6			
Ulna	4		2		3	4	4			
Innominate	14	8	13	2		3	3		1	
Femur	24		7			5	3	1	1	
Tibia	6		5			8	6			
Fibula							3			
Carpal	1		3							
Metacarpal	18		6							
Tarsal	2		8							
Calcaneus	1		1			3	2			
Astragalus	2		1			1	4			
Metatarsal	15		5			2				
Metapodial			6			22	6		30	
1st Phalanx	3		2							
2nd Phalanx	2		1							
3rd Phalanx			4							
Sacrum	3		3			1				
Vertebrae	31	11	16	9	2	8			1	
Rib		16		41		28	13			
Hyoid			1							
Unidentified										3241
Total	582	299	287	213	12	161	78	1	70	3241
% of 4944	11.8	6.0	5.8	4.3	0.2	3.3	1.6	0.02	1.4	65.6
Weight	35,262	3067	5614	545	394	597	102	37	20	3807
% of 49,440	71.3	6.2	11.4	1.1	0.8	1.2	0.2	0.07	0.04	7.7
% fragments recovered by sieving	33	96	65	97		76	92		96	97

Fig. 13 Greyfriars Well: Large mammals: summary of skeletal elements.

From Fig. 11 it can be seen that there was an extraordinarily rich variety of habitats to be found in the Greyfriars' garden: thick grassland, scrub, water-filled ditches and/or ponds, and possibly also hedges and orchards. Taken as a whole the reconstructed picture is one of an overgrown and bankrupt garden, a scene which conflicts with the more traditional view of the idealised monastic garden in which the overall effect was one of

'ordered regularity' (McLean 1981). On the other hand, the friars generally, who never aspired to the degree of self-sufficiency characteristic of many of the regular monastic orders, seem to have been chiefly concerned with the provision of fruit and timber: the Commissioners' Surveys of friaries generally made just before the Dissolution show that the terms 'orchard' and 'garden' were used interchangeably. In the friars' garden at Ilchester were eight

	No. of bones	GL range	Bone	GL	BP	SD	BD	44	45	46	Withers Height Estimates			
											Range (cm)	Mean	Standard deviation	Coefficient variation
Cattle	7	224.1	Metatarsal	236.1	53.0	30.2	61.2	203.7	72.6	55.2	144.5-156.3	152.3		
	4		Horn Core											
	12	186.4	Metacarpal	198.4	61.3	36.5	64.5	40	41	42	114.3-128.1	121.6	15.73	3.6
Sheep	2	148.5	Radius	150.7	32.7	17.6	27.5	150.9	53.1	39.5	59.4-61.2	60.3		
	1		Humerus	143.8	39.3	15.5	31.9					60.7	60.5	
	10 (male)		Horn Core											
Dog	3	127.9	Tibia	148.5	27.5	10.4	18.0				38.3-51.0	44.3		
	2	127.7	Femur	147.8	29.9	10.3	24.3				38.8-51.4	45.1		
	1		Humerus	130.8		9.7	27.9					42.2		
	1		Ulna	178.2								50.1	45.1	
Cat	1		Ulna	100.3										
	1		Tibia	98.3	16.5	6.2	12.6							
	1		Humerus	89.7	15.1	6.7	15.5							
Rabbit	1		Radius	84.5	7.6	5.2	11.8							
	1		Femur	84.3	15.9	6.7	13.1							

Fig. 14 Greyfriars Well: Large mammals: measurements.

	Unidentified bird	Domestic fowl (<i>Gallus gallus</i>)	Domestic goose (<i>Anser anser</i>)	Rock dove (<i>Columba livia</i>)	Jackdaw (<i>Corvus monedula</i>)	Song thrush (<i>Turdus philomelos</i>)	Mistle thrush (<i>Turdus viscivorus</i>)	Skylark (<i>Alauda arvensis</i>)	Robin (<i>Eriothacus rubecula</i>)	Garden warbler (<i>Sylvia borin</i>)	Ringed plover (<i>Charadrius hiaticula</i>)	Grey plover (<i>Pluvialis squatarola</i>)	Snipe (<i>Gallinago gallinago</i>)	Green sandpiper (<i>Tringa ochropus</i>)
Skull								1						
Mandible	1													7
Scapula								2						
Clavicula														1
Coracoid	1		1	2				2		1	1			1
Sternum	4	4						1						2
Humerus	3							4	1			2		2
Radius	4							2						2
Ulna	4			2	1			4				1		
Metacarpal	3	1		1		1	1	4	1					
Innominate	2													
Lumbosacrale	2							7						2
Femur	5							4	3			1	1	4
Tibiotarsus	7			1				7				3		2
Fibula	2													
Metatarsal	7	1	4		1			5				3	1	2
Phalanges	21													83
Vertebra	6													2
Rib														22
Tracheal rings														42
Sesamoid	4													
Unidentified														82
Total	77	6	5	6	2	1	1	43	5	1	1	10	2	256
% of 416	18.5	1.4	1.2	1.4	0.5	0.2	0.2	10.3	1.2	0.2	0.2	2.4	0.5	61.5
Min. no. of individuals	6	1	3	1	1	1	1	7	2	1	1	2	1	

Fig. 15 Greyfriars Well: Birds: summary of skeletal elements.

No. of bones	GL range	Bone	GL	BP	SD	BD	Did	Dip
3	99.5 - 133.4	Tibia	114.1		6.2	11.8		21.2
3	78.6 - 94.8	Femur	86.2	15.9	7.2	15.3		
3	34.8 - 46.9	MC	41.2	12.7			7.7	
3	64.9 - 90.9	Ulna	77.5	9.4	4.7		10.9	
2	74.2 - 84.3	MT.U	79.3	13.5	6.6	14.0		

Fig. 16 Greyfriars Well: Birds: measurements.

orchards and a grove containing 220 ash trees and a great number of elms (*ibid.*, 53–5), and it is perhaps in this context of husbandry that the London Greyfriars eastern garden should best be seen. If indeed the Greyfriars ever had a ‘formal’ garden it is more likely to have been confined to the centrally placed Great Cloister which in descriptions of the friary premises was said to contain ‘The Garden’, a name which persisted long after the area was paved over for use by Christ’s Hospital (Kingsford 1915, 47–48).

An additional consideration is that, as has been seen, the Greyfriars’ numbers at the Dissolution had fallen to a quarter of their strength in their heyday, and it is also likely that the financial support of the citizens on which the friaries were always largely dependent had also declined during the final decades of their existence. The

Commissioners of visitation in 1538 reported the widespread ruination of both friary buildings and gardens in the Midlands, and on the sale of jewellery and the felling of timber in a desperate attempt to raise money (Knowles 1959, 362, 366). Although these extreme conditions were probably symptomatic only of the last year or so before the Dissolution, when popular support was finally withdrawn, it is more than likely that declining numbers and resources over the final few decades had led to a gradual neglect of peripheral activities, and that the maintenance of gardens had suffered in consequence.

Whatever the historical reasons for the wild overgrown state of the Greyfriars’ convent garden, there also remains to be explained the biological phenomenon of the incredibly high species diversity in the small mammal population of this one area. Unfortunately, com-

	Pharyngeal	Dentary	Premaxillar	Skull fragment	Vertebrae	Denticle	Unident	Total
Ray						1		1
Elasmobranch					3			3
Eel					36			36
Conger eel					1			1
Herring				8	57			65
Sprat					25			25
Salmonid					4			4
Smelt					8			8
Dace	1							1
Roach	1			1	2			4
Cod					10			10
Haddock				2	1			3
Whiting	2	2	3	7	14			28
Hake				3				3
Tub gurnard					3			3
Plaice				5	9			14
Gadoid				5	1			6
Unidentifiable				12	3	1	124	140
Total	4	2	3	43	177	2	124	355

Fig. 17 Greyfriars Well: Fish: summary of skeletal elements.

Bone element	M.m.	A.s.	A.f.	M.a.	C.g.	Species		S.m.	S.a.	N.f.	E.e.	M.n.	Total
						A.t.	R.r.						
skulls	—	1	—	—	—	—	—	4	5	3	1	1	15
maxillae	13	19	—	—	1	1	4	—	—	—	—	—	38
premaxillae	14 (mice & voles)											14	
mandibles	27	24	—	4	1	—	2	2	11	9	2	2	88
	4 (mice)												
teeth	14					4		4 (common or water shrew)*					158
	136 (mice, voles & rats)												
scapulae	1	4	—	1	—	1	2	1	3	4	2	2	54
	32 (mice & voles)												
	1 (shrew)												
humeri	28	13	—	3	—	1	6	3	10	11	1	2	90
	12 (mice)												
radii	45 (mice & voles)					1	1						47
ulnae	22	26	—	1	1	1	4	2	7	8	—	—	72
innominate bones	12	13	—	3	—	1	2	2	6	9	—	1	88
	39 (mice & voles)												
femora	13	16	1	1	1	1	3	7	8	13	1	—	80
	15 (mice)												
tibiae	15	16	1	—	2	1	5	5	9	3	1	—	89
	31 (mice)												
metapodial bones	142 (not sorted to species)											142	
phalanges	493 (not sorted to species)											493	
vertebrae	1118 (not sorted to species)											1118	
ribs	8											18	
	299 (mice, voles & shrews)												
MNI	17	13	1	3	2	1	6	5	7	7	1	1	2911
	64												

Fig. 18 Greyfriars Well: Small mammals: summary of skeletal elements and estimated minimum numbers of individuals (MNI) for each of the species identified: M.m., house mouse *Mus musculus*; A.s., wood mouse *Apodemus sylvaticus*; A.f., yellow-necked mouse *Apodemus flavicollis*; M.a., field (short-tailed) vole *Microtus agrestis*; C.g., bank vole *Clethrionomys glareolus*; A.t., water vole *Arvicola terrestris*; R.r., black rat *Rattus rattus*; S.m., pygmy shrew *Sorex minutus*; S.a., common shrew *Sorex araneus*; N.f., water shrew *Neomys fodiens*; E.e., hedgehog *Erinaceus europaeus*; M.n., weasel *Mustela nivalis*.

Bone	<i>R. temporaria</i>	<i>R. esculenta/ R. lessonae</i>	<i>Rana</i> sp.
Mandible	1 (right)	—	—
Humeri	6	—	—
Radioulnae	—	—	8
Metacarpal/metatarsal/phalanges	—	—	21
Urostyle (coccyx)	3 (or 4*)	1*	—
Ilium	1 (left)	—	—
Calcanea	—	—	3
Astragali	—	—	3
Femora	5	—	—
Tibiae	—	—	9

Fig. 19 Greyfriars Well: Amphibians: summary of skeletal elements.

parison of this urban small mammal assemblage with contemporary rural faunas is not possible at this time for lack of published material. However, it is fascinating to contrast the very high values for faunal diversity³⁰ obtained for this London garden with the lower values for modern suburban, agricultural and semi-natural habitats (Fig. 12)³¹; the extraordinary rich species diversity found at this early Tudor urban site is nowhere matched by any of the modern samples. Species enrichment in the friary garden was undoubtedly due to the very wide variety of different habitats found in close proximity, which together formed what ecologists would call a 'patchy' environment (or *ecotone*). The garden can thus be regarded as a transitional or overlapping zone between more than one community of small mammal. As discussed by Odum (1971, 157–159) it is in such 'tension zones' that both the number of species present and the population densities of some of the species are greater than in the flanking communities; a phenomenon often referred to as the *edge effect*. The diversity level in the small mammal fauna from this site has been the subject of a special study, the results of which have been published elsewhere (Armitage 1985).

APPENDIX I

Report on the statistical analysis of the house mouse jawbones from the Greyfriars garden well and the collections of the B.M.(N.H.) by M. F. W. FESTING

A total of sixteen Tudor mouse mandibles (from the Greyfriars well) were received which appeared to be reasonably complete. However, when we attempted to measure them, mandible number 4 had five missing measurements, and was eliminated from the study. The remaining mandibles, together with seven mandibles from modern London mice in the collections of the B.M.(N.H.) were measured, as described by Festing (1972). Six mandibles had measurements number 6 and/or 8 missing, and it was decided to carry out the analysis on the nine remaining measurements. Mandibles numbered 3, 6 and 7 (from the Greyfriars sample) each had a missing measurement (measurements 5, 10 and 7 respectively). These were estimated by linear regression on two nearest measurements, using an unrelated sample of laboratory mice to calculate the regression coefficients.

As there may be bias in measuring left mandibles, a sample of twenty pairs of left and right mandibles from laboratory mice were measured in order to estimate the degree of such bias. The measurements for left mandibles were then multiplied by an appropriate factor so that the means of the left and right would be identical. In fact, the coefficient ranged from only 1.01 to 1.07 for measurements 2–11, though the coefficient was slightly higher (1.19) for measurement number 1. These corrections are unlikely to have had much effect on the overall results.

Following these various corrections, the 9 measurements on a total of twenty-two mice

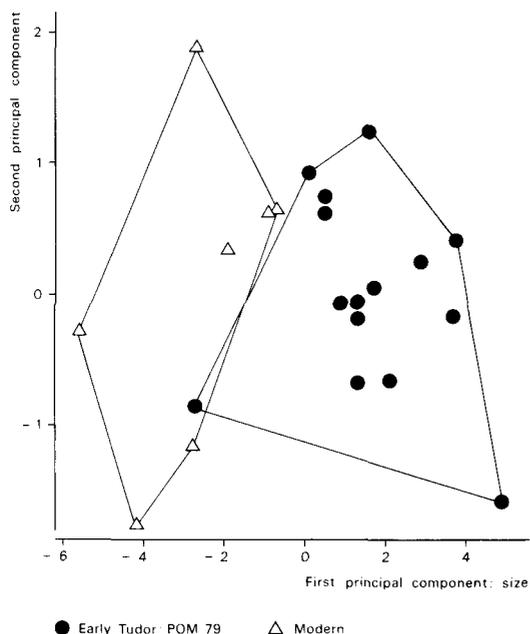


Fig. 20 Greyfriars Well: Statistical comparison of the jawbones of Tudor and modern house mice from London. Plot of the first and second principal components.

were subjected to a Principal Components Analysis.

There was only one principal component associated with a latent root greater than 1.0, and this was clearly a size factor as all the coefficients had the same sign, and were approximately equal. This component accounted for 84% of the total variation.

The second principal component is difficult to interpret, but it only accounted for 9% of the total variation, and did not distinguish between modern and Tudor mice, so can probably be neglected.

The graph of individual scores (Fig. 20) shows that fourteen out of the fifteen Tudor mice had a higher score on principal component one than any of the modern mice. In conclusion, the Tudor mice appear to be smaller than the modern mice; however as discussed by Armitage, this size disparity may reflect the sampling bias of pit fall trapping versus live-trapping (see note 18).

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NOTES

1. Site supervisor: John Burke-Easton.
2. Synopsis of the report on the pottery from the POM 79 well by Dr Alan Vince (Dept. of Urban Archaeology, Museum of London), 1985:
The Greyfriars well was filled in at a time when Tudor pottery was in use and a broad date range of c. 1480 to c. 1550 would normally be given. The *terminus post quem* is provided by the sherds of Raeren stoneware vessels, which are first documented at the very end of the 15th century. A *terminus ante quem* is provided by the absence of Cologne stoneware vessels, which are common by c. 1550 but which were first produced in the second quarter of the 16th century.
The absence of white-slipped Guy's ware bowls and Cistercian ware cups suggests a date at the earlier end of the date bracket, c. 1480–1500. If so, the pottery and the animal bones found with it are more than likely to be refuse from the occupation of the Greyfriars than from the dissolution period or later. Vessels are represented by several joining sherds and few show signs of abrasion or weathering. The implication is therefore that the pottery was thrown into the well on one or more occasions over a short period of time.
The pottery would therefore support two hypotheses: either the well was filled in at one time or was filled over a limited period not discernable archaeologically, perhaps less than 50 years.
3. The successful recovery of large quantities of small mammal bones was entirely due to bulk sampling and wet sieving. On encountering an unusually high concentration of small animal bones, the site supervisor, John Burke-Easton (in consultation with P. Armitage), decided to carefully remove the last 0.5m depth of the deposit (between levels 9.835 and 9.335m OD). The infill (estimated volume: 0.39 cubic m) was then washed through a 1.5mm mesh sieve on site and the residue collected sent to the B.M.(N.H.) for sorting and analysis.
4. Work on the faunal material from POM 79 was carried out under contract to the Historic Buildings and Monuments Commission. Copies of the level III site archive and level II faunal record are housed at the Museum of London, where they may be consulted on request. All the animal bones are held in the collections of the British Museum (Natural History) where they may be inspected by prior appointment. Under the B.M.(N.H.) catalogue scheme, the collection from POM 79 has been assigned registration numbers DUA 1985.5000–5232.
5. The deed of surrender was signed on 12 November 1538 (Kingsford 1915, reprinted 1965: 26).
6. Dogs and cats have also been found on all five other monastic sites (see section 3.1), and are assumed to represent stray scavengers or their use for security and pest control.
7. Suggestions explaining this last pathology would be welcomed by the author.
8. Wilson, 1973.
9. *Ibid.*, p. 45.
10. *Ibid.*, p. 42.
11. *Ibid.*, p. 45.
12. Wheeler, 1979, 48.
13. *Ibid.*, p. 80.
14. *Ibid.*, p. 61.
15. *Ibid.*, p. 61.
16. The term 'small mammal' is often taken to mean all animals up to

- about 120g live-weight, following the definition of Delany (1976, 1). However, had this scheme been adopted for the Greyfriars material certain of the larger sized creatures found such as the hedgehog (*Erinaceus europaeus*), whose adult live weight may reach 1100g (Morris 1977, 31), would have been excluded from the analysis. Fortunately, zoologists sometimes extend the term to cover the intermediate sized wild mammals, with an upper live-weight limit of 5kg (see Stoddart 1979, *passim*). This latter approach was therefore adopted as the most appropriate one for dealing with the faunal material from the well.
17. MNI: This value derived from the totals of unpaired and paired elements, with the latter group matched on the basis of similar epiphyseal fusion patterns and size (in limb bones) and on the evidence of comparable tooth eruption and wear stages (in upper and lower jawbones) after the method of Chaplin (1971, 70–75).
18. Sample bias: Experiments carried out in America to compare the efficiency of pit-fall trapping versus live-trapping in sampling a field population of voles (*Microtus townsendii*) revealed that pit-fall traps generally caught younger and therefore smaller animals, and if adults were present these were usually the smaller subordinate individuals (Boonstra & Krebs, 1978; Beacham & Krebs, 1980). Live trapping, on the other hand, resulted in the capture of larger adults who were generally the more dominant, aggressive individuals; the authors found that these animals frequently chased away juveniles and smaller subordinate adults during encounters around the baited traps. Although there seems to be no comparable study of the results of using different forms of trapping in sampling free-living house mice, observations made on laboratory animals has however revealed that the larger, socially superior individuals were more likely to enter live traps (Andrezejewski *et al.* 1959). From these studies it may be suggested that younger inexperienced house mice together with socially inferior adults living in the Greyfriars garden had been much more prone to falling into the well, thereby resulting in a sample biased in favour of smaller individuals. The situation contrasts markedly with the animals in the modern sample in the collections of the B.M.(N.H.), which were all caught by means of live-trapping and therefore represent the other extreme where larger individuals predominate. The relatively higher incidence in the Greyfriars sample of male house mice compared to females, suggested by the innominate bones, may be explained by the behaviour of males, who traverse larger areas thereby increasing the probability of their encountering and falling into natural pit-fall traps such as the Greyfriars well (see Smith *et al.* 1975, 38).
19. See Arnold and Burton (1978, 84) for a note on unusual hybrid relationship between edible, marsh and pool frogs.
20. Given as a subspecies of *R. esculenta* in Boulenger (1898); now accorded full species status by most authors.
21. No weight data is available for the fish, and many of the bird bones are so tiny that individual weighing is impractical.
22. Wilson 1973.
23. *Ibid.*
24. Fitter 1945, 106.
25. Wilson 1973.
26. Hunting ranges of owls: Field observation and tracking by radiotelemetry have shown that both tawny owl (*Strix aluco*) and the barn owl (*Tyto alba*) range widely in search of prey; in the space of a single night's hunting, the former species can cover an area up to 25ha (Southern 1954) and the latter between 25 and 30ha, during the non-breeding season (Lenton 1980a, 1980b, 1983 *pers. comm.*). These hunting ranges would certainly have taken any owl who might have been nesting or roosting in the Greyfriars garden out beyond the City walls and into the surrounding fields and woods. It is important to realise that in the early Tudor period there was still little systematic development of the outer suburbs of London and the open countryside extended up to the wall in many places (see Keene 1975; Platt 1976, 40). Inspection of contemporary maps of London reveals that the extra-mural settlement in the northwest was confined to a relatively small area centred on Smithfield, which was surrounded by arable fields, pastureland, orchards and small belts of woodland, forming ideal hunting areas for tawny and/or barn owls.
27. The fresh kestrel and barn owl pellets were supplied by Dr Philip Burton, subdept. of Ornithology, B.M.(N.H.), Tring, Herts.
28. Archaeological evidence of this bias towards *Microtus agrestis* in the owl's diet is provided by the deposit of small bones of late 12th–13th century date found overlying the *frigidarium* floor of the abandoned Roman bath house at Caerleon, South Wales, in which over 45% of the small mammal bones (interpreted as the accumulated remains of barn owl pellets) came from field voles (O'Connor 1983a, 110–113).
29. *Surtres Society* vol. 99 (1898) vol. I: 42; *Surtres Society* vol. 100 (1899) vol. II: 558. Rats are also known to have infested the monastic gardens at Norwich, where the monks found it necessary to hire a rat-catcher on more than one occasion (McLean 1981, 37).
30. The following indices of species diversity were chosen as the most reliable estimators of species richness:
- (1) Shannon-Wiener information function (Shannon and Weaver 1949)
- $$\hat{H} = -\sum \frac{(n_i)}{N} \log \frac{(n_i)}{N}$$
- where n_i = number of individuals for each species
 N = total number of individuals (combined value for all species)
- (2) Simpson's diversity index (Pielou 1977, 309–11)
- $$C = \sum \frac{N_j(N_j - 1)}{N(N - 1)}$$
- $$D = -\log C$$
- where C = index of species concentration
 D = index of diversity
 N_j = numbers of individuals belonging to the j th species ($J = 1, \dots, s$;
 s = number of species)
 $\sum N_j = N$ = the total number of individuals (combined value for all species)
- See also Odum (1971, 144); Pielou (1975, 5–18); Lambhead *et al.* (1983).
31. In order to facilitate a direct comparison between the Greyfriars sample, representing a pit-fall deposit, and the modern material, sampled by means of live-trapping (mostly using Longworth traps), it was necessary when calculating values for species diversity to leave out animals larger than 60g live-weight as these are unable to enter Longworth traps due to the restricted size of the tunnel entrance (see Delany 1976, 2). Although immature weasels are under 40g live-weight and can therefore enter the Longworth trap, when fully grown they would be unable to do so since their weight increases to 85g and may even reach up to 202g in the adult male (King 1977, 339). It was therefore decided to exclude this species from the calculations as the animal from the well was identified as a fully grown adult.

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THE MEDIEVAL PEWTERERS OF LONDON, c. 1190–1457

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INTRODUCTION

For a millenium between about 300 and 1300 AD the mines of Cornwall and Devon were the only significant source of tin in Europe. The Romans used Cornish tin to make pewterware in Britain in the third and fourth centuries, and it is a fact that far more pewter vessels and utensils survive from the Romano-British period than appear to survive from medieval times. Hatcher (1973, 16–17) adduces archaeological evidence from which it is apparent that tin was mined in Cornwall in the early medieval period and also documentary evidence that English tin was an article of commerce in Europe in the 9th and 10th centuries. However, there is no record from this remote period of its working as pewter in England, though Anglo-Scandinavian and Anglo-Saxon brooches and jewellery survive in tin/lead alloys.

Hatcher and Barker (1974, 21–2) nevertheless find mention of pewter or tin vessels for ecclesiastical use in the 9th century records of Carolingian France. Thus the Council of Rheims in 803 or 813 included vessels of tin among those permitted for use in church services, and a pewter chalice was among the goods left by the bishop of Vigne in Spain in 909. By about 1100 Theophilus was writing in Germany of the fabrication of pewter vessels and the earliest English pewter sepulchral chalices and patens, interred in the coffin with the body of the dead priest, date from the end of the 11th century. Subsequently, church inventories list a wide range of pewter items in

use in the 12th and 13th centuries¹. Tin, pewter and lead pilgrim badges, and tokens made of these metals date from c. 1200 onwards and have been recovered in large numbers, particularly from the Thames foreshore in London. The published evidence indicates that the production of pilgrim badges and of the earlier tokens was mainly an ecclesiastical monopoly and the name ‘ampoller’ as a maker of pilgrims’ ampullae is found in the records of Canterbury Cathedral about 1200². From just before 1300 we have the earliest surviving pewter spoons and as the 14th century progresses documents speak of a range of domestic plates, dishes, basins, pitchers, candlesticks, flagons and salts.

During this same century pewterware figures increasingly in the wills and inventories of the middle classes. By 1400 its use was becoming widespread at all levels of society and pewterers were established in at least 11 provincial towns and cities to meet local demand³. By 1348 pewtering was widely enough practised in London for the pewterers of the city to be granted ordinances for the regulation of the craft, though it was not until 1473/4 that the ‘mystery’ of pewterers of London received their first charter, giving them country-wide power and standing.

Welch (1902, 2–11), recites the 1348 ordinances and later ones of 1438, both preserved in the city’s records, but finds very little to add to these until the archives of the Company commence in 1451. It is the aim of this study to fill this gap of over a century, and indeed to go back before

the 1348 ordinances to trace the very beginnings of the craft in London in the late 12th century.

The wealth of surviving medieval London wills, deeds, legal documents and business records has enabled the names of over 250 individual craftsmen who worked before about 1450 to be recovered. Sufficient biographical detail has been discovered about many of them to put some flesh on the bones and provide a rounded picture of the origin and development of the craft in the period before the records of the Company begin. Its growth up to 1348, the devastating effect of the Black Death, in the very year that the first ordinances were granted, and the slow recovery leading to the rapid expansion of the trade in the 15th century are revealed. The overall picture is illuminated by the individual lives and fortunes of some of the craftsmen of the period, a number of whom, from humble beginnings, rose to become members of London's prosperous merchant fraternity.

THE ORIGINS OF THE CRAFT

In seeking out early London craftsmen, reliance has to be placed in large measure on occupational names descriptive either of the medium in which the craftsman worked or of the wares which he produced. The earliest so far discovered appearance of the name *le pe(a)utrer* in the records of the city is that of John le peutrer in 1305⁴, and the name is found with increasing frequency during the following decades. Two problematical individuals, Ives peutenarius and Richard peauconer were living in the parish of St. Botolph without Bishopsgate in the 1220s and in published calendars are there equated with 'pewterer'⁵. However, both these names occur in isolation, do not appear later, and are found in an area of the city remote from that where early evidence of pewtering has been found. They must therefore remain enigmatic.

It is elsewhere that undoubted evidence is found of the earliest workers in pewter in the capital and the key is provided by one Henry le calicer (the chalice-maker). He is recorded in the parish of St. Martin's, Ludgate under this name

in 1306, and so-called himself in his will of 1312. Posthumously however, in deeds drawn up by his widow, Agnes la calicer, and his son, Thomas le peutrer, in 1324 and 1329, he is referred to indifferently as Henry le calicer and Henry le peutrer, proving that he worked in pewter.

As we shall see later an undoubted pewterer, Nicholas le peautrer was known also as Nicholas (le) calicer as late as 1348. On this evidence then, the name 'calicer', which is common in London in the 13th century, and is also found elsewhere in the country, conceals a number of workers in pewter whose main products were chalices, for which there was a considerable market. Thus Watkin^{5a} records that in the time of Edward III, 250 out of 358 churches in the Archdeaconry of Norwich possessed both pewter and silver chalices. He also notes that in 1240, Walter de Cantelupe, bishop of Worcester, expressly allowed the use of unconsecrated pewter chalices for taking to the sick and lay people customarily drank unconsecrated wine from chalices after taking communion. Such wine would no doubt have been consumed from base metal chalices of pewter. To this 'live' market must also be added a not inconsiderable one for sepulchral chalices and patens among some 9000 parish churches and innumerable other religious institutions.

The earliest mention of the name 'le calicer' in London appears to be that of Alexander le calicer to whom an earlier grant of land 'within Ludgate towards Baynard's Castle' was confirmed between 1190 and 1196. Significantly, of the thirteen other individuals who have been discovered with the name 'le calicer' in London between 1190 and 1348, ten lived in the parish of St. Martin's, Ludgate, and two in the adjoining parish of St. Bride's, Fleet Street.

London Chalice Makers 1190–1348

Alexander le calicer, c. 1190–96, St. Martin's
 Austin le calicer, 1190–1210, St. Martin's
 Hugh le calicer, early 13th century, St. Bride's
 John le calicer, 1217–40, St. Martin's
 Serle le calicer, 1217, St. Martin's
 Thomas le calicer, 1240, St. Martin's
 William le calicer, 1244, location unknown
 Stephen le calicer, mid-13th century, St. Bride's
 Osbert le calicer, 1259–73, St. Martin's
 John le calicer, 1290–94 (dead), St. Martin's
 Alexander le calicer, 1294, St. Martin's
 Henry le calicer *alias* le peautrer, 1306–12, St. Martin's
 Agnes la calicer, 1306–29, St. Martin's
 Nicholas Calyser, *alias* le peautrer, 1324–48, St. Martin's

Also living in St. Martin's parish in the 13th century were plumbers and goldsmiths⁶, so that here, at the west gate of St. Paul's cathedral, was perhaps the earliest identified group of metal workers in London. Probably many of those styled 'le calicer' were related, for several are known to have lived in a number of tenements on the north side of Ludgate Street (then known also as 'Bowyers Row') and the craft was no doubt passed from father to son. The will of John le chalycer was proved in 1296. Unfortunately it is not very revealing and the children named in it have not been subsequently traced. It is nonetheless apparently the earliest surviving pewter-worker's will. He owned houses within and without Ludgate and the rent from one of them was to be used for the maintaining of a wax taper before the altar of St. Martin's church. One of the two witnesses, Alexander le calicer, was a fellow craftsman.

The emergence and general adoption of the name *le pe(a)utrer* soon after 1300 suggests that about that time the comparatively novel alloy was first recognised in London as being of general commercial use for the fabrication of domestic utensils for a growing household market. This led to the formation of a unified 'mystery' of all the craftsmen working in it. Perhaps significantly the earliest closely dated surviving domestic pewterware, exemplified by a saucer from Southampton and the first spoons, are from the very end of the 13th century.

THE EARLIEST PEWTERERS

The earliest London pewterer whose career can be followed in detail is Nicholas Miles, *alias* Nicholas le peautrer, *alias* Nicholas le peautrer de Ludgate, *alias* Nicholas (le) calyicer. He was the successor, as will be seen, to Henry le calicer, whose daughter, Elena, he married, and to whose widow, Agnes, he was perhaps apprenticed. In 1324 Agnes la calicer, conveyed to Nicholas and to Elena 'my daughter his wife' a tenement on the north side of Ludgate Street, possibly as a dowry. In 1329 Thomas le peautrer, son and heir to Agnes and Henry, conveyed to him a second tenement, also on the north side of Ludgate Street and adjoining one owned by 'the preaching brothers' (the Black Friars), which had been acquired by Henry in 1306, and in which it appears that Henry himself and later Nicholas lived. One may infer that as Nicholas was referred to as Nicholas Miles in 1324 and as Nicholas le peautrer in 1329, his working career began between those dates, per-

haps in the former year if that was the year in which he completed his apprenticeship and married Elena. In 1329, 1332 and 1348 he is found mentioned as Nicholas Calcere (also Calyser) suggesting a continuity in his hands of Henry's chalice-making business⁷.

It was under this name that in 1332 he was assessed for the sum of 13s-4d in the lay subsidy for the ward of Farringdon Within⁸. In the same year he acquired another tenement in Ludgate Street from Richard Knight, arblaster. Elena was by then dead and he had married Alice, widow of Andrew Martyn de Tyndale, blader (cornmerchant), who had died in 1328. Alice brought with her other properties formerly belonging to her husband, and these were disposed of in 1334, 1337 and 1345. In this last year Alice died and Nicholas (who died in 1347/8) made his will naming as his executors, John de Kyngeston, blader, William Frensshe, pewterer, and Roger Syward, pewterer, all of whom however had perished of the Black Death before his estate was settled. His tenements, then numbering four, were eventually disposed of in 1349 by the executors of his deceased executors. Two went to a certain Richard le peautrer and from him, in the same year, to John Syward, Roger's brother, and one went to another pewterer, Nicholas de Hyngestworth (also Henxt(e)worth) whom we shall meet later.

It is clear from Nicholas' will that he died a wealthy and prosperous man. He left to his son Thomas ten marks of silver, two thousand pounds of pewter (or tin, *stagnum*) and the tools of his trade, together with a silver cup enamelled in the foot, a dozen silver spoons, two mazer cups and various household furnishings. He had intended that Thomas should have his four tenements, but Thomas it seems also died of the plague and so a flourishing family business was abruptly terminated.

Other pewterers are recorded in Cheap ward in the 1319 and 1332 lay subsidy returns. In the former year we find four; John, Geoffrey, Thomas and William, all assessed at rates typical of the modest shopkeeper⁹. Thomas and William reappear in the 1332 returns paying 4s (1319; 10d) and 5s-4d (1319; 13½d) respectively¹⁰, indicating a rapidly expanding business. Thomas, who is recorded as dead in 1337, was a warden of the conduit in the Cheap in 1333, as was William in 1337. In this latter year one Richard le peautrer was concerned in valuing lead belonging to the conduit and thus perhaps also lived in the Cheap¹¹. In 1350 a William le peautrer of Cheap ward (surely a

second generation!) was impressed to serve as an archer and was sent to Sandwich on the ship of William Turk 'with the wages of a seaman'¹². Also in the Cheap, Stephen Lestraunge, *alias* Stephen le peautrer, an overseer of the 1348 ordinances, leased a tavern called 'le Lyonn' in St. Pancras ward from 1345. It had shops in front and solars over and the lease, together with the considerable sum of £55-3s-4d, was put in trust for his orphaned children when he succumbed to the plague in 1349¹³. One of these, William Peutrer, is named as an apprentice in the 1364 will of James de Thame, trade unknown, who had a shop in the goldsmithery.

Thus, before the plague, we have two main focal points of the craft, the parish of St. Martin's, Ludgate and the Cheap. The former, established on the main highway into London from the west and adjacent to the great ecclesiastical centre of St. Paul's; and the other in the main city market area, already well colonised by other crafts, goldsmiths, lorimers, saddlers, cordwainers and candlemakers.

The effect of the plague on the newly enfranchised craft must have been disastrous, both depleting the number of craftsmen and the market for their wares. Thus, when in 1351 and 1352 members of Common Council were elected from the 'mysteries' rather than from the wards as hitherto, the pewterers were not represented¹⁴. However, when in 1363 the guilds sought to curry favour from Edward III by collecting 'money for a present for the king', the pewterers were sufficiently recovered to contribute the not inconsiderable sum of 100 shillings, a sum which may be compared, for example, with 10 marks (£6-13s-4d) from the braziers and the cordwainers, 100 shillings from the saddlers, £20 from the tailors and £33-6s-8d from the vintners¹⁵. By 1376, when election to Common Council was again from the mysteries, the pewterers were represented by Walter Hervyle and John Kentoys¹⁶.

One family of pewterers, the Sywards, survived the plague, though the founding member died of it. Roger Syward, earlier known as Roger le peautrer, died as we have seen in 1348/9. He is first recorded in 1331 as a witness to a deed concerning property in Watling Street and in 1332 paid 6s-8d in the lay subsidy for Bread Street ward. From his will it is apparent that he lived in the parish of All Hallow's, Bread Street, and other documents suggest that the house he inhabited was in Friday Street. He apparently favoured the east side of St. Paul's churchyard for his business. Roger's two

brothers, John and William and several children survived him, though his wife, Margery, also succumbed to the plague. His will left the implements of his trade to any son willing to learn it and an unspecified number of apprentices were to be turned over to his wife. At his death his eldest son William was aged only six, another son Thomas was one-and-a-half and a daughter Mary was five. A tenement and four shops in the parish of All Hallow's, worth 6 marks and 2 shillings respectively, together with a sum of £21-6s-8d was put in trust for the children and John Syward, pewterer, their uncle, was appointed their guardian¹⁷. Mary claimed her inheritance in 1358 and Thomas in 1367 when it was recorded that William had died before reaching fullage¹⁸. Thomas was apprenticed to his uncle and guardian, being mentioned in the latter's will made in 1364, but was dead in 1368/9 when his will (the text of which does not survive) was proved. He nevertheless appears to have been of some substance despite his early death, since his widow, Johanna, who subsequently married a tailor, John Spenythorne, later disposed of certain tenements in Bread Street which had been her dower.

Roger's two brothers were both pewterers. As already noted, John acquired in 1349 certain tenements and shops which had belonged to Nicholas le peautrer de Ludgate and his will shows that he lived in St. Martin's parish. In 1350 he was a warden of the craft and in 1355/6 he represented the ward of Farringdon Without at a congregation called by the mayor of 'the wealthier and wiser commoners'¹⁹. In 1364 he was partner in a consortium of London pewterers whose ship, carrying some 40 tonnes of tin from Cornwall, was seized by the French²⁰. By 1367 he was dead²¹, though for some unexplained reason his will was not proved until 1375. This document reveals a prosperous craftsman who had six apprentices and considerable personal wealth. It enumerates a silver footed cup and cover, silver bowls, at least four other pieces of plate and 27 silver spoons. He owned tenements 'without the east gate of Winchester' as well as in London. The significance of a bequest of all the debts owing to him in the County of Bedford for distribution to 'certain paupers, my kinsmen in that county' will be discussed later.

Of Roger's brother William, little is recorded, but he died in 1368 and his will shows that he also lived in the parish of St. John the Evangelist, Friday Street.

THE PEWTERERS POST 1348

Disruptive though the events of 1348/9 must have been, some continuity can nevertheless be observed. Into certain of the tenements previously owned by Nicholas le peutrer de Ludgate there moved in 1349 John Syward and another prominent pewterer, variously known as Nicholas de Hyngestworth (also Henxteworth), Nicholas (le) peautrer and Nicholas de Ludgate. Nicholas was appointed an overseer of the craft in 1349 and during the next decade was a party to many property transactions in the city. In 1355/6 he, together with John Syward, was summoned to the previously mentioned congregation of the wealthier and wiser commoners, and by 1360 he had become extremely wealthy. In that year he wrote to the Black Prince as Duke of Cornwall offering to buy the major part of the tin produced in the county, and pay the coinage on it, if the prince would help with the provision of ships to carry it to Southampton²². In 1362 he entered into a recognisance for £200, secured on his properties in London²³, and in the same year had other business dealings with the Black Prince²⁴. In 1364 he was one of those who, with John Syward, William Kenteyes (another pewterer) and Ralph Trenwich, was partner in the shipload of tin seized by the French.

He died in 1364 and his will asks that he be buried in St. Martin's church 'where I used to sit during service' and he left to his son John, after the decease of his wife, Johanna, 'all the utensils of my trade together with a thousandweight of tin when he should take a shop of his own'. He had three other sons and three daughters to whom substantial legacies of property and money were left. His widow Johanna married Clement Lauder (Lavendar), fishmonger. His son is recorded as John Peautrer in 1377 and again in 1397–9 as John Henxteworth, citizen and pewterer of London. Another son, William, is recorded as an ironmonger between 1389 and 1401 at the 'Fleur de Lis on the Hoop' outside Ludgate²⁵.

During the latter part of the 14th century there was a considerable influx of pewterers to London from the village of Arlesey (Arlichesey etc.) in Bedfordshire. We have seen that John Syward bequeathed certain monies to his poor kinsmen in the county of Bedford and it is apparent that he had family connections there. Thus it is recorded in the rolls of Arlesey Bury Manor that in 1397 another John Syward, together with James Quarrer, had left the manor and both were then working as pewterers in Candlewick Street²⁶. Both were of villein status,

though Quarrer subsequently purchased his manumission. Another pointer to the Sywards' Arlesey connection lies in the marriage, before 1368, of Thomas Syward's cousin, Katherine, to William Amont de Arlichesey. The relationship between the two John Sywards is not known, but the younger of them was presumably the John Syward from whom a 'lavatorium with a pipe' (a hand basin) was seized by the wardens of the craft in 1373 as being made of thin and false metal²⁷.

These rather ill-defined Syward links with Arlesey form part only of a broader and much more directly apparent connection between the craft and the village. We know for example that John de Arlichesey was a warden of the craft in 1350 and John Claydich, pewterer, who died in 1394, left bequests to the church of Arlesey. The name of Claydich is found in Arlesey in the 12th century when Warin de Claydich held half a hide there from the king²⁸. One John de Claydich died there in 1349 leaving land to his son John 'aged 21 years and no more' who may well be John the pewterer²⁹. Again, the Arlesey court records contain many references to Walter Hervyl (also Herville) and his son Richard between 1383 and 1403 and it is clear that they were the London pewterers of the same name. Walter was dead in 1387 when his 'impliments pertaining to the mystery of pewterers' together with the sum of £60 and the guardianship of Richard was entrusted to Thomas Baketon, fishmonger, who had married Walter's widow Matilda³⁰. As late as 1448 Richard, son and heir of Walter Hervyl and Matilda his wife, was concerned with lands at Arlesey³¹.

The reason for this influx from Arlesey is unclear, but the inference can be drawn that the trade was prospering in the latter half of the century to the extent that immigrant workers were needed to supplement the supply of London-born craftsmen. Others appear to have come from Kent for the names of several members of the Kenteyes (Kenteys, Cantoyes etc.) family are found as pewterers between 1367 and 1427. Their origins are unclear, but the name is a variant of Kentois—a Kentishman—and they owned considerable estates in Plumstead³². Between 1367 and 1374 William Canteys, pewterer, resided in the parish of St. Augustine, Watling Street, where in 1372 the rector complained of water and effluent running onto his property from that of William³³. John, perhaps William's son, reached some eminence in the craft and was a member of Common Council in 1376, 1381, 1384, 1387 and 1395³⁴. He was dead in 1402

when his widow married another London pewterer, Thomas Fulham, who died in 1408. Her will of 1427 provides a legacy for 'the poor and indigent of the craft of pewterer in London'. John's son Thomas was also a pewterer and Thomas' sister (or step-sister), Margaret Harlee, was probably the wife of Roger Harlee, pewterer³⁵.

An all too brief glimpse of a pewterer's living and working accommodation is afforded by a deed of 1390 wherein the shop of John Claydich in the parish of St. Martin's, Cornhill, is recorded as being 12 feet long and 10 feet 10 inches wide. The living accommodation comprised four solars and a latrine. Despite the small size of his shop to modern eyes he was a prosperous tradesman, leaving over £100 in monetary bequests in his will of 1394. He is also recorded in 1390 as suing Matthew Sampson of Mere (Wilts.) for £12³⁶. An insight into the life style of a 14th century pewterer is given by the account of the theft from John de Hilton in the early 1350s of a variety of luxurious personal possessions comprising gold worth £10, silver valued at £6, silver plate and spoons, a mazer, two paternosters of amber, one piece of medley cloth, a robe worth 20 shillings, jewellery and napery to a total value of £30-14s³⁷. Despite his obvious standing, John de Hilton appears not to have been entirely honest since it was from him in 1350 that various substandard wares comprising 23 potel pots and 20 saltcellars were confiscated 'the greater part of the metal in them being lead . . . to the deceit of the people and to the disgrace of the whole trade'. The six wardens of the craft sat in judgement on him and are named as Arnald de Shypwaysshe, Nicholas de Ludgate, John Syward, William de Upton, John de Arlicheseye and William de Greschirche³⁸.

The equipment of the medieval pewterer is illustrated in their wills and in the unique surviving inventory of the working tools of Thomas Filkes. It is known that small items of pewter were cast in medieval times in moulds of stone, fragments of which have been excavated in many locations, and a knowledge of the date when metal moulds were introduced would be of considerable interest. A mould of 'brass' is mentioned in the will of John Baker of 1426, but the moulds mentioned in earlier wills, such as those of Nicholas le peutrer in 1347/8 and John Claydich in 1394, are of unspecified material.

Detailed evidence for a wide range of metal moulds is provided by the inventory drawn up on the death of Thomas Filkes in 1427 which is here reproduced in full³⁹,

a small charger mould of brass, weight 80 lbs, value 26s-8d at 4d the lb,
 a middle platter mould of brass, 54 lbs, 18s.
 a small platter mould of brass, 59 lbs, 19s-8d.
 a great dish mould, 50 lbs, 16s-8d.
 a counterfeit dish mould, 51 lbs, 17s.
 a middle dish mould, 37 lbs, 12s-4d.
 a hollow dish mould, 20 lbs, 8s-4d (*sic*).
 a great saucer mould, 16 lbs, 7s (*sic*).
 a middle saucer mould, 16 lbs, 5s-4d.
 a small saucer mould, 16 lbs, 5s-4d.
 a dish mould and a saucer mould, 25 lbs, 8s-4d.
 a hollow platter mould, 57 lbs, 19s.
 a great charger mould, 120 lbs, 44s (*sic*).
 a new charger mould, 93 lbs, 31s.
 a middle charger mould, 106 lbs, 35s-4d.
 the greatest charger mould, 157 lbs, 52s-4d.
 14 'pryntys', 155 lbs at 2d the pound, 27s-4d.
 7 pairs of 'clammes', 60 lbs, 5s-6d.
 a wheel, an arbour and a 'tower', 3s-4d.
 a pair of clipping shears, 12d.
 a burnisher, 2d.
 8 turning hooks, 8d.
 4 anvils and 2 swages, 3s-4d.
 7 'clene' hammers, 2s-4d.
 2 scoring 'flotes', 12d.
 2 chisels and a pair of lifting tongs, 8d.
 2 bellows, 2 casting pans and a stirring staff, 8d.
 4 soldering irons and 3 casting 'stocks', 8d.
 4 'strake stones' and scales and weights, 21s-3d.
 20 marking irons, 6d.

'Clammes' were clamps for holding together the separate parts of the moulds and 'flotes' were curved files with teeth on the outside circumference.

The moulds listed would have cast flatware between about 4 inches and 20 inches in diameter and had a total value, at 4d the pound, of over £16. It is instructive to compare this list with a detailed list of authorised weights for flatware which was entered in the city records in 1438⁴⁰. The relevant part of this may be summarised as follows.

Chargers of the largest size, 7 lbs; chargers, the next greatest, 5 lbs; middle chargers, 3 $\frac{1}{4}$ lbs; small hollow chargers, 2 $\frac{3}{4}$ lbs. Platters of the largest size, 30 lbs per doz; platters of the next size, 27 lbs per doz; middle platters, 24 lbs per doz; small middle platters, 22 lbs per doz. Dishes of the largest size, 18 lbs per doz; middle dishes, 14 lbs per doz; King's dishes, 16 lbs per doz; small dishes, 12 lbs per doz; hollow dishes, 11 lbs per doz; small hollow dishes 10 lbs per doz. Saucers of the largest size, 9 lbs per doz; middle saucers, 8 lbs per doz; next to the middle saucers, 6 lbs per doz; small saucers, 4 lbs per doz.

Each of the moulds was to be shared in future between from two to six pewterers and other records speak of the sharing of these expensive items of equipment. The will of John Childe (1441) refers to 'my part of a dish mould which I and John Hulle, pewterer, share', and a further complex sharing arrangement was made by the pewterers craft in 1448. This recites the purchase by the Company from Walter Warde on 16 August 1448 of twelve moulds and continues,

'Ye partners of vii moldys ys John Turner, John Kendall, William Heyre and John Vesey,
First ye iiiii part of ye saladysche and ye sawseyre wt ye ffelet
Item ye iiiii part of ye ii small sawsyr
Item ye iiiii part ye flemyshe dysche and wide trencher
Item ye iiiii part of ye small platter
Ye partners of ye G(reat) schargur ys John Kendall, William Proude, William Heyre and John Veysy
Item ye iii part(ners) of ye medyll platter [ys] William Heyre, John Marteyn and John Veysy.'

Similarly John Veysy, Thomas Cutler and William Heyre shared a hollow dish mould and a great salad dish mould⁴¹.

It is of interest that Thomas Filkes possessed only flatware moulds, and this suggests that specialisation on certain types of ware was an early feature of the craft.

Apprentices are mentioned in London as early as 1260 and the pewterers' ordinances of 1348 indicate that the taking of apprentices was well established in the craft at that date. The will of Roger Syward, of the same year, mentions an unspecified number. In 1364 John Syward had six, but this may be exceptional, since in wills dating between 1413 and 1442, three cite one only and four mention two. Nevertheless William Boxon (died 1412) had three journeymen ('servants') as well as two apprentices and so ran a considerable business. Several wills stipulate that the testator's apprentices were to be turned over to his widow on his death, and a number provide monetary bequests to apprentices, either immediately or on the completion of their articles.

There is little evidence of admission to the craft by methods other than apprenticeship. It was a long established custom that freemen of the city were at liberty to change their craft and legally practice any other, despite the apparently restrictive ordinances of many of the crafts. One example only has been found of a member of a

quite unrelated craft becoming a pewterer. In 1439/40 Nicholas Gille, a native of Lincoln, who had been made free as an upholsterer in 1428, appeared before the mayor's court and averred that he had long practiced the mystery of pewterer. It was agreed that he should be admitted to that craft⁴². It is unlikely that this was a unique event, and indeed Thomas Dounton, a wealthy mercer, was running a large pewtering business employing no less than seven journeymen and eleven apprentices when he was made free of the pewterers in 1456/7 on payment of 6s-8d⁴³.

The evidence therefore suggests that as well as a nucleus of London-born and London-apprenticed craftsmen, there was recruitment from outside and a substantial influx of immigrants from the provinces. It is clear from the 1348 ordinances that the craft was free to accept into its ranks not only its own apprenticed men, but also other 'lawful workmen known and tried among them'; an indication that at least at this date there was a consciousness that the expanding craft could not be self-sustaining from its own indigenous source of labour. A source which clearly suffered severely in the following plague year, thus exacerbating the problem.

We have already seen that some London pewterers were involved in the purchasing of tin, though it is not clear that this was with the best interests of the craft in mind. Thus, presumably to avoid abuses, it was ordered in 1444 that a quarter of all tin coming to London was to be reserved for the craft. At the same time power of search of all tin coming into the capital was granted to the pewterers for 'grete multitude of Tynne whiche is untrewre and deceyvable is brought into this Citee and here is sold as dere as the best Tynne . . . wherethrough grete damages and hurtes is daily growen and encrecen . . . to all the Kynges lieges bying myltyng and wirkyng the same Tynne . . .'⁴⁴.

In order to safeguard their position the craft included in its membership persons with strong connections with the Cornish tin trade. One such was John Megre, a native of Truro, who settled in London and is recorded there both as a pewterer and a substantial tin merchant. He was sued in 1407 for the delivery of tin worth £150⁴⁵ and in 1417/18 he advanced £50 for 'the king's expedition abroad'⁴⁶. His will of 1420 discloses that his daughter Lucy was married to John Erchedeken, a member of a prominent Cornish family much involved in Stannary affairs. A second daughter, Margaret, was the wife of

Jacob Nanvan (or Nanfan) a member of an important Cornish tin-mining family⁴⁷. Later in 1451, we find another Cornish tin merchant, John Dogowe, being admitted to the pewterers' ranks, albeit for the rather substantial sum of £3-6s-8d⁴⁸. This wooing of the Cornish tin suppliers continued throughout the 15th century and as late as 1490/91 we find the Company paying three pence for ale 'when the Cornishmen were at our hall'⁴⁹.

THE MARKET

Edward I is said to have owned over 300 pieces of pewter in 1290 comprising one hundred dishes, one hundred platters and over one hundred saltcellars⁵⁰. In 1292 pewter pitchers and a basin are recorded in the kitchen of Berwick-on-Tweed Castle⁵¹. We cannot, however, be certain that this pewter was of English origin; it could well have come from France where, among others, a Guild of Pewterers was established in Paris by 1268. The earliest undoubted mentions of English domestic pewter are found in the opening years of the 14th century. Hatcher and Barker (1974, 34 and 42) record that a small quantity of pitchers, dishes and saltcellars of pewter was exported from London in 1307; valued at 13s it must have weighed some fifty pounds, and that in 1312 Finchdale Priory, Durham, purchased a dozen pewter plates for 3s⁵². The first mention of individually owned pewter is contained in the will of the Londoner Richard de Blountesham who died in 1317. He owned 12 plates, 12 dishes, 18 saltcellars and two flagons valued at 7 shillings⁵³. Thereafter pewter is increasingly mentioned in wills and inventories. In 1341 Thomas de Arleye and William de Marnham of 'Wolvernhampton' each owned 24 pewter dishes and 12 saucers worth 4s⁵⁴. Stephen le Northerne, ironmonger of London, had 20 pounds weight of domestic pewter in 1356⁵⁵ and fifty years later John Oliver, draper, possessed 200 pieces weighing 400

pounds and valued at 2½d per pound, a total of £4-3s-8d⁵⁶. Hatcher and Barker (1974, 55) instance Richard Toky, grocer, who in 1391 had 2 chargers, 12 platters, 10 dishes, 11 saucers, 9 trenchers, 2 half-gallon pots, 3 quart pots, 1 pint pot, salt cellars, a holy water stoup, a candlestick, and two shallow bowls. In all a good cross-section of the types of wares which were then being made.

The use of pewter in taverns is well attested. In 1411 the mayor and aldermen of London ordered that every brewer, breweress, hosteler, cook, piebaker and huckster selling ale in their houses must provide themselves with pewter pots, viz. gallons, potels and quarts and not use any other⁵⁷.

The demand for pewter was not confined to London, Bristol had a pewterer in 1343, York in 1348, Kings Lynn in 1350, and by the end of the century pewterers were working in at least 11 English towns. English pewter was held in high esteem abroad. In 1364 licence was given to John Pagan of Dunkirk to export two dozen pewter vessels and eight pewter pots to Flanders⁵⁸ and in the 1380s considerable quantities were purchased in England on behalf of the pope⁵⁹. In 1384 at least seven thousandweights was exported. By 1400 15–20 tonnes of pewter were being exported annually from London, 45–50 tonnes by the 1430s and (exceptionally) 90 tonnes in 1466/7. Indeed at this time pewter ranked second only to cloth among English manufactured exports⁶⁰. The annual output of the London pewterers can only be conjectural, but present-day concerns making pewterware by hand methods differing little from those used in medieval times, appear to average about one tonne of ware per skilled craftsman per annum. The sixty or so pewterers known to have been working in London in 1400 may thus have been making 60 tonnes of ware, say

200,000 individual items of domestic pewter annually.

The scale and organisation of the craft in London prior to 1457, when the Company's archives begin to provide a detailed picture, can be arrived at only indirectly. Making certain assumptions about working lives, and assuming, as seems likely, that the 250 plus pewterers identified in London before c. 1450 represent the great majority of those actually working there, a tentative table can be drawn up indicating the likely number of pewterers at work at the end of each decade. Using figures for the number of London goldsmiths extracted from the published records of that company⁶¹, the rapid growth of the pewterers by comparison with the rather static number of workers in precious metals reflects the very marked increase in the use of the base metal over the century-and-a-half from 1300 onwards.

Computed number of Pewterers working in London

Date	Number of pewterers	Number of goldsmiths
1310	5	—
1320	13	—
1330	17	—
1340	20	—
1348	30	—
1360	20	—
1368/9	—	135
1370	20	—
1380	13	—
1390	20	—
1400	33	—
1404	—	186
1410	60	—
1420	57	—
1430	57	—
1440	94	—
1444	—	140
1450	87	—
1457 (actual)	100	—
1462	—	150

The size of the pewterers' shops of the 14th century is unknown. We have seen that many masters had a few apprentices, and William Boxon

also employed three journeymen. This was probably the typical pattern; a master plus a few apprentices and/or journeymen forming the usual unit. In 1457 we have actual figures derived from the Company's records⁶². There were fifty-six pewterers' shops in the capital. Eighteen comprised a master alone; eleven a master plus one apprentice or journeyman; fifteen a master plus two; seven a master plus three, and there are single examples of a master plus four; a master plus six; a master plus eight; a master plus eleven and finally the workshop of Thomas Dounton, the former mercer turned pewterer which employed no less than eighteen workmen. Indeed this is the largest craft shop so far discovered for any London craft at that time. Even so most of the units were small and the picture cannot have been significantly different a hundred years earlier.

The wages paid to journeymen are unknown in the earlier period. A single instance from a will of 1451 cites a figure of 40s a year⁶³ and in 1538 wages of between 2d and 4d a day are recorded, presumably plus keep⁶⁴.

Quality of wares was strictly enforced and the cases of John de Hilton and John Syward whose sub-standard wares were seized have already been instanced. Recently discovered ordinances of the craft drawn up in 1455 cast much detailed light on the rules to which members were bound to conform⁶⁵. The prices for various types of ware were laid down, as was the charge to be made for workmanship to a craftsman or an outsider. The purchase price for scrap metal was fixed and the places and manner in which business was conducted are prescribed. An interesting and quite detailed provision allows for the recruitment into the craft of a skilled man to recover tin from the 'ashes' which formed on the molten metal and which represented a considerable wastage of raw material. Certain types of export wares can be discerned in the descriptions 'galley ware', 'catelan ware' and 'florentine ware'. Of interest is the high penalty of £20 to be imposed on anyone lending or alienating moulds out of the craft. Whether this was to prevent spurious wares being cast in them, or because of their value is not stated.

The prices laid down in these ordinances are the earliest direct information we have on this subject and these may be summarised as follows.

- Counterfeit vessels, 4d/lb; trade-in price 2½d.
- Plain vessels, 3d/lb; trade-in price 2d.
- Round pots, 3½d/lb; trade-in price 2d.
- Square pots, 3 quart, 2s; pottle, 16d; quart, 10d; pint, 8d; half-pint, 5d each.
- Salers [salts], 3½d and 2½d each.
- Bowls, 4d/lb.

Galley ware, 'catelyn' ware and 'fflorentine' ware; counterfeit, 4d/lb; plain, 4½d/lb.

Square trenchers, 3d each.

'Gananelles', 6lb, 5s; 4lb, 3s-4d; 3lb, 2s-6d; 2lb, 20d.

Labour costs are given as follows for certain items:

Making square pots for those outside the craft, 10s/hundred [pounds?].

Making round pots and salts for those outside the craft, 9s/hundred.

Making square pots for those in the craft, 8s-6d/hundred.

Making round pots for those in the craft, 7s-6d/hundred.

Old metal in general was to be bought at no more than 2d/lb.

Bearing in mind that the average wage then being paid to artificers and craftsmen was in the range of 4d to 6d per day, it will be seen that pewterware was not a cheap commodity. A half-pint pot, for example, cost a day's wages.

Prices before 1455 can only be estimated. Hatcher and Barker (1974, 41), from the price of tin, suggest 2½d/lb in London in the period 1300-50. If we assume that the trade-in price for second-hand ware was about two-thirds the price of new, an indication can be obtained from inventories for the next half century. In 1356 Stephen de Northern's pewter was valued at 1¾d/lb; in 1391 that of Richard Toky at 2d, and in 1406 John Oliver's at 2½d. This gives equivalent new prices in the range 3d to 4d/lb.

LOCATION

Although it was the privilege of a freeman of London to choose to be buried anywhere in the city, we may assume that, except in special circumstances, the church selected by a testator for his burial was that of the parish in which he lived. Most wills therefore provide information on the maker's place of residence, at least in later life. Similarly many legal cases were in medieval times concerned with parochial matters and the parties concerned, together with jurors and witnesses, would have lived in the parish in question. From such sources, together with property deeds, can be discovered the locations of some sixty-five London pewterers between *c.* 1200 and 1460.

It has been seen that the earliest chalicers/pewterers lived and worked in the parish of St. Martin, Ludgate, many of them on the north side of Ludgate Street close to St. Paul's cathedral. The earliest relevant deed enrolled in the Court of Hustling in 1259 places Osbert le caliser 'outside the city gate of St. Paul's . . . on the corner of the king's highway'. Nicholas le peautrer de Ludgate owned or leased four tenements on the north side of Ludgate Street, two of which had previously belonged to Henry le calicer. He lived in one adjoining a tenement of the Black Friars. Another, apparently sandwiched between St. Martin's church and the city wall, had previously probably been part-owned by one Adam le peautrer. In 1319 the four pewterers recorded in Cheap ward were no doubt located in the main market area of the Cheap itself. By about 1330 we find records of pewterers in the parishes immediately to the east of St. Paul's. They seem to have lived in the Friday Street, Watling Street area which would have been convenient both for the cathedral and for the Cheap.

In the latter part of the 14th century an eastward drift becomes apparent and by 1400 or soon after craftsmen are found in the other main market districts, Candlewick Street, Eastchepe and Cornhill. Several are to be found in the parish of St. Botolph, Billingsgate, which would have given them easy access to river transport for their wares. Some remained centrally in the Cheap, but only four are found recorded west of the Cheap after 1400. The concentration round St. Paul's had disappeared, perhaps a reflection of a changing market as the ecclesiastical demand was overtaken by that for domestic pewterware.

Outside the city, in Westminster, there are a few indications of pewterers. Lambert le peutrer 'of Middlesex' owned lands there in 1311⁶⁶ and in 1332 a certain Thomas le peutrer had a shop in Westminster⁶⁷.

Before they had a hall of their own the pewterers held their gatherings from at least the middle of the 15th century in the church of the Austin Friars where the 1455 ordinances were drawn up. Earlier their gatherings may perhaps have been held in the Monastery of the Grey Friars, conveniently situated just north of Ludgate Street. It was here from an unknown date until 1495, when they removed to All Hallows, Lombard Street, that the craft held their religious observances as the Brotherhood of the Assumption of the Virgin Mary. Their own hall was completed in 1486 and the choice of Lime Street as a location indicates the general area of the city where the majority of the craftsmen were to be found by this date.

A clear overlap between the trades of pewterer

and brazier is apparent at least in the provinces from the 15th century and was common from the 16th century. As early as 1414 William Spragge of Shrewsbury was apprenticed to John Hyndlee of Northampton, brazier, 'to learn first the craft of brazier and afterwards to be taught the pewterer's craft'⁶⁸. In medieval London the braziers, who received their ordinances in 1416, were concentrated then in the extreme east of the city. Of eleven braziers whose wills are enrolled in the Commissary Court and Archdeaconry Court of London between 1374 and 1413, five resided in the parish of St. Botolph without Aldgate and the remainder were in adjoining parishes. This marked geographical separation suggests that the London trades had little, if any, common ground.

LOCATIONS OF LONDON PEWTERERS

Parishes in order West to East

- St. Bride, Fletestrete*; Hugh le calicer, early 13th century; Stephen le calicer, mid 13th century.
St. Martin, Ludgate; Alexander le calicer, 1190–6; Austin le calicer, 1190–1210; John le calicer, 1217–40; Serle le calicer, 1217; Thomas le calicer, 1240; Osbert le calicer, 1259–73; John le calicer, 1290–94d; Alexander le calicer, 1294; Henry le calicer, 1306–12; Agnes la calicer, 1306–29; Nicholas le peuteur de Ludgate, 1324–48; Adam le peuteur, 1340; Nicholas de Hyngesthworth, 1349–64d; John Syward, 1348–67d.
St. Leonard, Foster Lane; John Spencer, 1426d.
St. Augustine by St. Paul's; William Kentoys, 1372; Richard Thorpe, 1396d; Robert Offyngton, 1404d; John Kyrleton, 1435d.
St. Werberga; John de Kyngeston, 1349d; William Syward, 1368d.
St. Mildred, Bread Street; John Childe, 1442d.
All Hallows, Bread Street; Roger Syward, 1349d. 'Chepe Ward'; Geoffrey le peuteur, 1319; John le peuteur, 1319; Thomas le peuteur, 1319–32; William le peuteur, 1319–32.
St. Pancreas; Stephen (le) Straunge, 1345d.
St. Mary, Colechurch; John Boxon, 1409d; William Boxon, 1412d; John Dabron, 1432d.
All Hallows the Great; William Scott, 1446.
St. Mildred, Walbrook; Hugh Game, 1436d.
St. Mary, Woolchurch; Adam Rewarde, 1406d; William Kent, 1432d; Richard Mauncell, 1440; William Bellyng, 1447.
St. Mary, Woolnoth; John Megre, 1420d.
St. Martin, Orgar; Thomas Langtot, 1479d.
St. Clement, Candlewykstrete; Guy Nicholas, 1395; William Hayward, 1430d.
'Candlewykstrete'; John Syward, 1395; James Quarrer, 1395.
St. Benet, Fink; Richard Tebold, 1418d; Bartholomew Cornwaille, 1435d.
St. Michael, Cornhill; John Claydich, 1349d; John de Arlichesey, 1350; William Gugge, 1423d; William

- Mason, 1435d; John Grace, 1440; John Kirkeby, 1455d.
St. Leonard, Eastchepe; Walter le peautrer (?Walter Hervyle), 1368; John Hervyle, 1372.
St. Botolph, Billingsgate; John Parke, 1413d; Isabell Parke, 1415d; John Bakere, 1426d.
All Hallows, Gracechurchstreet; John Lorkin, 1451.
St. Peter, Cornhill; Peter Pypound, 1466d.
St. Andrew, Eastchepe; Richard Foxe, 1435d.
St. Mary at Hill; John Burgess, 1420d.
St. Andrew, Cornhill; John Forebrook, 1441.
St. Olaf, Hart Street; John Cornemonger, 1435d.
St. Botolph, Aldgate; John Hulle, 1453d.

MANUFACTURING TECHNIQUES

The provenance of most surviving medieval pewter is uncertain or unknown, and in many cases it is unclear whether it is of English or foreign origin. There were nevertheless stringent prohibitions on the import of pewter and we know that there was a flourishing export trade. This being so, it seems not unlikely that many items of medieval pewter discovered in Europe may have been of English manufacture. For the same reason it appears unlikely that many of those found in England originated abroad. Despite the uncertainties there is sufficient evidence from surviving pieces and from documentary sources to form a good impression of the manufacturing techniques in use in London.

The casting of pewter in stone moulds was practised in Roman Britain and fragments of limestone moulds for plates and dishes have been excavated in several locations⁶⁹. Medieval mould fragments of stone for spoons, badges and tokens have also survived⁷⁰. That there are no surviving medieval metal moulds is not surprising for once they were outdated they would have been consigned to the melting pot. With one exception there appear to be no certain records of metal moulds before the early 1400s by which time they were in common use. The exception is a reference to the use of 'iron' moulds in France in 1354 for the casting of pilgrim badges⁷¹. These were produced in enormous numbers and Spencer instances the sale of 130,000 in two weeks at one continental shrine⁷². The advantage of metal moulds in retaining the fine detail exhibited by many badges must have been appar-

ent, and the skills for their production existed among seal engravers. Whether such moulds were used for massive pewterware at this early date must for the moment be a moot point. Indeed Birunguccio, writing of Italian pewterers in 1540, speaks of moulds of 'tuff' (a volcanic stone) being employed then for the casting of pewter vessels⁷³. Theophilus describes the fabrication of a pewter cruet in a clay mould by the lost wax process and this technique, though tedious, would have been satisfactory for the casting of single non-repetitive items of some value⁷⁴.

The earliest securely datable pewter of undoubted English provenance are sepulchral chalices and patens, and we know that these were made in London from the late 12th century onwards. Several from Lincoln cathedral, all of mid-13th century date, may be taken as typical (Plate 1). With one exception, which will be discussed later, these are made in two parts. The bowl, separately cast, is soldered to the trumpet-shaped foot and stem, and in a number of examples



Plate 1. A remarkably well preserved sepulchral chalice from a 13th century grave at Lincoln Cathedral. (The dean and chapter, Lincoln).

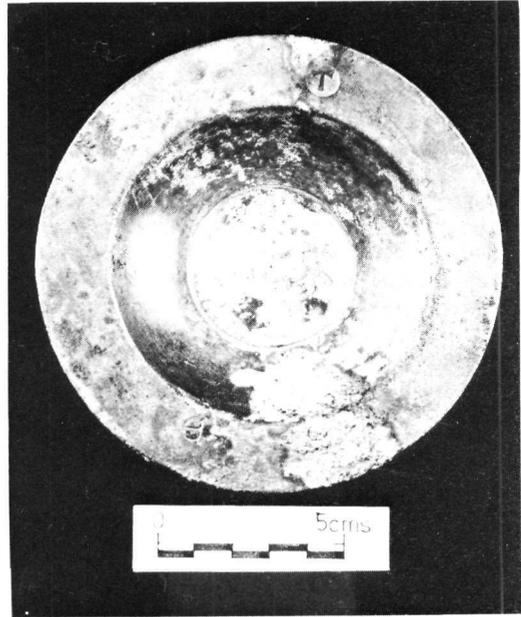


Plate 2. A saucer from excavations at Tong castle, late 14th century, diam. 137mm. (The Worshipful Company of Pewterers).

is located in the top of the hollow stem by a plug which may well have formed the original casting sprue. If this were so, the bowl was cast upside down. A two-part mould would have been required for the bowl and a core plus a two-part one for the stem in order to allow of the casting of the decorative knop at its mid-point. The exception is a chalice with a large ornate 'finned' knop which is made in three pieces. The separate bowl and foot are inserted into the top and bottom of a collar which carries the knop. Vertical mould marks reveal the use of a split mould for this section. Possibly the knopped collar was a standard item used, for example, for candlesticks, none of which has survived⁷⁵. A chalice from Carrow Priory, Norfolk, of early 14th century date, displays a different method of assembly. Here the top of the stem is solid and is inserted into a hole in the base of the bowl and peened over to secure it⁷⁶.

The Lincoln patens are rather thickly cast and show turning marks on the undersides. Interestingly several have a crude blob of solder in the centre of the well, filling a hole where they were literally nailed to the face plate of the lathe. Similar solder-filled central holes have been noted on Romano-British plates⁷⁷.

It is apparent from the inventory of Thomas Filkes that a wide range of flatware moulds were



Plate 3. A mid-14th century octagonal flagon from the River Medway at Tonbridge, height overall 240mm, capacity 1192ml. (Private collection, photo Sotheby's).

available in the early 15th century and little need be said of conventionally cast plates and dishes. The same inventory also includes a lathe and turning tools which sufficiently indicate the finishing process. A puzzle is however provided by the commonly found expression 'counterfeit dishes'. It is clear that they were beaten, for the cost of beating counterfeit wares is set out in the 1455 ordinances. In 1438 it was ordered

'That ther be no conterfete that cometh out of Lunden but it be wel and sufficiently bete and that there be no cours [coarse] ware analed by no man of the franchise of London to be solde

for counterfete in Lunden or in the contrey for disceivynge the kinges peple from this tyme forward oppon the peine aforesaid'⁷⁸.

This passage distinguishes between counterfeit wares which were beaten and 'coarse analed' wares which by implication were not. The word 'analed' must presumably be a variant of 'annealed', the earliest meaning of which was a general one—'melted'. The distinction thus appears to be between cast wares made from melted metal and beaten ones which were not. The distinction is however blurred by frequent references to 'counterfeit moulds'. A plausible explanation is that such moulds were in fact patterns or swages into which sheet metal was hammered to produce the required form. As will be seen shortly metal was certainly available to the medieval craftsman.

The predominant type of mould mentioned in medieval times is that for flatware and there is very little mention of hollow-ware moulds. One explanation may be that the demand for flatware was much the greater, and domestic inventories



Plate 4. A 13th century cruet from excavations at White Castle, Gwent. Height overall 121mm. (National Museum of Wales, Cardiff).



Plate 5. A baluster measure from the Thames foreshore, London, probably mid-late 15th century. The base is inset with a cast medallion of a heart in a decorative surround. Height overall 211mm. (Private collection).

give some support for this (Plate 2). Nevertheless a range of pots, pitchers, salts and the like were made and pots are divided into two types, round pots and square pots. The word 'square' is clearly not meant to be taken literally and must presumably apply to those flagons and cruets of hexagonal or octagonal section of which a number of examples are known. Many of these, on close examination, are found to be made up of appropriately shaped segments of flat sheet very skilfully soldered together. Such a technique avoided the need for expensive multipart moulds.

The body of the octagonal flagon recovered from the Medway in 1983, which is one of a number dating from the mid-14th century, was made from eight separate sections (Plate 3). It was assembled, presumably over a former, in two halves, each of four sections, and the two halves were then joined together. That this is so is apparent from the fact that the two halves are slightly out of register, and though this has been concealed by finishing on the outside, a small 'step' is visible on the inside. The hexagonal cruet from Weoley Castle is made in



Plate 6. A late 13th or early 14th century spoon with a stem reinforced with an iron wire. The knobs are threaded onto the stem and soldered. Length 162mm. (The Worshipful Company of Pewterers).

no less than thirteen separate parts; twelve cast-decorated panels form the body and the base is inserted⁷⁹.

Examples of medieval 'round pots' are very few. The 13th century cruet from White Castle, Wales, which on stylistic grounds may be French, may be a lost wax casting; however this is not certain (Plate 4)^{79a}. A late 15th century lidded baluster measure from the Thames has a body conventionally made from halves joined round the middle and as an item made in quantity was doubtless cast in a multipart metal mould (Plate 5).

Although the majority of pewter spoons from the 15th century onwards were cast integrally with their decorative knob, many of earlier date have the knob cast separately and threaded onto the end of the stem. Many of these earlier spoons also have an iron wire inside the stem as reinforcement (Plate 6).

The evidence on the use of slush casting is unclear. Many small items such as ampullae are clearly seamed, but others betray no obvious evidence of this. If the technique was in use, then it appears to presuppose metal moulds to ensure the necessary fast chilling.

Finishing requires little comment. It was commonly by lathe turning followed by the use of abrasive powders and polishes to smooth the surface. The skill with which the separate sections of multipart objects were soldered together, frequently invisibly, is remarkable. Those who have attempted to solder the low-melting alloy using only an iron will best appreciate the problems involved. Forms of wood or clay would have been essential to hold the parts in register.

THE ALLOYS

Pewter is not a single well-defined alloy and the term is applied to a wide range of alloys of tin and lead and tin and copper and to ternary alloys of all three. In addition there is evidence that other metals such as mercury were deliberately added and extraneous contaminants may also be found. Many of these last probably result from the common practice of remelting scrap. In seeking to understand the alloys used by the pewterers a number of background circumstances must be borne in mind.

- (1) During the period 1330 to 1500 the price of lead was one third or one quarter that of tin.
- (2) The addition of lead to tin lowered its melting point and less fuel was needed to melt it.
- (3) Common solder, comprising about 40% lead to 60% tin, formed the lowest melting eutectic alloy and was most probably a readily available article of commerce.
- (4) While tin was probably not generally available, scrap architectural lead and plumbing lead almost certainly was.

There were therefore powerful reasons of economics and convenience to adulterate the alloy with as much lead as could be reasonably tolerated.

Generally speaking there were two grades of pewter. A hard, high quality alloy of tin with up to about 5% of copper, so-called 'fine metal', and a softer lower quality alloy of tin and lead. The former was supposed to be used for those items which required hardness and rigidity, such as plates and dishes, while the latter was permitted for those items such as pots, where the shape conferred some rigidity. The ordinances of 1348 spell out these two alloys. Fine metal was composed of tin and copper, though, presumably to preserve a trade secret, all that is said is that 'the proportion of copper to the tin is as much as, of its own nature, it will take'. The cheaper 'lay metal' is openly defined as 'an hundred of tin to 26 pounds of lead'. Confusion however results from the proportion of lead being given as 22 pounds in a later transcript of the ordinances in the Pewterers' Company records, and from the fact that in 1350, when John de Hilton was fined for producing sub-standard wares, the wardens of the craft stated that to each hundredweight of 112 pounds of tin there should be added no more than 16 pounds of lead. It appears possible that the divergent figures result from the confusion or mistranscription of the Roman numerals xxvi, xxii and xvi, but which one was intended must remain unclear.

The only documentary evidence we have for earlier alloys is from the writings of Theophilus who advises the addition of an uncertain quantity of mercury to tin to harden it⁸⁰. That alloys of tin and mercury were being used in the 11th or 12th century suggests that workers at this time would have been familiar with mercurial solders, the low melting point of which would have simplified the intricate soldering found on surviving pieces.

The fact that essentially pure tin was used not infrequently is an unexpected finding of modern analyses. However, for the faithful rendering of fine detail in castings, a metal with a sharp solidification point, which does not go through a

pasty phase, has advantages. This, as well as the factors considered above, may also explain the common use of the eutectic alloy. The numerous 'pewter' tokens of the period from *c.* 1200 onwards appear to be made either from pure tin, eutectic alloy or lead, perhaps for this reason. Although detailed analyses are currently lacking, it appears from preliminary published data that the majority of medieval badges are also made from one of these three metals⁸¹.

A series of recent analyses of medieval flatware present a reasonably uniform picture⁸². Most is of fine metal containing tin with 1–3% copper, and exceptionally as much as 6.5%. The lead content is typically less than 0.5%. A few pieces are however of lay metal with lead contents between 5 and 26%, but which nevertheless contain 0.5 to 2% of copper in addition. Few analyses have been published on medieval hollow-ware. The elaborately cast-decorated Weoley Castle and Ludlow cruets have been found to be almost pure tin. An octagonal flagon excavated in Gloucestershire contains 97.7% tin, 0.57% lead and 1.55% copper, the use of a fine metal alloy being perhaps predicated by its fabrication from separate sections of sheet metal. This circumstance perhaps also explains why the 1348 ordinances specify the use of fine metal for 'square pots' in distinction from other hollow-ware. A candlestick from the Thames foreshore conforms to a typical lay metal, containing 78.5% tin, 20% lead and 1.29% copper⁸³.

The earlier cruet from White Castle essentially is eutectic alloy (tin, 61.2%; lead, 36.9%; copper, 1.0%; iron 0.2%) and a uniquely early cast crucifix figure of Christ (*c.* 1160–70) also approximates to this composition (tin, 68%; lead, 32%)⁸⁴.

Spoons, which were in all probability made to a considerable extent by itinerant craftsmen and tinkers from whatever metal came to hand, present a very diverse pattern of alloys. One has been found with 5.8% of mercury and another with no less than 20.8% of copper⁸⁵. This latter suggests that the medieval pewterer made his copper-containing alloy through the intermediate tin/copper alloy referred to in later times as 'temper'. Because the ready incorporation of copper into melted tin necessitates the heating of the tin to temperatures far above its melting point, which is wasteful of fuel and leads to excessive oxidation of the tin, a copper-rich 'pre-mix' which was readily incorporated into melted tin was first made. This necessitated the heating to a high temperature of only a small proportion of the tin. Possibly this spoon was made of temper in error.

As might be expected, sepulchral chalices and

patens are of metal with a high lead content, in some cases as much as 75%⁸⁶.

It is a moot point whether plumbers, who were entitled to work with solder, may have been responsible for making some of the 'pewter' which is found to be of this eutectic alloy. Certainly any pewterer using it would have fallen foul of the ordinances and, as we have seen, would have been penalised if discovered. Assay methods were however rudimentary and the quality of the metal was established by weighing a pellet of standard size. The higher the lead content, the heavier it weighed.

THE MEDIEVAL ORDINANCES

The ordinances of 1348 were printed by Welch in the middle English version entered (at a later date) in the Company's records⁸⁷. Riley's modern English translation is of the Norman French and Latin originals entered in the city's Letter Books⁸⁸. The 1438/9 ordinances were also printed by Welch from the version appearing in the records of the Company⁸⁹.

The very detailed ordinances of 1455 have only recently been discovered at Pewterers' Hall and appear to be the original writing of them on a single sheet of vellum some 31 inches long and 16½ inches wide which is pointed at the top and has a tape loop for hanging⁹⁰. The existence of these ordinances, hitherto believed to have been lost, is noted in the Company's Audit Book for 1456/7 as follows;

Paid to maistre Roger clerk of the yeldhall for seying of ye ordinances yt ye vi men of ye crafte made..... 6s-8d.
Paid for ye writing of ye same ordenances yt ye vi men made..... 6s-8d

It is known that in November 1438 representatives of the pewterers were summoned before the mayor and aldermen and there confessed that they had promulgated certain ordinances illegally and without authority⁹¹. These were ordered to be expunged from the record, but in March 1438/9 the new ordinances referred to above were granted to the craft. The preamble to these recites the 1348 ordinances as the only previous valid ones, and they were confirmed. It thus appears that there existed only one set of ordinances, the illegal ones, between these dates.

Although no record remains in London of these illegal ordinances there exists at York the

1416 ordinances of the York pewterers which commence with the specific statement. 'Ceux sont les articles de lez pewderers de Lounders, les queux les genz de mesme lartifice dycestre citee Deverwyk ount agrees pur agarder et ordeiner entre eux' (These are the articles of the pewterers of London, the which the men of the craft of the city of York have agreed to keep and ordain among themselves). It seems that these can be none other than the missing London ordinances, though they appear unexceptional and it remains a mystery why they were declared illegal after so long a period. These York ordinances have been printed only in the original French and are here given in English for the first time⁹².

First, that no one of the pewterers' craft make any vessel except of good and fine metal, nor use any solder in vessels except pale, on pain of forfeiture of the said metal, nor sell vessels 'blown' (*suffles*) nor cracked on pain of forfeiture. Also that no one make any blown or cracked vessel under the same penalty.

Item, that no one of the said craft take any alien nor *homme naif* as his apprentice on pain of a fine of x li to be paid to the chamber (*chambre*) and the craft in equal portions. And that no one take any apprentice for a lesser period than seven years together, nor shall anyone of the said craft employ any man who is not of their craft on pain of x l s which is to be paid in the manner aforesaid.

Item, that no one of the said craft employ nor cause to be employed any man or servant of this city of York nor of any other unless it is well proven that he be free of his master whom he previously served on pain of xx s payable in the manner aforesaid by each master for whom he has worked.

Item, if any servant of the said craft remove or by fraud and with bad intent purloin any thing to the value of xii d or more, and if it be proved on him and known to his master, then if his master or any of the same craft give him any work he shall forfeit x s, and if the same servant trespass similarly again he will be banished from the city.

Item, that all the work which is called hollow-ware (*holghware*) in the craft is to be good, substantial and profitable to the subjects of our sovereign the king, and that all hollow-ware metal is to be of the assize on pain of iii s iii d payable in the manner aforesaid, and that our searchers are to be chosen by all the men of the craft assembled, and that all men

of the craft are obedient to those chosen and that no master makes any rebellion against the searchers in carrying out their duties on pain of xx s payable in the manner aforesaid, and that on the same pain the searchers do not make any men to be punished for tort [an illegible passage follows].

Item, if any of the said craft employ any master within the city of York who has not been apprenticed in the said craft in the same city he is to pay at the commencement of his employment xx s in the manner aforesaid.

Item, that no one of the said craft hire to him any servant either privately or openly in the said craft above xl s a year on pain of xiii s iii d payable as aforesaid.

Item, that no one of the said craft shall open his shop until he well knows the craft, that is to say to make and do faithfully chargers, dishes, salts and also other work called hollow-ware, that is pottle pots, quart, pint and demi-pint, flat salts, 'cowped' salts, and 'squared' salts on pain of C s to be paid as aforesaid.

Item, it is ordained that if any master of the said craft take an apprentice for the term of seven years and if the said master ?die (*devie*) during the said term, that the same apprentice is not to be hired to any man of the said craft until the time when has served his term of seven years with another master of the said city on pain of forfeiture of x marcs payable in the manner aforesaid for each master that he hires himself to against this ordinance.

If the above are indeed the annulled ordinances of the London craft, and there is no internal evidence which suggests the contrary, we now have the texts of all the ordinances from 1348 to 1455.

To be read with the ordinances is the ancient oath which refers to the religious affiliation of the craft. Welch believed this to be as old as the 1348 ordinances, though it survives only in a later copy. It reads, in modern English,

'You shall keep to your power well and truly all the good rules of the pewterers' craft which have been enrolled in the Guildhall of London and all the good counsels of the said craft and none of them discover but if it be to the worship of the craft and also you shall worship our bretheren of the pewterers which are the bretheren of Our Lady and succour and help in every place so it be not hindering to yourself nor to your worship so help you God and Holy Lady and by this book'⁹³.

APPENDIX 1 PEWTERERS' WILLS ENROLLED IN LONDON BEFORE 1460

Notes.

A = Archdeaconry Court of London, Guildhall Library MS. 9051

C = Commissary Court of London, Guildhall Library MS. 9171

H = Court of Husting Rolls, Corpn. of London Record Office

a = Indexed entry only, text lacking

b = Administration only

Date is date of enrollment

John le chalycer, 1296	H. 24(15)
Henry le calicer, 1312	H. 40(123)
Nicholas le peautrer de Ludgate, 1347/8	H. 75(39)
Roger Syward, 1349	H. 77(85)
Nicholas de Hyngestworth, 1364/5	H. 93(15)
William Syward, 1368	H. 96(172)
Henry Lothway, 1368/9 (a)	A. i,1
Thomas Syward, 1368/9 (a)	A. i,1
Richard Brokesfield 1369/70 (a)	A. i,3
John Syward, 1375 (died 1367)	H. 103(229)
John Cartere, 1383/4 (a)	A. i,15
Robert Ailnouth, 1385/6 (a)	A. i,16
John Claydich, 1394	A. i,17v
Richard Nicholas, 1387	C. i,151v
Richard Thorpe, 1396	C. i,369v
William May, 1398	C. i,412v
John Boxon, 1404	A. i,126v
Robert Offington, 1404	C. ii,48v
Adam Reward, 1406	A. i,154v
Robert Horner, 1406	C. ii,73
Gilbert Haccher, 1407	C. ii,85v and 101v
Thomas Fulham, 1408	H. 135(87)
William Boxon, 1412	A. i,262v
John Barnwell, 1412	C. ii,212v
Richard Tebold, 1413 (b)	C. ii,240v
John Ilymer (alias Lelec), 1413	C. ii,254v
John Parke, 1413	A. i,283v
Isabel Parke (widow of John), 1415	A. i,334v
John Fuller, 1416	C. ii,347v
John Burgess, 1420	C. iii,67
John Megre, 1420	H. 148(26)
William Gugge, 1423	C. iii,106
John Baker, 1426	C. iii,155
John Spencer, 1426 (b)	C. iii,153
Margaret Fulham (widow of Thomas), 1429	C. iii,227v
William Hayward, 1430	C. iii,233v
William Kent, 1432 (b)	C. iii,322
John Dabron, 1434	C. iii,376v
John Heendman, 1434	C. iii,511v
William Camell, 1435	C. iii,435v
John Cornemonger, 1435	C. iii,415v
Bartholomew Cornewayll, 1435	C. iii,430v
Richard Foxe, 1435	C. iii,431

John Kyrtelton, 1435	C. iii,438
William Mason, 1435 (b)	C. iii,422v
Hugh Game, 1436	H. 164(47)
Emma Megre (widow of John), 1438	C. iii,495v
Thomas Preston, 1438	C. iii,494v
John Grace, 1440	C. iv,36v
Richard Mauncell, 1440	C. iv,51
John Forebroke, 1441	C. iv,69
John Childe, 1442	C. iv,92v
William Hamond, 1445	C. iv,159v
William Scott, 1446 (b)	C. iv,194
William Bellyng, 1447	C. iv,213
Henry Breton, 1450	C. v,9
William Baker, 1453	C. v,78v
Isabel Childe (widow of John), 1453	C. v,92
John Hulle, 1453	C. v,115
John Kirkeby, 1455	C. v,278
Stephen Auncell, 1458	C. v,247v
John Cogonowe, 1459	C. v,282v

WILLS OF NON-PEWTERERS MENTIONING PEWTERERS

John de Kyngeston, 1349	H. 77(86)
James de Thame, 1364	H. 93(65)

EXTRACTS RELATING TO THE CRAFT FROM SELECTED WILLS

Nicholas le peutrer de Ludgate, 1347/8

To his son Thomas all the tools and moulds pertaining to his trade, ten marks of silver and two thousandweight of tin.

Roger Syward, 1349

If any of his sons is willing to learn the trade he is to have all his instruments appertaining to it. His apprentices [unnamed] to be made over to his wife.

John Syward, 1364

To his six apprentices 3s-4d each. To his brother William his apprentices Thomas, son of Roger Peautrer, and William Cabroche. To his wife his apprentices John Carleton, John Marchanito, John Sparwe and Thomas [no second name] and if she does not wish to use the art of pewterer then to his brother William.

Nicholas de Hyngestworth, 1364/5

To his son John all the instruments of his trade after his wife's death and a thousandweight of tin when he takes a house of his own. To Nicholas his apprentice 13s-4d.

John Claydich, 1394

To John his apprentice 20s. To his son John £33-6s-8d and all his instruments, 'fourmes', weights and balances in his shop.

Richard Thorpe, 1396

To Thomas his son the tools of his trade which are in the custody of John Salman, pewterer, during his minority.

John Boxon, 1404

To Roger Harlee, pewterer, his cloak and 6s-8d. To

Thoas Wolwyk, pewterer, 6s-8d. To Roger Mymmes, pewterer, a cloak and 12d. To his son William £10. To his son John £20.

Thomas Fulham, 1408

To his son John various items of silver plate and a dozen pewter pots forming a garnish.

William Boxon, 1411

To his 'servants' (journeymen) Randolph Nankelly, John Dabron and John Andrew 100s each. To his apprentice Thomas 20s. To his apprentice John 10s. Bequests to the pewterers William Staunton, Richard Glasier, John Botelar and William de Kent.

John Parke, 1413

To his kinsman John a dozen pewter vessels weighing

32 pounds, a pottle pot and a quart of pewter and a saltcellar. To John his apprentice 8d.

John Baker, 1426

To William Kent his 'formator' (?mouldman; caster) a laver mould of brass, a plate mould and a cloak. To John Noke his apprentice 40s.

Richard Mauncell, 1440

To John Kendall his apprentice 8s and hammers and an anvil and the instruments in his shop.

John Childe, 1442

To his apprentices Richard Priggil and Richard Alstowe at the end of their term, one hollow dish mould, a middle platter mould, 'my half of a dish mould which I and John Hulle, pewterer, share' and one other mould.

APPENDIX 2

HUSTING DEEDS PRIOR TO 1400 WHICH MENTION CHALICERS AND PEWTERERS

Arlicheseye, John de	1357; 85(104),(105)
Boxon, John	1394; 123(35)
	1396; 124(136)
Calicer, Agnes la, wife of Henry le	1324; 53(85),(98)
	1329; 57(119)
Calicer, Elena, daughter of Agnes la	1324; 53(98)
Calicer, Henry le	1306; 34(57)
	1324; 53(85),(98)
Calicer, Osbert le	1259; 2(83)
Calicer, Thomas le, son of Agnes la	1329; 57(119)
Claydich, John	1390; 119(79)
Devenish, Thomas, son of Richard	1358; 87(3)
French (ffrensshe), William	1349; 77(111)
Henxteworth (Hyngestworth), Johanna	1372; 100(97),(137)
Henxteworth, John	1394; 123(56)
Henxteworth, Nicholas de, (see also Nicholas le peautrer)	1351; 79(90)
	1372; 100(97),(137)
Herville, Walter	1372; 101(8),(11)
Horewode, Matilda, wife of Thomas le peautrer	1348; 75(7),(8)
Mile(s), Nicholas, (see also Nicholas le peautrer de Ludgate)	1324; 53(98)
Nicholas, Guy	1395; 124(109)
Peautrer, Adam le	1339; 66(96)
	1340; 67(79)
Peautrer, Alice, wife of Nicholas le peautrer de Ludgate	1332; 60(56)
	1334; 62(78)
	1337; 64(93)
	1345; 72(80)
Peautrer, Elena, wife of Nicholas le peautrer de Ludgate	1329; 57(119),(120)
Peautrer, Henry le, (see also Henry le calicer)	1329; 57(120)
Peautrer, Johanna, wife of John, son of John le	1339; 66(118)
Peautrer, Johanna, widow of Nicholas le	1372; 100(131)
Peautrer, John le, son of John le	1339; 66(118)
Peautrer, John, son of Nicholas (see also John Henxteworth)	1377; 106(48)
Peautrer, Matilda, wife of Thomas le, son of Nicholas le peautrer de Ludgate	1348; 75(7),(8)
Peautrer, Nicholas le, de Ludgate	1329; 57(119),(120)
	1330; 58(90)
	1332; 60(56)
	1334; 62(78)
	1337; 64(93)
	1345; 72(80)
	1348; 75(7),(8)
	1349; 77(111),78(25)

Peautrer, Nicholas le (= Nicholas de Henxteworth)	1350; 78(238-42) 1352; 81(73) 1353; 83(93),84(5) 1356; 84(49),(131),85(11) 1357; 85(46),(138) 1361; 89(75),(167-168),(170) 1372; 100(131) 1377; 106(48)
Peautrer, Richard	1349; 77(111),(138)
Peautrer, Thomas le, son of Henry le	1329; 57(120)
Peautrer, Thomas le, son of Nicholas le, de Ludgate	1348; 75(7),(8)
Syward, Johanna, wife of Thomas	1369; 97(192),(193) 1370; 98(143) 1372; 101(22)
Syward, John	1349; 77(138),(207) 1350; 78(224)
Syward, Katherine, cousin of Thomas	1368; 96(142)
Syward, Margery, wife of Roger (le peautrer)	1341; 69(20) 1342; 69(66) 1346; 73(151)
Syward, Roger (= Roger le peautrer)	1341; 69(20) 1342; 69(66) 1344; 71(136),(137) 1346; 73(151),(164)
Syward, Thomas	1368; 96(142) 1369; 97(192-3) 1370; 98(143) 1372; 101(22)
Southcote, Thomas, son of John	1382; 111(104) 1383; 112(83) 1384; 113(40),(41) 1388; 116(20)
Straunge, Stephen (le)	1345; 72(38)
Upton, William de (?whether the pewterer)	1333; 61(57) 1348; 74(165)
Watre, John atte (?whether the pewterer)	1371; 100(9)

APPENDIX 3

LONDON PEWTERERS WORKING BEFORE *c.* 1457

Note. Records have not normally been searched after *c.* 1457. That terminal date is therefore of no significance unless followed by 'd' (dead). A few later last dates are given where these have been readily found from the records of the Pewterers Company (normally because the individual appears in the list of Masters or Wardens), or because his will is enrolled in the Commissary Court of London.

'App' indicates that the individual is recorded as an apprentice at that date.

Name	Recorded Dates	References
Ade, Alice	1427	7
Ade, John	1405-12	7, 9
Ailnouth, Robert	1382-86d	1, 9
Aldrichesey, John	1374	9
Aleyn, Peter	1446	9
Anable (Anabile), Richard	1409-13	7, 9, 10
Andrew, John	1411-38	4, 6, 7
Arlicheseyc, John de	1350-57	7, 19, 31
atte Lee, William	1424-27	7, 9
atte Vanne, John	1412	5
atte Water (Watre), John	1373-1401	9, 12, 31
atte Well(e), William	1439-52	7, 9
Awncell (Auncell), Stephen	1451 (dead by)	9
Auncell, Stephen	1451-58d	2, 18
Avery, <i>see</i> Smythe		

Name	Recorded Dates	References
Baker(e), John	1416–26d	2, 5, 7
Baker(e), William	1438–53d	2, 5, 7, 18
Bame (= Game ? q.v.), Hugh	1437	11
Barnard, John	1450	9
Barnwell (Barneville), John	1412d	2, 22
Bell(e), William	1404	21
Belyng, William	1447d	2, 9, 11
Bishop, Peter (Piers)	1446–80d	2, 9, 18
Blowfelde, William	app 1434–57	5, 9, 18
Botelar, John	1411	4
Boxon, John	1394–1404d	1, 31
Boxon, William	1412d	1, 7
Brampton, William	1438	10
Breen, Richard	1436	21
Breton, Henry	1450d	2
Bristow, John	1457	18
Broke (Brook), John	1452	9, 11
Brokesfield, Richard	1349–69d	1, 7
Bulle, William	1397	9
Burges, John	1420d	2
Burnes, Rauff	1457	18
Burton, Thomas	1452	18
Byllyngs, Robert	1457	18
Byn(ne)cote, William	1404–17	7, 9, 21
Calicer, Chalice, etc.		
Agnes la	1306–29	29, 31
Alexander le	1190–96	32
Alexander le	1294	6
Austin le	1190–1210	25
Henry le (= Henry le peutrer)	1306–12	3, 7, 31
Hugh le	early 13th cent.	25
John le	1217–40	25
John le	1290–94d	3, 7
Nicholas (= Nicholas le peutrer de Ludgate)	1324–48	3, 6, 12, 25, 30, 31
Osbert le	1259–73	25, 31
Serle le	1217	25
Stephen le	mid 13th cent.	25
Thomas le	1240	25
William le	1244	33
Camell, William	1435d	2
Camell, William 'the elder'	1458	9
Canteys, Kanteys, Kentoys etc.		
Gavyn (? for John)	1381/2	12
John	1376–1402d	7, 9, 12, 21
Thomas	1404–277(?d)	5, 9
William	1364–76	8, 12, 25, 26, 27
Cartere, John	1383/4d	1
Castell, Robert	1454	9
Chamberleyn, Robert	1445–66	9, 18
Chaunter, William	1442	9
Chiefe, Andrew	1409–9	9, 21
Childe, John	1435–42d	2, 9
Childe, Thomas	1394–1411	5, 7, 9, 11
Claydich, John	1388–95d	1, 7, 21, 31
Claydich, John (jnr)	1394	4
Claydich, Richard	1396–1440	4, 6
Cokonow (Cogeno(wc)), John	1457	2, 18
Coldham, John	1443–65	9, 18, 20
Colourde, Henry	1406	9
Cornemonger, John	1412–35	2, 9

Name	Recorded Dates	References
Cornemonger, William	1435	5
Cornewayll, Bartholomew	1435d	2
Cotelar, Thomas	1435-45	5, 18(flyleaves)
Cotte (Cut), Robert	1403-4	5, 9
Couper, John	1457	18
Crowde, William	1445-74	9, 18
Curson (Carson), John	1406-7	9, 21
Dabron, John	1411-34	2, 4
Dere (Deer), William	1423-57(?d)	10, 18, 20, 25
Devenish, Thomas	1358	21, 31
Dewee, Robert	1457	18
Dogowe, John	1439-57	18, 20
Downton (Downton), Thomas	1455-86d	2, 18
Drayton, Nicholas	1452	9
Drayton, Simon (Symkin)	1452-57	9, 18
Dutton, Robert	1411	9
Egremond, Nicholas	1432-44(dead by)	5, 7, 9
Everdon, John	1440	11
Eyre (Eyer), William	1445-75	9, 18
Felde, Richard	1457	18
Ferthyng, John	1376-85	9, 21
Forebroke, John	1441d	2
Foxe, Richard	1435d	2
French, William	1345-48d	6, 31
Fulbroke, Robert	1457	9
Fulham, Thomas	1408d	3
Fulham, Margaret	1429d	2
Fuller, John	1415/6(dead by)	2
Fylkes, Thomas	1410-27d	7, 9
Game, Hugh	1411-36	3, 7, 9, 21
Gardynner, Thomas	1434-57	5, 18
Gille, Nicholas	1439-40	7
Glasyng (= Glasier), Richard	1408-11d	1, 21
Goodall, John	1457-64d	2, 18
Goode, Thomas	1459-65	9, 21
Gorwey, Robert	1435-39	5, 9
Grace, John	1394-1440d	2, 6, 7, 9
Greschurche, William de	1350	19
Grey, Thomas	1441-43	20
Grove, Thomas	1452-57	18
Gugge, John	app 1423-53	5, 9, 20
Gugge, John 'the younger'	1455-57	18
Gugge, William	1423d	2
Gylle, Nicholas	1440	9
Gynger, John	1457	18
Hacchere, Gilbert	1401-7d	2, 9
Halle, Richard	1457	18
Hamond, William	1445d	2
Hankford, John	1402	9
Harding, John	1423	4, 21
Harlee (Herley), Roger	1404	4, 9
Harrys, John	1430-57	5, 18
Hatche, Robert	1457	18
Haukin, Alexander	1409	9
Hayward, William	1424-30d	2, 7
Heendman, John	1434d	2
Hengle, Walter	1372	21

Name	Recorded Dates	References
Henxtworth (Hyngestworth)		
John	1364–1409	9, 31
Nicholas de (see also Nicholas le pcauter)	1351–69d	3, 21, 31
Hervyle (Herville), Richard	1448	9
Hervyle, Walter	1370–87(dead by)	7, 26
Heyre, William	1448	18(flycaves)
Hiltone, John de	1350–52	8, 19
Horewood, Thomas	1348	21
Horner, Robert	1406d	2
Hull(e), John	1450–53d	2, 9
Ilymer (<i>alias</i> Lelec), John	1413d	2
Kabroche, William	1398	6, 9
Kanteys (see Cantoyes etc.)		
Kelet, Richard	1411	9
Kendall, John	app 1440–57	5, 9, 18
Kent, William (dc)	1411–32d	4, 5, 7, 9
Kirkeby, John	1487–55d	2, 9
Kirkeby, William	1403	9
Kyllyngham, Thomas	1435	9
Kyngesworth, Nicholas de	1349	7
Kyrke, Richard	1457	18
Kyrleton (Kyrtylnton), John	1411–36d	2, 4, 7
Kyrton, John	1404	4
Lambard, John	1457	18
Lambe, Thomas	1433–51d	9, 18
Lapyard, Thomas	1436	6
Large, William	1457–77	18
Launtot (Langtot), Thomas	1447–79d	2, 18
Lauton (Lawton), Richard	1444–57	9, 18
Lee, William	1437	11
Lelec (see Ilymer)		
Lestraunge, Stephen	1345–48d	19, 21, 31
Lorkyn, John	1451	10
Lothway, Henry	1368/9d	1
Ludgate, Nicholas de (see Nicholas de Henxtworth)		
Lumley (Lumbey), Richard	1438–57(dead by)	9
Lylze (Lely), John	1403–22	9, 21
Lylze, William	1401–24	4, 7, 9
Malpas, Philip	1443/4	21
Marler, Thomas	1457	18
Martyn (Martin), John	1428–57	9, 18
Mason, William	1435d	2
May, William	1394–98d	2, 4
Mauncell, Richard	1440d	2
Megre, John	1401–20d	3, 7, 12, 26
Mildenhale, Richard	1415	9
Mile(s), Nicholas (see also Nicholas le peutrer de Ludgate)	1324	31
Moubray, John	1391	9
Mylys, John	1445–57	9, 18
Mymmes, Roger	1394–1404	4, 5
Nankelly, Randolph	1411	4
Nicholas, Guy	1395	21, 31
Nicholas, Richard	1385–87d	2, 9
Offyngton (Uffington), Robert	1382–1404d	2, 9
Oskyn, John	1451	10
Page, Thomas	1457–71d	2, 18
Panton, Morys	1457	18

Name	Recorded Dates	References
Parke, John	1396-1413d	1, 5, 9
Parys (Paris), John	1452-84	18, 20
Pauntley, Maurice	1454	9
Pecok, John	1457	18
Pereman (Peryman), John	1435-40	5
Peutrer, Peautrer etc.		
Adam le	1339-40	31
Agnes	1370/1	6
Arnold le	1352-64	7, 12
Geoffrey le	1319	20, 29
Henry le (see Henry le calicer)		
John le	1305-45	7, 16, 20, 25, 29
John le, son of John	1339	31
Lambert le	1311	20, 24
Margery la (= Margery Syward)	1333	12, 20, 31
Nicholas (le) (= Nicholas Henxtworth)	1350-64d	3, 7, 8, 9, 15, 19, 20, 31
Nicholas le, de Ludgate (= Nicholas Miles, = Nicholas Calicer q.v.)	1324-47/8d	3, 7, 25, 31
Richard le	1337-49	7, 17, 31
Roger le (see Roger Syward)		
Stephen le (= Stephen Lestraunge)	1344-48	7, 12
Thomas le, son of Henry	1319-36(dead by)	7, 9, 12, 17, 20, 30, 31
Thomas le, son of Nicholas	1348d	6, 24
Thomas le (Westminster)	1332	9
Walter le	1368-75	12, 23
William le (? two)	1311-50	7, 9, 13, 17, 20, 29, 30
Pepond (Pypond), John	1457-66d	2, 18
Phelypp, Richard	1396	9
Power (Pover), John	1399-1415	9
Prest, John	1437	9
Preston, Thomas	1438d	2
Prowde, William	1437-48	9, 18 (flyleaves)
Purifere, John	1430	9
Pynton (Pynchon), Piers	1453-7	18
Quarry (Quarrer), James	1397-1427	7, 28
Randolph, John	1412-29	5, 17
Randolph, William	1457	18
Rewarde, Adam	1406d	1
Salman, John	1396d	5, 21
Scotte, William	1446	3
Selcham, John	1400	9
Sernesfield, William	1438	10, 21
Seyke, Robert	1457	18
Shypwasshe, Arnold de	1350	19
Smallwood, William	1452-86	9, 18
Smythe, Thomas	1383-94	7, 9
Smythe, Thomas 'otherwise Avery'	1452-60	18
Somerfelde, Henry	1410/11	9
Southcote, Thomas	1382-88	21, 31
Sparke, Henry	1427	7
Spencer, John	1401-26d	2, 9
Staunton, William	1411	5
Straunge (see Lestraunge)		
Sutton, William de (see William le peutrer)		
Swan, Hugh	1457	18
Swan, John	1428	9
Swayn(es)lond, William	1382-85	9, 12
Sygore, John	1323-28	7, 9
Syward, John	1349-67d	3, 7, 8, 12, 19, 27, 31

Name	Recorded Dates	References
Syward, John	1373–97	12, 28
Syward Margery (see Margery la peautrer)		
Syward Roger (= Roger le peautrer)	1331–49	3, 7, 30, 31
Syward, Thomas	1364–69d(b.1347/8)	1, 7, 31
Syward, William	1349–68d	3, 7
Tebold, Richard	1413d	3
Telgate, William	1404–9	9, 21
Thorpe, Richard	1396d	2
Tod (Todde), Stephen	1457	18
Turner, John	1445–57	9, 18
Turner, Thomas	1452–57	18
Uffington (see Offington)		
Uptone, William de	1325–50	13, 19, ?31
Vesey, John	1448–57	18(flyleaves)
Voylby, William	1457	18
Walker, Nicholas	1457	18
Warbylton, Piers	1453–57	18
Warde, Watkyn	1457	18
Wellys, Peter	1428–52(dead by)	5, 9, 18
Wermynghon, Peter	1455	9
West, Richard	1436	6
Westwode, Nicholas	1439–51d	6, 9, 18
Whitehead, John	1457–75	18
Wolwyk, Thomas	1404	5
Wright, John	app 1430–53(dead by)	5, 18

NOTES TO APPENDIX 3

- Will proved in the Archdeaconry Court of London, Guildhall MS. 9051.
- Will proved in the Commissary Court of London, Guildhall MS. 9171.
- Will proved in the Court of Husting, London.
- Mentioned in a will in reference 1.
- Mentioned in a will in reference 2.
- Mentioned in a will in reference 3.
- Calendar of Letter Books of the City of London*, ed. R. R. Sharpe.
- Calendar of Letters of the City of London*, ed. R. R. Sharpe.
- Calendar of Close Rolls*.
- Calendar of Fine Rolls*.
- Calendar of Patent Rolls*.
- Calendar of Plea and Memorandum Rolls of the City of London*.
- Calendar of Coroners' Rolls, 1300–1378*, ed. R. R. Sharpe.
- Calendar of Inquisitions Miscellaneous*.
- The Registers of Edward the Black Prince, 1346–65*, ed. M. C. B. Dawes.
- Calendar of London Trailbaston Trials under Commissions of 1305–1306*.
- Memorials of London*, H. T. Riley.
- Audit book of the Pewterers Company, Guildhall MS. 7086.
- History of the Pewterers Company*, C. Welch.
- A History of British Pewter*, J. Hatcher and T. C. Barker.
- Recorded on a card index at Pewterers Hall but without giving source.
- Said in reference 21 to be in the Registers of St. Mary Woolnoth.
- Calendar of Inquisitions Post Mortem*.
- Descriptive Catalogue of Ancient Deeds*.
- The Cartulary of St. Bartholomew's Hospital*, ed. N. J. M. Kerling.
- London Assize of Nuisance*, ed. H. M. Chew and W. Kellaway.
- London Possessory Assizes*, ed. H. M. Chew.
- History of Bedfordshire*, Joyce Godber.
- 'London Subsidy Roll 1319' in *Two Early London Subsidy Rolls*, E. Ekwall.
- 'London Subsidy Roll 1332' in *Finance and Trade Under Ed. III, G. Unwin*.
- Named in a deed enrolled in the Court of Husting, Corpn. of London R.O.
- The Cartulary of St. Mary, Clerkenwell*, ed. W. O. Hassall.
- London Eyre, 1244*, ed. H. M. Chew and M. Weinbaum.

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NOTES

- References have not been provided for details of individual pewterers where the source is readily determinable from the appendices.
- Hatcher and Barker (1974, 24–30).
 - Spencer (1968 and 1982). For the name 'ampoller' see Spencer (1984, 10) For tokens see Mitchiner and Skinner (1984).
 - Homer (in the press).
 - Pugh (1975, No. 209).
 - Kerling (1973, No. 1007) and Hassall (1949, 145) respectively.
 - Watkin (1948, lxxix–lxxx).
 - Kerling (1973, Nos. 527–61 *passim*).
 - Kerling (1973, No. 558), Unwin (1913, 89) and the will of John de Kyngeston, respectively.
 - Unwin (1913, 89).
 - Ekwall (1951).
 - Unwin (1913, 72–3).
 - Riley (1868, 201–2).
 - Sharpe (1894–, *Bk. F*, 218).
 - Letter Book F*, folio 192v, Corpn of London R.O.
 - Sharpe (1894–, *Bk. F*, 237 and *Bk. G*, 3).
 - Sharpe (1984–, *Bk. G*, 171–3).
 - Sharpe (1894–, *Bk. H*, 43).
 - Letter Book F*, folio 164v, Corpn of London R.O.

18. Sharpe (1894-, *Bk. F*, 216).
19. Sharpe (1896-, *Bk. G*, 58-9).
20. Sharpe (1885, Roll I, No. 207).
21. Sharpe (1896-, *Bk. F*, 216).
22. Dawes (1930, 170).
23. C.C.R. 1360-64, 268.
24. Dawes (1930, 187).
25. Kerling (1973, Nos. 532, 534 and Appendix I, 140).
26. *Arlesey Bury Manor Court Rolls*, Bedford C.R.O., IN58. There is a calendar CRT130 ARL9. See also Joyce Godber, *History of Bedfordshire* (1969, 101).
27. Thomas (1926-, Vol. for 1323-64, 264). The original roll adds nothing.
28. *Testa de Nevill* (1807, 243b).
29. Cal. Inq. Post Mortem, 10, No. 225.
30. Sharpe (1894-, *Bk. H*, 307-8).
31. C.C.R. 1447-54, 98-9.
32. C.C.R. 1405-09, 132. Also the will of Margaret Fulham.
33. Chew and Kellaway (1973, No. 558).
34. Sharpe (1894-, *Bk. H*) and Thomas (1926-, Vol. for 1381-1412) various entries.
35. Will of Margaret Fulham.
36. Conyers (1973, No. 30).
37. Sharpe (1885, Roll I, No. 138).
38. Welch (1902, i, 7) and Riley (1868, 259-60).
39. *Letter Book K*, folio 49v, Corp'n of London R.O. (the calendar does not give the complete inventory).
40. Welch (1902, i, 11).
41. *Pewterers Company Audit Book*, flyleaves, Guildhall Library MS. 7086.
42. Sharpe (1894-, *Bk. K*, 235).
43. *Pewterers Company Audit Book*, Guildhall MS. 7086.
44. Welch (1902, i, 13).
45. Thomas (1926-, Vol. for 1381-1412, 285-88).
46. Sharpe (1894-, *Bk. I*, 203).
47. For members of these families see Hatcher (1973, 58n, 86, 57n and 61).
48. *Pewterers Company Audit Book*, Guildhall MS. 7086.
49. Welch (1902, i, 77).
50. Bell (1905, 55).
51. Hooper (1985).
52. Hatcher and Barker (1974, 34 and 42).
53. Riley (1868, 123-4).
54. Cal. Inq. Misc. 2 1307-49, No. 1758.
55. Riley (1868, 283).
56. Thomas (1926-, Vol. for 1413-37, 4).
57. Sharpe (1894-, *Bk. I*, 97-8).
58. C.P.R. 1364-7, 36.
59. Hatcher (1973, 31).
60. Hatcher (1973, 170 ff.) and Hatcher and Barker (1974, 64).
61. Reddaway and Walker (1975, 78-81, 90-91, 138-9).
62. Welch (1902, i, 20-5).
63. Thrupp (1948, 114), citing the will of John Paris. She also cites rates for other crafts.
64. *The Namys of all clothyng, yeomandry and householders . . .*, MS., at Pewterers Hall.
65. The original ordinances of 1455 are at Pewterers Hall. For a transcript (in modern spelling) see Homer (1986b).
66. Hatcher and Barker (1974, 38).
67. C.C.R. 1330-33, 498-9.
68. Homer and Hall (1985, 13).
69. Peal (1967).
70. Homer (in the press).
71. Hugo (1860, 132).
72. Spencer (1968, 139).
73. Birunguccio (1943).
74. Theophilus (1979, 179-82).
75. Homer (1986a) where an illustration of this chalice is to be found.
76. Atkins and Margeson (1983, Fig. 5).
77. Douglas (1984).
78. Welch (1902, i, 12).
79. Symons (1985). The cruet is illustrated by Hatcher and Barker (1974, Plate 6).
- 79a. The cruet is described and illustrated by Lewis (1969).
80. Theophilus (1979, 181).
81. Mitchiner and Skinner (1984, 40-1).
82. Brownsword and Pitt (1984 and 1985a).
83. Illustrated on the front cover of *Pewter, A Handbook of Selected Tudor and Stuart Pieces compiled by the Pewter Society from the Museum of London Collections* (London 1983).
84. Arts Council of Great Britain (1984).
85. Brownsword and Pitt (1983). For a general account of pewter spoons see Homer (1975).
86. Brownsword and Pitt (1985b).
87. Welch (1902, i, 2-5).
88. Riley (1868, 241-4).
89. Welch (1902, i, 9-11).
90. Homer (1986b).
91. Welch (1902, i, 9).
92. Sellars (1911). Sellars also suggested that the York ordinances were the lost London ones.
93. Welch (1902, i, 5-6).

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JOHN STOW

COMMEMORATION ADDRESS BY PETER JACKSON

delivered at St. Andrew Undershaft, 17 April 1985

We are here today to do honour to John Stow the amateur historian whose great Survey, published in 1598, was London's first guide book. We do not know exactly where he was born but he was certainly a Londoner born within the sound of Bow Bells in the year 1525, and he died here in 1605 when he was nearly 80. It is fitting that we should honour him here, for this was his parish church. Here he was buried and here today we may see his monument set up, as the inscription says, by his "sorrowing wife Elizabeth as a perpetual witness of her love." There is also a wonderful Latin motto which translated reads, "Either do something worth writing about, or write something worth reading." Stow certainly did that.

How often, I wonder, has his name been remembered in this place; many, many times, but probably not often enough, for the debt we owe him is incalculable. Surely there can be no city in the world whose early history and topography owes so much to a single individual as London owes to John Stow. We must never forget that London is a unique case; as we all know, it was almost totally destroyed in the Great Fire of 1666, so if Stow had not existed, if he had not written his survey when he did, how much would we know of what Elizabethan London looked like. The answer is, very little indeed.

There were no histories, no guides, not even a map in the modern sense of the word. So what did Stow himself use as a source for all the information he gives us?

True there was the well-known bird's-eye view of Elizabethan London published by Braun and Hogenberg in 1572 and, of course, the large wood-cut map attributed to Ralph Agas. Stow would have known both of these of course. In recent years the discovery of the two copper-plate sections of a large-scale picture map leads us to fascinating areas of speculation. No copy of this map is known to exist today but there seems little doubt that it once did. The map would have measured 8 feet wide by 5 feet deep and it is pleasant to imagine it pinned up on the wall of Stow's room for him to refer to as he wrote up the notes he had made during his perambulations. This is how Stow must have written his Survey; by methodically walking the streets with a notebook in his hand, for he had no general works of reference to guide him. He had a good library it is true, and a large collection of manuscripts. Indeed his collection was known as "Stow's store-house" and grew so large that it was probably the reason why he moved from his lodgings by Aldgate Pump to a house near Leadenhall. He could call upon the Chronicles of Hall and Fabian and Holinshed but they would have been of little use to him topographically. No; Stow surveyed his London on his two feet—"my feet which have borne me many a mile" as he said himself. This is quite obvious when reading the Survey. We find him poking into little courts and alleys, looking around parish churches—all 126 of them—visiting the places he had known in his youth and

lamenting the changes that had taken place. He never found that they were changes for the better, I need hardly say.

What would he think of the changes that have taken place in recent years one wonders. A city has to change, even Stow had to face this fact in his own lifetime, and of course the Great Fire changed everything almost overnight. Yet when London was rebuilt it was rebuilt on the old plan, new buildings arose almost always along the same old street or lane with the same frontage lines so that for 300 years after Stow's death it was still possible to actually follow in his footsteps. This can no longer be done. Whole areas have been transformed out of all recognition. The direction of the building lines have been altered and many alleys and lanes have totally disappeared. So what would Stow think of it all? Let us imagine for a moment that Stow has returned to us. What would we show him of modern London? Firstly he would no doubt be delighted to see that this, his very own church, had survived the Great Fire and two World Wars, although it has undergone some alterations and so-called improvements, he would undoubtedly recognise it. I can't help feeling that he may well approve of the changes that have taken place just outside the door, because, owing to the creation of that great open piazza opposite, you can now get a much better of this church than ever before in its long history. Certainly Stow never saw it as well as he could see it today.

What he would think of the great tower blocks is another matter. It is not, however, difficult to guess because we know that Stow did not approve of towers. He did not like the way they overlooked their neighbours. He can not conceal a certain grim satisfaction in citing two cases of tower building which brought their owners no luck at all. One "Sir John Champness Alderman and Mayor built a

high tower of brick, the first I ever heard of in any man's private house, to overlook his neighbours in the City. But this delight of his eye was punished with blindness before his death." In another case the owner "became in short time so tormented with Goute" that he was unable to climb the stairs and "take the pleasure of the height of his Tower."

Is there anything we can show him today that he would enjoy seeing? Probably to his amazement we could show him a few survivals which he would recognize. The Tower, the Abbey, St. Bartholomew-the-Great, Temple Church, Staple Inn perhaps, the Jewel Tower of Westminster Palace certainly.

But what about showing him the London he did not know, not because it was built after his time, that would be easy, but things which actually existed in his day but which he did not know were there. Take for instance the Saxon door in the Church of All Hallows by the Tower which only came to light after the Blitz. Did Stow ever see it? He certainly does not mention it. Then there is the Temple of Mithras, we have no way of knowing when that vanished from sight but certainly it was already buried beneath Medieval London by the time Stow was writing. How excited he would be to see that.

But if I were allowed to take Stow to just one place in today's London, I would take him to the Barbican and stand with him in what was once the churchyard of St. Giles Cripplegate. He would be delighted to see that church much as he knew it and he would recognize the Cripplegate bastion on the angle of the City wall. Here again he would see something he never knew existed; in the wall just here are the remains of a medieval bastion which was only discovered in 1965 during excavations. It does not appear on any of the early maps and it must have vanished

from eight years before Stow was born. What would thrill Stow more than anything else here, however, is the restoration of the City ditch; the moat which once surrounded the City. As a boy Stow saw men fishing in the clean and open ditch and probably did so himself. By the time he was writing his Survey it had been built over in many places and what water was left had become a cesspool. How pleased he would be to see it once again teeming with fish and see the ancient walls reflected in its clean waters.

There is, though, one thing more. Stow

refers to something in this area that he was told about but never saw. "There was," he wrote "near unto the parsonage, on the west side thereof, a fair pool of clean water which was filled up in the reign of Henry VI ---".

Well that same "fair pool of clear water" is back again. Did the planners of the Barbican, I wonder, know about this ancient water when they created their lake on exactly the same spot which was pointed out to Stow all those years ago? I like to think so, and I am sure Stow would enjoy it.

A BUILDING IN PUDDING LANE DESTROYED IN THE GREAT FIRE OF 1666: EXCAVATIONS ON THE PENINSULAR HOUSE SITE, 1979–80

GUSTAV and CHRISSIE MILNE,
with information on the finds by FRANCES PRITCHARD

SUMMARY

Evidence of the Great Fire of London has been recorded on many of the Museum of London's archaeological excavations, from Baynard's Castle in the west to Billingsgate in the east. This report considers one of those sites, a property very close to the infamous bakehouse in which the Fire actually started. The excavations exposed a cellar, fronting onto Pudding Lane, in which barrels of pitch were being stored at the time of the Fire. The evidence is described and discussed, and the context established for the large and closely-dated group of late-seventeenth century finds associated with it. The majority of the finds themselves are discussed in detail elsewhere (Vince et al forthcoming).

INTRODUCTION

From October 1979 to March 1980 rescue excavations were conducted on the eastern side of Pudding Lane, at the Peninsular House site now occupied by the Trade Development Bank (Fig. 1). The work was generously funded by the developers, Vitiglade Ltd and Verronworth Ltd, and was conducted by a small professional team supervised by the writers, ably supported by volunteers. The results are written up in the archive reports housed in the Museum of London Library where they may be consulted by request (Site Reference Code: PEN 79). Evidence of Roman waterfront installations (Bateman and Milne 1983, Milne 1985), a Roman building in which fish was processed (Bateman and Locker 1982), and substantial evidence of Saxon occupation (Milne 1980) was recovered. In addition, in the 8m by 5m trench laid out parallel to the Pudding Lane frontage (Area B on Fig. 2), part of a well-preserved post-medieval cellar was recorded. Three main phases of development were identified, and these are described below.

THE LATE FIFTEENTH-EARLY SIXTEENTH CENTURY CELLAR

(Figs 3–6)

The sub-Roman levels on Area B had been truncated by the insertion of a cellar with a floor at c. +3.8m OD, extending to the northern, eastern and western limits of excavation. A 4.6m length of the southern wall survived, incorporating a chalk, flint and ragstone core bonded with yellow sandy mortar. It was faced with stock-moulded bricks made from a local brickearth and was laid in a stretcher bond, of which some five courses remained. The lowest course was offset by 100mm, a feature shared by a brick plinth which was an integral part of this southern wall (Fig. 6). The plinth was also built in stretcher bond and incorporated rubbed bricks with chamfered corners.

Some 3m to the north, two post-pits had been cut in the middle of the floor, 2m apart. Both were 1m square and c. 1m deep, and each contained a rubble raft over which was an offset brick plinth (Figs 3, 5). On top of this was a padstone which supported the base of a substantial timber post (Fig. 4). Both posts had been carbonized, but their decayed feet protruded above the surface of the brick floor described below. The extensive spread of yellow/cream mortar and crushed chalk which sealed the uppermost backfill of both pits as well as the offset on the southern wall formed the first major



Fig. 1 Pudding Lane: Excavating on the Peninsular House site, Pudding Lane, in the shadow of the Monument. The polythene cover on Area B has been rolled back revealing the cellar of a building burnt in the Great Fire of London.



Fig. 2 Pudding Lane: Plan showing location of Area B on the Peninsular House excavations (site code PEN 79) in relation to the street plan of 1979, and also to the late 17th-century survey by Ogilby and Morgan (shown tinted).

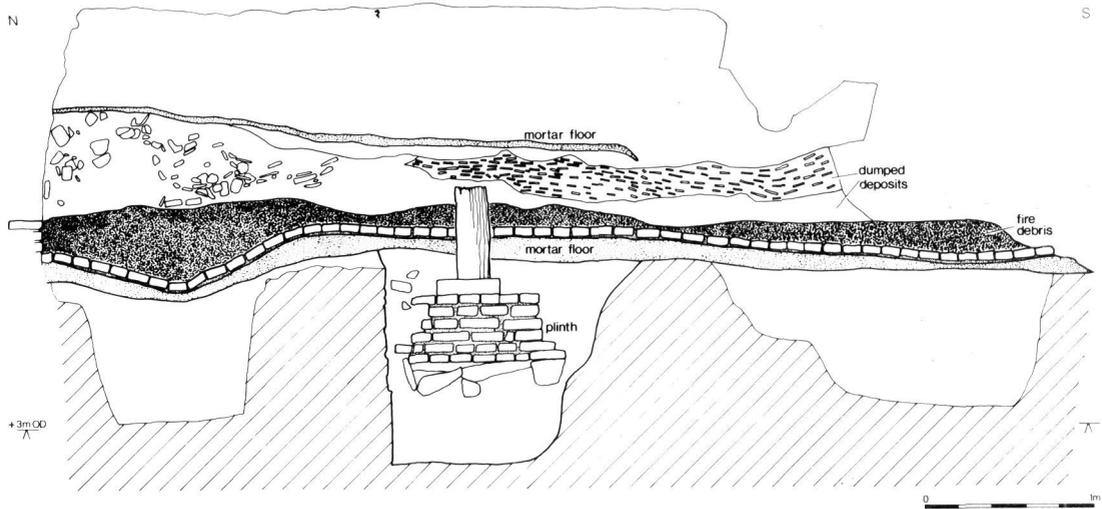


Fig. 3 Pudding Lane: Part of a north-south section across the PEN 79 site at Pudding Lane showing archaeological deposits revealed beneath the 19th-century basement floor. The earliest cellar floor cuts through medieval pits and Roman levels (shown hatched). Note the 17th-century brick floor overlain by debris from the Great Fire of London.



Fig. 4 Pudding Lane: The 1m scale rests on late 15th to early 16th-century cellar floor, discoloured by burning pitch seeping through the 17th-century brick floor which once covered it. Note charred remains of posts which would have supported the ground floor of the building (see Fig. 5).

internal surface of the cellar. Sherds of pottery provisionally dated to the 15th century or later were recovered from this floor level.

THE PRE-FIRE CELLAR FLOOR

(Figs 7, 8)

Overlying that floor was a compacted mortar layer 100mm thick interpreted as the bedding layer for the brick floor which sealed it. Analysis has shown that similar bricks were found in the walls described above, and also in Henry VIII's palace at Bridewell, London which was built between 1515 and 1520 (Gadd and Dyson 1981). On average they were $9 \times 4\frac{1}{4} \times 2\frac{1}{8}$ inches ($228 \times 108 \times 54\text{mm}$), and thus conformed closely with the dimensions stipulated in the regulations of 1571, which were $9 \times 4\frac{1}{2} \times 2\frac{1}{4}$ inches ($228 \times 115 \times 57\text{mm}$: Bell 1938, 18–9). They were laid on their face butted end-to-end in east-west rows. The bricks had to be cut to butt flush against the south wall of the cellar, demonstrating that the floor was laid from north to south, and that the cellar did not form a perfect rectangle in plan. The level of the surface undulated from +3.8m OD to +4.3m OD, with the major depressions overlying areas of early medieval pitting showing that the floor must have been operative long enough for such subsidence to take place (Fig. 3). The bricks did not appear to be reused, but some ten per cent showed signs of wear consistent with the installation and use of table or racks rather than the passage of feet. Observations made during the contractors earthmoving operations on the site in May 1980 showed that the brick floor extended up to the Pudding Lane frontage, some 3m to the west of the controlled excavation. In that area, a hole had been cut into the floor into which a complete 17th-century Woolwich-ware storage jar *c.* 250mm in diameter had been deliberately set.

Directly overlying the floor was a mass of moderately compacted carbonized material representing features burnt *in situ* (Fig. 8). After careful dissection of the deposit, it was possible to identify the remains of some twenty barrels closely-bound with wooden hoops, which had been stored on five racks (Fig. 7). The best preserved elements of these structures were in the south-west corner of the area and these justify detailed description.

At least three parallel carbonized undressed timber poles lay horizontally east-west: the longest fragment was *c.* 2.1m long and all were *c.* 50mm in diameter, cut from trees at least ten

years old. The largest member was overlain by four groups of up to sixteen carbonized hoop fragments. Each fragment was up to 30mm wide and 500mm long, was D-shaped in cross-section, and had been cut from coppiced sweet chestnut (*Castanea sativa*). They lay curved face downwards, aligned east-west but with their east and west ends raised, forming a slight concave profile (Figs 10, 11).

Each group was directly overlain by more substantial timbers representing the barrel staves themselves, which were also carbonized. The most westerly assemblage comprised two sets of oak (*Quercus sp.*) stave fragments all aligned north-south, conforming to the east-west concave profile of the underlying hoops (Figs 9, 11). Three of the more northerly group of four fragments seemed to be part of the same staves as the southern fragments, from which it was deduced that they would have originally been *c.* 0.92m long. The staves were 110mm wide, tapering to 90mm at both ends, which were chamfered and cut by the V-shaped groove characteristic of barrel staves.

Several similar groups of barrel fragments were recorded, usually aligned north-south on racks aligned east-west. All the barrels seemed to be of the same size and type, each 0.9m long, comprising up to fourteen staves closely-bound with wooden hoops around a cask with a diameter of 1.5m in the middle, tapering to 1.25m at the ends.

All these features were covered by the tar-like substance once contained in the barrels. It had formed a compacted crust on the upper surface of the blackened brickwork and had percolated between the bricks, the sides of which were also stained, discolouring the earlier surfaces beneath (Fig. 4). Microscopic analysis of samples taken from this deposit was conducted by the British Carbonization Research Association. It concluded that the carbonaceous material had the open spherical structure associated with the later stages of carbonization of pitch (Briggs 1980). In northern Europe, resinous woods such as pine, larch or fir were burnt in a supply of air inadequate to allow complete combustion so that the tar which then oozed from the wood could be collected. This impure form of resin, known as "Stockholm Tar" could be used for waterproofing, although further distillation would produce "wood pitch", a substance which was more viscous than tar and was often of more value for waterproofing (Hodges 1964, 164–5). It is suggested that it was this commodity, wood pitch, which was stored in the Pudding Lane

cellar at the time of the fire. This compound cannot have been derived directly from the burning of the barrel staves themselves, since they were cut from non-resinous oak.

Over this horizon had been dumped mixed deposits of bricks, tiles, mortar and other material, some of which showed signs of burning and vitrification (Figs 3, 12). They represent the debris from the clearance or collapse of fire-damaged structures. The presence of over 100 whole stock-moulded bricks in these dumps suggests that the debris had not been sorted. Analysis has shown that there were also fragments of roof tile of the standard peg tile form characteristic of local manufacture from the late 15th century. Many had been badly burnt, contorted and warped by the fire, and some fragments had exploded with the intensity of the heat. Molten and twisted nails were mixed in with the building debris, as were fragments of window glass, metal objects possibly representing iron brackets of varying sizes, part of a pivot, a hinge and a lock. Four fragments of badly burned and par-



Fig. 5 Pudding Lane: Detail of sub-surface brick plinth on which posts supporting the ground floor were set: 2 × 100mm scale.



Fig. 6 Pudding Lane: Brick facing of cellar's south wall: 5 × 100mm scale.

tially vitrified stove tiles of north European manufacture were also recovered, on which a moulded figure of a Triton (merman) was identified.

Many broken earthenware storage jars of the same hitherto unknown type were also found in these deposits (Fig. 13), as were two unused tin glazed polychrome tiles which had fallen so that their lower edges were just over the scorched cellar floor. Only this edge of the tiles was burnt (Fig. 12), which suggests that at least some of the debris was introduced into the cellar while the fire was still smouldering, and cannot therefore have been brought from a great distance.

THE POST-FIRE CELLAR

A mortar surface had been laid out over the fire debris (Fig. 3), and its worn appearance shows that it was subjected to considerable wear. Traces of a slot probably mark the line of an internal partition, while a pit and a pad stone occupied similar positions to the earlier more elaborate post-pits. This surface was sealed by



Fig. 8 Pudding Lane: General view of 17th-century cellar covered with deposits of carbonised material before excavation. Looking east, 10 × 100mm scale.

the make-up levels for the series of concrete floors associated with the 19th-century building which occupied the site prior to the archaeological excavations.

DATING THE DEPOSITS

Pottery from the pits which had been truncated by the earliest floor in the cellar has been provisionally dated to the Late Saxon period, while sherds recovered from that mortar floor can be dated no earlier than the late 15th century (A Vince, pers comm).

The brick floor overlying that surface had clearly been in use for some time before the fire, as its worn appearance and the considerable subsidence demonstrates. The large assemblage from the deposits which sealed it have been argued to represent material burnt *in situ* or dumped very shortly after the conflagration, and therefore can be assumed to be broadly contem-

porary. As a result, it is possible to propose a much closer date for this phase.

The association finds included a very worn sixpence of Elizabeth I (1558–1603) (North 1960, 107–9; EHC Nos 1997 or 2013); clay tobacco pipes of the types usually dated 1660–80 (Atkinson and Oswald 1976, 9, Fig. 1); local lead glazed monochrome floor tiles and (?Dutch) tin glazed polychrome tiles of types dated to the late 16th to mid-17th century, and the neck and shoulder of a glass “wine” bottle of a type introduced in *c.* 1650 (Noel Hume 1970, 63, Fig. 8). In addition, radiocarbon determinations of 1685 ± 70 (BM 1824: 150 ± 40 BP) and 1640 ± 70 (BM 1825: 230 ± 35 BP) were obtained from the carbonized fragments of barrel staves and hoops (Burleigh *et al* 1982, 270).

Taken together, it seems reasonable to assume that the cellar was resurfaced with bricks in the early seventeenth century, and that the late 17th-century conflagration which destroyed it

was that of September 1666. The succeeding phase would therefore represent the rebuilding of the area, known to have taken place in *c.* 1670 (Reddaway 1940).

Much of the material can therefore be associated with events in the decade *c.* 1660 to *c.* 1670. Such closely-dated deposits clearly have significant implications for the study of 17th-century sites elsewhere in this country and abroad, and for this reason material recovered from many deposits excavated in the City associated with the Great Fire is being brought together for publication as an important corpus (Vince *et al* forthcoming).

DISCUSSION AND CONCLUSIONS

Although the cellar discussed in this report was floored and faced with brick, it is thought that the overlying building was timber-framed, as were most of the

other buildings in the street at that time. The use of brick or stone for a cellar or undercroft and timber in the associated superstructure is known elsewhere in London (eg. Salzman 1952, Appendix B Nos 15, 49, 51) and also in other towns (Faulkner 1966; Smith and Carter 1983). For example, evidence for a similar timber-framed building with an unvaulted brick cellar was recorded in Pottergate, Norwich. It had also been destroyed by fire, in that instance the Great Fire of 1507 (Carter *et al* 1977, 45).

In September 1666, the Great Fire of London destroyed 13,200 houses, 87 churches, St Paul's Cathedral and the Guildhall as it swept through the nar-

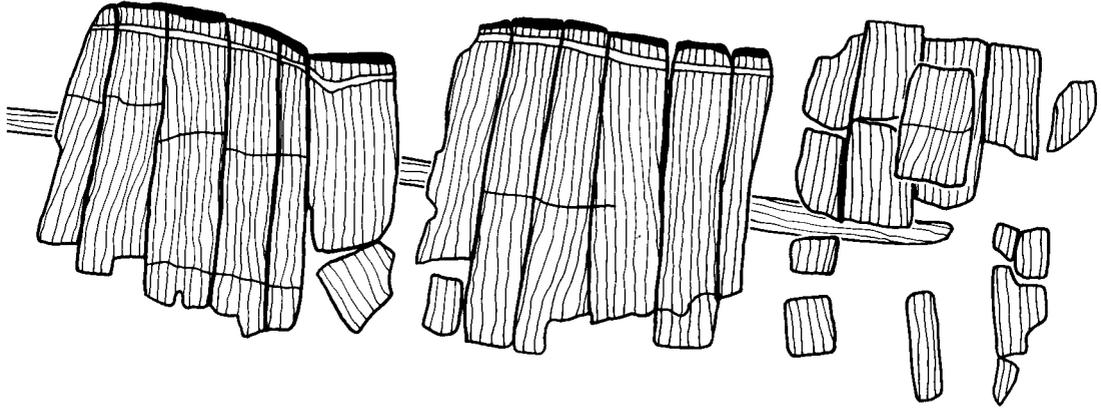


Fig. 9 Pudding Lane: Careful cleaning of the deposits shown in Fig. 8 revealed remains of several carbonised barrels. The lower staves of a line of five barrels are shown here, to north of 2 × 100mm scale.



Fig. 10 Pudding Lane: Beneath the staves shown in Fig. 9 were the carbonised remains of hoops binding the barrels, shown here running east-west, to north of $2 \times 100\text{mm}$ scale.

Plan



Elevation

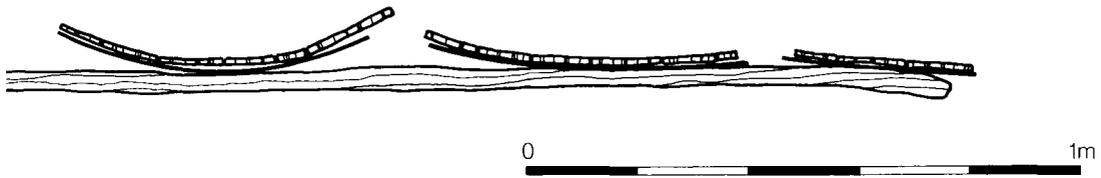


Fig. 11 Pudding Lane: (A) plan, and (B) elevation of barrel remnants shown in Figs 9 and 10, still lying on the rack.

row lanes of the town crowded with half-timbered jettied buildings (Bell 1920). In the wake of this destruction, the City was rebuilt with wider streets lined almost exclusively with brick buildings conforming to more rigidly-enforced building regulations designed to prevent a repeat of that tragic conflagration (Reddaway 1940, 80; Fig. 5). 1666 is therefore an important date for students of London's development, since it effectively marks the dramatic demise of the fabric of the medieval City.

The building which directly replaced the one destroyed in the fire on the Pudding Lane site would therefore have been quite different from its predecessor. However, given that the padstones and posts marked the middle

of the buildings, then the northern and southern walls of both structures were probably the same, corresponding with the northern and southern limits of the 19th-century warehouse which ultimately replaced them. This suggests that the width and position of the property plot that the pre- and post fire buildings occupied were identical. At least part of the post-Fire reconstruction represented on the Ogilby and Morgan plan of 1677 can therefore be argued to encapsulate the broad plan of the late medieval property layout in the City, even if the associated superstructure was radically different. This suggestion is indeed supported by analysis of the late 17th-century survey of the City conducted by John Oliver and Peter Mills (Jones and Reddaway 1967, xxii-xxvi).

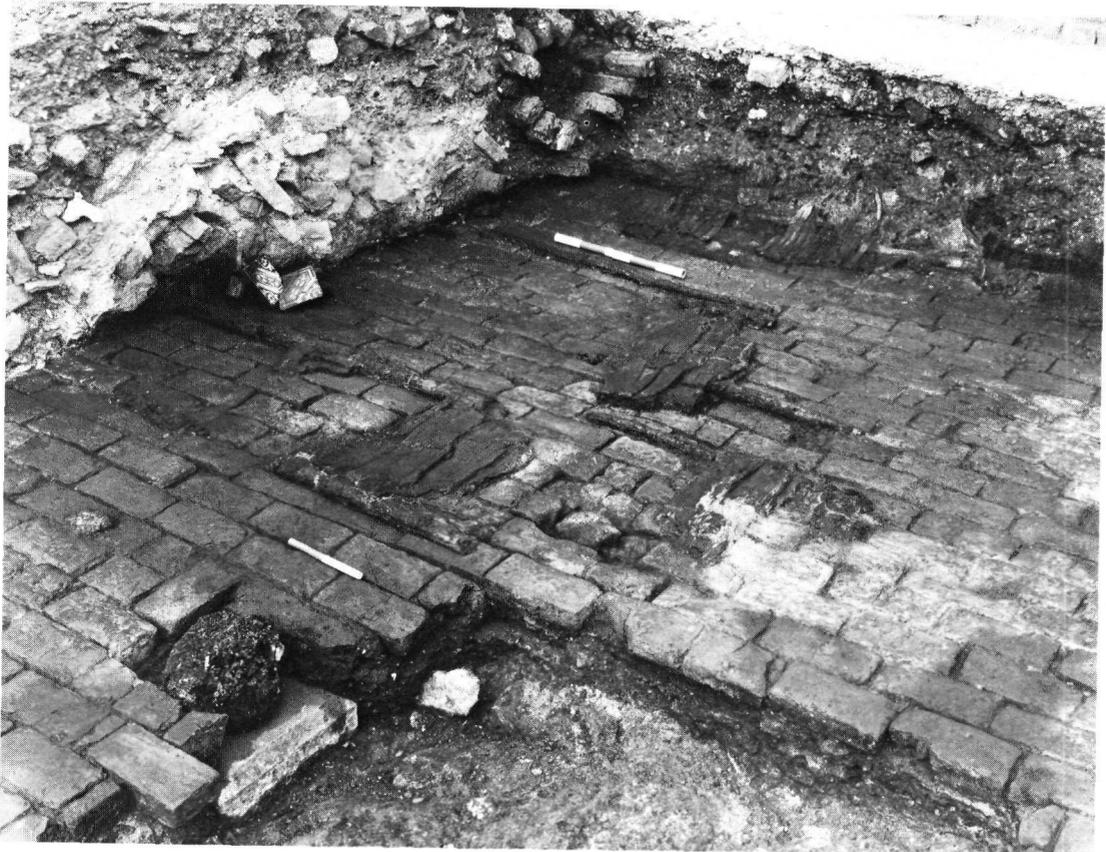


Fig. 12 Pudding Lane: Remains of burnt barrels and racks in north-west corner of cellar, sealed by dumped deposits shown in section to west of 2 × 100mm and 5 × 100mm scales.

However, since the floor level within the post-Fire cellar was *c.* 1m above the brick floor, it seems likely that the external contemporary ground surface (including that of Pudding Lane itself) would have been raised by a similar amount. This would seem to be in accordance with the 'Rules and Directions for Pitching and Levelling the Streets and Lanes of the City' issued on 8th July 1667 (Reddaway 1940, 291; Guildhall Library Broadside 12, 91). This directive was concerned with such problems as the steep slope from Thames Street up to East Cheap. One year later, Samuel Pepys observed that walking up Fish Street Hill (the street just to the west of Pudding Lane) 'has become

very easy and pleasant' (Latham and Mathews 1976, 285).

The importance of the large closely-dated assemblage from this building to post medieval archaeologists working elsewhere has already been stressed (Vince *et al* forthcoming). That the function of the building could be deduced from examination of the contents of the cellar and of its infill material is also of interest. Clearly the presence of so many barrels on racks shows that the cellar was used as a store, and the analysis of the contents shows that it was probably 'pitch in the later stages of carbonization' (Briggs 1980). The pitch would have been a byproduct of wood-tar, produced when

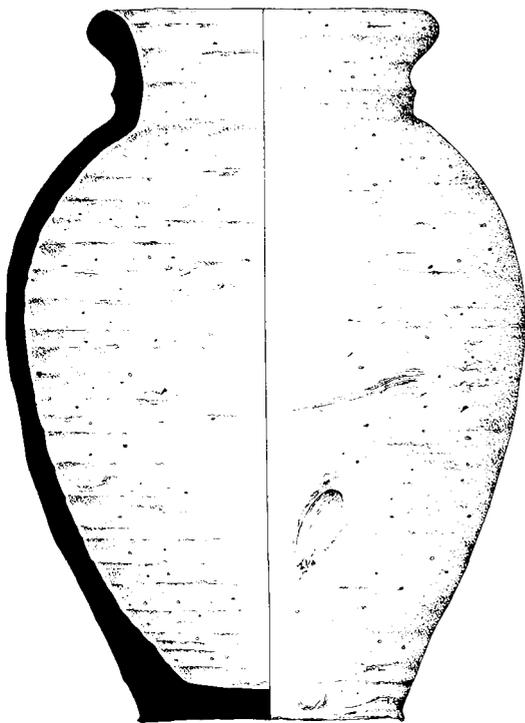


Fig. 13 Complete storage jar, made in a white, grog-tempered fabric ('PEN Ware'). This is one of over 30 almost identical examples found in the fire debris filling the cellar. Drawn by K. H. Armitage, (¼).

making charcoal, and was extensively used for the waterproofing of buildings as well as ship's hulls. The material in the dumped deposits overlying the barrel fragments not only contained the remains of many identical earthenware storage jars, but also quantities of metal hooks and eyes contorted by the heat. This implies that the premises above the cellar may have been used as a shop.

Fires were very common in medieval London, as they were in all such crowded towns, but they were usually small or localised. In the late 12th century, William Fitzstephen had complained that the only inconveniences of London were the immoderate drinking of fools and the frequency of fires. In 1632 a considerable

area around the northern end of Old London Bridge had been burnt down, the rebuilding of which had not been completed by 1666. What made the Great Fire so devastating was that it started in the waterfront area where large quantities of combustible material were stored. It was the proximity of such fire hazards as timber-framed warehouses with cellars full of pitch barrels to the infamous bakehouse that turned what could have been just another minor fire into a major catastrophe. A contemporary account describes the area as 'the lodge of all combustibles, oil, hemp, flax, pitch, tar, cordage . . . and materials favourable to fire' (Waterhouse 1667, 47), and such subterranean cellars, although open to the heavens, 'were still burning in stench and dark clouds of smoke like hell' five days after the Great Fire started (de Beer 1955, 261). Although the pitch barrels found near Pudding Lane did not start the blaze, they did provide fuel for it. Without that, the fire which started in the neighbouring bakery might have burnt itself out unremarked on Sunday 2nd September, 1666.

ACKNOWLEDGEMENTS

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THE ROBERTS FAMILY OF WILLESDEN

K. J. VALENTINE

No family is more important in the history of Willesden than the Roberts family who lived for three centuries, on and off, at Neasden. Yet the traditional account of the family's history over this period contains an unusually large number of errors, some of them in standard works of reference like Burke's *Extinct Baronetcies*, the *Dictionary of National Biography* and the *Victoria County History of Middlesex*. The main purpose of this essay is to correct and amplify the received tradition.

THOMAS ROBERTS, HIS WIVES AND CHILDREN

The name Roberts occurs from time to time in 14th century deeds but more especially when John Roberts bought an estate at Neasden from John Attewoode in 1403¹. Another John Roberts, probably his grandson, was recorder of Middlesex and held lands 'within the manor of Nesdon'; when he died in 1476 his son Thomas was six years old². It was without doubt this Thomas who, according to a lost portion of an inscription on a monumental brass in St Mary's Willesden, was the husband of Margaret Roberts, daughter of Robert Fyncham³.

When Thomas died in 1543 he was buried at St Clement Danes, having had a residence in that parish near his law business. Administration of his estate was granted to his eldest son Michael in the short-lived court of the Bishop of Westminster⁴. At Neasden Thomas built or enlarged a house called Catt-at-

woodes, probably at the time he started the first of his two families. After Margaret's death in 1505 he evidently took as his second wife Ann Adam, daughter of Humphrey Adam of London, by whom he had three daughters: Dorothy in August 1508, Ann in 1509 and Alice in 1511.

Dorothy Roberts seems to have been betrothed at an early age to a lawyer of good standing who died shortly before his nuptials, probably on a visit to Neasden, as he was interred at St Mary's church. The stone which records this sad event is inset into the south wall at eye level. It is now badly eroded but the Latin inscription clearly indicates that the disappointed fiancée was Thomas's eldest daughter Dorothy, not Anne as reported in the Gentleman's Magazine in 1822⁵. Dorothy later married Alan Horde of Ewell, a bencher of the Middle Temple, and is described on a monumental brass in Ewell church as the daughter of Thomas Roberts of Willesden.

Some time after 1511 Thomas's wife Ann must have died because by a later wife Catherine Sadler, daughter of Roger Sadler of London, he had a second family of three sons: Michael in 1519, Edmund in 1520 and John in 1531. All these six children of Thomas Roberts are listed with precise dates of birth on spare pages of a 15th century book of devotions called *Speculum Vitae Christi*. Details were printed in The Genealogist in 1885, but there is no suggestion in this or any other document that Thomas had any children by his first wife Margaret⁶.

Although the Margaret Roberts brass in Willesden church nowadays looks simple enough, what has been said for some centuries about it presents a considerable difficulty. In 1861 the Rev Herbert Haines in his *Manual of Monumental Brasses* wrote that figures of 3 sons and 3 daughters were associated with this brass and he was not the first to say so: the antiquarian Richard Rawlinson had said the same thing more than a century earlier⁷. More recently the statement has been repeated by Mill Stephenson (1926) and the Historical Monuments Commission Report for Middlesex, 1937⁸. Unfortunately, this notion is in direct conflict with the contemporary evidence, cited above, which shows that it was Thomas who, by his two later wives, had 3 sons and 3 daughters, not Margaret. Rubbings of the two small pieces of brass, one for the boys, the other for the girls, are in the collections both of the Victoria & Albert Museum and of the Society of Antiquaries and are assembled in each case below the rubbing of the main Margaret Roberts brass⁹. It was doubtless because the two small brasses had at some time been placed below Margaret's brass in St Mary's that antiquarians like Rawlinson concluded that the children must be hers. It would not be surprising, however, if in the two centuries which elapsed between the original fixing of the brass and Rawlinson's visit the two separate pieces of brass had somehow got into a misleading position; they are not mentioned in Lansdowne MS 874¹⁰. They seem to have disappeared altogether some time before 1871 because the local antiquarian F. A. Wood, who was secretary of the Willesden church committee at this time, makes no mention of them in his voluminous notes about the church¹¹; they could well have been lost during the 1852 restoration of the church, in which an important feature was to have been

the raising of the church floor to alleviate the chronic problem of damp.

Thomas Roberts was a man of substance. In 1525 when some 30 gentlemen were appointed to conduct 'privy searches' into church property in London, Thomas was one of the two appointed for 'Kilborne and Wilsdon', his colleague being Nicholas Jenyns of London¹². He was also regularly on the Commission of the Peace for Middlesex. So he would be likely to be commemorated on a brass, like his son Edmund in 1585, and his children could possibly have been depicted on separate small brasses accompanying the main brass. Unfortunately, there is no evidence that such a main brass for Thomas ever existed either at Willesden or at St Clement Danes.

EDMUND ROBERTS AND HIS WIVES

Thomas's eldest son Michael (1519–44) was very much a Willesden man, leaving among his many bequests a legacy for the poor of the parish and £20 for the upkeep of a highway at Neasden. His younger brother Edmund, born on St Edmund's day 1520, was married on Candlemas Day 1549 to Frances Welles, daughter of Richard Welles of Ware, who had been a clerk in Henry VIII's chancery.

The wedding took place at Royston, Herts, where Robert (later Sir Robert) Chester held Royston manor as a grantee of Henry VIII to whom he was a gentleman-usher of the royal chamber. Edmund and Frances could well have been living at Royston when their first child Francis was christened there in February 1551, with Chester as one of his godfathers (the other was Sir Robert Tyrwhitt, lord lieutenant of Huntingdonshire and formerly Master of the Horse to his relation Queen

Catherine Parr). But in the following year their next child was christened Catherine in St Mary's Willesden in honour of her grandmother Catherine Welles and her godmother Lady Catherine Chester¹³, which suggests that by this time Edmund may have succeeded Ursula, Michael's widow who at some date remarried, as the occupier of the house at Neasden.

This connexion of Edmund Roberts with the Chesters evidently misled the heralds concerned with the Visitation of Leicestershire into the error of supposing that Robert Chester's sister was Edmund's first wife—an error repeated by John Nichols in his book on Leicestershire in 1811, by Burke in 1838 and by a young genealogist Francis Grigson in *The Genealogist* in 1881¹⁴. The idea is conclusively refuted both by the figures and by the inscription on Edmund's brass in St Mary's Willesden. On Edmund's right stands his first wife Frances with her six children and the Welles coat of arms, while on his left is Faith Pattenson with her three children and the Pattenson arms; and in the long inscription Frances is explicitly referred to as Edmund's 'first' wife.

Edmund Roberts's first wife Frances can confidently be asserted to be the woman depicted on the brass in St Mary's Willesden hitherto listed in modern reference books as a 'Lady Unknown' brass. Frances died in 1560 having borne Edmund two sons and four daughters, although only one of the boys and three of the girls were alive at the time of her death. When Edmund was about to marry Faith Pattenson as his second wife in 1563 he may have wished to ensure that Frances would always be remembered by having a brass engraved for her and her six children. After Edmund's own death a

quarter of a century later, his widow Faith had a large brass engraved showing his two wives and their two families¹⁵, which probably ousted the smaller brass for Frances and her children so that it became lost until dug up in the churchyard in about 1923. The statistical probability that two ladies of good family both connected with Willesden church could both have had families of exactly two boys and exactly four girls at exactly the same time in history is too small to justify any other conclusion than that the Unknown Lady is indeed Frances Welles, the first wife of Edmund Roberts¹⁶.

THE 17th CENTURY: KNIGHTS AND BARONETS

The most serious mistakes about the Roberts family in the received tradition are undoubtedly those which relate to the 17th century, starting with the date of birth of the first Sir William Roberts. He was born not in 1605 (*pace* Burke, DNB, etc) but in April 1604; and the entries both in the family records and in the baptismal register of St Stephen's Coleman-street for May 1604 agree that he and Barne his brother were twins¹⁷. Barne died at Eton College in 1618¹⁸; but William flourished, entered Gray's Inn in 1622, married Eleanor Atye in 1624 and was knighted a few months later by James I at Greenwich. During the Commonwealth period Sir William was one of Oliver Cromwell's most trusted administrators, a member of the Council of State from 1653 and, as 'Lord Roberts', a member of Cromwell's Upper House from 1657. He was a commissioner for the sale of Crown lands and of forfeited estates.

There is a wrong old tradition, going back to the 18th century, that in 1661 Sir William Roberts was reconciled to Charles II and made a baronet. This tra-

erigimus
 Officium & creatum dilectum nostrum Willielmum Roberts de Willesdon in comitatu nostro
 Comite nro nro Armigerum

(. . . erigimus, praeficimus et creamus dilectum nostrum Willielmum Roberts de Willesdon in comitatu nostro middlesex Armigerum . . .)

(. . . we raise up, appoint and create our beloved William Roberts of Willesdon in our county of Middlesex Esquire . . .)

Fig. 1 Excerpt from the Baronety Award to Roberts of Willesden, 8th November 1661.

dition has been carried on by most later writers, notably by Burke, by DNB, by the novelist Cecil Roberts and by the VCH¹⁹. But there is in fact no truth in this story, as even a cursory glance at the evidence will suffice to show.

The grant of the baronetcy in November 1661 was in fact not to Sir William Roberts, knight (b. 1604), but to his eldest surviving son William Roberts, esquire. This is conclusively proved by the

description of the recipient in the award document as ‘William Roberts . . . armiger’; if Sir William had been the recipient he would have been called ‘miles’²⁰. Equally conclusive is Sir William’s description of himself in his will (1662) as ‘knight’ and his son as ‘baronet’²¹. Again, Dame Eleanor in her petition to the Lord Chancellor in November 1662 similarly refers to her late husband as ‘knight’ and to her eldest son

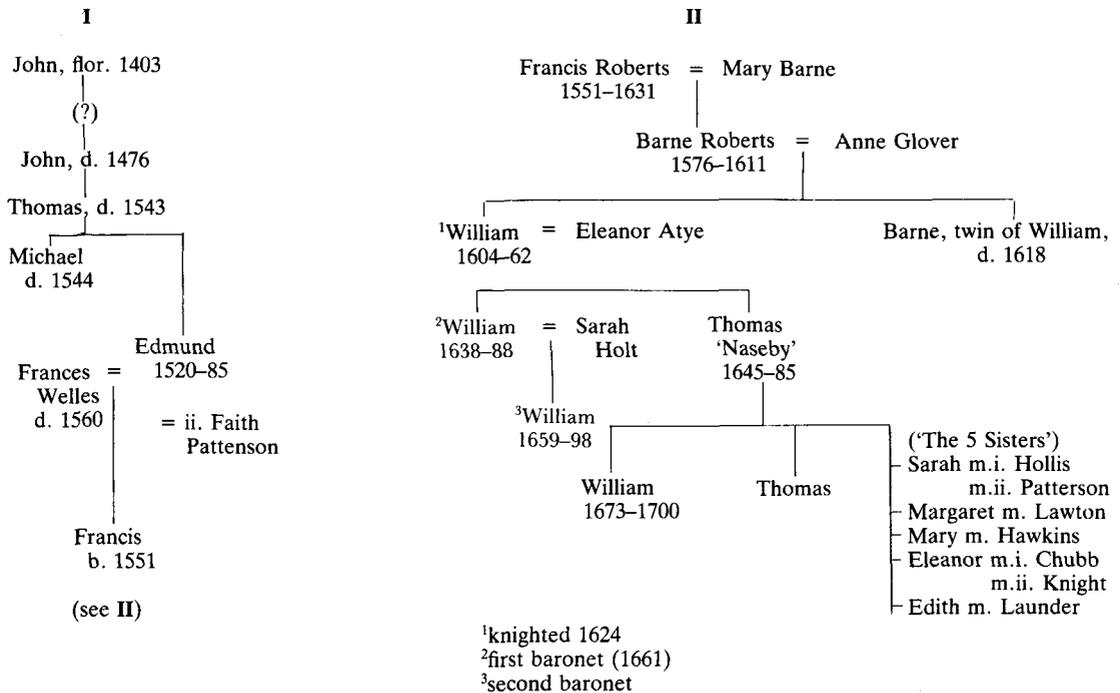


Fig. 2 The ROBERTS Family Succession at Neasden.

as 'baronet'²². It is not surprising that G. E. Cokayne in 1903 got the story right, but it is greatly to the credit of Lysons that he perceived the truth²³. It is sad to record that Mark Noble mentioned the truth about the first baronet, possibly without believing it, in a footnote in his book *'Memoirs of the Family of Cromwell'* in 1787; but he cannot complain if most later writers have ignored the note since he himself disdained it in his later *'Lives of the English Regicides'* (1798), where he telescopes the first Sir William Roberts and his son into one person²⁴.

Near the end of the century, leaving aside the usual mistakes about old-style dates (for instance, the first baronet died in March 1688 not March 1687), we have the oft-repeated statement that the baronetcy of Roberts of Willesden 'expired in 1700' on the death of the 'fourth' baronet²⁵. In fact, there were only two baronets: Sir William (d. 1688) and his son Sir William (d. 1698), on whose death the baronetcy expired. The William Roberts who succeeded to the Willesden estates in 1698 was not the son of the second baronet (who was childless) but his cousin, the son of the first baronet's younger brother Thomas 'Naseby' Roberts—so called because he was born a fortnight after Fairfax's victory in June 1645. This last William Roberts was neither knight nor baronet but simply 'esquire' and he never claimed to be anything else²⁶.

THE 18th CENTURY: THE FIVE SISTERS AND THE HUTCHENSONS

In 1700 William Roberts sold off a considerable part of his Willesden lands and the rest passed in time to his five sisters in equal shares. Sarah married firstly a Hollis and then someone called Patterson (or Pattinson) and lived for a time abroad. Mary married in 1703

William Hawkins, vicar of Willesden. Eleanor married Thomas Knight, the curate. Margaret married Richard Lawton. Edith married Thomas Launder. There was no sister Elizabeth as has sometimes been alleged.

The reverend William Hawkins was a good latinist. Besides being vicar of Willesden, 1699–1736, he was the incumbent also of Kingsbury and of St Peter-ad-vincula in the Tower of London, held the prebend of Neasden in St Paul's cathedral and was tenant of Westminster Abbey's land at Neasden²⁷. In 1732 he put up a sundial which still exists on the tower of St Mary's Willesden with the half-line of Latin verse 'Dum spectas fugio' (While you stand looking, I move on), which he either culled from some classical poet or wrote himself. Almost certainly he was the author of the elegant piece of Latin prose on the memorial stone for his wife and their daughter Mary which lies at the threshold of the sanctuary in the church. The inscription, which deserves to be better known, runs:

*Hic Inter Avitos Cineres conditae sunt
Exuviae MARIAE Uxoris dilectissimae
GULIELMI HAWKYNs de WILESDON
Quae Filia fuit THOMAE ROBERTS
Nuper de NEASDON Armigeri
Soror et Cohaeres
GULIELMI ROBERTS et THO:
ffratrū
Vixit Annos XLVII et obiit IV Octob.
Anno Christi Domini MDCCXXVI
Et Juxta matris optimae reliquias jacet
MARIA
Filia eorum primogenita
Virgo formae et Indolis Eximiae
Praematura morte Sublata
Decessit XXIII Mensis Junii
Anno } a xti Nativitate MDCCXXII
 } a sua XVIII*

(Here, among the ashes of her ancestors, are stored the remains of Mary, most beloved wife of William Hawkins of Willesden, who was the daughter of Thomas Roberts, late of Neasdon, esquire, the sister and co-heiress of her brothers William and Thomas. She lived for 47 years and died 4 October AD 1726.

And next to the remains of her estimable mother lies Mary their firstborn, a maiden of outstanding beauty and character. Carried off by an untimely death, she died on the 23rd of June in the 1722nd year from Christ's nativity and the 18th from her own.)

When William Roberts died in 1700 at the age of twenty-seven, his widow Elizabeth, daughter of Lord Howard of Effingham (a descendant of the Elizabethan admiral and himself Governor of Virginia), married a local man William Hutchenson, always described by genealogists as head clerk in the Pells Office. But he later held a more important public office as one of the two deputy chamberlains on the Receipts side of the Exchequer²⁸. William Hutchenson died in 1724, his widow the Lady Elizabeth at Kensington in 1728.

ACKNOWLEDGEMENTS

My study of the Roberts family of Willesden has been assisted, and in large measure stimulated, by Mr John W. Roberts of Richmond, Virginia (a descendant of Francis Roberts) who kindly gave me access to family papers recording researches done by members of the family some decades ago. Material in this article derived from Crown copyright records

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NOTES

1. British Library, Stowe MS. 862.
2. Bodleian Library, Rawlinson MS. C.299.
3. British Library, Lansdowne MS. 874; Bodleian Library, Rawlinson MS. B.389b.
4. GLRO, DL/C/355, f. 22.
5. *Gentleman's Magazine* 92 (1822) II 577; the name is correctly given in R.C.H.M., *Middlesex* (1937) 134.
6. *The Genealogist*, new series, 2 (1885) 46-7; the present whereabouts of the book *Speculum Vitae Christi*, which was a century ago in the library of Allestree Hall, Derby, are not known.
7. see note 3.
8. Mill Stephenson *A List of Monumental Brasses in the British Isles* (1926) 317; R.C.H.M., *Middlesex* (1937) 133.
9. V & A, brass rubbing 10598 QQ 16.
10. see note 3.
11. Grange Museum library, Neasden, Wood folio notebooks V.
12. PRO, SP 1/33, f. 166.
13. Bodleian Library, Rawlinson MS. C.894.
14. *Visitation of the County of Leicester* (1619) in Harleian Society Publications 2 (1870) 203; John G. Nichols *History & Antiquities of the County of Leicester* (London, 1811) IV 452; John Burke *Extinct & Dormant Baronetcies of England* (1838) s.v. Roberts; Francis Grigson in *The Genealogist*, first series, 5 (1881) 300. A Leicestershire branch of the Roberts family of Willesden was established by Thomas Roberts (b. 1566), eldest son of Edmund Roberts by his second wife Faith.
15. A well-written Latin couplet on the brass says:
Ista suo benefida fides monumenta marito
ponit ut officii pignora certa suo
but the last word 'suo' is a mistake for 'sui', probably because 'suo' occurs in the previous line.
16. K. J. Valentine in *Willesden Local History Society Magazine* 1 (1983) 6-7; see also V. J. B. Torre 'An Unrecorded Lady at Willesden, Middlesex' in *Trans. Monumental Brass Society* VII 284-6 (1939).
17. Barne, the elder of the twins, was named after his father Barne Roberts, William after his maternal grandfather Sir William Glover, alderman of London.
18. Bodleian Library, Rawlinson MS. C.894; Eton College Register.
19. Burke, *op. cit.*; DNB s.v. Roberts, William; VGH, *Middlesex* VII (1982) 272; Cecil Roberts's autobiographical *The Growing Boy* (London 1967) 194, 206-8. Cecil Roberts (1892-1976) claimed to be descended from an ancient branch of the Roberts family in Leicestershire collateral with the Willesden branch.
20. PRO, C.66/2974/2.
21. PRO, PCC Nov. 1662.
22. PRO, C.8/320/171.
23. G.E.C. *Complete Baronetage* III (1903) 233; D. Lysons *Environns of London* III (1795) 623n.
24. Mark Noble *Memoirs of the Family of Cromwell (al. Memoirs of the Protectoral House of Cromwell)* (Birmingham 1787) I 426, and *Lives of the English Regicides* (London, 1798) II 148. In fact Roberts was not one of the regicides, having refused like many others to take any part in the trial of Charles I.
25. Burke, *op. cit.*; DNB, *ibid.*; Cecil Roberts, *op. cit.* 208.
26. PRO, PCC Dec. 1700.
27. In *Trans. London Middlesex Archaeol. Soc.*, old series, IV part II (1872) 198-9 F. A. Wood wrongly gave the year of Hawkins's death (twice) as 1730 instead of 1736. Since he also telescoped William Hawkins's vicariate with that of his predecessor Francis Hawkins (1670-99) he miscalculated the length of William's incumbency as 59 years instead of 37. In the same article (p. 195) there has evidently been a confusion of Henry VI and Henry II with the result that a group of Willesden court cases which belong to AD 1422 are wrongly dated to 1154; and the date when Francis Roberts founded his charity for the parish of Willesden (p. 200) should have been 1624, not 1629.
28. PRO, T 60/8.

EVIDENCE FOR A SURVIVING HUMPHRY REPTON LANDSCAPE: BARNHILLS PARK, WEMBLEY

LESLIE R. WILLIAMS, the late WIN CUNNINGTON and GEOFFREY HEWLETT

SUMMARY

Humphry Repton, the landscape architect, prepared one of his Red Books for Richard Page of Wembley Park in about 1791–2. The present location of the book is unknown, but extracts and plates reproduced in some of Repton's other literature, have enabled a reconstruction of his Wembley Park proposals to be made. Much of Repton's Wembley Park landscape was removed in 1922–3 during construction of the British Empire Exhibition which was held there in 1924–5. Page also owned the adjacent Barn Hill to the north of Wembley Park, then known as Barnhills Park, although there is no direct reference to it in Repton's surviving literature. This paper presents evidence that the Barnhills Park landscaping, much of which still survives, was also landscaped by Repton.

INTRODUCTION

Although the Red Book prepared by Humphry Repton (1752–1818) for Richard Page of Wembley Park has been lost, attempts have been made (Stroud 1974, 72–5 and Hewlett 1980, 16–21) to reconstruct his proposals based on extracts and plates from the Red Book that were reproduced in Repton (1795).

Adjacent to Wembley Park, immediately north of Forty Lane (the A4088) is Barn Hill, on which there is a considerable area of existing landscaped woodland. This is largely in woodland belts surviving around the edges of the Hill and on its crown where they have been retained within Fryent Country Park, an area managed for nature conservation and public recreation by the London Borough of Brent. Some of the belts are found amongst the suburban housing that largely covers the southern slopes of Barn Hill. In the late 18th and early 19th centuries the Hill was also owned by Page and known as Barnhills Park¹, with an area now estimated to be about 76 hectares.

Barnhills Park is not mentioned by name in Repton's surviving literature

and it is only recently that other evidence has suggested (Cunnington 1975, 28–35) that these woodland belts may be a Repton landscape. Recent hedgerow and woodland surveys have shown that the landscaping has many characteristics associated with Repton. Combined with an examination of documentary sources, convincing evidence can be put forward to show that this is a surviving Humphry Repton landscape.

Geologically, Barn Hill (86m Ordnance Datum) is of London Clay with a summit capping of Pebble Gravel of maximum depth of about 2m, although there is much gravel downwash on the northern slopes. The areas of the two Page owned parks are within tetrads 18TQ84 and 18TQ86.

BRIEF HISTORY

A background history of the Wembley Park and Barn Hill areas is given in Hewlett (1979, 141–90). Further information on the Barn Hill area is given in Cunnington (1975, 25–38 and 1983, 103–10). Stroud (1974, 72–5); and Knight and Savey (1984)

mention the later history of Wembley Park. For information on the Parish of Harrow Inclosure Act of 1803 refer to Dark (undated).

Wembley Park was granted to the Page family in 1542–3 having previously been in the hands of Kilburn Priory and remained vested in the family for 260 years. The Pages became one of the most wealthy families in Middlesex. Between 1603–8 the Uxendon estates at Preston to the west of, and including, Barn Hill had been acquired by Richard Page (died 1642) from Richard Bellamy or his widow, whose family had suffered considerable religious persecution and had been connected with the Babington plot (Bushell, 1914, 71–104).

During the first half of the 18th century, Wembley Park consisted of agricultural land associated with a series of farm buildings along, or near to, Wembley Hill Road. On the death of Richard Page of Harrow (1702–71) Wembley Park passed to his eldest son, another Richard Page (1748–1803). Page's Uxendon estates including Barn Hill were adjacent to the northern edge of Wembley Park, the other side of Forty Lane. Page chose one of the existing farm houses on the Wembley Park estate to be his new manor house.

Between about 1791–2 Page engaged Repton to prepare plans for the conversion of the agricultural estate into a landscaped park and for improvements to the manor house. Stroud (1974, 72) states that there is no evidence of any attempts at landscape improvements before Repton was commissioned. Repton may have been recommended to Page, as he had just landscaped the local Brandsbury Park (now Brondesbury), Willesden, then still rural, for Lady Salusbury. The Red Book for Brandsbury was probably the first to be used in practise (Hyams 1971, 137)². Repton (1795, 9–10) described Wembley Park thus:

In the vicinity of the metropolis there are few places so free from interruption as the grounds at Wembly; and, indeed, in the course of my experience, I have seen no spot within so short a distance of London, more perfectly secluded from those interferences which are the common effects of divided property, and a populous neighbourhood. Wembly is as quiet and retired at seven miles distance, as it could have been at seventy.

Repton's Red Book proposals included gothicising the house, Wembley Park Mansion, (the site of which is near the present intersection of Manor Drive and Park Chase), by changing its colour from brick red to cream and by adding battlements, bringing the offices nearer to join the house and so add to its effect; and by removing the shrubbery that was choking the house so as to show more extent of the park and prospect. Stroud (1974, 73) states that the plans to gothicise the house were not implemented. However, the plans for landscaping the grounds were largely adopted, as considered below with the evidence for Barnhills Park. A map of the Wembley Park landscaping based on the 1864 Ordnance Survey map is given in Fig. 1 and this is very similar to the 1834 plan of Wembley Park³.

In 1792 just before the actual landscaping work commenced, Page inherited Flambards, a maturing Capability Brown landscape on Harrow Hill and his enthusiasm for Wembley Park declined. Richard Page died in 1803. The Land Tax returns of 1804 show that a John Gray (1747–1828) was the new owner of Wembley Park, although the Pages still held Uxendon and Barn Hill. Between 1811–14 Gray spent considerable sums (£14,000) extending and renovating Wembley Park Mansion and associated features, although not always as Repton had originally proposed. Entrance to the estate was by a drive from the thatched Wembley Park Lodge which still survives

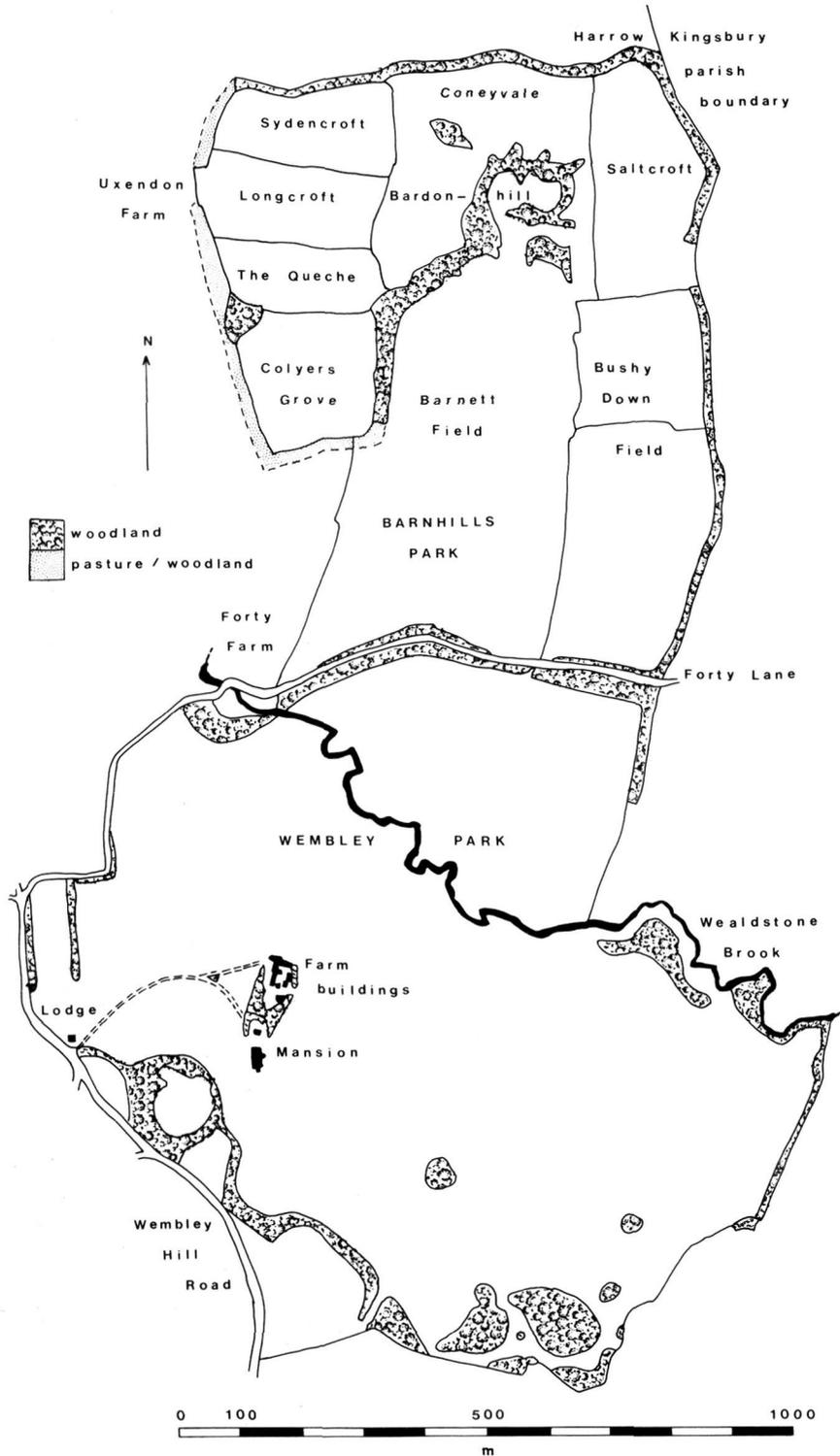


Fig. 1 Barnhills Park and Wembley Park to show probable extent of Repton landscaping. Based on the 1864 Ordnance Survey maps with reference to the 1817 Harrow Enclosure Award maps and the 1834 Shuttleworth map⁴.

as 114 Wembley Park Road. Repton may have been the original architect of this cottage as the cottage orné style was typical of the work of Repton and his eldest son, John Adey Repton, in the first decade of the 19th century (London Borough of Brent 1984, 30).

In 1880 John Gray's son, the Revd. John Edward Gray, sold some of the Wembley Park estate to the Metropolitan Railway Company. In 1889 the remainder of the estate was sold to Sir Edward Watkin, chairman of the Metropolitan Railway. Wembley Park was opened as a public pleasure ground containing the ill-fated Watkin's Folly, an Eiffel Tower imitation that met both financial and geological problems in the London Clay. Wembley Park Mansion was demolished in 1908. In 1912 an eighteen-hole golf course was opened at Wembley Park and later it became the site of the British Empire Exhibition of 1924–5. The Exhibition, Wembley Stadium and the present leisure and commercial nature of Wembley Park have been described in the references given above.

Much less is known about Barnhills Park. Page's Folly (the prospect house proposed by Repton and discussed later in this paper) which was built on the top of Barn Hill and the Barn Hill farmhouse were demolished in the first half of the 19th century, the Folly certainly after 1820. The Barn Hill fields were then probably farmed as part of the neighbouring Uxendon farm. In 1817 Barn Hills (the eastern half of Bardonhill) and Coneyvale fields were classified as pasture and in 1852 they were meadowland, as was Saltcroft (Cunnington 1975, 29).

Between about 1895 and the early 1920s the Barnhills Park area was a golf course and many of the greens and bunkers are still visible. The course fell into dis-use after the First World War and in June 1927 Wembley Urban District

Council purchased 20.2 hectares of the hill top for public Open Space. By this time suburban development had commenced on the lower southern slopes of Barn Hill by Haymills, followed by Wimpey; and by the late 1930s most of the southern slopes and the Uxendon farm area were covered by housing. In the mid-1930s Middlesex County Council purchased the land east and north of Barn Hill Open Space, thus preventing further suburban expansion. In 1984 Barn Hill/Fryent Way Open Space was renamed Fryent Country Park.

DOCUMENTARY EVIDENCE

Although there was no direct reference to Barnhills Park in Repton's surviving literature on Wembley Park (Repton, 1795), the evidence below suggests that in his proposals for Wembley Park he was also referring to Barnhills Park. The Wembley Park landscaping is also mentioned in Loudon (1840, 48–50, 56–60, 79–80, 82–3), Nolen (1907, 19, 40, 42), Stroud (1962, 46, 68–9, 174 and 1974, 72–5) and Hewlett (1980, 16–21) although these largely quote from Repton (1795).

Even if no other evidence were available, it would have been logical for Page to have had both estates landscaped, given the commanding position of Barn Hill in overlooking Wembley Park. From the summit of Barn Hill clear views of Wembley Park would have been obtained, including the Mansion less than 1.5km away. (Today the view is of suburbia, offices and Wembley Stadium). Barn Hill would have been prominent as viewed from Wembley Park.

Repton (1795, 38–41) wrote:

The Park at Wembly is only defective in two circumstances; the first is the common defect of all places where the hedges have

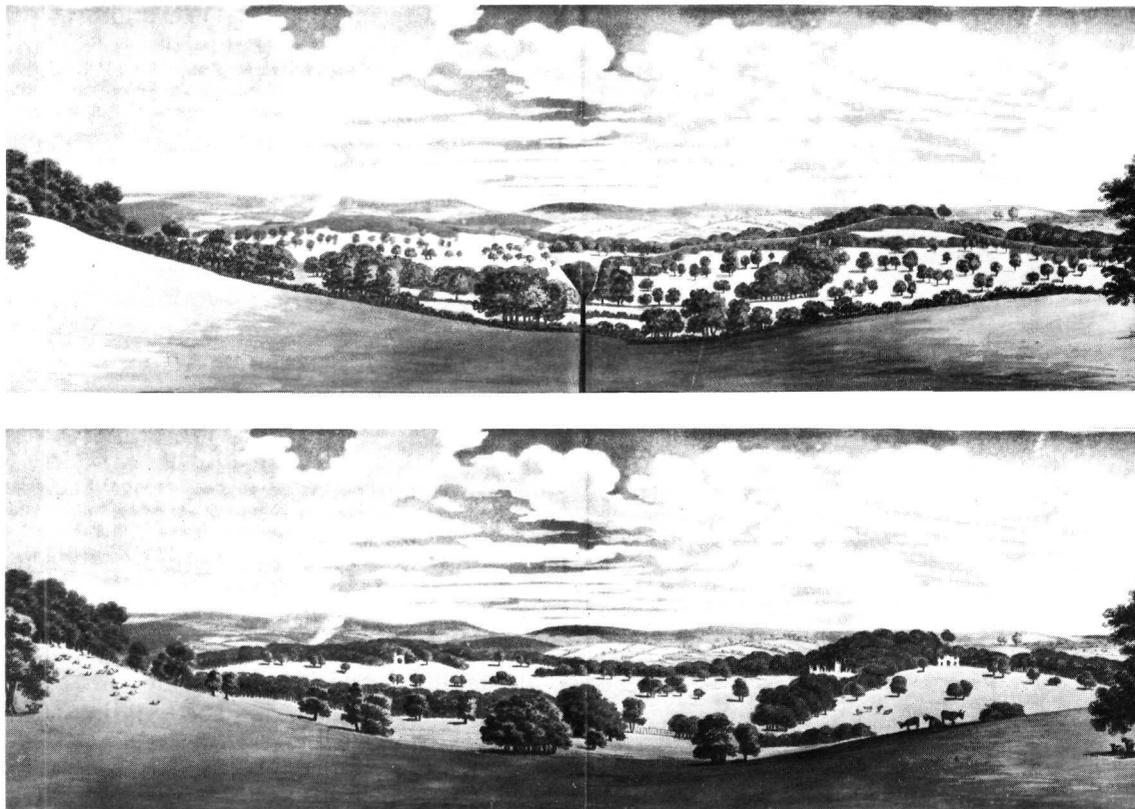


Plate 1 Repton's before, and after proposed landscaping plates of Wembley Park reproduced in Repton (1795)¹³. The views are now considered to be from the site of the proposed prospect house on Barn Hill. (reproduced by kind permission of the Librarian B.A.L./R.I.B.A.).

been recently removed, and too many single trees are left; the natural reluctance felt by every man of taste and experience to cut down large trees, at the same time that he sees the unpleasant effect of artificial rows, is very apt to suggest the idea of breaking those rows by planting many young trees; and thus the whole composition becomes frittered into small parts, which are neither compatible with the ideas of the sublime nor beautiful. The masses of light and shade, whether in a natural landscape or a picture, must be broad and unbroken, or the eye will be distracted by the flutter of the scene; and the mind will be rather employed in retracing the former lines of hedge-rows, than in admiring the ample extent of lawn, and continuity of wood, which alone distinguishes the park from the grass or dairy farm. This defect will of course easily be remedied when the new plantations shall have acquired a few years growth, and many of the

old trees shall be either taken down or blended into closer groups by young ones planted very near them: but there can be little occasion for dotting young trees with such profusion; and I do not hesitate to affirm, that of several hundred such trees now scattered upon the lawn, not more than twenty can be absolutely necessary⁴.

The other defect of Wembly arises from a sameness of objects; . . . The approach-road to the house will be a feature of the lawn, both as seen from thence, and also from the high ground about the park.

The expedient of producing variety at Wembly by buildings, is perhaps the most difficult, and requires the greatest attention; because one source of our admiration is, that in the neighbourhood of the metropolis a place should exist so perfectly secluded and detached from the "busy haunts of men:" we must therefore be particularly cautious that

every building should appear to be an appendage or inmate of the place, and not a neighbour intruding on its privacy. From hence arose some difficulty in the style of building proper for the prospect on the hill: a very small one would have been inadequate to the purpose of containing such companies as may resort thither; as well as forming a dwelling house for those who should have the care of the prospect rooms, and the dairy; yet in building a large house, there was a danger of making it appear to belong to some other person. A design has at length been made for such a building as is worthy of the situation, from whence a view is presented, of which it is very difficult for the pencil to give any just idea; yet it is here inserted, No. XIV. for the sake of shewing the improvement of which it is capable on the principles already enumerated, viz.

First. By collecting the wood into larger masses, and distinguishing the lawns in a broad masterly manner, without the confused frittering of too many single trees.

Secondly. By the interesting line of road winding through the lawn.

Thirdly. By the introduction of cattle, to enliven the scene; and, Lastly, By the appearance of a seat on the knoll; and a part of the house, with its proposed alterations, displaying its turrets and pinnacles amongst the trees.

To the common observer, the beauties of Wembly may appear to need no improvement; but it is the duty of my profession to discover how native charms may be heightened by the assistance of taste: and that even beauty itself may be rendered more beautiful, this place will furnish a striking example.

In these extracts Repton mentioned a number of features which the evidence suggests, were associated with the Barnhills Park landscaping. These include the tree belt and hedgerow landscaping, which probably referred to both parks (Fig. 1) and are considered later. The other main evidence concerns the prospect house and the two plates (Repton's plate XIV) of the Wembley Park landscape, here reproduced as Plate 1.

Repton mentioned the choice of building for the prospect on the hill and described the view that would be

obtained from it. These before and after views show that Repton intended to landscape the hill slopes, in addition to Wembley Park, as there are some changes in the foreground to the originally existing hedges. This would suggest that the views were taken from Barn Hill, as Wembley Hill, the nearest hill to the Mansion House, was not part of the Page estate. Barn Hill is both higher and much larger than Wembley Hill. Although it is now difficult to compare the view from Barn Hill with that in these plates, they do appear to agree well. Complete correlation would be unexpected, as Hyams (1971, 127–8) suggests that Repton drew the final artwork for his Red Books, away from the site using field notes and sketches. The final work plans frequently varied from those in the Red Books, depending on his clients wishes.

Further evidence that the building was to be on Barn Hill, is given in the Statement of Claims connected with the Inclosure Award AD 1805⁵ in which a prospect is recorded at Barnhills Farm in addition to the farmhouse, under the heading of Devises of Richard Page. The area of the farm was given as 77.3 hectares, which may approximate to the estimated 76 hectare area of the Barnhills Park area under consideration in this paper. The farmhouse was on the north-west side of the summit and was first mentioned in 1732⁶. Only the farmhouse was shown on the Enclosure Book copy of the Enclosure Map, but a copy of the map in the Public Record Office, possibly of earlier date (the Award was made in 1817, the Act having been passed in 1803), shows two buildings on Barn Hill, the second being much larger than the farmhouse (Cunnington 1975, 33) and sited at a position in the landscaping where views would have been obtained of both Wembley Park and of London.



Plate 2 Part of the summit landscaping in winter, looking north-west towards the prospect house site.

Cunnington (1975, 32) also quoted from *London and its Environs, or the General Ambulator*, twelfth edition, London 1820 which in considering Wembley Park mentioned that 'On an eminence opposite called Barn Hill, is an unfinished building, commanding a fine view, erected by the late Mr. Page, and called his Folly.'

Further evidence that Barn Hill was a park at this time is given in a reference⁷ of c. 1800: 'Barnetts Field, Uxendon, part of No. 999 now Barn Hill Park'; and in the Enclosure Award Book: 'Public road XIV between the parks of Wembley and Barnhills.'

Work at Wembley Park probably commenced in the spring of 1793 (Stroud 1974, 73), for on 6 May 1793 Repton wrote to another of his clients and mentioned that he had started the actual landscaping for Mr Page⁸.

LANDSCAPE EVIDENCE

The original woodland of Barn Hill was largely cleared, probably during medieval times to leave a hedgerow landscape (Williams and Cunnington 1985, 7-22). Repton incorporated these hedges to a large extent into his landscaping and therefore some caution is required in interpreting the evidence as to the extent of the park and its landscaping (Figs 1 and 2, plates 2 and 3). Much of Repton's scheme can be retraced by following the existing woodland belts and comparing them with the map evidence. The maps used were the Enclosure Book copy of the Enclosure Map and a different version of the map in the Public Record Office, Pringle and Greenwoods 1819 Map of Middlesex; and the 1864 and 1897 Ordnance Survey maps. There is no evidence of landscaped woodland on

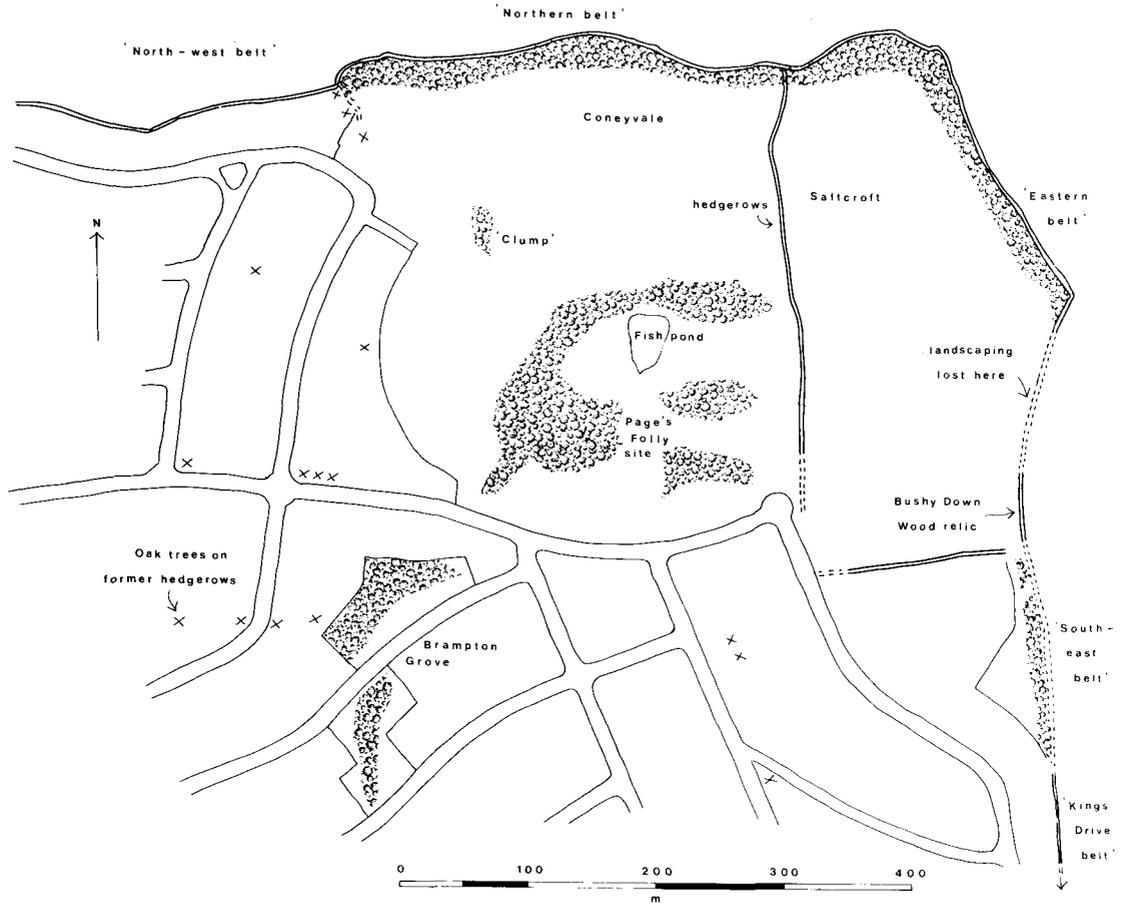


Fig. 2 Repton's surviving woodland landscaping on Barn Hill.

maps prior to 1793, while all of the above listed maps show the woodland belts. The Messeder Map of Harrow 1759⁹, although not of great detail, does show the Barn Hill Farm (house), the parish boundary hedge and woodland corresponding to Bushy Down Wood, but as expected, none of the woodland considered to be Repton's.

Another problem was the belt to the west of Sydencroft, Longcroft, The Queche and around Colyers Grove. This was also adjacent to the field boundary hedgerows, but the maps show varying portions of the belt

marked as hedge, woodland and pasture; though grazing may well have been permitted once the landscape trees were established.

The east side of Barnhills Park was marked by the Harrow/Kingsbury parish boundary. Running north from Forty Lane this can still be traced as mature trees to the rear of properties in Barn Hill (road) and Kings Drive. Repton's landscaped belt followed this hedge on its uphill (Harrow) side. Shortly after entering Fryent Country Park, there is a missing section of the parish boundary hedge which is then joined by the route of Hell Lane, an ancient trackway that then followed the parish boundary northwards (Braun 1937a, 218–28 and 1937b, 365–92). At the north-eastern corner of Barn Hill, the land-

scaped belt diverges west from the parish boundary, to follow the northern edge of Barnhills Park. This was also bounded by an ancient hedge with associated woodland boundary earthworks. North of the former Sydencroft field, only the hedge remains, although originally the landscaping followed the northern side of this field and then curved around its western edge. The Uxendon farm buildings were just west of Longcroft field. The landscaping then swept along the western edge of Longcroft, The Queche and Colyers Grove, before curving east around Colyers Grove and uphill towards the summit woodland. Some of the landscaping on the eastern boundary of Colyers Grove still survives on greens to the east and west of Brampton Grove road.

South of Colyers Grove the western boundary of Barnhills Park appears to have been the hedge with Pargraves, the boundary with Forty Farm (another of Page's properties, leased to a tenant farmer). This hedge went south to Forty Lane. The surviving trees along the southern (Wembley Park) side of Forty Lane were also probably planted by Repton and the maps show that there was once a similar belt on the northern (Barnhills) side of the road.

The perimeter of the Barn Hill summit landscaping approximates to the higher (eastern) half of Bardonhill field and again probably incorporated the original hedges. To the west of the summit, the woodland was planted across the centre of Bardonhill field, to join a tree belt continuous with the surviving Brampton Grove belt. There is also a clump of trees between the north-western tip of the summit landscaping and the northern belt of the park. Although not marked on the Harrow Enclosure maps, the age and species of these trees is similar to that on the summit.

Thus Barnhills Park appears to have consisted of the fields of Barnetts, Colyers Grove, The Queche, Longcroft, Sydencroft, Coneyvale, Saltcroft, Bushy Down Wood, Bushy Down Field and Bardonhill; names based on the Harrow Manorial Survey of 1547 (Cunnington 1975, 25–38)¹². During the early 19th century the remaining Bushy Down Wood remnant was reduced to hedges. Suburban housing now covers all of these fields except Coneyvale, Saltcroft, the landscaped part of Bardonhill, the northern tip of Barnetts and part of the former Bushy Down Wood, though the landscaped field boundaries have often survived. It was also possible (Williams 1985, 165–71) to follow some of the former hedge lines through suburban Barn Hill by using the surviving landscape trees and

mature hedgerow Oaks that were left standing when the estate was built. Boundary sections of Sydencroft, Coneyvale, Longcroft, The Queche, Colyers Grove, Barnetts, Bardonhill and Bushy Down Wood were found in this way. On Fryent Country Park itself, the hedgerow and landscape trees were easy to trace, although frequently obscured by developing Oak and other scrub.

As the documented Repton landscape at Wembley Park has been largely removed through a multitude of land uses during the past century, little survives to act as a comparison for the Barnhills Park landscaping. Surveys of the remaining Wembley Park trees were hindered by the difficulty of gaining adequate access to the many land units involved, the large number of second generation trees including suckers; and subsequent plantings. Where extant landscaped belts have been found to coincide with the landscaping shown on 19th century maps, species lists have been made. Such belts exist along much of the southern side of Forty Lane and behind Forty Close. These belts typically contained Ash (*Fraxinus excelsior*), Common Lime (*Tilia x vulgaris*), Horse Chestnut (*Aesculus hippocastanum*), Common Oak (*Quercus robur*), Turkey Oak (*Q. cerris*) and Hornbeam (*Carpinus betulus*) in various proportions, plus other less frequent species such as Field Maple (*Acer campestre*), Sycamore (*A. pseudoplatanus*), Cherry species (*Prunus* sp.) and English Elm (*Ulmus procera*) suckers. These belts were thus similar to those of Barnhills Park, providing strong evidence for a common design.

In discussing the Barnhills Park landscaping, it would be useful to know if the landscape trees could be differentiated from those of the hedges that Repton planted his belts along. Williams and Cunnington (1985, 7–22) surveyed both the Barn Hill and the other hedges of Fryent Country Park and it was obvious that the hedgerows had a different tree composition from the pure landscape belts. A census of the mature Barn Hill trees was undertaken in 1984 (Fig. 3). All standard (timber sized) trees were counted, but not shrub species such as Hawthorn. From the Fryent Country Park hedgerow survey it would be expected that most or all of the Field Maple on Barn Hill was of hedgerow origin. The Wild Cherry (*Prunus avium*) could have been planted by Repton or be of hedgerow origin. It would also be expected that some of the Common Oak and a few Ash were part of the hedgerows, but the majority of these two species and all the other species of standard trees can be considered to be part of the planted landscaping;

	'Kings Drive belt'	'South-east belt'	Bushy Down Wood relic	'Eastern belt'	'Northern belt'	'North-west belt'	Summit landscaping	'Brampton Grove belt'	'Clump'	Totals
Common Oak	10	15	3	36	67	—	9	3	4	147
Hornbeam	—	4	—	30	15	—	11	6	—	66
Horse Chestnut	2	2	—	—	—	—	35	3	—	42
Common Lime	—	—	—	—	—	—	20	15	2	37
Beech	1	—	—	4	7	—	21	3	—	36
Ash	2	3	2	2	15	5	—	3	—	32
Field Maple	—	—	—	—	4	—	—	—	—	4
Sweet Chestnut	—	—	—	—	3	—	—	—	—	3
Sycamore	—	—	—	—	—	—	1	—	—	1
Turkey Oak	—	—	—	—	—	—	1	—	—	1
Wild Cherry	—	—	—	—	1	—	—	—	—	1
English Elm (suckers)	?	present	present	present	—	present	present	present	—	—
Totals	15	24	5	72	112	5	98	33	6	370

Fig. 3 Census of standard landscape and hedgerow trees, Barnhills Park area, 1984¹⁴.

ie. Hornbeam, Horse Chestnut, Common Lime, Beech (*Fagus sylvatica*), Sweet Chestnut (*Castanea sativa*), Sycamore, Turkey Oak and English Elm.

In interpreting Fig. 3 it should be noted that the sections are of arbitrary designation, (Fig. 2). The Kings Drive section results were estimated as survey access was limited. In addition parts of the landscaping have been subjected to differential removal of trees, eg. by suburban housing development or Dutch Elm Disease (*Ceratocystis ulmi*). Dead or fallen trees were not counted.

Common Oak was usually the most frequent tree in all of the landscape sections and had a high density in the eastern and northern belts. It was relatively uncommon on the summit, where some of the Oaks may represent the original Bardonhill hedge boundary. A few of the 147 Oaks may not have been pure Common Oak. The one definite Turkey Oak was on the summit.

Ash was frequent on the hedge-banks of the northern and eastern belts, but this consistency in their location and the low density of Ash elsewhere in Fryent Country Park hedges, suggested that these trees were part of the landscaping rather than the hedges. Ash was absent from the summit, but present in the Brampton Grove Belt. Hornbeam and Beech were present in most parts of the landscaping, although at varying densities with Hornbeam concentrated in the

eastern belt and Beech on the summit. Horse Chestnut was absent from the eastern and northern belts, but largely concentrated on the summit. Sweet Chestnut was only present in the northern belt.

Common Lime was frequent on the summit and the Brampton Grove Belt. It was also present in 'the clump', but absent from the northern and eastern belts. As the tallest broad-leaved tree in Britain as a whole (Mitchell, 1978, 359), Common Lime would have been a good choice for inclusion in these elevated sections. Sycamore was confined to the summit.

The former distribution of the mature English Elms which were all killed through Dutch Elm Disease in the 1970s can be deduced from the distribution of their suckering clones (Rackham 1976, 129). Elm was present throughout much of the landscaping, but not in the northern belt, but was present at the north-west corner of Sydencroft. The Elm suckers in the eastern belt have been considered by Williams and Cunnington (1985, 7-22) and although there may have been some landscape Elms in the north-east corner of Saltcroft, it was suggested that the eastern belt suckers represent boundary planting by the adjacent former Hill Farm on the Kingsbury side of the parish boundary.

Dating the trees was also a problem and as they were densely spaced their ages could not be

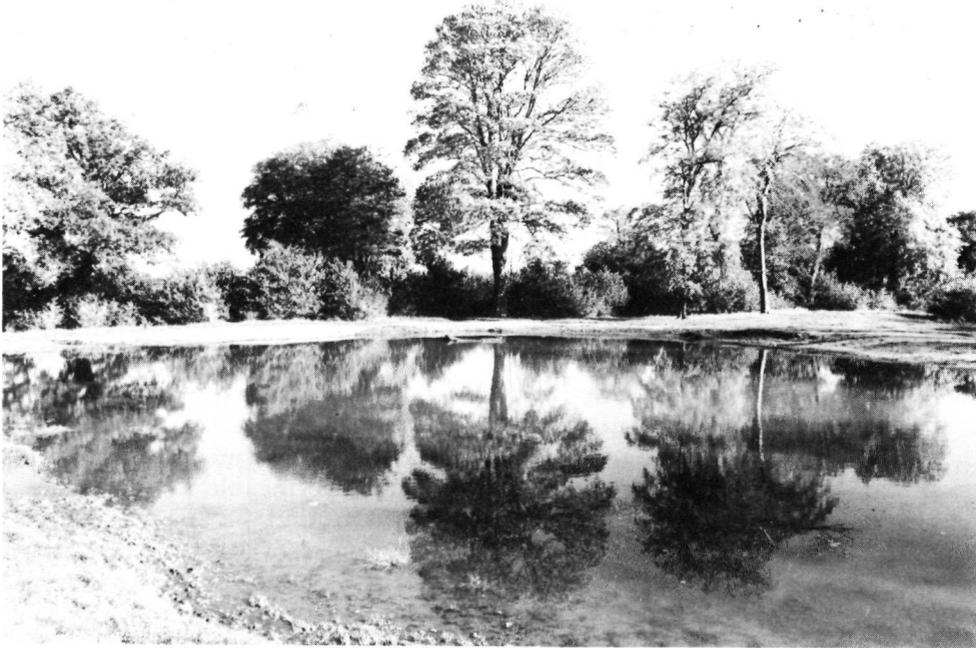


Plate 3 View looking north-east across the Fishpond to part of the summit landscaping.

readily estimated on the basis of their girths, as suggested by Mitchell (1978, 25). Tree ring counting was difficult, as trees that had fallen were decomposed internally. Ian Barrow (pers. comm., Arboricultural Officer, London Borough of Brent) estimated that some of the trees were about 150–200 years old, which could include a planting date of 1793. Although some of the trees were certainly of a later generation than the originals, the fact that the outline of the landscaping had changed little since the 1817 Enclosure Award maps and the 1864 Ordnance Survey map, does suggest that many of the trees are the originals. Certainly, the landscape shape, is virtually identical to the one that was planted.

DISCUSSION

The landscape features of Barnhills Park as described above are characteristic of Repton's work.

The practise of planting a belt of trees around much of the park perimeter was like some of his other earlier works, although he later abandoned it in favour of breaking up

the belts into groups of uneven extent (Hyams 1971, 138).

The Brampton Grove belt is of interest as it was once part of a belt sweeping down from the summit, another Repton characteristic. In this way he differed from Capability Brown (1716–83) who would plant isolated clumps of trees on hill tops. Repton (1803) quoted in Hyams (1971, 132–3) wrote:

In recommending that the hills should be planted, I do not mean that the summits only should be planted by a patch or clump; the woods of the valley should on the contrary seem to climb the hills by such connecting lines as may neither appear meagre nor artificial, but following the natural shapes of the ground, produce an apparent continuity of wood falling down the hills in various directions.

Although the effect is now somewhat obscured by suburban housing, map contours show that the Brampton

Grove belt is on a prominent convex brow of the Hill. This is now best seen during the journey between Northwick Park and Wembley Park stations on the Metropolitan Line. Repton appears to have carefully selected which of the original hedges would have best produced the desired effect, after being landscaped as tree belts. Assuming that he did intentionally use this brow to emphasise his belt, it is then clear why he had to plant trees across Bardonhill field in order to meet the belt on the brow and thus produce the effect of woodland continuity.

During the 1930s when the housing was under construction on the southern slopes, this Brampton Grove belt formed such a remarkably fine piece of woodland, that the estate developers approached Wembley Urban District Council to amend the originally agreed housing estate plans, so that the trees could be retained, even though it was not then realised that these trees were Repton's work (Williams 1985, 165–71). After over two years of bureaucratic involvement including that of the Minister of Health, the two greens composing this part of the belt were eventually purchased on 25 February 1938, for the '... purpose of preserving the trees growing thereon.'¹⁰

The tree species used at Barnhills Park were very similar to those used by Repton elsewhere. For example, at Corsham in 1796 Repton used Common Oak, English Elm, Beech, Sweet Chestnut, Sycamore and various exotic Oaks (Green 1981, 31). Another Repton feature is the clumping of species within the landscaping, as apparent at Barnhills Park. Repton believed that different species should predominate at various places within a landscape, rather than being an indeterminate mixture (Carter, Goode and Laurie 1982, 48).

The Fishpond (a recent name of convenience) at the top of Barn Hill measures about 45m × 35m with a maximum depth of about 1m and is much larger than any of the farm ponds that were once present in almost every field. There is little doubt that this was intended to be part of the landscaping and is surrounded by the summit woodland at varying distances from the pond. The Fishpond is also unusual in that it is surrounded by permeable Pebble Gravel that caps the summit of Barn Hill, whereas all the farm ponds (including one that was just to the south of the Fishpond) are in impermeable London Clay. Excavations around the Fishpond perimeter in the summer of 1984 showed that it too was in a London Clay basin that had been excavated after removal of the over-lying Pebble Gravel. It is therefore not a dew pond (which are fed by water running into a clay-lined depression in permeable strata), but is fed by water percolating through the Pebble Gravel and held by the underlying clay of the pond basin.

It is not known when the Fishpond was constructed, especially as ponds were not always marked on maps, possibly because, unlike hedges, they did not mark field and ownership boundaries. A pond, probably the Fishpond, was marked on Pringle and Greenwoods 1819 Map of Middlesex, amongst some woodland belts. Both the Fishpond and smaller pond to the south were shown on the Rating Valuation Map of the Parish of Harrow (1852)¹¹ but only the smaller pond was marked on the first Ordnance Survey maps in 1864.

From the proposed prospect house, the pond and surrounding trees would have formed the northern view. Repton did appear to be inconsistent in the use of water in such situations. Repton (1803) quoted in Hyams (1971, 133) wrote, 'Water on an eminence or on the side of

a hill is among the most common errors of Mr Brown's followers; in numerous instances I have been allowed to remove such pieces of water from the hills to the valleys, but in many my advice has not prevailed.' Yet Repton went on to state that although of unnatural situation, pools should be retained for the satisfaction they give to the viewer. Certainly Repton had a good knowledge of hydraulics (Carter, Goode and Laurie 1982, 52) and did make use of water in some of his other landscapes including Wembley Park where he used the Wealdstone Brook, a tributary of the River Brent.

The prospect house was also carefully sited in relation to the summit woodland belts, so as to allow a clear view of Wembley Park to the south and of London to the south-east between another set of belts (Figs 1 and 2).

The evidence therefore, strongly suggests that the Barnhills Park landscaping was Repton's work. The woodland belts date from the late 18th or early 19th century when this Park was in the same ownership of Richard Page, as the adjacent Wembley Park to the south which was landscaped by Repton in about 1793. Extracts and plates from the now lost Red Book for Wembley Park, reproduced in Repton (1795) show that he proposed to construct a prospect house, almost certainly on Barn Hill, from which views of Wembley Park could be obtained. Repton's plate of this view shows that he intended to undertake some tree landscaping on this hill. Further evidence that it was Barn Hill to which Repton was referring comes from various 19th century maps and from an extract in a guide book of 1820 that referred to the unfinished Page's Folly on Barn Hill.

The woodland belts occupy the same shapes as they did on early 19th century maps. The pattern of the belts around

the park perimeter was characteristic of Repton's earlier work. The imaginative use of the hill contours to increase the effectiveness of the landscaping, also suggests Repton's work, as does the continuity of woodland belts between low and high ground. Further evidence is provided by the tree species used and the pattern in which different species predominate in different sections of the landscape scheme.

CONSERVATION

The landscaping is now suffering from the effects of Dutch Elm Disease, adjacent land use changes and the general age of the trees. Their conservation during the last sixty years has not been without effort. In order to continue as a prominent landscape feature in Brent; and as a surviving example of Repton's earlier work, this landscape needs to be conserved, not just on Fryent Country Park where an underplanting programme has been in progress since the early 1980s, but also in the woodland belts of suburban Barn Hill and along the parish boundary section. Inevitably, some changes are likely, but it would be of value to replant trees of composition as near as possible to that of the original scheme using native, if not the same species; and in the same sectional pattern as the original.

NOTES

1. References vary as to the exact form of the Park's name: Barn Hill Park, Barn Hills Park or Barnhills Park. The form Barnhills Park has been used in this paper, to allow the use of Barn Hill in referring to the Hill itself.
2. The Red Book for Brandsbury is currently held by the Dumbarton Oaks Garden Library, Washington D.C., but was on loan to the Victoria and Albert Museum in Dec. 1982–Feb. 1983. A closer examination of the book which this afforded revealed Repton's own notes:
March 1st–14th 1789.
Brandsbury at Wilsden in Middx.
Her Ladyship's Villa lately purchased.
The First place of any consequence in which I have been consulted so near London.
The landscaping had been completed by Dec. 1790 when the plants were described as large and numerous.
3. Plan of Wembley Park and Estates, Middlesex for sale by Mr Shuttleworth, 1834. Copy in The Grange Museum, Neasden Lane, NW10. The reserve price was not reached at the auction and the Gray's continued to live at Wembley until 1887.

4. Many individual trees were shown throughout Wembley Park on both the 1834 Shuttleworth and the 1864 Ordnance Survey maps. These were not part of Repton's landscaping and were absent in fields external to Wembley Park and also from Barnhills Park (which did not become a 'park' until landscaped by Repton). While some of these single trees may have been remnants of former hedges, their number and pattern suggest that most of them were not of hedgerow origin. These are probably the several hundred trees to which Repton referred. Indeed, their existence there when Repton arrived provides evidence that Wembley Park was some form of parkland for some time before Repton's landscaping and suggests that it may have been wood pasture in which the original woodland would have been subjected over a number of centuries to severe grazing pressure (Rackham 1976, 142–51 and 1980, 188–202). The evidence suggests that Repton's plans for removing these trees scattered upon the lawn were not implemented. Repton's plate of Wembley Park (Plate 1 in this paper) shows what Wembley Park would have looked like in the late 18th century. Note that there were no individual trees in the foreground, thus providing further evidence that Repton drew his sketches from a hill beyond Wembley Park.
5. GLRO Acc. 76/1400.
6. GLRO LA/HW/Harrow Poor Rate Book.
7. GLRO Acc. 76/909.
8. Letter to Reginald Pole Carew of Antony House, Torpoint, Cornwall dated May 6th 1793 and now in the Cornwall County Record Office at Antony House. The footnote reads, 'On Wednesday I go to Lord Wansfield at Kenwood & on Thursday—to a most beautiful spot near Harrow. I wish I could shew it you—it belongs to Mr Page. I have just opened the trenches & am attacking it in full force.'
9. GLRO Acc. 643, 2nd deposit.
10. Borough of Wembley Minute Book No. 1937–Oct. 1938.
11. In Harrow Reference Library.
12. GLRO Acc. 1052.
13. Repton (1795) captioned his Plate XIV:

View from the tower at Wembley: this is rather a prospect than a landscape; and therefore the pencil gives an inadequate idea of its real beauty. But this scene is attempted, to show how breadth of light and shade is produced, and that flutter corrected which had been the consequence of too many trees dotted on the lawn. In the unimproved state of view, there is an evident confusion; and the chief circumstance attracting notice, is the smoke of a distant lime-kiln.—But, by introducing objects within the park, the view becomes more appropriate and concentrated; and the distance is rendered more subordinate in the general composition.

The location of the lime-kiln to which Repton referred is not known.
14. Fig. 3 excludes those surviving standard hedgerow trees that did not appear to have been incorporated into a landscaped belt. These account for about another 16 Oak trees within the Barnhills Park area (Fig. 2). Standard trees of known recent planting have also been excluded eg. Lombardy Poplar (*Populus nigra* 'Italica'). The approximate extents of the belt sections used in Table 1 are shown in Fig. 3.

ACKNOWLEDGEMENTS

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interest. We would also like to thank Tony Leach, Ian Barrow, Peter Creasey, Brita Von Schoenaich, Wembley History Society and Barn Hill Conservation Group for their help. Plate 1 was reproduced by kind permission of the British Architectural Library, Royal Institute of British Architects, London.

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L.A.M.A.S.: A VICTORIAN ESTABLISHMENT

SALLY A. BROOKS

I. VICTORIAN LEARNED SOCIETIES

The Victorian period was the Age of the Society. From the Society for the Diffusion of Useful Knowledge, the Society of Friends, or the Anti-Corn Law League, to the Complete Suffrage Union, the British and Foreign Temperance Society, or the Anti-Teapot League, it would be no exaggeration to state that whatever the political, religious, literary, economic or scientific viewpoint, there was, somewhere, a society to promote it. Even if there was not, it would only require a few like-minded persons to gather together for a society to emerge, followed, as likely as not, by the publication of their views in print.

The origins of the Victorian interest in the formation of learned societies were to be found in the emergence of heightened class awareness in the preceding century. The effects of industrialization, such as urbanization and differentiated occupation, led to the creation of a distinct 'middle class' distinguishable not merely by hegemonic and ideological interests, but by cultural inclination. Opposition to the landed interest, registered in middle-class values and life-style, was complemented by independent cultural pursuits. Upper-class patronage of art and literature was met by a middle-class appropriation of science which appealed not simply by its meritocratic nature but by its emphasis on order from chaos and progress in nature. Societies with a membership comprised of middle class (and often non-conformist) individuals were formed, such as The Literary and Philo-

sophical Society of Manchester (1781), and by the first half of the nineteenth century a number of national scientific associations were meeting, such as the British Association for the Advancement of Science.

Archaeology was no exception to the Victorian relish for learned pursuit. While the Society of Antiquaries had received its Royal Charter in 1751, it lived in splendid isolation in London until the formation of the British Archaeological Association and its offspring, the Archaeological Institute, in 1843 and 1844 respectively. Likewise, on a national level, archaeological societies in the pre-Victorian era were confined to isolated bodies in Edinburgh and Newcastle-upon-Tyne. However, from the 1840s societies with an interest in archaeological pursuits began to spring up all over Britain, with the result that by around 1880 no self-respecting county was complete without one.

The extraordinary proliferation of learned societies in general from around 1830 onwards undoubtedly had some relation to Peel's comment that it takes two generations to make a gentleman¹. Learned societies were no longer a distinctive form of cultural identity but additionally fulfilled the necessary requirements of an activity acceptable as a means of filling increased middle-class leisure time. Recreation needed to include the Victorian attributes of being purposeful, utilitarian, fortifying and efficacious. Two generations on, the true gentleman, engaged in what was euphemistically referred to as being "in business", could not be seen to idle away his leisure hours

but must add to his respectability by either working for the public good (by sitting on local committees), or by undertaking some form of earnest, self-improving educative process. Archaeology was just such a respectable pursuit.

Encompassing a wide range of study which included architecture, Fine Art, brass rubbing, heraldry, palaeography, genealogy and so on, archaeology, more generally referred to as antiquarianism, provided ample scope for armchair study. Moreover, the accessibility of local documents, buildings and so forth, meant that individual interests could be shared with others at a local level by the reading of papers at society meetings. The mixed interests of such groups are indicated by their titles, such as the Wiltshire Archaeological and Natural History Society, or the Leicestershire Architectural and Archaeological Society, whereas others had a specifically archaeological designation, such as the Surrey Archaeological Society. It was at the second meeting of the latter group that the idea of a Middlesex archaeological society was first put forward.

THE ESTABLISHMENT OF THE LONDON AND MIDDLESEX ARCHAEOLOGICAL SOCIETY

By 1855 it was high time that the fashion for forming archaeological societies should have reached that city which Victorians regarded not only as the capital of Great Britain but of the world². George Bish Webb, Honorary Secretary to the Surrey Archaeological Society, suggested to that group that their area of interest should be extended to incorporate Middlesex. While the idea was defeated George Bish Webb was not and, on approaching his friend, the Rev. Thomas Hugo, with the suggestion he won to his cause a keen antiquarian and indefatigable worker. Moreover, Hugo was in close contact with other London antiquarians, a small number of whom met regularly at his house in Bishopsgate Street Within to discuss archaeological, architectural and historical matters. He conveyed the idea to them with the result that on

Monday, 30th July 1855 Hugo took the chair at a meeting held at the Surrey society's headquarters in Covent Garden. The proposal placed before George Roots, the Rev. Charles Boutell, Joshua Butterworth, William Taylor and George Bish Webb was "to consider the propriety of instituting a Society for the purpose of investigating the Antiquities of the County of Middlesex", and it was resolved that such a society "would be highly proper and conducive to the extension of archaeological science"³, and that the parties present would do their utmost to further its success and well-being. It was also agreed to advertise the proposed Society with the aim of attracting potential members, and accordingly five hundred circulars were printed and distributed, and advertisements were placed in *Notes and Queries*, *The Athenaeum*, *The Literary Gazette* and the *County Chronicle*. On 8th August 1855, sandwiched between an advertisement offering for sale marble and terra cotta fountains and an announcement on behalf of 'the Royal Asylum of St. Anne's Society for Children of those once in Prosperity', there appeared in *The Times* the following notice:

MIDDLESEX ARCHAEOLOGICAL SOCIETY

Persons desirous of joining this Society are requested to communicate with George Bish Webb, Esq., Honorary Secretary pro tem., 6 Southampton Street, Covent Garden.

At the next provisional meeting on Wednesday, 15th August, it was decided to insert the above advertisement three times in *The Morning Chronicle* and to continue advertising in *Notes and Queries* every alternate week until October, the Provisional Committee presumably meeting the expense. The advertising campaign also included the printing of an additional two hundred and fifty circulars. Results were already apparent at this second meeting, with the addition of three men to the Committee and the knowledge that twenty-nine people had expressed an interest in the proposed society. Indeed, five meetings later, on the eve of the inaugural meeting, the Provisional Committee had grown to thirteen in number while the total number of applicants for membership rested at one hundred and thirty-eight. In addition, the Provisional Committee had secured the Marquis of Salisbury as Patron and Lord Londesborough as President. Moreover, the area of the society's activities now specifically incorporated London in response to a suggestion made by Lord Lon-

desborough in his letter of acceptance, dated 19th August⁴.

The Provisional Committee met for the last time on Friday, 14th December at 1 o'clock, one hour before the inaugural meeting was timed to begin. Due to the illness of Lord Londesborough an attempt was made to engage the Lord Mayor, but as his time was already filled it fell, rather fittingly, to the Rev. Hugo to take the Chair of the Society's first meeting. Despite "a condition of the weather which was very unfavourable" the meeting was well attended and the motion "That a Society to be called the London and Middlesex Archaeological Society be now established"⁵ was accepted unanimously. After some debate the Rules and Regulations were adopted by the meeting, and the Marquis of Salisbury and Lord Londesborough were likewise accepted as Patron and President. In addition, the Provisional Committee members were elected to the Council (with George Bish Webb as Honorary Secretary), and a handful of local dignitaries, including the Lord Mayor and several Aldermen, were appointed as Vice-Presidents.

After a round of the sort of thanks and self-effacing responses usual on such occasions, the Rev. Hugo ended the proceedings by wishing the Society "a signal, enduring, and complete success", and all those who had indicated a desire to join were, in conclusion, formally declared to be members. LAMAS had arrived on the Victorian archaeological scene.

II. THE STATE OF LONDON ARCHAEOLOGY AT THE TIME OF THE ESTABLISHMENT OF LAMAS

By 1855 there were already three archaeological societies with their headquarters in London. However, the interests of the Society of Antiquaries, the British Archaeological Association and the Archaeological Institute were wide-ranging, encompassing antiquarian discoveries from all over the world, not just Britain and the Empire. The object of LAMAS, as with all other county societies, was therefore to look at local antiquities. Using typically Victorian militaristic terminology, Sydney Smirke described the situation by stating that

the three London institutes were "like the staff of an army; they are not attached to any regiment, but they exercise a power and an influence over the entire system of operations". While they swept the horizon with the telescope, LAMAS was to "take up the microscope for the purpose of minutely examining objects immediately before us"⁶. It would appear from the emphasis placed on 'no trenching' that archaeological societies were not working together but were markedly antagonistic and jealous of each other. At the inaugural meeting William Taylor stated that "it is clearly laid down that we trench on no other Society" for the resulting collision with kindred societies would be "injudicious and improper"⁷. Despite such assurances the Society had, in certain quarters, aroused feelings of suspicion and jealousy, presumably from the Society of Antiquaries seeing as special reference was made to the fact that the society had never been a popular institution⁸. The rivalry between various societies was summed up by the Rev. Hugo who was resigned to the fact that LAMAS would be regarded unfavourably since archaeology in Britain "seems fated to bring out the antagonistic principle"⁹. It would seem that prior to 1855 the archaeological societies in London were concentrating their efforts on national and international discoveries and were not particularly interested in co-operating with each other. At the same time sites of archaeological importance were being destroyed literally on their doorsteps as the result of massive Victorian construction work. Without any form of State intervention, monuments and artefacts were disappearing in the path of progress at an alarming rate. There was no attempt at recording or preserving sites as there was

no-one to whom such information could be given¹⁰. Indeed, the very idea that any form of protection should be given to London's buildings and monuments was one that had occurred to very few people. Those who were concerned were the sort of people who joined LAMAS, and the state of affairs that worried them is well documented in the *Transactions*.

At the inaugural meeting Charles Boutell recollected how four statues in niches in the western towers of Westminster Hall had been 'lost' during cleaning, and he also recalled having watched boys climb the walls of Henry the Seventh's Chapel to pick out pieces of the stained glass which they would then sell in the streets at a penny a piece. The threat to London's monuments was not simply from workmen and small boys however, and Deputy Lott related how a chapel was destroyed "in order to make way for an edifice of a far less agreeable character, the courts of law"¹¹. However, the greatest outrage, and the one that most deeply impressed prospective LAMAS members, was that perpetrated on the Crypt of Gerard's Hall in the City. In the path of civic development the enlightened decision was taken to dismantle it and rebuild the crypt at Crystal Palace. However, as the stones had all been "thrown together in confusion" without being marked, it proved impossible to reconstruct the edifice. Another version of events stated that the stones had been numbered but some of them were utilised in the building of an engine-house, "and thus it was that carelessness combined with utilitarianism to sacrifice this very interesting monument of early art"¹².

Time and again reference is made to 'wanton destruction', 'wanton mutilations' and 'vandal brutality'. While buildings were being destroyed in the face of the Corporation's 'utilitarian ignorance' those left standing were in little better shape and their contents were often in chaos. The neglected and dilapidated state of the tombs and monuments in Westminster Abbey were complained of by the Rev. Boutell, while George Gilbert Scott described an appalling scene at the Chapter House where the floor seemed to spring under him. "Upon examination it was found that the floor was nothing but a quantity of parchment consisting of writs, charters, and other records, which had been trodden down into one solid mass"¹³.

It was not just buildings that suffered from the lack of state concern. Artefacts were turning up at a remarkable rate due to construction work relating

to the laying of railway lines, the building of termini, road widening schemes, sewerage works and the digging of foundations for civic buildings. Coins and pottery were revealed during the digging of foundations for a new Militia Depot in the City Road, while foundations for a new gasometer in Whitefriars exposed various artefacts including a number of medieval shoes. Digging work around Fleet ditch in relation to the new Metropolitan Railway turned up silver coins, spurs, keys, spoons, leather jerkins, collars and shoes, and shoe buckles, while two leaden coffins were dug up in the course of excavations for the middle level sewer in Shoreditch¹⁴. An interesting example of what happened when objects like the latter were discovered is given in the *Transactions* by Henry King, repeating an observation made by a Mr Rolfe of Bethnal Green¹⁵. An inhabitant of Camden Gardens was digging for gravel in his garden when he came across an oblong of lead. Thinking it might be a treasure chest he and his neighbours broke the lid and discovered a quantity of partially discoloured lime through which parts of a human skeleton were visible. "Recovering from surprise and disappointment, an attempt was made to turn the discovery to pecuniary advantage. A screen was erected to destroy the view from the adjoining garden, and a penny was taken from every adult that entered . . . At this stage of the proceedings, two policemen and the parish beadle demanded an investigation. The latter dug up and mixed the whole of the contents into a confused mass with a mason's trowel. In the first night a thief contrived to carry off the piece of broken lid." After a few days the coffin was removed to the owner's greenhouse and the contents put into tubs, where they presumably remained until the householder got bored with the novelty and disposed of them.

In the absence of protective local or national legislation artefacts found their way into private hands, sometimes literally. Charles Roach Smith's interest in antiquities was fired when he recognised a Roman coin in the cash register of the shop in which he was working, and it formed the first of what grew to be an enormous collection of Roman artefacts. Such private collections were a major feature of Victorian antiquarian interest, and were a continuation of tradition. Both the British Museum and Ashmolean had been formed around the acquisition of private collections, the latter being centred on the collection of the Tradescant family while the British Museum was primarily set up as a repository for the Sloane collection. By the Victorian period in London anyone with a taste for archaeological pursuits and who was in possession of a little extra cash could start a collection simply

by turning up wherever construction work was in progress and buying direct from the workmen. Of course, where there is demand there will always be someone ready to supply it, and fraud was a serious problem. Roman coins and prehistoric stone implements were the most susceptible of all artefacts to fraud, the latter being manufactured in Yorkshire. Suspicion was finally raised not so much because of the undamaged, beautiful quality of the flint, but because slight qualms began to be felt when purchasers found that the flints could be procured to order. More enterprising frauds involved the 'discovery' of genuine archaeological artefacts which had in fact been removed from a different location. New Forest pottery appeared in Bush Lane, and even Roman lamps from Italy turned up in London trenches. Thomas Hugo related to a meeting of LAMAS how a workman approached a friend of his with a Burmese idol of gilded alabaster, complete with a liberal covering of wet mud. Suspicious, the friend challenged the man who came up with the story that "a 'mate' of his had it given to him by a gentleman at some India merchant's office in the city; the said 'mate' was gone back to Ireland . . ." ¹⁶.

Private collections could be anything from a few pieces of pottery to the vast and important collections of people like Charles Roach Smith whose collection of Roman antiquities was visited by many people from Britain and abroad, including Jens Jacob Asmussen Worsaae ¹⁷. Several other LAMAS members owned major collections, Joseph Mayer's eventually going to form the core of Liverpool Museum's collection. Some were less well organized. Living at Brentford, Thomas Layton was particularly interested in collecting artefacts dredged from the river, and these, combined with his collection of books, required storage space. "Shed after shed was added to his house, and every empty corner filled with books, pottery, fossils, stone implements, bronze swords" and so on ¹⁸.

Such then was the state of archaeological sites and artefacts in mid-Victorian London, and the concerned response of some individuals was the formation of a society to oppose that neglect of London's heritage which was apparent around them. The objects of LAMAS, listed under the Society's Rules, were the articulated response to a real need formulated by the founder members.

III. THE MEMBERSHIP

(i) TERMS OF REFERENCE

The Victorian period was characterized by class consciousness. In 1844 T. A. Webster's *Encyclopedia of Domestic Economy* took a basic division of five orders of society, from 'Lord' at the top to 'Esquire' at the bottom, and divided it into another nine divisions according to income and the number of servants employed. A first-rate establishment comprised a nobleman employing twenty to twenty-four domestics and with an income of over £5,000 p.a. At the other end of the scale, the ninth category consisted of those with an income of £150 to £200 p.a. and employing only one maid of all work. In addition, Webster went on to divide servants into a hierarchy of twenty-two categories ¹⁹. In such a class-obsessed period LAMAS existed as a middle-class concern, run by the middle classes for the middle classes. As the term is in itself so broad as to be meaningless, some attempt must be made to give a more specific definition of the membership.

Class	Designation	Modern Examples
I	Professional	Chemist, clergyman, doctor, lawyer, architect, accountant, university lecturer.
II	Intermediate	Farmer, manager, MP, nurse, teacher, engineer.
III	Skilled (Non Manual)	Clerical worker, draughtsman, sales rep., secretary.
	Skilled (Manual)	Miner, railway guard, bricklayer, carpenter.
IV	Partly Skilled	Machine sewer, agricultural worker, postman.
V	Unskilled	Railway porter, messenger, kitchen hand, labourer.

By classifying society according to occupation the Registrar General, devised in 1911, provides the following categories:²⁰

The Registrar General does not only rest on occupation, but takes into consideration 'general standing within the community' and incorporates assumptions about education and income as well as abstract concepts such as attitudes and style of life. As such the Registrar is not static, and occupations may change categories through time. Nevertheless, as such movements usually only involve a move up or down one category and mostly affect new professions, it is possible to use the Registrar General as a rough means of classifying Victorian society. By such means nearly all the known professions of LAMAS members fall firmly within categories I and II. The membership consisted of chemists, professors, lawyers, barristers, civil servants, astronomers, surgeons, Members of Parliament, Aldermen, Justices of the Peace, physicians, librarians and so on²¹. Indeed, the lowest known profession in LAMAS, according to the Registrar General, would be book illustrators, and while these would fall into category III (M), it is likely that in the Victorian period their social standing was higher²². In any event, from the known occupations of LAMAS members they would all appear to belong to classes I–III. Given that the Registrar General can be used to distinguish between Upper Classes I–III and Lower Classes IV–V, it is possible to make at least such a preliminary classification of the LAMAS membership.

The type of five-fold division of society made by the Registrar General was adapted to a specifically Victorian environment by J. S. Neale, with the following result:²³

From the membership lists for 1857, 1881 and 1906 it can be seen that LAMAS had a small number of members who came within Neale's group I classification, such individuals usually holding the honorary position of Vice-President. William Amhurst Tyssen-Amherst, for example, was the heir to Lady William Cecil (and 10,000 acres), becoming the first Baron Amherst of Hackney in 1892. Himself a member in 1881, members of the family had joined from its inception, such as John Robert Daniel Tyssen of the Manor House, Hackney. Other aristocrats included Lord Talbot de Malahide, who owned Malahide Castle, Co. Dublin, and Auchinleck House, Ayrshire, as well as 3,600 acres. Another of the Society's Presidents, Lord Londesborough, was wealthy enough to dispense his patronage with prodigious ease. When Charles Roach Smith retired from business, Londesborough offered to build him a house on his Grimston estate, and, as Smith later recalled, he "understood the responsibilities which wealth entails upon the conscientious; and his benevolence was as ample as his means"²⁴.

While some LAMAS members belonged to Neale's Upper Class, far more belonged to his Middle Class category. Industrial and commercial property owners included Charles Roach Smith with his business in Liverpool Street, Edwin Freshfield, whose family firm were solicitors to the Bank of England, John Gough Nichols of the Nichols printing company, the jeweller, Joseph Mayer, who presented twenty thousand volumes (and a building to house them in) to the village of Bebington, and Thomas Layton who left his collection of antiquities and £20,000 to found the Layton Museum at Brentford. These are just a few specific examples, but that many other LAMAS members fitted comfortably into this class can be postulated from indirect evidence. For example, from the

1.	Upper Class	Aristocratic, landholding, authoritarian, exclusive.
2.	Middle Class	Industrial and commercial property owners, senior military and professional men, aspiring to acceptance by the Upper Class. Deferential towards the Upper Class because of this and because of concern for property and achieved position, but individuated or privatised.
3.	Middling Class	<i>Petit bourgeois, aspiring professional men, other literates, and artisans. Individuated or privatised like the Middle Class but collectively less deferential and more concerned to remove the privileges and authority of the Upper Class in which, without radical changes, they cannot realistically hope to share.</i>
4.	Working Class A	Industrial proletariat in factory areas, workers in domestic industries, collectivist and non-deferential, and wanting government intervention to protect rather than liberate them.
5.	Working Class B	Agricultural labourers, other low-paid non-factory urban labourers, domestic servants, urban poor, most working-class women whether from Working Class A or B households, deferential and dependent.

TOTAL MEMBERSHIP FOR YEARS 1857/1881/1906

	1857	1881	1906
Total Members	395	340	170
Female Members	9 (2.28%)	8 (2.35%)	5 (2.94%)
Unlettered members	221 (55.95%)	187 (54.99%)	49 (28.83%)
Unlettered known professional members	27 (6.83%)	24 (7.07%)	27 (15.88%)
Lettered members	138 (34.94%)	121 (35.59%)	89 (52.35%)
Professional Lettered Members—Breakdown			
FSA	43 (10.89%)	41 (12.06%)	25 (14.70%)
FRIBA/ARIBA	32 (8.10%)	24 (7.06%)	4 (2.35%)
Clergy	31 (7.85%)	20 (5.88%)	11 (6.47%)
Legal	3 (0.76%)	5 (1.47%)	3 (1.76%)
Civil/Government	8 (2.02%)	13 (3.82%)	27 (15.88%)
Medical	5 (1.27%)	6 (1.76%)	7 (0.59%)
Academic/Learned	51 (12.91%)	33 (9.70%)	29 (17.06%)
Military	3 (0.76%)	6 (1.76%)	6 (8.57%)
Honours	8 (2.02%)	13 (3.82%)	12 (7.06%)

Notes:

1. Percentage figures represent the percentage in each case relative to the total membership in that year.
2. Some members within the above totals were members of more than one professional body.

Fig. 1

eighteenth century the position of Alderman required the possession of a private fortune of around £15,000, and it is likely that the case was similar in the nineteenth century. In any event, those LAMAS members who were J.P.s, M.P.s, Aldermen, Deputy Aldermen and so on must, by the nature of events, have been extremely well off. William Roupell, MP for Lambeth, for example, was able to equip some two hundred and fifty men, at his own expense, for the newly formed Volunteer Forces (a group that also interested Major Heales who aided the formation of two companies at Stoke Newington). In addition, many members belonged to the City Guilds, membership to which was usually by birth or purchase rather than apprenticeship.

On a more general level the fact that LAMAS members belonged to Neale's Middle and Middling Classes is available from a consideration of the membership lists²⁵. Approximately 40% of members had some form of professional or academic qualification. The lists include members of learned societies (such as A.R.A., F.G.S., F.R.H.S., F.L.S., F.R.S.L., F.Z.S.), professional qualifications (for example D.C.L., F.R.C.S., M.R.C.S., LL.B) and academics (B.A., M.A., Phil.D.). From business addresses it is possible to push the total of Middle/Middling Classes to over 50%, LAMAS members holding positions in the Record Office in

Chancery Lane, the Admiralty, Gray's Inn, the Sessions House, Middle Temple, Lincoln's Inn, Merchant Taylors' Hall, Commercial Chambers, Merchant Taylors' School, the Royal Polytechnic Institution, Christ's Hospital, the *Daily Graphic* office, the Guildhall, St. Dunstan's Vestry, the Engineer-in-Chief's Office, India Office, *City Press* Office, Probate Registry, Leathersellers' Hall, Prisons Department, the Apollo Theatre and so on, and on²⁶.

What then of the remaining members? Certainly they did not come from Neale's group 5. Booth's urban poor with an income of 18 to 21 shillings a week were living on the bare minimum possible for survival, 30.7% of Londoners being rated in this group in 1899. Neale's Working Class B therefore included those who were living in absolute poverty and for whom it was "... a struggle to obtain the necessaries of life"²⁷. If Working Class B are excluded from consideration, then so too should Working Class A, who may have had slightly less of a struggle to buy the necessities of life but who were still living on a precarious line between managing and falling into the abyss of poverty. Skilled engineers, for example, earning an average wage of £1 9s 4d a week in 1880²⁸ could hardly afford to pay an entrance fee of 10s together with an annual subscription of 10s²⁹ to become members of an archaeological society. Even if a skilled artisan

MEMBERSHIP FEMALE/UNLETTERED/KNOWN PROFESSIONAL/LETTERED - FOR YEARS 1857/1881/1906

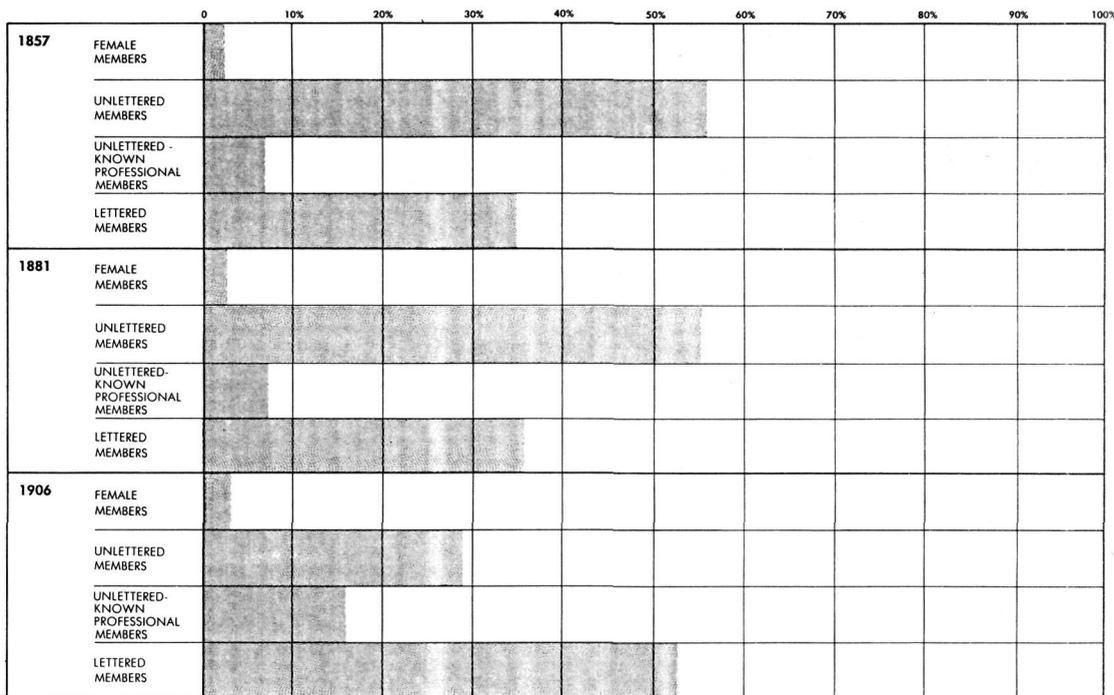
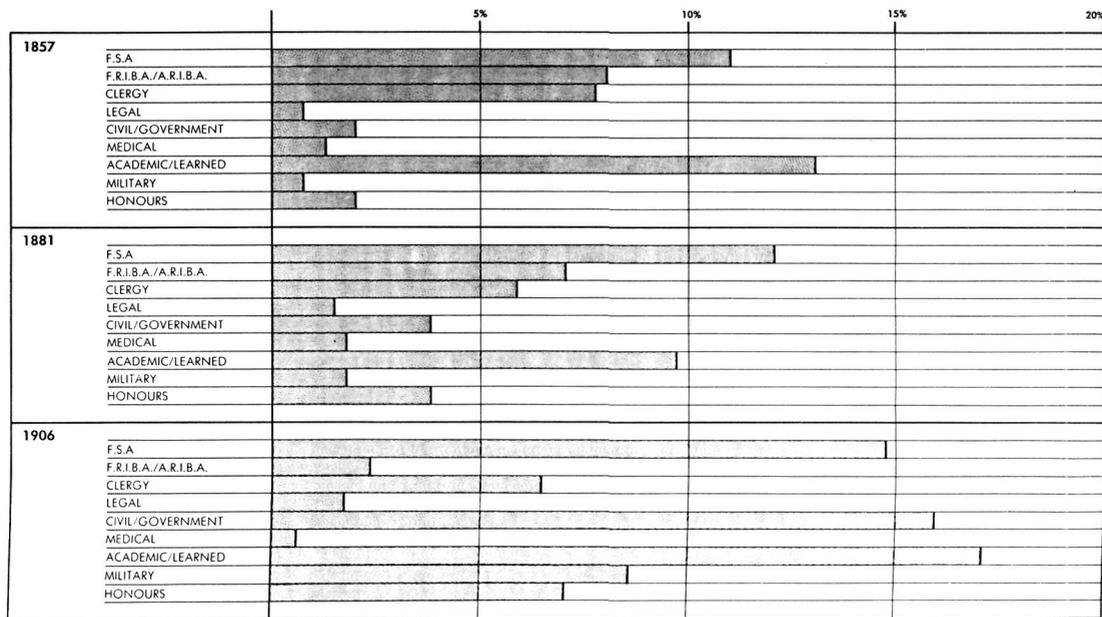


Fig. 2.

PROFESSIONAL LETTERED MEMBERSHIP - FOR YEARS 1857/1881/1906



NOTE 1: PERCENTAGES ARE IN EACH CASE RELATIVE TO THE TOTAL MEMBERSHIP IN THAT YEAR
 NOTE 2: SOME MEMBERS WERE MEMBERS OF MORE THAN ONE PROFESSIONAL BODY

Fig. 3.

could afford the membership fee, the cost of belonging to the Society did not stop there. An extra fee was levied to attend evening meetings³⁰, while the cost of actually getting to some of the meetings ranged from between 4s to upwards of a pound³¹. Then there were the additional events such as conversaciones which frequently required the wearing of evening suits, the possession of which was in itself indicative of class distinction. While the cost of the *Transactions* was incorporated in the fee, binding in one volume cost an extra 2s 3d, and there were always frequent requests to contribute to the printing of Society publications or to meet the cost of a commemorative medal³².

There are other indirect means of attesting to the middle-class membership of LAMAS. For example, pages of the *Transactions* printed in Latin indicate the educated nature of the membership in an age when education was a purchased commodity. In addition, the fact that meetings were frequently held during the day indicates that members had to be free to dispose of their time as

they wished, either because they owned the business where they worked or because they were of independent means. Of the members of whom nothing is known it is highly likely that they belonged to this latter group, particularly as the 1851 census showed that there were over 33,000 people of 'rank or property' in London, meaning that they did not have, or need to have, an occupation. The suggestion that LAMAS members belonged to this group is furthered when one considers the areas in which they lived.

As can be seen from Fig. 4 the majority of LAMAS members either worked or lived in the City or West London. Social division had always been a feature of London's topography, the aristocracy, for example, having grouped around the court at St. James, but by the nineteenth century such tendencies had become more marked. The development of the docks to the East combined with the impact of the railways and the concomitant increase in traffic led those who could afford to do so to escape from the congestion by

LOCATION OF MEMBERS IN AND AROUND LONDON

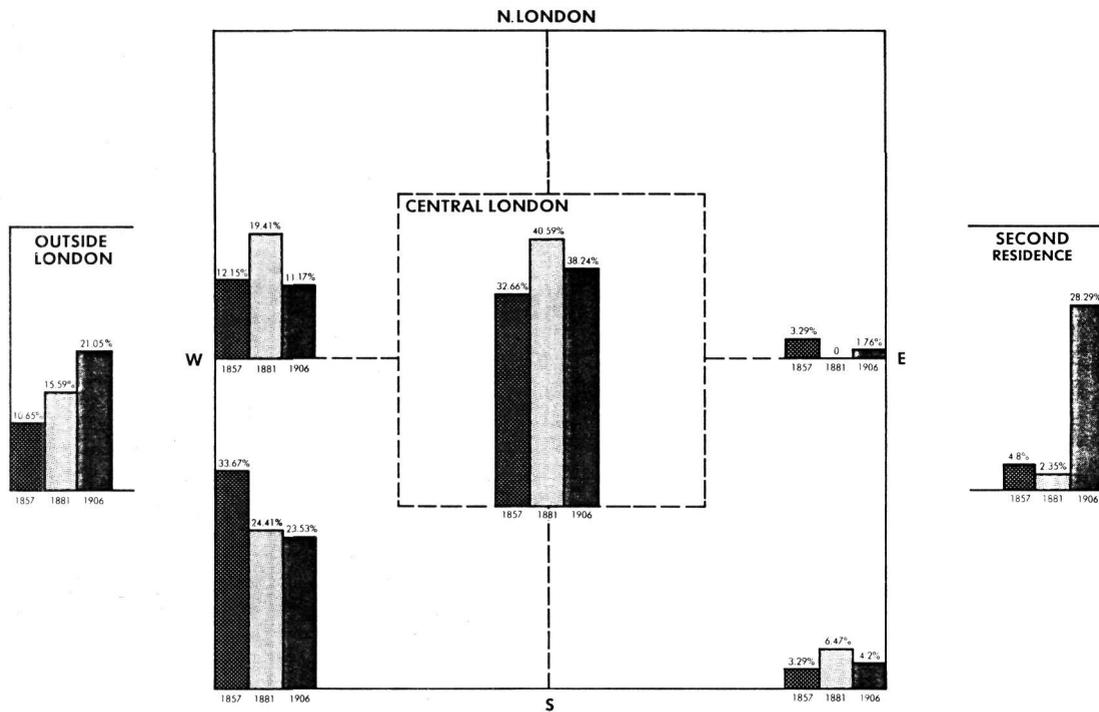


Fig. 4.

moving out of the centre. There was a general move westwards into the recently built squares, terraces and crescents in such areas as Brompton and South Kensington, while the building of Buckingham Palace and Regent's Street at the beginning of the century had established the West End as the fashionable place to live. LAMAS members, not surprisingly, lived in such areas. Some came from traditionally wealthy centres of Mayfair and Belgravia, but the majority came from middle-class strongholds like St. John's Wood, Brompton, Bayswater, Westbourne Park and Hyde Park, and from the fashionable Squares such as Cavendish, Fitzroy and Grosvenor.

During the century the drift away from the centre of town became even more attractive due to the improvement in communication systems, for it became increasingly possible for anyone earning over around £150 p.a. to move to the peripheries of London and travel in to work each day by omnibus. In 1850 there were nearly thirteen hundred omnibuses in operation, the major routes operating in the West from Paddington, Hammersmith and Blackwell. In addition, regular steamboat services operated along the Thames from the 1840s, and from the 1860s the

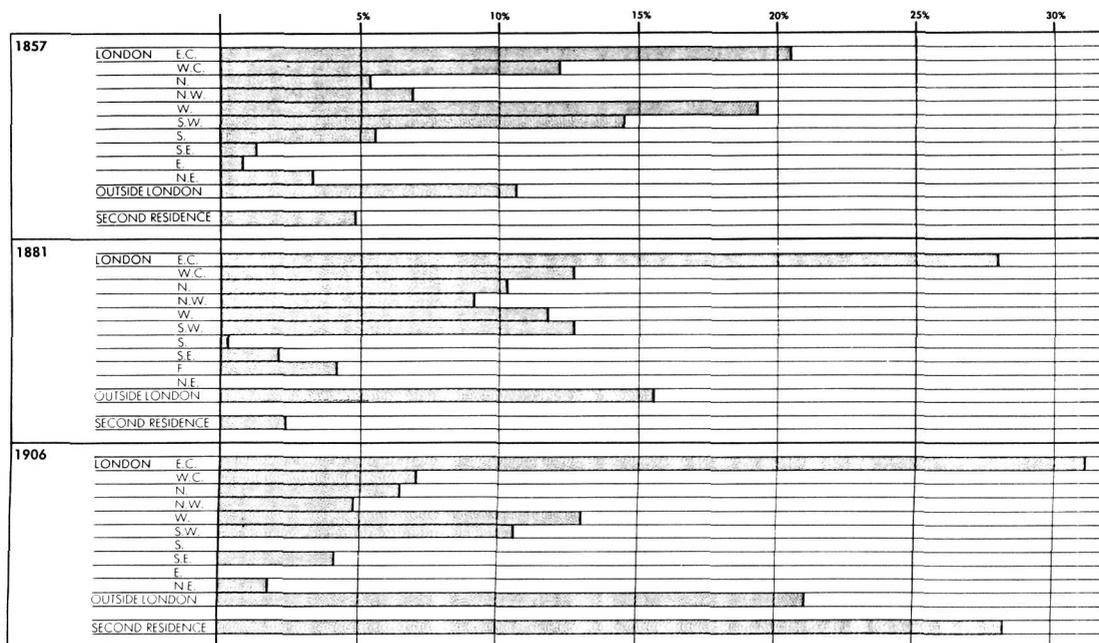
new underground railway along the Embankment provided additional means of transport. From the 1906 membership list the increasing tendency to separate work and home that was fundamental to the Victorian middle-class can be observed³³. It is not simply that more members were providing two addresses, but the lists show a marked increase in the numbers of members living out of London, in Kent, Middlesex, Sussex, Hampshire and so on. LAMAS members were of their age, the age of the train, and were among the first of the new breed, the commuter.

It would appear from the above that the contention that LAMAS was a middle class concern is correct, and that the sort of people classified under this heading are those of Neale's groups 2 and 3, and the Registrar General's groups I-III. Having defined the membership it is now possible to look more specifically at the individuals to ascertain the sort of person likely to be attracted to the Society.

(ii) SPECIFIC

LAMAS contained its share of Peel's second generation gentlemen who had inherited not only

MEMBERS RESIDENCES AND SECOND RESIDENCES



NOTE: PERCENTAGES ARE IN EACH CASE RELATIVE TO THE TOTAL MEMBERSHIP IN THAT YEAR

Fig. 5.

the family business but a family taste for learned pursuits. A notable example is John Gough Nichols. His grandfather had succeeded to his partner's printing firm, and the taste for antiquarian study combined pleasantly with business, Nichols's company being the printer of the journals of several archaeological societies, including the Society of Antiquaries and LAMAS, as well as archaeological books such as Hoare's 'Wiltshire'. John Nichols, apart from acquiring the printing company, had also written several books, including the famed *History of Leicestershire*, and the literary and antiquarian taste had continued with his grandson. John Gough Nichols became Assistant Editor of the *Gentleman's Magazine* and followed both his grandfather's and father's footsteps by becoming a Fellow of the Society of Antiquaries, regularly contributing papers to that society and to LAMAS.

Another third-generation businessman was James George White, whose family brushmaking company had occupied the same house in Cannon Street for over one hundred years. White broke the tradition of living on the premises and as such is an example of the Victorian tendency to separate home and business. James George White also serves as an example of the sort of upstanding citizen who was involved in local affairs, so enhancing that much desired Victorian quality, his respectability. Born, bred and in business in the Ward of Walbrook, White became Deputy Alderman to that Ward and undertook many other public offices such as Guardian of the City of London Union, Governor of Bridewell Hospital, Master of the Parish Clerks' Company and Chairman of the Basket Makers' Company, to name but a few.

Edward Brabrook was another public-spirited man who joined LAMAS in 1865 and eventually became President. In 1869 he was appointed Assistant Registrar of the Friendly Societies, becoming Chief Registrar in 1891. Sir Edward is an excellent example of middle class Victorian society, his opinions on such matters as pensions exhibiting the classic values and preoccupation with self-help, thrift and utility. While his opposition to state pensions might be questioned today³⁴, there is no doubt that his love of thrift combined with his legal training helped to promote LAMAS's financial solvency during his term as President.

As with all archaeological societies LAMAS had its fair share of Reverend gentlemen. The 'learned cleric' with time on his hands and a subject for study in his church next door, was a

common component of county societies, the Oxford Movement perhaps having played some part in encouraging closer attention to be paid to the fabric of churches. The major clergyman as far as LAMAS was concerned was undoubtedly Thomas Hugo. Born in 1820 he lived life at an exceptionally energetic pace. The week after his election to the Society of Antiquaries in 1853 he gave the first of over sixty papers to that group as well as being an Executive Committee Member. The leading spirit of LAMAS, he contributed over a score of papers to the *Transactions* as well as being a frequent and active participant at meetings and an industrious member of the Council. As in life, so in death: "His death was extremely sudden. He attended and assisted at a midnight service in his own church last Christmas Eve, and within twenty-four hours he sank to rest"³⁵.

The Rev. Hugo was exceptional. So too, in a different light, was another of the Society's founder members, the Rev. Charles Boutell. Famed as an authority on brass rubbing, Boutell was unfortunately infamous to the Council for the disappearance of £56 15s in subscription fees. As Honorary Secretary the money had been handed over to him by the Society's collector, but it was never paid into the bank account. An extraordinary Meeting was held and an attempt made to regain the money, but without success. However, 'the late Honorary Secretary' refused to lay down and continued to prosper, Charles Roach Smith recalling that Boutell went on to suffer from a 'similar lapse' in relation to the Surrey Archaeological Society³⁶.

(iii) GENERAL

Archaeology was one of the few subjects open to female membership, possibly because of the wide range of 'genteel' areas of study incorporated in antiquarian studies. Local history in particular, with its emphasis on houses and families, was considered sufficiently uncorrupting and harmless as to be suitable for the sensibilities of ladies. Indeed, the fact that ladies had taken the lead in knowledge of archaeology was commented on by at least one contemporary commentator. J. H. Parker, in an address to the Oxford Architectural and Historical Society, stated that

a sign of education in ladies was to discover whether they knew of the subject. He noted that "The daughters of our higher nobility . . . are almost always well acquainted with Archaeology" whereas their brothers were not³⁷.

While female membership of LAMAS was not large, it appears to have been active, and a Miss Nethersole was among the list of twenty-nine names of interested members noted by the Provisional Committee at its second meeting. (Henry Nethersole, the Society's first auditor, did not indicate his interest until the next meeting). The size of the female membership appears to be a direct reflection of the subservient role of women in Victorian Society rather than an indication of lack of interest. Certainly their presence at meetings should not be underestimated for on at least one occasion female attendance was greater than the number of men present. The *Morning Advertiser* of 15th June 1859 records that at a meeting of LAMAS at the Guildhall on the day before, "There was a large attendance, the majority being ladies", a point reiterated by the *Morning Post*³⁸. Despite being patronized by the male members, those women who did attend meetings do not appear to have been passive observers. For instance, during the Society's visit to Westminster Abbey in 1856 "some of the party, including several fair archaeologists, followed their conductors to the very roof of the edifice"³⁹. Although it would appear that female membership was not negligible it is hardly surprising to note that no women appear to have taken part in discussions during meetings or to have contributed papers on such occasions during the first fifty years of the Society's history. The British way of life had to undergo considerable changes before a woman could make such a bold move, but it is at least to the credit of LAMAS that those women who wished to join did find one area of intellectual interest open to them.

The membership of LAMAS seems to confirm the suggestion that membership of a learned society was all part and parcel of being a gentleman, and was therefore a family concern. From the 1857 list obvious family connections can be traced. Charles Baily of 72 Gracechurch Street was a member as was H. Baily from next door⁴⁰, and John and Samuel Godefroy joined independently although both lived at Aden Cottage, Chertsey. Joseph Good and his son Joseph Junior not only shared the same leisure interest but the same profession, both being Fellows of the Royal Institute of British Architects. John Gough Nichols's father was a member, and

father and son membership would appear to exist in the cases of J. and J. Knowles, J. and J. Monckton, and James Anderson and William Anderson Rose. It would also seem plausible that M. J. Routh of Hampton Court was related to the other two Rouths listed and presumably suggested they join, given the fact that one lived in Yorkshire and the other in Hungerford. Obviously in a modern context the fact that two surnames are the same would mean little, but given the importance of 'father and son' to Victorian life, the fact that when names are repeated they appear in pairs is cause for suspicion. J. and R. Bell both lived at separate addresses but were both F.R.I.B.As, while of the three Browns listed one is named John and the other John Whitely. In addition, family connections can be postulated when the surnames are unusual. For instance, of the four names listed under 'V', John and Hugh Vardon are two, the other pair being Gabriel and Henry Valpy. As it is impossible to be objective about family connections, these have not been tabulated, but it is an interesting aside that for the 1857 list there are thirty-six pairings. Above this there are four instances of three repeated surnames, one of four and two of five. In the latter the surnames concerned are Smith and Wilson, and of the five Wilsons, three lived in Kent.

Verification of the tendencies of membership to be a family fashion is limited but interesting. Apart from John, John Bowyer and John Gough Nichols, Sydney Smirke's father and three brothers were all F.S.A.s, as were George and William Roots. The practice seems to have continued, for in the 1906 list both Edwin and Edwin H. Freshfield are listed as F.S.A.s. In addition, ninety-nine years after the foundation of LAMAS the oldest individual member at the time, Mrs Kate Butler, died, thus ending one family connection with the Society for her father, William Ivatts, had been its original Collector.

The LAMAS membership lists evidence the idea that belonging to a learned society was one of the marks of a gentleman, not simply from the patriarchal aspect but by the numbers of other societies joined. Indeed, some joined so many respectable groups that they sometimes overstretched themselves. The Rev. Henry Christmas is a case in point. Apart from being a Vice-President of LAMAS and a Council Member of the Society of Antiquaries, Christmas was a Fellow of the Royal Society and member of the Numismatic Society, to mention but a few. Moreover he was active professionally, originally as librarian and secretary to Sion College and then as Professor of English History and Archaeology to the Royal

Society of Literature. In addition, he was a prolific writer of books such as *Universal Mythology*, *Shores and Islands of the Mediterranean* and *Christian Politics* and, being an excellent linguist, he frequently undertook translations such as Calmet's *Phantom World*. Given such demands on his time his attendance at the Society of Antiquaries' Council Meetings was often less than frequent, causing one contemporary to note that his absence should not be a matter for surprise "... for, as you know, Christmas comes but once a year"⁴¹.

Many other LAMAS members belonged to several societies. John Green Waller was an F.S.A. and a member of the British Archaeological Association as well as belonging to the Essex and Surrey Archaeological Societies and the Quekett Club. Sir Edward Brabrook's "genius for friendship"⁴², was invaluable to his colleagues at the Athenaeum Club, the Society of Antiquaries, the Balham Antiquarian Society, the Beddington, Wallington and Carshalton Archaeology Society, the Anthropological Institute, the Folk Lore Society and the South-Eastern Union of Scientific Societies. Brabrook's mania for societies was not typical, although S. Wayland Kershaw ran him a close race with his membership of LAMAS, the Society of Antiquaries, the Kent Archaeological Society, the Society of Architects, the Huguenot Society, honorary membership of the Guernsey Antiquarian Society, and Vice-Presidency of the Balham and District Antiquarian and Natural History Society. However, most LAMAS members seem to have contented themselves with only two or three other subscriptions. Edwin Freshfield, for example, was particularly interested in the City of London and in Byzantine antiquities, such interests being reflected by his membership of LAMAS, the Byzantine Research and Publication Fund and the Hellenic Society. Likewise the Rev. Canon William Benham restricted his antiquarian interests to the Society of Antiquaries and LAMAS, and his religious preoccupation to the Society for Promoting Christian Knowledge.

Multiple and family membership to learned societies adds to the picture of the exclusive nature of such groups. An applicant that was of the 'right stuff' for one society was likely to be acceptable to another, and was equally likely to have friends in each. The point is particularly relevant when consideration is given to the fact that many societies only accepted applicants proposed by existing members. For example, in a brief note to the Council dated 27th February 1867, Henry Gough states that "My friend W. Francis Henry Hammond A.K.C.L., architect, has requested me to inform you that he desires to join the L. & M.A. Society.

His address is Melbourne Lodge, North Brixton. Will you be so kind as to let his name be proposed in the usual way?"⁴³. The following day he received a printed acknowledgement, stating that the application would be laid before the Council at the next meeting.

Obviously family connections and friendships had important connotations to the way in which learned societies were run, and it is this aspect of the membership in relation to LAMAS that will be considered next.

IV. IMPLICATIONS OF THE MEMBERSHIP TO THE FUNCTIONING OF LAMAS

(i) SOCIAL

There can be little doubt that the social club aspect was a major attraction and inseparable feature of learned societies. Membership of such bodies enabled the individual to fraternize with others of a similar social standing and, as an added bonus, could even allow one to rub shoulders with a Lord or Baronet. That 'hobnobbing' was an attraction is illustrated by a letter to Henry Gough from Charles Boutell dated 16th August 1855: "We are anxious to obtain as many influential names as possible before printing a List" he stated, the suggestion being that the Provisional Committee was well aware of the drawing power of having a Lord as President and a Marquis as Patron. The self-satisfaction apparent on having achieved this coup is indicated in the speeches at the inaugural meeting, William Tayler, for instance, speaking of the "happy influences" extending over England resulting from the interest in archaeology taken by "noblemen and men in high places". Throughout the Society's first fifty years honorary positions of Patron, President and Vice-President were always held by individuals of high social standing and the attraction of meeting the Lord Mayor or the Bishop of London must

have had some weight to Neale's "aspiring professional men" and "deferential" middle class.

The social club aspect of LAMAS worked in other ways, and added to the exclusive nature of the Society, for friendships established elsewhere must have led to the formation of cliques. Looking back on his life, Sir Edward Brabrook recalled that his intimate friends in LAMAS had been Henry Coote (V.P.), John Price (Hon. Sec., Evening Meetings) and Alfred White (Trustee)⁴⁴. The four would meet together on Thursday evenings to share a meal at Giraud's restaurant in Castle Street, where "good burgundy was to be had", and would then go on to the weekly meeting of the Society of Antiquaries.

An idea of how exclusive groupings of LAMAS members involved friendships made elsewhere is given in the *Retrospections* of Charles Roach Smith, which additionally shed more illumination on the state of mid-Victorian archaeology. A close friend of Smith's was F. W. Fairholt, and a letter of his dated 29th October 1855 is of particular interest: "... My more immediate object in writing is, to ask your advice about my being on the Council of the Middlesex Archaeologists. Shall I say 'Yes'? Do you think it well? Give me your honest advice, and I will follow it . . . I cannot *work* for it, but I will accept as you are on it, if I am able to help you or them"⁴⁵. Fairholt, like Smith, was a friend of Lord Londesborough, and when the latter's health necessitated a trip to the South, Fairholt accompanied him to Rome. Fairholt also made frequent trips to the Rhine and Moselle regions with Charles Roach Smith, another friend and travelling companion of whose was John Green Waller whose etchings often graced Smith's publications⁴⁶. In addition, John Green Waller and his brother Lionel produced etchings and provided information on monumental brasses for that "unscrupulous adventurer" the Rev. Charles Boutell.

The impression given is that the membership of LAMAS included a core of individuals who were well acquainted from other learned societies. The Rev Henry Christmas, for example, took over as secretary to the Numismatic Society from Charles Roach Smith, and it was through Christmas's offices that Smith became a member of the Society of Antiquaries of Spain. Smith, J. G. Waller and the then Lord Albert Conyngham (later Lord Londesborough) were founder members of the British

Archaeological Association, and Waller was no doubt acquainted with Major Heales and William Ivatts through membership of the Surrey Archaeological Society. While not actually incestuous, the social grouping from which LAMAS members were drawn must have been extremely close.

There is considerably more reason than that already touched upon to suggest that LAMAS functioned as a social group for a minority concern, not the least of which is the way in which the meetings were run.

MEETINGS

The holding of regular meetings and the publication of the information shared on such occasions were the major processes by which the objectives of the Society were achieved. From the very beginning the Society was peripatetic in nature. This was a conscious decision but it also reflected the fact that for the early years of the Society's history it did not have a permanent headquarters. Indeed, the Society's rooms for most of the early period seem to have been the business address of whoever was active on the Council at the time⁴⁷. The fact that LAMAS was able to be peripatetic is an indication of its unique location compared to county societies, for the latter would have been restricted to a handful of possible meeting places, whereas LAMAS was spoilt for choice. Legal members ensured that the Inns of Court were available for a Society visit, while members of the City Guilds enabled LAMAS meetings to sample the hospitality for which the wealthy Companies were famous. With the Mayor and various Aldermen as honorary members the Society was able to visit the Mansion House and Guildhall, and then there were the libraries and academic halls, where various members worked, which could be visited, as well as major sites such as Westminster Abbey and the Tower⁴⁸. London and Middlesex had a fair share of that staple of all archaeological societies, the church, and Middlesex provided a wealth of interesting places to visit, such as Harrow School.

Within a year of its foundation, the pattern of LAMAS meetings was well established. The basic approach was to introduce members to the various locations, the procedure being that members would meet at the chosen site where they would listen to three or four papers which had a direct bearing on the building itself or its immediate vicinity and famous inhabitants. For the first twenty or so years of the Society's his-

tory three to five meetings were held a year comprising of two or three in Westminster and London and one or two in Middlesex or further afield⁴⁹. Other papers not directly relevant to the location would also be read, usually when a meeting was held at a site used several times, such as the Gallery of British Artists, Crosby Hall and University College. Papers were contributed by members, usually those active on the Council and their friends⁵⁰. Where non-members are listed as having provided a paper they are invariably those with a direct relation to the site visited at that time, such as librarians or parish vicars⁵¹.

That the meetings were a social event cannot be questioned. After listening to the papers members would partake of refreshments and perhaps wander around the hall, observing the Guild's collection of plate, or the church's monumental brasses. Alternatively, a temporary museum of antiquarian objects brought to the meeting by individual members might be on show, and at any event there was always one's colleagues to talk to, discussion perhaps dwelling on a recently acquired artefact or the Rev. Hugo's evidence at the *Eastwood v. The Athenaeum* libel case concerning leaden objects "purported to be genuine Pilgrims' Signs"⁵². Such meetings must have been very pleasant and congenial occasions, as were the afternoon or day meetings held further afield. These were certainly popular, the visit to Hampton Court attracting over four hundred people. Indeed this, combined with the seven hundred people who attended the Tower of London visit, must have induced the Council to attempt greater management for within a few years LAMAS outings had become highly organized and efficient affairs, with tickets available in advance from the Secretary, complete with travel and luncheon vouchers. Such efficiency ensured that a little learning was acquired with the minimum of effort and the maximum possible comfort, almost all the meetings ending with a meal, whether it be a collation in a marquee in Northolt, lunch at The Star Hotel in Maidstone, or a Jubilee Dinner in the company of the Lord Mayor. Food seems to have been an important aspect of LAMAS meetings and as such is indicative of the social nature of such events. Indeed, on the rare occasions when the meal was not up to standard it was reported in the Press. In addition, several members appear to have formed the London and Middlesex Archaeological Club for the sole purpose, it would seem, of holding annual dinners.

The fact that LAMAS's activities were reported in the Press is indicative of the social aspect of the Society as well as providing another indicator of the social class attracted to join. The 'gentlemen of the press' were invited to attend some functions, *The City Press*, for example, publishing the whole of Deputy Lott's paper on Sir Richard Whitynghton, read at a meeting, in three large extracts on 10th July, and 7th and 14th August 1858. Press cuttings give an interesting insight into LAMAS meetings, a good example being that from *The City Press* of 18th June 1859, reporting a meeting held at the Guildhall. "The assembly was of the most brilliant character, and included many of the most eminent antiquarians, architects, and persons of taste and culture, with whose names we are wont to associate pleasant reminiscences of intellectual and moral worth". *The Daily Telegraph*, *Times*, *Standard*, *Building News* and *Daily News* as well as the *Morning Chronical*, *Advertiser*, *Herald* and *Post*, and countless local newspapers, all reported LAMAS meetings in a most deferential and flattering manner⁵³.

As time passed the social side of events appears to have been dominant over the archaeology. By the 1890s social events had become quite grand, the Conversation held in honour of LAMAS by the Worshipful Company of Ironmongers in 1904 being a case in point. The evening featured a concert by a string band of the Royal Artillery as well as a vocal and instrumental concert in the Drawing Room. Some archaeological purpose was served, however, for two papers were given, and an exhibition of "Various Objects of Art and Antiquity" was displayed. In addition, a note at the bottom of the programme informed members that "The Instrument used [in the Drawing Room] will be a Violin 343 years old, made by Christopher Wise, in Vine Court, Bishopsgate Street Within, in 1661 . . .".

Social grandeur had also hit the Society's publications. The publication of the *Transactions*, issued free to members, was from the very beginning the major expense of the Society, the cost of its impressive illustrations having to be met by donations of money or whole blocks. In addition, the Society published a number of separate publications, the first being *A Description of the Roman Tessellated Pavement found in Bucklersbury* by J. E. Price F.S.A., published at ten shillings. By 1895, however, the Society was publishing a reproduction of Ogilby & Morgan's large map of London, originally published in 1677, and complete with a seventy-eight page *Explanation*. The

price was eighteen shillings to members and one guinea to the public. This was an extravagant undertaking at a time when membership was low, and the financial implications are suggested by the fact that after volume five of the *Transactions* was published in 1881, volume six did not appear until nine years later and the volume after that covered a fifteen year span.

The evidence seems to suggest that by 1905 the social aspect of the club was of primary importance. Even though the cost of membership had not risen since the late 1870s, the cost of attending day meetings combined with the expenditure necessary to take part in other activities must have in effect made LAMAS financially less attractive than at its inauguration, and perhaps explains the drop in membership numbers to an all time low at this period. An additional factor, however, may have been that as time went by the subject areas originally incorporated under the umbrella of archaeology may have slowly emerged as disciplines in their own right with their own societies and membership. In any event, the social cycle had turned full circle as far as LAMAS was concerned. Of the one hundred and thirty-eight members in December 1855, and the hundred and seventy of 1906, over fifty per cent had some form of professional or educational qualification. It is perhaps time to consider how far the membership influenced the Society's archaeological objectives.

(ii) ARCHAEOLOGICAL

One point that emerges from a study of LAMAS is that the Society, like any other (past and present), had a large passive membership and a small core of active participants. These latter members were those who were devoted to antiquarian study and who aimed "to elicit new and unpublished facts [and] . . . to place known facts in a more clear and intelligible light"⁵⁴. Such individuals, who usually belonged to several archaeological societies, moulded the style of LAMAS by becoming active members of the Council, arranging meetings, acting as site guides, presenting papers and attempting to popularize archaeology in London.

One of the admirable features of Victorian archaeology was its interdisciplinary nature. Information from any source was valued, and the variety of individual interests encompassed within antiquarian study could only have been to its benefit. For instance, Sydney Smirke brought his architectural knowledge to bear on buildings visited by the Society, and drew atten-

tion to the fact that the technical construction and decoration of a building could provide information on determining its date and the state of the arts at that period. Nothing, therefore, was without interest, however mundane, and Smirke displayed all manner of objects at meetings, such as wooden and iron wedges, pillar bases and scraps of decorated ceiling plaster.

The study of original documents was considered a vital aspect of antiquarian study and high standards of scholarship were upheld. Original sources were studied in order to prevent the repetition of other people's errors, and the indispensable quality of the true antiquary was considered to be "the love of absolute truth and accuracy for its own sake"⁵⁵. With a number of librarians as members it is hardly surprising that original documentation was consulted, and this was often useful to meetings. When the Society met at St. Paul's, for example, the Rev. W. Sparrow Simpson provided information on the Cathedral derived from Lambeth Palace Library, Simpson being one of the Archbishop of Canterbury's honorary librarians.

Other interests could also be incorporated into the meetings. Alfred Heales, a keen ecclesiologist, was able to provide information relating to the churches of Heston, Stanwell and Greenford when those sites were visited. John Green Waller's knowledge of art was utilized at a meeting in the Chapter House of Westminster Abbey, and his interest in mural painting and ecclesiastical symbols resulted in communications on such objects as brasses. Edward Brabrook's profession as a barrister enabled him to provide information to the meeting at Lincoln's Inn, and on the trip to Enfield John Gough Nichols was able to provide a biography of one of its famous inhabitants, his godfather, Richard Gough. The impression that results from all this is that wherever a meeting was held there was always a member who lived, worked or had an interest in the site and its vicinity, who was able to provide a paper. Members therefore directly influenced the Society's proceedings. For those with a more specialized interest of the sort that would be recognized today as archaeological, there were in addition the Evening Meetings. Less well attended, the Evening Meetings were more concerned with artefact discovery, and discussion was encouraged⁵⁶.

When considering the effect of the membership on the archaeological content of the meetings it is not surprising, given the emphasis placed on the local interests of LAMAS, that little attention appears to have been given to the geological debates and palaeolithic discoveries of the day⁵⁷. Cer-

tain members, such as Dr Roots, Mr Akerman and their friend, the Rev T. Hugo, did have a particular interest in 'celts' recovered from the Thames, but during the first fifty years of the Society's history only one paper was given on the prehistory of London⁵⁸.

The membership of LAMAS can be seen to reflect the state of mid-Victorian archaeological methodology. 'Excavation' to them clearly had the basic meaning of digging holes, usually for a non-archaeological purpose, artefact recovery being a pleasant, and profitable, secondary result. However, one illustration is given in the *Transactions* of a case where an excavation was carried out for the sole purpose of recovering archaeological material⁵⁹. Joseph Wilkinson describes how an Anglo-Saxon cemetery was discovered in Cambridgeshire in 1860 as a result of the digging of drainage ditches. After two days of digging himself, Wilkinson uncovered seven graves, and the next year discovered many more. However, in 1861 "... labour was very scarce, owing to coprolite digging in the neighbourhood, and in place of two or three men I could only secure the services of one ...". While Wilkinson, like other LAMAS members, provided detailed descriptions and precise measurements of the artefacts he found, it is clear that the object of excavation was simply to remove such artefacts from the ground. Indeed, the only appreciation of the context in which artefacts were found seemed to be that the observation of the soil could be a means of detecting fraud.

LAMAS was of use to archaeological studies in its recording and preservation work, and in its attempts to popularize archaeology. The members appreciated the enormous task involved in recording new sites⁶⁰ as they were discovered and old buildings as they were modified and destroyed, but the attempt was made and the *Transactions* and separate publications today provide a detailed description of sites that have long since disappeared. Naturally, the members would rather have seen a building preserved than have to record it prior to destruction, and the members were active in the promotion of the preservation of London's heritage. At the very first meeting the Council was authorized by the members to write to the civic authorities to complain against the "unbecoming and injurious treatment" being meted out to some statues at the House of Lords, and at the next meeting a letter was read out stating that Sir Charles Barry would exert his influence to prevent further injury. The Society was active in the cause of the Chapter House (1862) and Heston Church (1864), and in 1866 badgered the City Corporation into granting £200 to the fund for the restoration

of St. Bartholomew's the Great. The same year the Society supported the St. Helen's Priory Church Restoration Committee in their work, and in 1879 the results of their agitation to avert the danger to St. Mary-at-Hill, posed by the District Railway, was to witness the withdrawal by the Company of the Bill before Parliament for the extension to the line.

Such successes were linked to the Society's ability to bring archaeology to public attention by holding informative and well-attended meetings that were reported in the Press. More importantly, however, by inviting London's dignitaries to be honorary members who chaired meetings, the end was achieved of bringing the need for civic intervention for the preservation of monuments to the attention of the very individuals who had that power to exert. In addition, pressure from such bodies as LAMAS led to the setting up of museums and libraries, such as the Guildhall Library, so making redundant one of the objectives of the Society, to set up its own library. LAMAS had been set up to fulfil certain archaeological needs in London, and within their own definitions the members were successful.

CONCLUSION

There can be little doubt that everything about LAMAS, from its inauguration, objectives and membership to its social aspects and archaeological content, was a direct result of contemporary Victorian society and was particularly related to the unique position of the middle class. The emphasis on class has therefore been great, but the intention has not been to criticize the membership for being a privileged minority in an age of appalling deprivation. Nor is the fact that many members treated the Society as a social club necessarily an implied criticism, for the need to popularize archaeology is as great, if not greater, today as it was in 1855.

While it is easy to denigrate Victorian society today, the fact remains that there were, of course, individuals worthy of respect. Not all antiquarians were dilettante collectors, Charles

Roach Smith, for example, refusing the £3000 offered by Lord Londesborough for his collection and accepting £1000 less from the British Museum in order to ensure that his Roman antiquities would remain intact for the benefit of the public. In addition, a number of dedicated individuals brought to archaeology an enviable display of general knowledge, and an appreciation of learning for its own sake, that has been lost today with the advent of that specialization which is said to be the necessary 'professional' approach to the subject. The needs which LAMAS came into existence to meet were recognized and tackled by caring 'amateurs', and it is such people who continue to complain against the 'crowbar and the shovel' today. The membership of LAMAS knew what it was about, and should be left to speak for itself:

"... our object at these meetings is to popularize archaeology⁶¹, so far, at least, as that object can be attained without the omission of the necessary scientific details, the absence of which, I hardly need add, would reduce that which should be learned investigation to the level of mere child's play... [It is therefore justifiable] to depart from that dry routine in which antiquaries have so often appeared to delight, and [to endeavour] to invest our fascinating study with the garb which it most eminently deserves. The subject in either case is the same, but the mode in which it is presented to the student is widely different. And the mode in which a subject is presented is, as all good teachers know, a matter of infinite importance."

(The Rev. Thomas Hugo, 14th June 1859)

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My Father drew the diagrams and my Mother kept the peace. Thanks, finally, to Jane for the typing.

NOTES

1. One of several ideas suggested by Mark Billinge (1984). Hegemony, class and power in late Georgian and early Victorian England: towards a cultural geography. Baker, A. R. H. and Gregory, D. (eds) *Explorations in Historical Geography*, Cambridge.
2. At the inaugural meeting several individuals registered their surprise at the fact "that the county in which is situated the greatest city in the world... should be without any institution of this kind". *Transactions I*, p. 10.
3. Details of the Proceedings of the Provisional Committee are given in *Transactions I*, pp. 1-2 and in the original Minute Books housed in the Museum of London.
4. The letter includes the following: "Permit me to suggest that the Middlesex Society should be established in connection with the City of London, and that the Corporation of London should be invited to take a leading part in it...". From a copy in the Minute Books.
5. 'Proceedings at the Inaugural Meeting' *Transactions I*, pp. 3-22.
6. *Transactions I* p. 11.
7. *ibid* p. 5.
8. *ibid* p. 12.
9. *ibid* p. 30.
10. See, for instance, *ibid* p. 11.
11. *ibid* p. 18.
12. *ibid* p. 19. On page 135, A. J. Beresford, giving the address at the Third General Meeting, states that the stones were "broken up to mend the roads at Sydenham".
13. *ibid* p. 142.
14. The majority of the smaller items ended up in the possession of LAMAS members.
15. The account was given to the Evening Meeting of Tuesday, 18 March 1862, and is recorded in *Transactions of the Evening Meetings 1860-74* pp. 76-81.
16. *Transactions I* p. 325.
17. Recalled in Charles Roach Smith (1883, 1886, 1891) *Retrospections Social and Archaeological*, 3 vols, London. J. J. A. Worsaae is mentioned in Volume II.
18. The Society of Antiquaries of London, *Proceedings* XXIV p. 232.
19. T. A. Webster quoted in Neale, R. S. (1968-9) Class and class-consciousness in early nineteenth century England: Three classes or five? *Victorian Studies* Vol. 12, 5-32.
20. Information on the Registrar General from Reid, Ivan (1978) *Social Class Differences in Britain: A Sourcebook* London.
21. For information on the members, see Figs. 1-3.
22. Both Orlando Jewitt and R. B. Utting (members 1857 list) were wood engravers who did some work for the Rev Charles Boutell. Illustrators often travelled with authors and were, necessarily, 'gentlemen'.
23. Neale, *op. cit.*
24. C. R. Smith, *Retrospections* Vol. I, 162-9.
25. See Figs 1-3.

26. A number of members give the address of their Club, establishments which were themselves nineteenth century foundations. Indeed the architect of both the Conservative Club and the Carlton Club was Sydney Smirke, a LAMAS member.
27. The quote from Booth and information about him is from Hofman, R. (1978) *Explanations of Social Deprivation* London (Chapter 1).
28. Knowles, K. and Ronertson, D. (1951) Differences between the Wages of Skilled and Unskilled Workers, 1880–1950 *Bulletin of the Oxford University Institute of Economics and Statistics* Vol. 13, 109–127.
29. Initially, membership cost 10s (annual subscription) or £5 (life membership). By 1874 an additional entrance fee of 10s had been introduced, and by the end of the 1870s the annual subscription had gone up to one guinea and life membership to £10. Subscriptions remained at this rate until the 1950s.
30. The Evening Meetings were introduced in 1860 and were originally held in association with the Surrey Archaeological Society. Originally held on the third Tuesday of each month the evening, time and frequency of the meetings seems to have come under frequent alteration and they eventually came to an end around 1874. The cost of an annual ticket was 5s, but by 1861 this had increased to 7s 6d, while visitors tickets had been raised from 5s to 6s a dozen. Further increases were made.
31. The costs usually included transport (return rail fare and carriages) and tea or dinner (wine extra) and examples include:
Westminster Abbey, October 1860, 4s in advance (7s 6d on the day)
St. Albans, June 1899, 6s
Rye and Winchelsea, June 1901, 12s 6d
Abingdon, Dorchester-on-Thames, Wallingford, July 1901, 14s
Old Basing and Silchester, June 1903, 16s
32. For instance in 1859 a £50 fund was introduced towards defraying the expenses of bringing out and illustrating Part III of the *Transactions*. There were commemorative paintings as well as medals. For example, a letter from the Treasurer to members of 10th June 1874 announced the intention of presenting Mr Price with a portrait of his mother, the widow of the eminent London antiquarian, E. B. Price, F.S.A. This was in recognition of Mr Price's services to the Evening Meetings, and the suggested subscription was one guinea.
33. See Figs 4 and 5.
34. In an address to the Economic Section of the British Association in 1904, Brabrook gave a review of the history of the Friendly Societies "which was of great importance, in view of the trend of public opinion towards Old Age Pensions." He deprecated the idea that "some day and somehow the State would provide pensions for everybody", and when the Act was passed in 1908, he read a paper before the Royal Statistical Society supporting the idea that pensions should be contributory as a proper "assertion and enforcement of the doctrine that the right way to provide for old age is by thrift, self-denial and forethought in youth". *Transactions* NS6, p. 380.
35. Soc. of Ant. *Proceedings* VII, pp. 199–201.
36. Smith, *Retrospections* II, p. 28.
37. Quoted in Piggott, S. (1974) *The Origins of the English County Archaeological Societies Birmingham and Warwickshire Archaeological Society Transactions* Vol. 86, 1–15.
38. The information used from newspapers comes from a pile of cuttings at LAMAS, Museum of London.
39. *Transactions* I, p. 198.
40. It is interesting to note that their near neighbour, Mr E. Rigby of 80 Gracechurch Street, was also a member.
41. Quoted from Smith, *Retrospections* II, p. 156.
42. *Transactions* NS6, pp. 380–1.
43. The letters to and from Gough are contained in three volumes of letters, papers, invitation cards, etc. at the Museum of London. They give an interesting insight into a 'passive' member. Gough worked at Lincoln's Inn and was often required to travel around Britain, but he kept a close watch on his affairs and complained to the Council at the delay in publication of the *Transactions* on several occasions. When he received the first part of the New Series he proceeded to complain that (a) the pages had been cut, and (b) that he had been listed incorrectly as an F.S.A. A member from the beginning, Gough supported the Evening Meetings, and in November 1878 opted for life membership of the Society. He died early in the 1900s.
44. President's Address, 23rd February 1917, in *Transactions*, NS3, p. 323.
45. *Retrospections* I, pp. 218–226.
46. The fact that many members had the time and money to travel abroad is yet another indication of the type of person who joined LAMAS.
47. A home was eventually found at the London Institution (January 1895–January 1911), and then the Bishopsgate Institute, where the Society was still located in its centenary year.
48. That LAMAS was 'of its time' is further indicated by the fact that many sites began to open their doors to visitors in the nineteenth century, the Tower Armouries, for example, first opening in 1828.
49. For example, 1858 meetings were held at the Gallery of British Artists, Islington, the Society of Arts and Enfield.
50. For instance, at the Third General Meeting on 26th February 1856, held in the French Gallery, Pall Mall, papers were given on 'Primaevial London and Middlesex' (Hugo), 'Monuments in Westminster Abbey' (Boutell), and 'The Chapter House' (G. G. Scott). In addition, Henry Mogford contributed some 'Recollections of Westminster' and Sydney Smirke commented on some London relics.
51. The number of papers contributed by non-members increased over the years, but never made up more than thirty per cent of the contributions. Such contributions were usually the result of a request from the Council. Edwin Cookworthy Robins, for example, provided a paper in 1880 on the Worshipful Company of Dyers, of which he had been Prime Warden, in response to an invitation from the Hon. Sec. to put together a few facts connected with the Company's history.
52. Soc. of Ant. *Proceedings* VII, p. 200.
53. All, that is, except the *Athenaeum* which carried the following report in October 1858:
"The Middlesex Archaeologists met at Enfield on Monday—with a disappointment. Lord Ebury and Mr. Heath were absent, and the unhappy excursionists found themselves floundering in the antiquarian shallows of the Rev. Thomas Hugo. A return train at length came to their relief, and the party arrived in London by sun-down, all we hear, very weary, and yet thankful."
In contrast, *The Times* refers to a "most delightful day", and the *Building News* to "a day of much pleasure and instruction combined".
54. *Transactions*, 2, *Proceedings* of the Evening Meetings, p. 36.
55. *Transactions*, 4, p. 489.
56. At the first meeting, for instance, papers included one on a piece of lead pipe from Old Broad Street and an 'account of a subterranean brick chamber in the grounds of the house at No. 12, Canonbury Place.'
57. At an Evening Meeting one paper was given on "Stone Hatchets, Spearheads, and Arrow-heads in the gravel of the Valley of the Somme in France" (Evening Meeting, 16th April 1861). Knowledge of geology did exist, as illustrated by the opening speech at the first Evening Meeting: Our object is to show relics of the past "... not as mere objects of curiosity, but as remains which serve to the historian and the philosopher as do fossils to the geologist—by defining and illustrating the strata of time, and revealing the modes in which human intellect and sentiment developed themselves in different ages".
58. Not surprisingly this was provided by the Rev Hugo (*Transactions* 1, 136–141) aided by a wealth of classical references which he considered preferable to "the fictions of Geoffrey of Monmouth and others of his school."
His picture of London was of a clearing in "one umbrageous wood, with occasional clearings for such oppida as Caesar and Tacitus have described for us,—a group of huts both for men and cattle, at some almost inaccessible spot, surrounded with a rude pallisade and ditch ...".
59. Evening Meeting, 18 March 1862, *Transactions* 2, pp. 76–81 (at back).
60. "Investigate as we may, there is still more to know; labour as we will, there is still more to do; collect as we can, every excavation reveals fresh features, and supplies fresh examples." *Transactions* 1, p. 26.
61. Alas, even Hugo had a very limited meaning when he spoke about popularizing archaeology, as conveyed by an earlier comment that archaeologists must "cheerfully encounter a close acquaintance with the mud of London excavations, and put off all squeamishness in regard of the places and persons with whom we may come in contact." *Transactions* 1, p. 327.

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Who Was Who.

Plus, a selection of unpublished material from the offices of LAMAS, housed at the Museum of London.

REVIEWS

The Hon. Editor will be pleased to receive volumes on the history and archaeology of London and Middlesex and related topics for review in this section of Transactions.

GUSTAV MILNE *The Port of Roman London* (B. T. Batsford Ltd, London; 1985) 160 pages; 84 figures £(17.50) (cased); £9.95 (limp).

How many archaeological reports could sell themselves by the cover? Here is one that undoubtedly can and will. The eye is immediately caught by a model of London's bustling Roman waterfront in striking colour and detail showing the bridge, shipping and warehouses, with quayside workers actively debarking an assortment of cargo—a fascinating reconstruction which invites repeated scrutiny. But the cover does not stand alone, and further inspection confirms the publisher's reputation for fine presentation, profuse illustration and well-arranged text.

It is hard to overstate the achievement of the Museum of London's Department of Urban Archaeology since 1973, of which this publication describes just one area. Anyone who has witnessed the professionalism surrounding 'Hobley's Heroes', grappling for the evidence of London's past amid the present restrictions imposed by the standing structures of the nation's capital, will appreciate that they are competing in a super league by comparison with archaeologists who confine their talents to shallow rural sites. Even other urban excavations do not often present difficulties on the scale of the City of London. All the more credit is due to Brian Hobley and to his lieutenants for their success in winning an archaeological slice of the commercial cake from the metropolitan mega-developers.

This book sets out to summarise the DUA's excavations on the north side of London Bridge between 1979 and 1982, which discovered the extensive remains of Roman port facilities. It is less than a conventional excavation report and more than a popular account, but beneath the attractive format there is plenty of academic meat to satisfy archaeological demands. The arrangement is orderly with chapters devoted in turn to the various aspects of the port and the river, and a concluding section to reassemble the components. Whilst the chapter headings are unadorned by individual

credits, the contents list indicates that eight of the twelve chapters are partly or wholly by other contributors. This would seem to resolve the discrepancy between the title page on which Mr Milne appears as author, and the rear cover assigning him as editor.

The opening chapter 'Death of a Victorian port' interestingly sets the scene. It sketches the nineteenth- and twentieth-century expansion of London's dockland, with its recent decline and ultimate closure by 1981. The consequent demolition and redevelopment provided both the opportunity and the spur for controlled archaeological excavations to replace the limited knowledge from previous chance finds and casual observations. Earlier work is noted, with references, and there is a brief explanation of archaeological technique. Not everyone, however, is intimate with London's topography, and a location map would have made a useful frontispiece. The map on p. 20 is sparsely labelled and comes too late; nor is it brought to notice among the place-names mentioned on p. 15. The list of modern docks on p. 9 should similarly refer the reader to the plan which, five pages further on, shows where they were.

'Growth of a Roman harbour' is the second chapter and critical in that it draws together the excavation evidence for the overall development of the waterfront area. This is handled in a workmanlike fashion, and one is conscious that behind the synopsis lies the hard labour of correlating deep stratigraphy between excavations scattered over some 220m from east to west.

The pre-Roman north bank lay 100m north of the present-day Thames. A modest embankment with piles and a post and plank revetment of the mid-first century was superseded before AD 100 by a vast artificial terrace retained within a massive timber framework. The waterfront was advanced southward by up to 15m, and stone-based buildings were erected on the reclaimed land. To the east a wooden landing stage ran parallel to the shore. Throughout the Roman period the quayside was repeatedly extended into the river, and buildings were modified, destroyed and re-erected. A decline in activity during the early fourth century was

followed by a short-lived revival, but urban occupation had ceased by the early fifth century. This long span of waterfront activity is contrasted with other London sites, often abandoned by AD 200. The descriptions are to be read against nine stylised phase plans; these have good explanatory captions but omit the building numbers, which have to be sought by turning back to the multi-period plan.

Chapter 3 examines dating methods: relative, tree-rings, pottery and coins. Each medium is clearly explained with the evidence in tabulated form, and the date ranges derived are an object lesson in prudent reasoning. As with other artefacts, the sources of the pottery are largely identified.

The position of the Roman bridge was deduced from a timber box structure interpreted as a supporting pier, though no cutwater faces were seen, and there is a frank discussion of the limitations of the evidence. Known Roman bridges are compared, and a thoughtful reconstruction is attempted. It is suggested that this was the second of at least three successive bridges.

Chapter 5 on quay construction highlights the remarkable preservation of Roman timbers in deep waterlogged deposits, where remains of the landing stage and quays lay *in situ*, comprising substantial oak baulks up to 730 × 480mm (29 × 19ins) in cross-section. The constructional methods are impressively photographed and further clarified by drawings. However, and despite the evidence on which the model is based, it is hard to imagine craft berthing at a quayside which was not flush but interrupted at short intervals by the protruding ends of heavy timber braces. One is bound to suspect that in actuality these obstacles were masked by overhanging top decking, in order to avoid tedious accidents to shipping.

Chapter 6 assesses the riverside structures against known storage buildings in Britain and the Empire. Two long strip buildings on the quay front are seen as warehouses for temporary storage and marketing. After burning down in the second century, by which time the quayside was more distant, they were rebuilt together in a form interpreted as a block of shops. The warehouses were not large by Mediterranean standards, and it is suggested that the long-term storage and distribution of imports were centralised in the *forum* area 300m to the north.

The next two chapters concentrate on the River Thames itself. Firstly its physical traits are detailed: the rising level, altered tidal regime, changing course and riverside topography. Then the occurrence and culinary treatment of produce from the estuary, fish and oysters, are discussed with the

discernment of a gourmet. Evidence was uncovered of fish processing in the later third century, perhaps for the popular sauce *garum*, which also implied a local herring industry, and inspires a neat sub-head 'The sauce of the Thames'. Oyster shells found in abundance below the first-century landing stage had grown naturally, but a second-century deposit testified to the beneficial Roman introduction of cultivated oysters.

Roman shipping is dealt with in Chapter 9. The variety of craft on the Thames is exemplified by three wrecks discovered in London: a modest sea-going merchantman, a small sailing ship for coastal and inland waters, and a lighter for river use only. The larger vessels would have anchored in mid-stream and off-loaded into lighters which could berth at the quays, though little evidence for mooring facilities has yet come to light. The capacities and weights of barrels and *amphorae* are discussed. As in later periods, handling the cargoes would have been a labour-intensive business requiring a supply of casual and seasonal hands.

Chapter 10 assesses the scale and scope of importation into what was for a time the largest town in the province. Merchandise embraced consumables such as wine, olive oil, *garum*, fish, oysters and dates; one breathtaking photograph shows an *amphora* from the estuary being upended to disgorge 6000 olives. Durables included building and ornamental stone, pottery vessels and lamps, glassware, pipeclay figurines and expensive exotica. It is suggested that most items were intended for use in London rather than redistribution across the province. A changing pattern of trade is inferred, from first-century Mediterranean supply routes, to second-century connections with Central Gaul and the Rhineland, to more localised production from the third century when London's population was contracting.

The penultimate chapter argues that urban development north of the river sprang from official town planning on a large scale in the Flavian period. Quay construction was integrated with artificial terracing for buildings and a regular system of roads and drains. This situation is reminiscent of the extensive terracing in the *colonia* at York with its formal buildings on the hillside overlooking the Ouse, proposed as municipal development of c. AD 200 by the reviewer in 1978 (*The Archaeology of York* 4/1).

The last chapter collates the principal conclusions, and views the significance of the port against Roman London as a whole. Contrary to previous assumptions it is convincingly argued that *Londinium* was not the leading port of the province, but that its flourishing commerce evolved to serve

the needs of the expanding town and administrative centre, rather than being the primary cause of the town's expansion. The investigation of Roman waterfronts elsewhere is urged, to provide a more balanced picture.

The reader cannot fail to be impressed by the quality of the excavations and site recording, which reflect great credit on the staff at the sharp end. One has a constant awareness that the writing too is by real archaeologists, professionals who know the sites and the discipline at first hand and are dedicated to squeezing every ounce of enlightenment from the hard-won material evidence. The presentation offers an inside glimpse of the team's working versatility in exploring each avenue of information and skimming off the cream from the specialist reports. Threads of detail are succinctly interwoven via allusions ranging from archaeological parallels across the Empire to modern statistics from the Port of London Authority. Yet the interpretation of so much that is new remains objective and unpretentious. There are many positive features such as textual references to a single bibliography at the end, the absence of footnotes, and the addition of an index. Though site drawings are stylised the illustrations are good, the colour plates excellent, and the captions superior to most.

One or two other points are deserving of comment. The interest of the site photographs might have been enhanced by more working shots in a publication of this nature; only three have people in them. The disposition of the 1m and lesser photographic scales is sensitive and discreet, but for large structures 2m ranging rods might have been more meaningful. Scales for the artefact photographs and drawings are rather too discreet, in point of fact absent, though a few are covered by the captions. Readers interested in the quality of the statuary (Figs 47 and 83) would benefit by consulting Sir Mortimer Wheeler's *London in Roman Times* (1931), a work omitted from the bibliography, but where photographs of the same pieces do include scales. No clue as to size is available, however, for the six photographs of the waterfront model; nor, more importantly, for the drawing of the remarkable iron window grille (Fig. 46) which could measure six inches or six feet. Misprints are scarce, although occasional trifling errors occur. The acknowledgements on p. 8 attribute Fig. 68 to two different illustrators; and it is Fig. 51, not Fig. 52, which has been borrowed from the British Museum. One must also doubt the claim that the DUA's youthful photographic staff were responsible for Fig. 1, dated 'in the inter-war years', still less Fig. 56 which was taken in 1910. On p. 9 is the unexpected phrase 'new innovations', and the

recurring anglicised plural 'amphoras' strikes a jarring note. The publication (Blagg 1980) noted on p. 106 is absent from the comprehensive bibliography.

But one is reluctant to dwell on *minutiae* when so much has been done so well. Perhaps the only fundamental reservation is subjective: that the text might on occasion have benefited from a lighter touch. Some expressions in jargon could be converted to plain English without loss, as with 'after the stratigraphic assessment of the field record had been integrated with an analysis of . . .' (p. 35). That sort of phraseology tends to erect unnecessary barriers for the general reader.

Notwithstanding this comment, the book is a triumph and a desirable acquisition; and how refreshing it is to find the assumed 'importance' of a site being questioned by its excavators rather than inflated! The concept is praiseworthy in aiming to communicate archaeology to a wider audience in such an eminently saleable package, and the potential spin-off is invaluable. All archaeologists should be aware of who pays for their profession, and ought to ask themselves whether the obligatory conventional academic excavation report, with its limited appeal and restricted print-up, is sufficient return to the public. Then they might also turn their attention towards producing publications like this.

Tony Sumpter

JOHN SCHOFIELD *The Building of London from the Conquest to the Great Fire* (British Museum Publications, London; 1984) x + 190 pp, 153 illustrations, £12.95.

Anyone writing a history of the City of London is faced by two immense disadvantages. Firstly, the splendid work carried-on over almost forty years by the Roman and Mediaeval London Excavation Council, the Guildhall Museum and their most worthy successor the Museum of London has shown only too well how much of our heritage "on (and under) the ground" has been lost to us. The depredations of fires, acts of war and building developers over centuries have robbed us of much in the past, and will continue to deny us more into the future.

The second great drawback also stems from the nature of the evidence. The paucity of documentary sources for earlier periods is matched by the equally great dearth of material available through excavation for later centuries. Sadly, a considerable dichotomy remains between archaeologists and those whom we might term formal historians.

Through faults in our higher-education system, we maintain this gulf and provide few bridges for crossing it. Hence there are people who are conversant with early history, where archaeology rules, and others able to read and interpret documents when excavation is impotent, but few persons indeed capable of both.

That Mr Schofield should have written this book is therefore doubly fortunate for us. From his position as a Field Officer with the Museum of London, he is well-fitted to have done this work, not least because he has participated in several of the significant excavations he describes. On the other hand, his inclinations render him able to use literary sources with skill and enthusiasm, so that his grasp of the buildings, and their natures and purposes, over most of this long period is truly formidable. At the same time, one must recognise the considerable resources that were available to him. Most historical writing entails teamwork, and he very properly lists the names of those who assisted him, to the staggering number of 23! Those of us who are forced to work single-handedly may well marvel. While breaking new ground, this book is also comprehensive, and (with the one exception of the Blackfriars plan, to be noticed hereunder) thoroughly up-to-date—so far as is possible in a work depending largely on research that continues almost daily.

This book, published by the British Museum in association with the Museum of London, was plainly intended for the educated layperson, and therefore neither specifically for the archaeologist nor the building specialist. Nevertheless its scope and nature provide much of interest and pleasure, as well as food for thought for a wide range of readership.

The bulk of this work comprises eight chapters: seven of these are chronological, while the last is a brief but useful Postscript. For the first five chapters, covering the very long period before 1500, Mr Schofield is very much on home ground, being well able to describe and evaluate altered earthworks, largely-robbed stone walls and scattered timbers. Perhaps the statement that “there is no direct evidence of settlement in the city before the Roman invasion of AD 43” (page 15) should have continued “. . . although London’s Celtic name clearly suggests that such must have existed”. As it happened, demands of space dictated a modest section on Roman London (although essential modern reading is listed elsewhere), but what there is provides a good resumé of the situation. For a general work, one of the late Alan Sorrell’s graphic “aerial views” of Roman London would have been useful here but perhaps was considered too well

known. The Saxon section is a valuable bringer of order out of chaos for this difficult period.

Mr Schofield’s wide reading in published Medieval records gives him a further dimension, allowing him to flesh-out the bare bones to produce a vital piece of urban history concerning the houses, churches, wharves and other structures, and the lives and work of those who owned, occupied and used them. This book is then as much a work of social as of building history, and therein lays much of its strength and most of its weaknesses. For example, Mr Schofield rightly recognises the need “to try to define the characteristics of . . . groups in society” but he leaves this task to others. While the significance of his term “merchant aldermen” (also on page 5) is not apparent, one may reasonably doubt whether he or anyone else has a list distinguishing aldermen who were merchants from those who were not. Doubtless such misconceptions arise from use of Sylvia Thrupp’s *Merchant Class of Medieval London* (1948): little of Professor Thrupp’s text, wherein ‘merchant’ is correctly defined, refers to *bona fide* merchants; and many—perhaps most—of the persons listed in her three appendices would not have met her criterion. To say that the building of granaries to fend-off starvation by private means “was both a civic duty and a gesture of the piety which would ensure eventual salvation” (page 110) is almost certainly taking too cynical a view; the range of bequests and other benefactions suggests that there were diverse reasons why such were made, and much of this benevolence can only be accounted-for by sheer goodwill.

In view of the author’s obvious familiarity with both the early 17th century building-plans and the drawings and engravings of the two following centuries, it is a pity that one or two Medieval topics of interest to the specialist deduced from such sources could not have been touched upon. For example, the phenomenon of composite-construction (i.e. of stone or brick, for several courses above ground or even for the lowest storey; with timber-framed superstructure), which plainly was used in London, as in other urban and rural contexts, could have been mentioned. Moreover, the essentially-wide frontage of the Wealden house should, in theory, have ruled-out its use in urban streets: did the provincial variant, adapted for continuous (‘high-street’) framing, appear in London? If such plums were out of place here, perhaps we shall have the benefit of his knowledge on these things elsewhere.

In respect of the building history of 1500–1660, he has rather less to say even though his general competence is evident throughout, as when he describes the development of house-layout (pages

86–92 and 158–165) or the employment of brick (pages 126/7). However, while appreciating the fact that ‘The documentary evidence for medieval and Tudor London is vast’ (page 11), he is content to manage with very little of it. This same corpus of source-material, however, is essential for our understanding of what might be called London’s formative years, since it would answer many of our questions and suggest much that is new. It would certainly provide information for assessing the elements of class-structure necessary for knowing who owned, occupied and used buildings. Details would be given of the plans and other aspects of churches: payment for painting figures of angels in the roof of a City church, an everyday occurrence in 1400, was not unknown in 1600. Above all, we should find material on house-building, linking Mr Schofield’s medieval evaluations with his valuable work in interpreting the building-plans made by Ralph Treswell in the early 17th century for two great property-owning bodies.

It is difficult to fault this admirable book where actual building history is concerned. However, Clapham’s reconstruction-plan of the former Blackfriars (page 71) is totally misleading. Professor Feuillerat’s researches in the Loseley manuscripts, published as long ago as 1913 (in the Malone Society’s *Collections*) show, for example, that the two cloister-garths were aligned not west-east but north-south: since this house’s detailed and complex plan has to be interpreted in relation to the cloisters, this affects the whole layout.

Incidentally, with so few surviving structures, it is surprising that nothing was said about two extant 17th century buildings, in Jewry Street and Portsmouth Street.

The picture of St. Mary Spital, taken from the Copperplate Map (page 49), could usefully have demonstrated Henrician destruction; Wyngaerde’s drawing of the house in its heyday, complete with massive church, would have been more appropriate here. At least one person hopes that the ridiculous term ‘Agas map’ may never again sully a page: the Woodcut Map (a name with slightly more to commend it) could never have been the work of Ralph Agas, and this useless designation is best forgotten.

Occasionally one may take issue over wider matters. Of the reasons why the monasteries should have been dissolved (pages 138 and 140), surely the best is that they had become incapable of carrying-on their specified aims: in their latter days, many a religious house had fewer than ten inmates within its walls. That they were hotbeds of vice towards the end cannot be denied but the evidence should be sought not in the reports of

Cromwell’s agents, who were scarcely disinterested parties, but in those of the ecclesiastical visitors.

Was Sir Thomas Gresham’s Royal Exchange really intended ‘to take advantage of current religious upheavals in the Low Countries’ (page 153)? The concept of a London counterpart of the Antwerp *beurs* (1531) had been mooted by Gresham’s father as long before as 1537 and, far from helping, these troubles damaged London’s trade. Though sometimes for policy the Merchant Adventurers threatened to withdraw from Antwerp, they were most reluctant to forego the very extensive range of goods and services offered by that city and its vast hinterland. When finally forced out they had much difficulty in finding a new Continental mart. As to the Royal Exchange having a ‘tower more at home in the Netherlands’, this was hardly surprising, since the building’s Dutch architect based his designs on Dutch originals.

Because Mr Schofield’s work is so thorough, one is apt to resent the least of his omissions, although this is hardly fair because the length of his book was probably beyond his control. When writing on sanitation, the “common siege” (public privy) on London Bridge, which fell into the Thames in 1481, drowning five men, as per Stow, could have been mentioned. Other topics might have included the essential orientation of the (unroofed) theatres, while your reviewer would have liked a sentence or two on the presence of weatherboarding, which occurred at least from the 13th century and survived on the city’s outskirts (e.g. at Peters Lane and Wellclose Square), sometimes almost till 1900. Surely the contemporary drawing of a Medieval steeple of St. Michael Cornhill (reproduced in Overall’s book) and the 1592 plan of St. Katherine Creechurch (in *Home Counties Magazine*, 1900) which are, one supposes, unique, should have been featured.

On the other hand the text is enriched and enlivened by the author’s way of introducing snippets of extraneous information, as when he spares time to consider holy relics (pages 114/5). Similarly, it was not vital for us to be told the possible 1607 origin of the words of *God Save the King* (page 117) but this is a further point of interest, especially when one knows that their tune is a Tudor galliard. Often his enthusiasm shows through, as for vaulted undercrofts, whether dealing with an existing example or relating the curious fate of the remains of that from Gerard’s Hall.

Some trifling errors should be corrected in a second edition. These include ‘Corporation of London Record Office’ (page vii), and ‘Crowne’ Inn (page 162), which smacks of Ye Olde Tea Shoppe.

For 'guild', the form 'gild', from the Old English *gildan* 'to pay', is to be preferred, except by custom in 'Guildhall'. 'Pavements', in "streets and pavements" (page 79), is anachronistic, in the sense that for much of their existence 'pavements' were metalled roads, as still obtains in American usage. Stow tells how the stone pavement (*sic*) in Cheap was covered with sand for a tournament, so that the horses would not slide; and Tudor statutes for making-up London road-surfaces always used the word 'paving' for this operation. Fishmongers' Hall is no longer on its 14th century site (page 103), having been removed for a rebuilding of London Bridge.

In the plan of Bridewell Palace (page 135), the city wall should be continued southwards to a multiangular bastion on the Thames, as shown in the picture alongside. The original Baynard's Castle was almost certainly in the ward of Farringdon Within, not Castle Baynard (page 132). In the name Gray's Inn, the word 'inn' clearly does not mean 'town house' (page 151), since this was the only home the society had. Protector Somerset was executed in 1552 (page 153). Gresham's Royal Exchange was completed not in 1570 (pages 153 and 155) but in the previous year, as shown in the cartouches on contemporary engravings (not the 17th century one given on page 154); the merchants were meeting there from December 1568. *Husting* meant not 'indoor court' (page 33) but 'assembly-house', while "parish councils" (page 151)—which by definition have nothing to do with churches—have existed only from 1894. "Tennys Place" (page 160) no doubt represents "tennis plaie (i.e. 'play')", the usual contemporary term for a tennis-court.

Although because of this work's general nature

the numerous footnotes necessary for extending, updating and amending the material are properly excluded, the finer fruits of Mr Schofield's scholarship are not lost to us. The problem has been solved by means of a bibliographical appendix, with page-numbers where requisite. This is most satisfactory, with occasional reference being made to as-yet unpublished "work in progress" of the author and others, keeping the record as up-to-date as possible.

Too often a book of this nature incorporates a poor index, merely to fill the customary space: here, the index is worthy of the text, although a few items of indirect interest, such as have been noticed in this review, had to be excluded from it.

Like the text, the actual book-production deserves high praise. The volume is sturdily but attractively bound, and its format is a joy. The high quality of the paper allows good definition of both the text and the many illustrations: the latter form a particularly pleasing feature, both for themselves and for being placed near the appropriate mentions in the text (though not Illustration 1!). The drawings, including several by that splendid observer J. T. Smith (not our eminent contemporary of that name but the one who was born in a hackney-coach), are supplemented by good, clear photographs, re-drawn plans, and reconstructional drawings.

This book reminds us that specialised history need not be dull. All in all, we are given here a first-class progress-report on the present, already rich and impressive, state of knowledge of this vital aspect of urban history, in a most readable and pleasing form.

John Bennell

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