



# EXCAVATIONS IN THE NORTH-WEST CORNER OF DEAN'S YARD, WESTMINSTER ABBEY

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## SUMMARY

*An archaeological excavation carried out in advance of the construction of a new subterranean transformer chamber in the north-west corner of 'the green' in Dean's Yard, Westminster Abbey, revealed that the earliest human activity in this naturally low-lying area of Thorney Island was a pit dug during the Late Iron Age or Early Roman period, which was sealed by a build-up of alluvium. Saxon activity was evinced by two residual sherds of pottery. During the late 12th or early 13th century the process of reclamation or dumping to raise the ground level began and a hearth was constructed. The backfill of a medieval drainage ditch contained an important assemblage of animal and fish bones, providing information on aspects of the diet of the inhabitants of the abbey. Recovered from these reclamation dumps was a diverse assemblage of medieval building materials, interpreted as demolition debris derived from various abbey buildings. Finds from the late 16th-century dumping included a number of tiny copper-alloy wound wire objects possibly derived from an ornate head-dress. Post-medieval features included a 16th-century tiled path, which may have led from the kitchen to the entrance of Dean's Yard. By the 17th century this area had been converted into a gravelled yard within which was constructed a brick-lined well. The latest significant feature was a 19th-century culvert or sewer.*

## INTRODUCTION

An archaeological excavation was undertaken by Pre-Construct Archaeology Ltd in advance of the construction of a new subterranean electrical transformer chamber in the north-west corner of 'the green' in Dean's Yard, Westminster Abbey (Fig 1), during March and April 2009. Dean's Yard is a green courtyard to the south-west of the cloisters. It forms part of the precinct of the former monastery of St Peter (commonly known as Westminster Abbey).

Two trenches were excavated: the main trench (Trench 1), which would accommodate the chamber itself, and a secondary trench (Trench 2), for the cables connecting the transformer to the existing power supply (Fig 2). Trench 2 followed the centre line of the northern road around 'the green'. Trench 1 was deep enough to uncover natural deposits and was excavated archaeologically by hand. Trench 2 was the subject of a watching brief and excavated by contractors to a much shallower depth and natural deposits were only reached at its eastern end. Trench 1 was centred on National Grid Reference TQ 2997 7941 and covered approximately 64m<sup>2</sup>. Trench 2 covered an area of approximately 50m<sup>2</sup>. The site archive will be deposited with the Westminster Abbey Museum under the Museum of London site code DYR09.

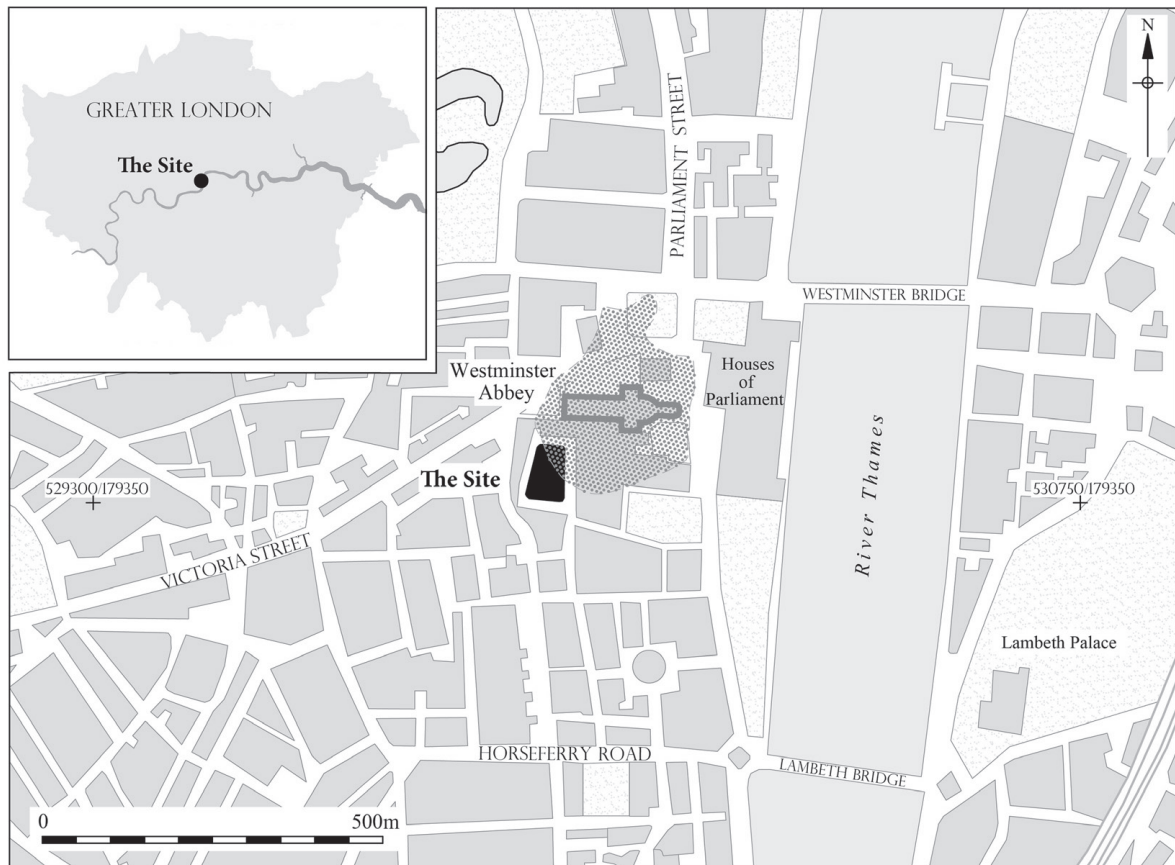


Fig 1. Site location, showing the approximate extent of Thorney Island (as defined by the +1.00m OD contour of the underlying natural sand and gravel) (scale 1:12,500)

## DRIFT GEOLOGY AND TOPOGRAPHY

The site was located near the western edge of what was historically Thorney Island, the largest and probably the highest of the islands within the Tyburn delta. It is likely that the island was formed some time during the Neolithic period by the deposition of sand and gravel between two branches of the Tyburn River at their confluence with the River Thames (Thomas *et al* 2006, 9–10). In Trench 1 the top of the natural sequence (Phase 1) was recorded at +0.92m OD in the west from where it sloped down to +0.64m OD in the east. The natural deposits at Dean's Yard comprised waterlain layers of coarse sand, [157], at -0.01m OD and +0.64m OD, divided by a 0.24m-thick horizontal band of mid-yellowish grey clay, which occurred at a maximum height of +0.40m OD (Fig 3). This sequence was sealed by an alluvial deposit of grey to greenish brown clayey sand showing signs of occasional root disturbance and

containing infrequent patches of decayed organic material, which lay at a maximum height of +0.92m OD. At the eastern end of Trench 2 (some 40m east of Trench 1), natural sandy gravel was observed at a height of 2.92m OD.

## ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

There have been a number of archaeological investigations within the vicinity of Dean's Yard. The redevelopment of 20 Dean's Yard (Fig 2) in 1975–7 allowed archaeological investigations which included the excavation of part of the sub-vault of the Abbey Misericorde (Black 1976; 1977). In 1986 small-scale excavations were undertaken within the Dorter undercroft which revealed 11th-century alluvial silts, a later 11th-century road, a possible precinct ditch, a substantial timber structure and 12th- and 16th-century usage of the undercroft (Mills 1995) (WST86

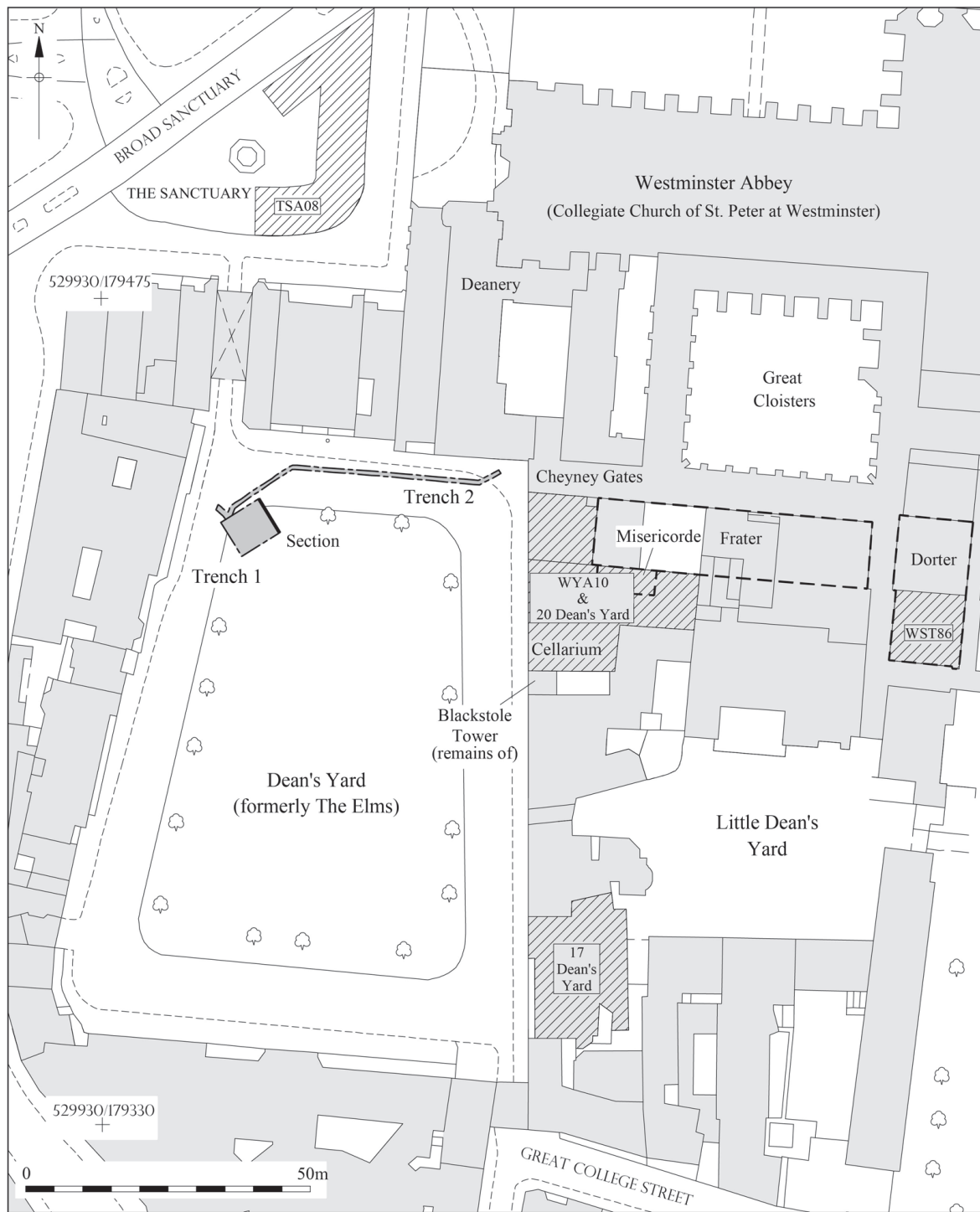


Fig 2. Trench location, also showing other archaeological investigations in the vicinity (scale 1:1250)

on Fig 2). In 1998–9 an archaeological investigation at 17 Dean's Yard (Fig 2) revealed Middle and Late Saxon alluvial deposits overlain by medieval reclamation dumps (Murray 2003). More recently in 2008 a watching brief at the Sanctuary to the north of Dean's Yard revealed various medieval

features including a ditch infilled during the 11th–12th centuries (Jorgensen 2008; Maloney & Holroyd 2009, 80–1) (TSA08 on Fig 2). In 2010–11 a watching brief on the replacement of a gas main in Dean's Yard itself and the Sanctuary revealed medieval and post-medieval building remains (Boyer

2011; Wylie 2011, 42). Excavations within the Cellarium in 2011–12 uncovered the previously investigated Misericorde together with Saxon and medieval deposits and features including possibly part of the 10th-century monastery (Jorgensen in prep; Maloney 2012) (WYA10 on Fig 2).

Based on the results of earlier investigations it appears that during the Late Neolithic and the Early Bronze Age arable farming was carried out on Thorney Island. Then due to rising water levels, human activity along the periphery of the island probably ceased, although transient usage of the higher parts of the eyot continued into the Iron Age (Thomas *et al* 2006, 31). It has been estimated that the water levels had reached a height of above OD by the Early Iron Age and continued to rise to approximately +1.00m OD during the Early Roman period. The water subsequently receded to a level of *c.*+0.50m OD. This would have restricted occupation during the Roman period to those areas of the island located above approximately 1.00m OD, namely the areas occupied by the abbey buildings (Sloane *et al* 1995, 362).

Even though the higher parts of the island could have been occupied during the Roman period there is no direct archaeological evidence for this. Virtually every archaeological investigation conducted in the vicinity has recorded residual Roman finds. One possible explanation for the lack of Roman features is that the deposits belonging to this period have been erased by erosion caused by episodic flooding during the early medieval period (Thomas *et al* 2006, 149–50).

It has been suggested that Thorney Island was home to a small Middle Saxon monastery. This suggestion has been based on the existence of a charter of doubtful authenticity recording a land grant made in AD 785 by King Offa of Mercia to St Peter's of Westminster (Mason 1988, 321; Sawyer 1968, no. 124). However, the nearby discovery at the site of the Old Treasury Building in Whitehall of a high-status (possibly royal) hall, dated from the late 8th to mid-9th century AD (Cowie 2004, 209), and the recovery of a partial donkey skeleton dated AD 690–890 behind 17 Dean's Yard (Murray 2003, 46–7) attest to Middle Saxon activity

in the immediate vicinity. In addition to this, residual sherds of pottery dating to this period were discovered below the Dorter undercroft (Mills 1995), and have been found recently at the Cellarium (C Jarrett, pers comm).

The discovery of the Middle Saxon royal hall nearby and the evidence for occupation on the island itself during this time may indicate the presence of a minster church, although structural remains relating to this are yet to be found (Cowie & Blackmore 2008, 99). However, reliable documentary evidence for the founding of a church on the island does not occur until the reign of King Edgar when it is reported that St Dunstan, Bishop of London and later Archbishop of Canterbury (AD 960–88), either founded or refounded the church as a Benedictine monastery between *c.*AD 958 and *c.*AD 961 (Brooks 1992, 22). According to the anonymous author of *Vita Ædwardi Regis* the monastic community on Thorney Island, by the reign of Edward the Confessor (1042–66), comprised a small group of impoverished monks living in dilapidated buildings surrounding St Dunstan's church (Barlow 1970, 229).

After Edward the Confessor ascended the throne a programme of works was initiated to rebuild the dilapidated monastery on a grand scale. Work on a new church in the Romanesque style started and by the time of Edward's death work on the rebuilding of the ancillary structures was under way, although the church had not yet been completed. By the close of the 11th century the refectory, kitchens, dorter and reredorter had been completed. Throughout the 12th century work on the church and cloisters continued. It is likely that the western towers of the church were added during this time (Tatton-Brown 1995, 174–5). This century also saw the construction of the infirmary and St Katherine's Chapel, both to the south-east of the great cloister (Thomas *et al* 2006, 56).

The next major building phase was initiated by Henry III and ultimately led to the destruction of much of Edward's Romanesque church. Work on Henry's new Gothic style church was started around 1245 and had not yet been completed by the time of his death in 1272. Focus of the construction work thereafter shifted from





the church to the rebuilding of many of the claustral buildings which had been destroyed by fire in 1298. The fire had originated at the adjacent Westminster Palace and swept through the south-east part of the abbey precinct destroying many of the monastic buildings (Thomas *et al* 2006, 71). Not only did the fire result in the need to rebuild many of the abbey buildings, but also a lot of the royal funding hitherto directed to the construction of the church was redirected towards rebuilding the ruined palace. A further reduction of funding occurred with the loss of royal favour resulting from the theft of the royal treasure stored at the abbey in 1303 (Doherty 2005, 242).

Due to lack of funds construction progressed slowly until the late 14th century when Cardinal Langham, a former Abbot of Westminster (died 1376) bequeathed a large portion of his fortune to the abbey for the completion of the rebuilding of the church started by Henry III. However, Abbot Litlington ignored the cardinal's wishes and directed a substantial amount of his bequest towards the rebuilding of the abbey's ancillary buildings (Bond 1909, 112). Amongst the buildings commissioned by Abbot Litlington were the abbot's house and gardens, which adjoined the west walk of the cloister and extended west along the entire north side of Dean's Yard, and the cellarer's range, which adjoined the abbot's house to the north and extended south forming the east boundary of the yard (Tatton-Brown 2014, fig 1). The long granary, which is believed to be part of Litlington's ambitious building programme, was joined on the west by the brewhouse and bakehouse forming the southern boundary of the yard (Robinson 1911, 9). It is possible that until these buildings were constructed the area later known as Dean's Yard was part of the abbey farm.

Throughout the medieval period the area of Dean's Yard was known as the Elms, and its western boundary continued to be defined by the southern branch of the Tyburn known variably as Black Ditch and Long Ditch with the Great and Little Almonries beyond. It is likely, as suggested by Norden's 1593 *Bird's-Eye View of Westminster*, that the boundary between the almonries and Dean's Yard was delineated by a wall extending the entire length of the yard (Rushton 2002, figs 1 and

3). The earliest excavated yard surface dates to the early 17th century (see Phase 9 below). By 1682 Morgan's map of Westminster shows that the western side of the yard was defined by a series of buildings fronting the Little Almonry to the west and the Great Almonry to the north (Saunders 2013, plan 31). Later, this side of the yard was to be occupied by Queen Anne's Bounty Office.

Dean's Yard was originally much smaller and on a different alignment (east-west) (see discussion below for details). A plan to enlarge Dean's Yard was presented in 1756, and by 1760 the long granary and many of the buildings to the west of it had been demolished and the yard had begun to assume its current appearance. By 1844 the last of the remaining terrace of buildings extending into the yard had been removed and the current quadrangle completed, which was much larger and had a north-south axis (Tanner 1923).

## ARCHAEOLOGICAL SEQUENCE: DESCRIPTION

### *Phase 1: Late Neolithic/ Early Bronze Age (c.3300–1500 BC)*

Phase 1 consisted of the deposition of a waterlain layer of coarse mid-reddish brown sand containing very occasional small rounded pebbles, [152] (Fig 3). A single flint flake characteristic of the Late Neolithic to Early Bronze Age period (Bishop 2010, 96) was recovered from the very top of this context at a height of +0.61m OD. Sealing this deposit was another waterlain deposit, [134], which contained occasional patches of decayed organic material as well as evidence for root activity. It was first observed at a height of +0.92m OD in the west and +0.64m OD in the east and consisted of mottled greenish brown to greyish brown clayey sand, containing occasional small rounded pebbles.

### *Phase 2: Late Iron Age/ Early Roman (c.400 BC–AD 200)*

A single pit, [132], was dug into the Phase 1 deposits at a height of +0.78m OD (Figs 3 and 4). The majority of this feature lay beyond the eastern limit of the excavation, but it appears likely to have been oval in shape. It had steeply sloping sides and a

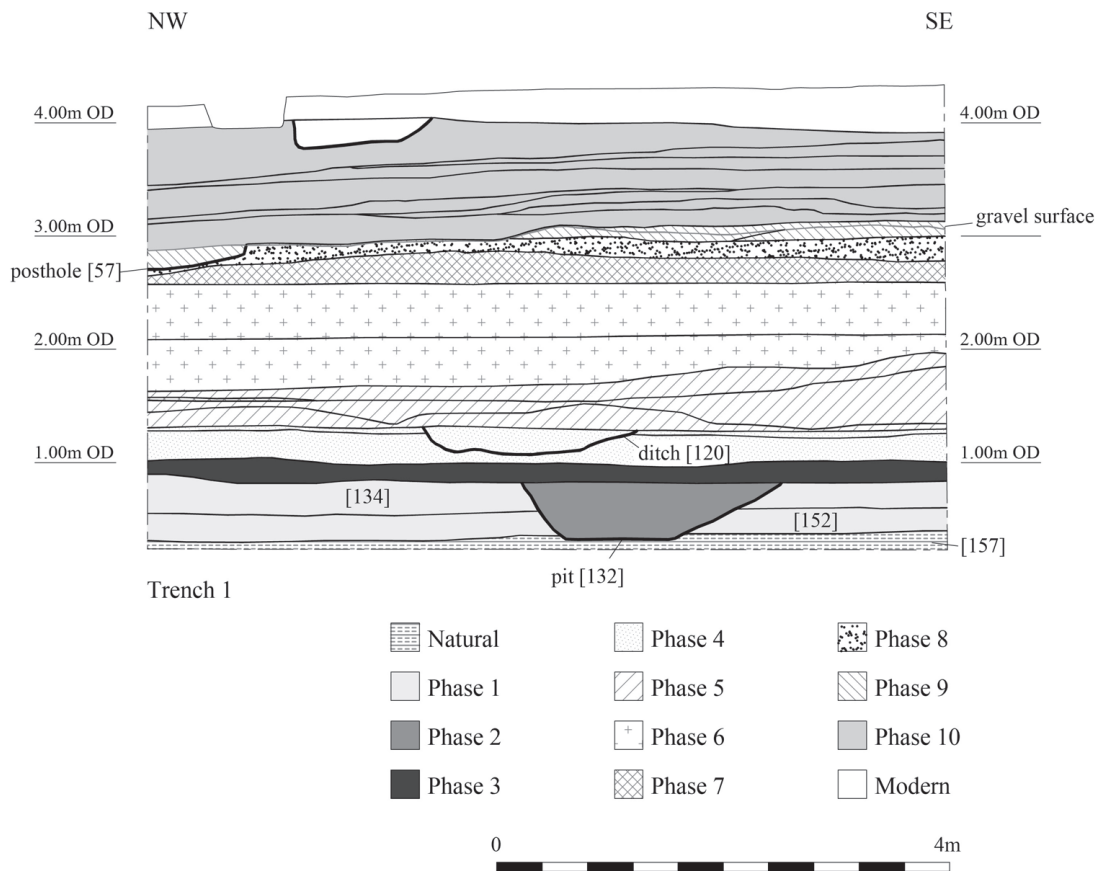


Fig 3. South-west facing section of Trench 1 (located on Fig 2) (scale 1:75)

slightly concave base (depth 0.45m). The fill of the pit comprised a dark brown silty clay containing occasional patches of decayed organic material. It contained a small quantity of shell-tempered pottery dating to either the Late Iron Age or Early Roman period (see Jarrett below). Residual Roman ceramic building material was recovered from the medieval deposits (see Hayward below).

#### ***Saxon (c.AD 600–1050)***

The Saxon period was represented by two residual sherds of pottery. The Middle Saxon period was represented by a single sherd of fine sandy fabric North French grey ware dated to c.AD 600–850. Also recovered was a sherd of Late Saxon shelly ware dated to c.AD 900–1050 (see Jarrett below). Although these sherds were recovered residually from later deposits it is likely that they are evidence of contemporary activity on Thorney Island.

#### ***Phases 3 and 4: Late 12th/ Early 13th Century (c.1150–1230)***

The Phase 2 pit was sealed by a build-up of redeposited silty clay alluvium up to 0.40m thick (Phase 3), which contained fragments of burnt flint, daub, Early Roman brick fragments dated c.AD 50–200 and three sherds of coarse medieval sandy ware dated c.1140–1300 (Fig 3).

A small, temporary external hearth, [129], was constructed within a shallow circular hollow made in the underlying clay (Figs 5 and 6) (Phase 4). The cut for the hearth, which measured 1.20m by 0.95m, was lined with a layer of mid-brownish grey burnt clay upon which, in the centre of the feature, was a circular patch of reddish brown burnt soil containing burnt animal bone and a high concentration of charcoal. Analysis of the charcoal showed the presence of oak, beech and sloe or cherry. Charred weed seeds were also recovered from the burnt soil. However,

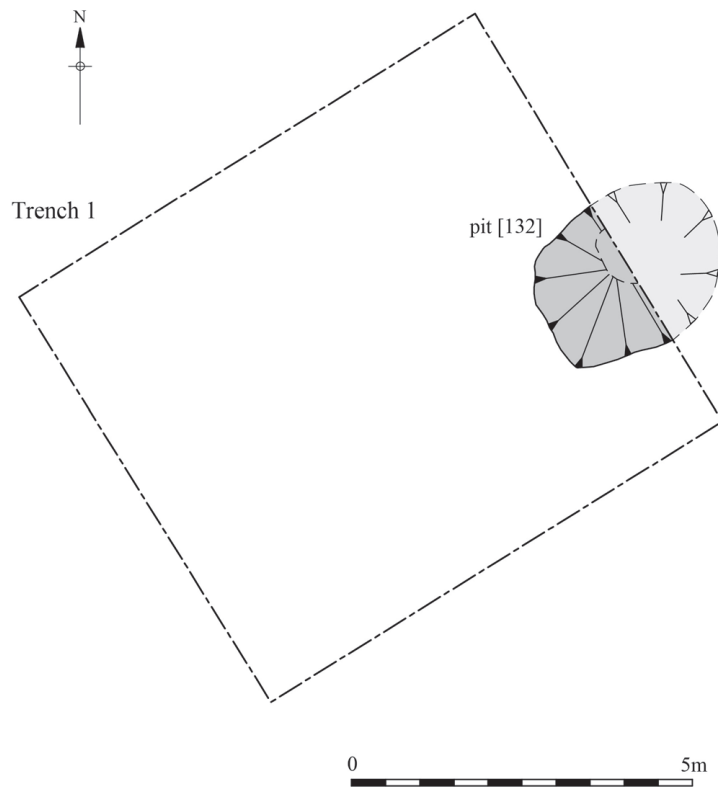


Fig 4. Phase 2: Late Iron Age/  
Early Roman pit [132]  
(scale 1:125)

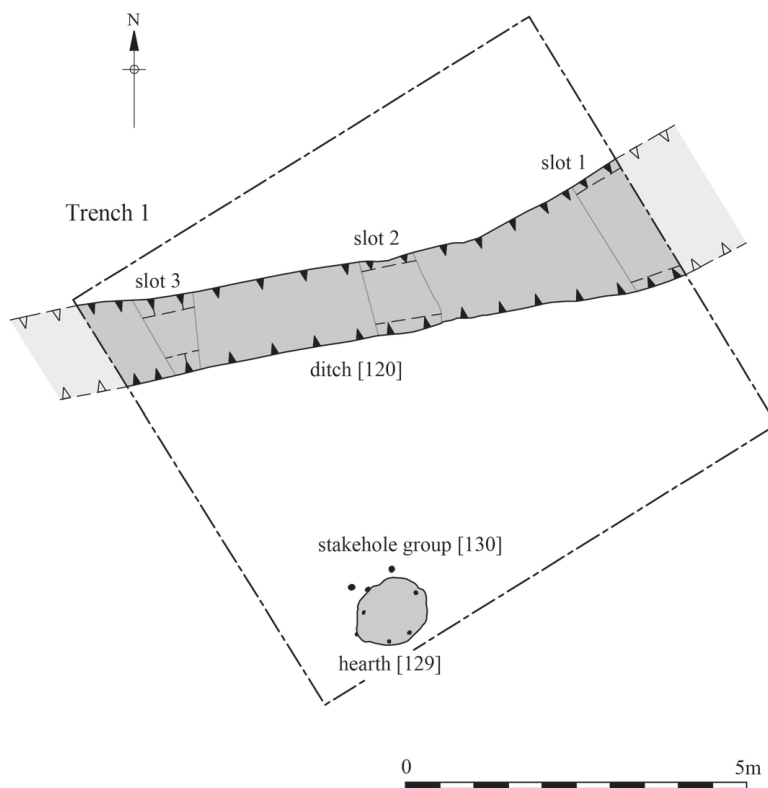


Fig 5. Phase 4: late 12th- to early  
13th-century features  
(scale 1:125)

due to poor preservation of the seeds no further identification was possible. Charcoal and charred seeds were also recovered

from the clay lining of the hearth. Here the seeds were better preserved and could be identified as grass, (possibly) buttercup and





*Fig 6. Phase 4 medieval hearth [129] under excavation, looking south*

indeterminate cereal grain; the charcoal was identified as oak (see Allott below). Surrounding the hearth was a series of eight small stakeholes with pointed bases.

The hearth was sealed by a thin layer of humic soil, which may have been a buried topsoil horizon. It consisted of a mid-greenish grey to mid-brownish grey humic silty sand, which contained no artefacts. This humic layer was cut by an east–west aligned ditch, [120], which extended beyond the limits of excavation (Figs 3, 5 and 7). The ditch had a maximum width of 2.00m and a depth of 0.30m, with steeply sloping sides and a concave base, which sloped from east to west, showing that it probably served as a drain.

Three slots were excavated through the ditch. The central slot (slot 2) had a thin primary fill which consisted of silty clay with frequent charcoal and shell fragments but was otherwise lacking in datable artefacts (Fig 5). The secondary fill of this slot was the

same as the single fills of the other two slots. Slots 2 and 3 in the western and central parts of the ditch contained 45 sherds of pottery including shelly-sandy ware, coarse London-type ware, south Hertfordshire-type grey ware and the flint-tempered variant, the last two pottery types suggesting a depositional date of between *c.*1170 and *c.*1220. The eastern slot (slot 1) contained a small assemblage of similar pottery but also included a sherd of Kingston-type ware (*c.*1240–1400) which might suggest a slightly later date. However, it is likely that this one sherd may have come from an overlying later deposit which slumped into the ditch.

The ditch also contained a considerable quantity of animal bones including the three major domesticates, plus a caudal vertebra of a small cetacean (possibly dolphin or porpoise) and a relatively large assemblage of fish bones, mainly herring, whiting and plaice (see Rielly and Armitage below). Also present were a small hone (<sf 10>;





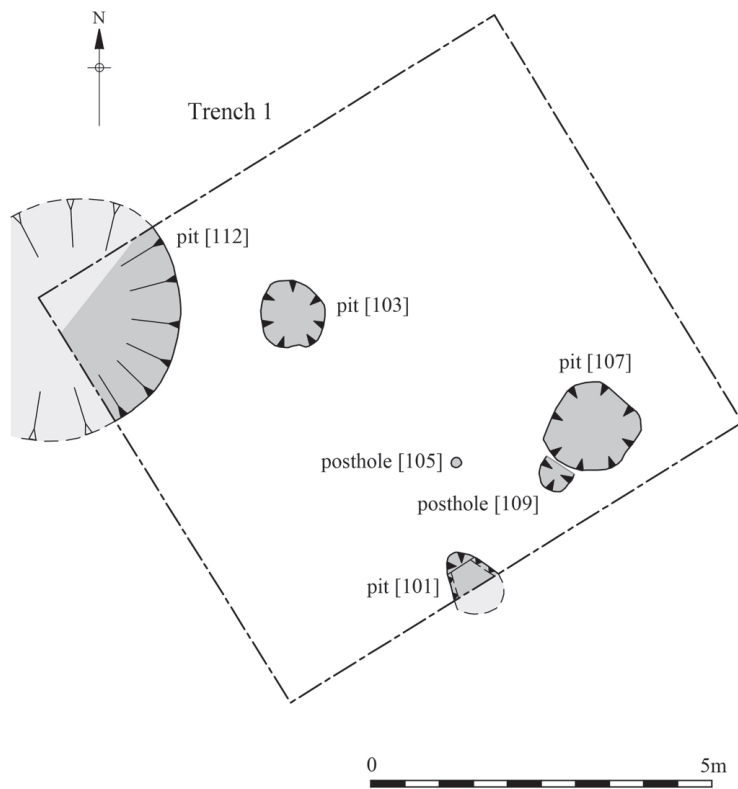
Fig 7. Phase 4 medieval ditch [120], looking north-east (2.0m scale)

see Gaimster below) and charred seeds, including possible oat and bread/club wheat seeds as well as seeds of champion/stitchwort, together with charcoal fragments that showed the presence of oak and other species (see Allott below).

#### **Phase 5: Mid to Late 13th Century (c.1230–1300)**

The ditch was sealed by a series of dumped deposits, including one composed of organic material, perhaps derived from decayed refuse (Fig 3). Several of these layers contained demolition rubble and frequent large lenses of crushed lime mortar. Following the final episode of dumping the ground level had been raised to 2.01m OD in the south-east part of the trench and 1.63m OD in the north-west corner. These layers, in particular the later ones, contained a high quantity of discarded building stone, both in the form of broken ashlar blocks and fragmented

mouldings. Stone types represented included Reigate, Kentish ragstone and Purbeck marble, all of which are common within the earlier fabric of Westminster Abbey (see Hayward below). In addition to the building stone a large quantity of peg and bat roof tiles dated to between c.1135 and c.1220 were present. The latest of the dump layers within this sequence contained pottery dated c.1240–1300. Amongst the fish bones recovered from the dumps was a sturgeon, which represents a high-status food stuff (see Armitage below). From the earlier deposits a number of iron objects were found including a flesh hook, <sf 29>, and a barrel padlock handle/key, <sf 26>, whilst from the top of this sequence an iron fiddle-key horseshoe nail, <sf 25>, an iron staple, <sf 24>, and a long-cross silver penny of Henry III (minted 1248–50) were also recovered (<sf 9>; see Gaimster below).



*Fig 8. Phase 6: 15th-century features (scale 1:125)*

#### **Phase 6: 15th Century (1400–1500)**

It appears that the Phase 5 dumps were left unaltered during the 14th century, and it was not until after 1400 that the further dumping of sandy material, presumably intended to level the sloping land surface, took place (Fig 3). The top of this levelling layer was fairly flat and varied only from 1.96m OD in the west to 2.06m OD in the east. It contained late London-type ware (*c.*1400–1500) and London-area post-medieval slip-decorated red ware (*c.*1480–1600), which suggest a date of between 1480 and 1500 (see Jarrett below). Sherds of residual early medieval flint-tempered or sandy wares dating from *c.*AD 970 to *c.*1100 were also present. Four pits of uncertain function and two postholes were dug into the dumping layers (Fig 8). The largest of these features, pit [112], extended beyond the western limit of the excavation and contained three iron objects: a tanged knife, <sf 30>, a horseshoe, <sf 23>, and a hinge, <sf 22> (see Gaimster below). The pits contained residual pottery dated to *c.*1270–1350. The pits and postholes were sealed by a late 15th-century topsoil horizon (highest point 2.64m OD).

#### **Phase 7: Early to Mid-16th Century (1500–*c.*1570)**

Cut into the 15th-century soil horizon were two postholes, [94] and [99], a sub-rectangular rubbish pit, [90], and a path, [86] (Figs 3 and 9). The postholes were located along the western edge of Trench 1 and had been partially truncated by later features. The rubbish pit contained two fills. The lower fill contained pottery dated to *c.*1480–1500. Other finds from the lower fill included a relatively large quantity of ceramic building material, mainly late 12th- to early 13th-century floor and roofing tiles (see Hayward below), animal bones, a knife-tang fragment, <sf 21>, and a horseshoe, <sf 19> (see Gaimster below). The upper fill of the pit contained only a few sherds of London-area early post-medieval red ware dating to between *c.*1480 and *c.*1600, plus fragments of medieval and post-medieval roof tiles and early post-medieval unfrosted bricks.

Bisecting Trench 1, following a roughly east–west axis, was a path, [86], constructed of fragmented Roman *tegulae* and *imbrices*, plus medieval and post-medieval pegged roof tiles set in soft, fine-grained, pale

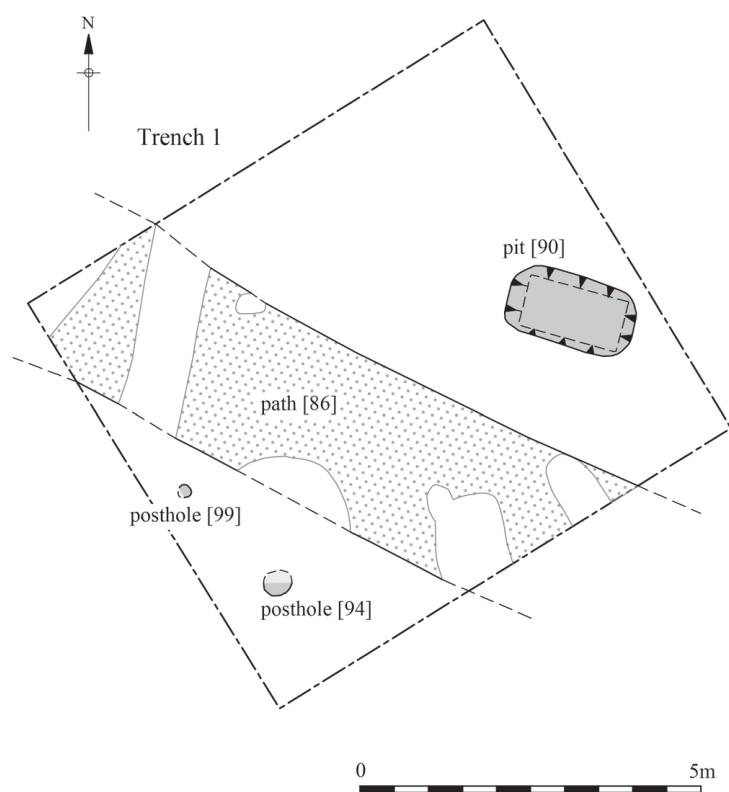


Fig 9. Phase 7: early to mid-16th-century features (scale 1:125)

yellow lime mortar. These had been bedded in a compacted deposit of crushed green sandstone contained within a shallow linear cut. The presence of post-medieval peg tiles (*c.*1480–1700) demonstrate that the earliest possible date for the construction of this path is 1480, but it is very unlikely that it was constructed later than 1550, bearing in mind the date of the deposits which sealed it.

Covering the path and earlier features and extending across the entire trench was a dumped deposit, [63], which developed into a topsoil horizon. It contained a large quantity of pottery sherds, which dated the deposit to *c.*1500–50 (Fig 3). By far the most commonly represented type of pottery within this assemblage was London-area early post-medieval red ware (see Jarrett below). Imported German and Dutch wares were also well represented within the assemblage. This deposit also contained glass fragments, worked stone, a relatively large faunal assemblage (see Rielly below) and a relatively large quantity of copper-alloy objects including assorted dress accessories, most notably a coiled wire possible head-dress ornament, <sf 44>, together with a delicate double-oval buckle, <sf 16>, a book

clasp, <sf 14>, two conjoined pieces of iron mail, <sf 35>, an iron harness buckle, <sf 37>, and a plain lead disc weight, <sf 7> (see Gaimster below).

#### **Phase 8: Late 16th Century (*c.*1570–1600)**

The Phase 7 topsoil horizon was sealed by further dumping of sandy silts, [26], which contained pottery dated to between *c.*1580 and *c.*1600 (top 3.04m OD) (Fig 3). Into this material were dug four roughly oval pits of uncertain function (Fig 10). The deepest of the pits, [92], only contained fragments of post-medieval ceramic building material and a few residual Roman brick fragments. Two of these pits, [81] and [85], contained upper and lower fills suggesting that they had been left open for some time before being deliberately backfilled. Pottery dated to *c.*1500–1600 was recovered from these two pits (see Jarrett below).

#### **Phase 9: Early 17th Century (1600–50)**

In Phase 9, the Phase 8 features were sealed by a series of mixed dump layers consisting of small deposits of gravel, mortar and silty

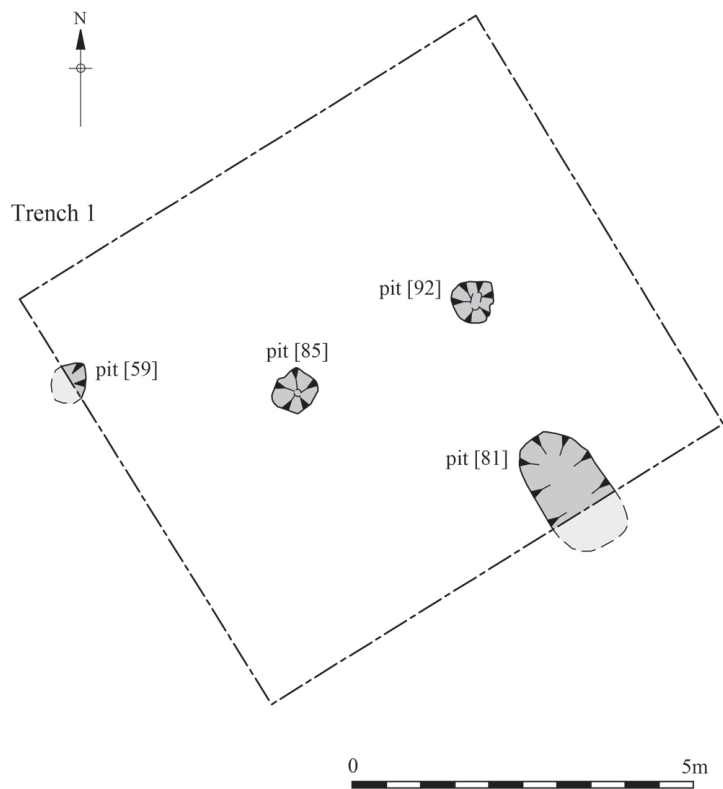


Fig 10. Phase 8: late 16th-century features (scale 1:125)

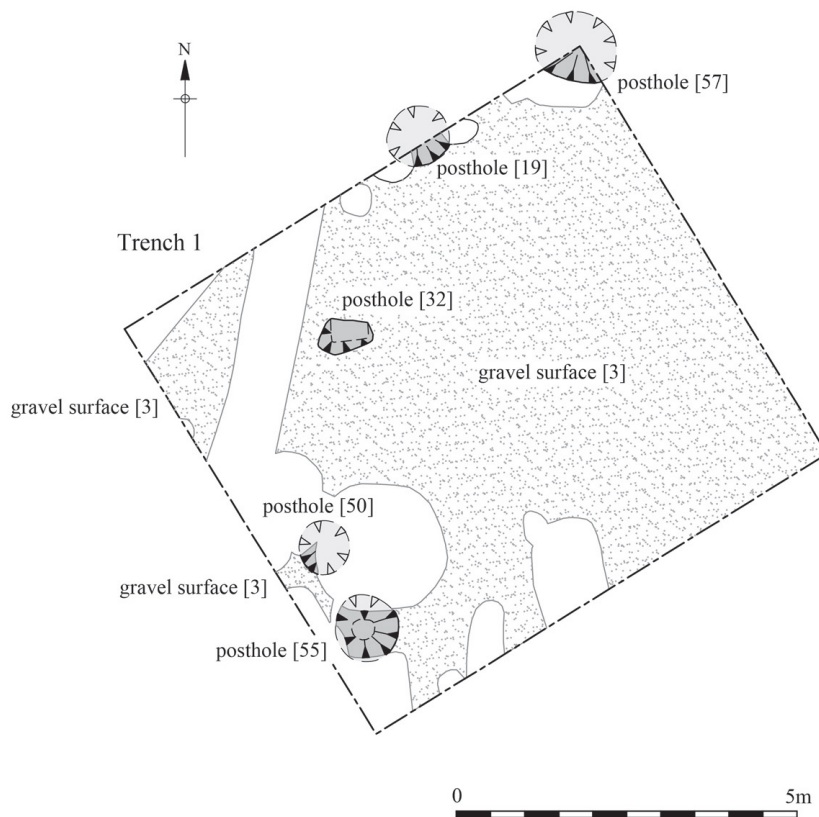


Fig 11. Phase 9: late 16th to early 17th-century features (scale 1:125)



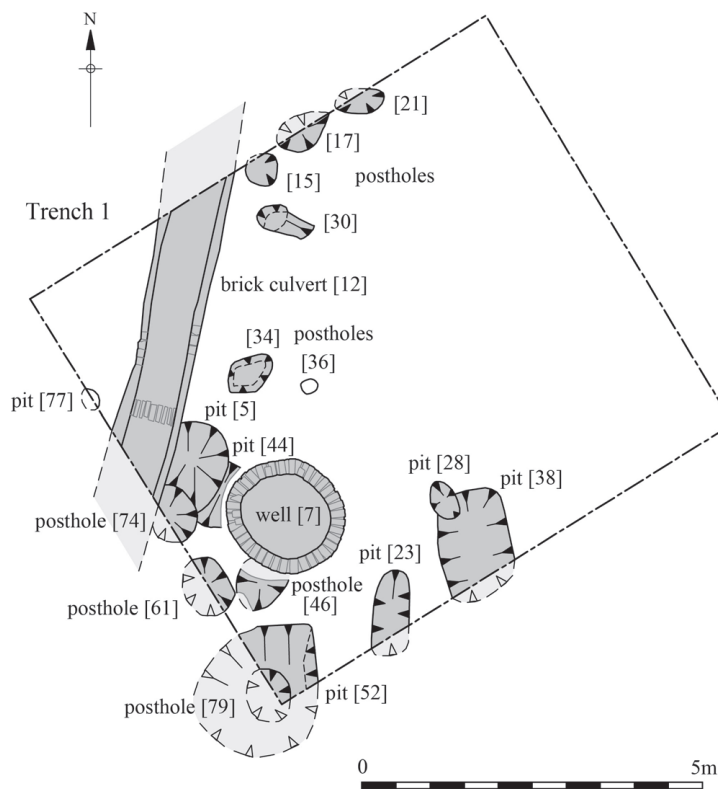


Fig 12. Phase 10: late 17th-century and more recent features (scale 1:125)

clay (Fig 3). Only the lowest layer, a gravel deposit, contained any finds. It contained residual sherds of medieval Kingston-type and London-type wares. On top of these dumps a metallated gravel surface, [3], was laid which covered the entire trench (Fig 3). The top of the gravel surface sloped from 3.30m OD in the west to 2.95m OD in the east. From this surface an early 17th-century near-complete but heavily corroded rose farthing of Charles I, <sf 1>, was recovered (see Gaimster below). Five roughly contemporary postholes, [19], [32], [50], [55] and [57], which might have formed part of a curving fence line (Fig 11), cut the surface along the northern and western extremities of the trench. Pottery recovered from three of the postholes was dated to *c.*1550–1600 and *c.*1580–1610.

#### Phase 10: Late 17th Century to Modern

The Phase 9 postholes were truncated by the excavation required to construct replacement ones (Fig 12). The postholes ranged in diameter from 0.65m to 0.95m and in depth from 0.25m to 0.63m. Finds recovered from the backfill of these postholes consisted of fragments of 17th-century pottery and clay

tobacco pipes. Four pits, probably intended for rubbish disposal, were also dug. A single shard of natural green window glass, of either medieval or post-medieval date, was found within the fill of one of the pits, [38].

#### Late 17th to Mid-18th Century (1650–*c.*1760)

During the late 17th century a circular brick-lined well, [7], with an external diameter of 1.70m was dug through the gravel yard surface (Figs 12 and 13). The well extended to a depth of at least 3.20m below present ground level and continued below formation level of the new transformer chamber. The disuse of this well is dated to *c.*1730–80 by clay tobacco pipes recovered from its backfill (see Jarrett below).

#### Mid-18th to Late 19th Century (1760–1900)

A north–south aligned vaulted brick-lined culvert or sewer, [12], was constructed of unfrogged clinker and yellow stock bricks which dated the structure to *c.*1780–1850 (Figs 12 and 13). Following the construction of the culvert the ground surface was raised to its present level of 4.34m OD.



Fig 13. Phase 10 brick-lined well [7] and culvert [12], looking south-west (2.0m scale)

### **Trench 2**

In Trench 2 (Fig 2), which was only excavated to a depth of *c.*1m, post-medieval dumped deposits and late post-medieval gravel road surfaces, a precursor to the existing road surfaces, were recorded in section. At the eastern end of the trench the top portion of the underlying medieval deposits was observed.

## **SPECIALIST REPORTS**

### ***Prehistoric to Post-Medieval Pottery***

*Chris Jarrett*

#### *Introduction*

The site produced a total of 664 sherds (sherd count: SC) from a minimum number of vessels (MNV) of 390; 29 sherds were unstratified. The assemblage comprises two sherds of Late Iron Age/Early Roman

fabrics, one sherd of a Mid Saxon ware, 329 sherds of medieval and 332 sherds of post-medieval wares. Most of the pottery consists of small sherds, but identifiable forms are recognisable and a very small number of vessels have a complete profile. Very few sherds show evidence of abrasion, but there was a degree of residuality. Pottery was recovered from Phases 2–10 and its quantification is shown in Table 1. Museum of London Archaeology (MOLA) pottery codes are used in the following text for Roman, medieval and post-medieval wares.<sup>1</sup> The code is given with the ware expansion at the first mention and thereafter only the code is used.

#### *Phase 2*

Two sherds from a prehistoric or Early Roman shell-tempered ware (SHEL) vessel were found in pit [132].



Table 1. Quantification of pottery types Phases 2–10 by sherd count (SC) and minimum number of vessels (MNV)

Ware	Code	Phase Date range	2		3		4		5		6		7		8		9		10		Total	
			SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	ENV
Prehistoric-Early Roman shell tempered ware	SHEL		2	1																	2	1
*North French greyware, fine sandy	NFGWB	600-850																	1	1	1	1
Late Saxon shelly ware	LSS	900-1050									1	1									1	1
Early medieval flint-tempered ware	EMFL	970-1100									1	1									1	1
Early medieval sandy ware	EMS	970-1100									3	3									3	3
Early medieval sand- and shell-tempered ware	EMSS	1000-1150							1	1											1	1
Early medieval sandy ware with calcareous inclusions	EMCALC	1000-1150									1	1									1	1
Early medieval chalk-tempered ware	EMCH	1050-1150			2	1					1	1									3	1
Early medieval grog-tempered ware	EMGR	1050-1150									1	1									1	1
Early Surrey ware	ESUR	1050-1150			1	1															1	1
London-area grey ware	LOGR	1050-1170							1	1											1	1
Early south Hertfordshire-type coarse ware	ESHER	1050-1200							2	2											2	2
Coarse London-type ware	LCOAR	1080-1200			14	12													1	1	26	23







Late London-type ware	LLON	1400-1500	5	4	4	3	9	7
Langerwehe/Raeren stoneware	LARA	1450-1500	1	1			1	1
Central Italian maiolica	CITG	1450-1550	1	1	1	1	1	4
Dutch slipped red earthenware	DUTSL	1300-1650			2	2	2	2
Dutch slipped red earthenware with sgraffito decoration	DUTSG	1450-1550			4	1	1	5
Early Surrey-Hampshire border white ware	EBORD	1480-1550			35	7	35	7
Cistercian ware	CSTN	1480-1600			3	3	1	1
London-area early post-medieval calcareous red ware	PMREC	1480-1600			3	1		3
London-area early post-medieval red ware	PMRE	1480-1600	4	3	1	1	121	51
London-area post-medieval slip-decorated red ware	PMSL	1480-1600			1	1	9	2
Raeren stoneware	RAER	1480-1610			14	12	4	1
London-area post-medieval slipped red ware with green or clear (yellow) glaze	PMSRG/Y	1480-1650			37	21	1	1
Beauvais white ware with green glaze	BEAG	1500-1600					1	1
Frechen stoneware	FREC	1550-1700						

Table 1 (cont.). Quantification of pottery types Phases 2–10 by sherd count (SC) and minimum number of vessels (MNV)

Ware	Code	Phase Date range	2		3		4		5		6		7		8		9		10		Total	
			SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV	SC	MNV
Surrey-Hampshire border white ware with green, olive or clear (yellow) glaze	BORDG/ O/Y	1550-1700																				
**English tin-glazed ware	TGW	1570-1846			1	1													12	9	13	10
Essex-type post- medieval black-glazed red ware	PMBL	1580-1700													4	4	1	1	1	1	6	6
Essex-type post- medieval fine red ware	PMFR	1580-1700													1	1			1	1	2	2
London-area post- medieval red ware	PMR	1580-1900													1	1			9	9	10	10
Chinese blue and white porcelain	CHPO BW	1590-1900																	1	1	1	1
Metropolitan slipware	METS	1630-1700																	1	1	1	1
Pearlware with transfer-printed decoration	PEAR TR	1770-1840																	1	1	1	1
Refined white earthenware	REFW	1805-1900																	1	1	1	1
Total			2	1	3	1	77	46	163	69	52	46	248	118	36	34	9	9	45	42	635	365

\* see Blackmore 1988

\*\* includes London tin-glazed ware with plain pale blue glaze (TGW BLUE), London tin-glazed ware with blue- or polychrome-painted decoration and external lead glaze (TGW D), London tin-glazed ware with pale blue glaze and dark blue decoration (TGW H)

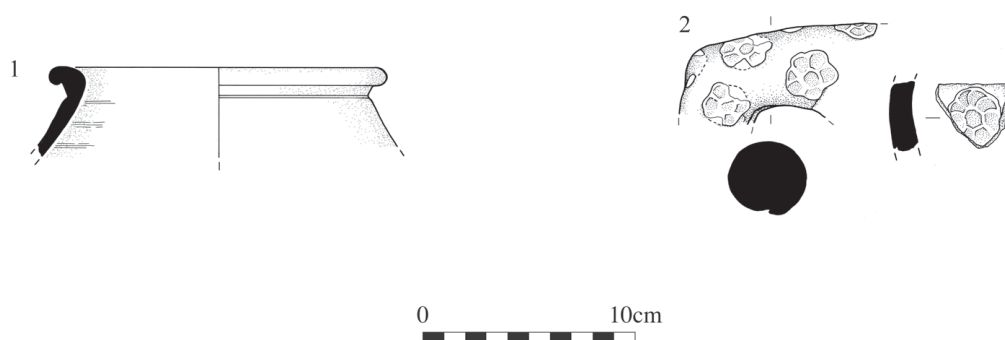


Fig 14. Pottery from Dean's Yard. Key: 1. Rim of Phase 3 [133] jar with undercut rim in coarse medieval sandy ware (MCS); 2. Fragment of Phase 5 [115] London-type ware handle in the highly decorated style (LOND HD) with applied white slip rosettes, possibly from an aquamanile, and a body sherd from the same vessel (scale 1:4)

### Phase 3

From layer [133] were three sherds from a jar with an undercut, flat top expanded rim (Fig 14.1). This vessel possessed a highly fired fabric with abundant quartz and sparse grog inclusions and was therefore classified as coarse medieval sandy ware (MCS), dated to c.1140–1300.

### Phase 4

Phase 4 produced a total of 77 sherds of pottery representing 46 MNV. This pottery was mainly derived from London (45.5% SC/53.3% MNV), Hertfordshire (45.5% SC/35.6% MNV), the Thames Valley (5.2% SC/4.4% MNV), Surrey (2.6% SC/4.4% MNV) and Italy (1.3% SC/2.2% MNV).

The lowest fill of ditch [120] produced mostly grey wares from south Hertfordshire (Blackmore & Pearce 2010). There were 13 sherds (8 MNV) of south Hertfordshire-type flint-tempered greyware (SHER FL) and four sherds (2 MNV) of the finer ware (SHER). Both wares are dated in London to between c.1170 and c.1350, and the only forms identified were rounded jars or cooking pots. Coarse London-type ware (LCOAR), dated c.1080–1200, was the second most frequent pottery type, present as 14 sherds derived from the same number of vessels. All the forms represented in LCOAR are as jug fragments and include white slip and green glaze decoration, but one sherd has white slip lines and may have an 'early style' design (LCOAR EAS), dated c.1140–1200 (Pearce *et al* 1985). The one jug handle represented is of a strap type dated in this industry to

c.1175–1225. There are also four sherds of the finer London-type ware (LOND) dated c.1080–1350. During the 14th century this ware was manufactured in the Woolwich area (Cotter 2008). Six sherds come from a shelly-sandy ware (SSW) jar with a rounded thickened rim, bevelled on the top. This ware is dated in London to between c.1140 and c.1220. There are also two sherds of early medieval chalk-tempered ware (EMCH) and a sherd of an early Surrey ware (ESUR) jar; both fabrics ceased production c.1150 and are therefore residual. The pottery types present in this fill indicate deposition between c.1170 and c.1200.

Later fills of the ditch including [123] produced seven sherds of SHER and included the expanded rim of a rounded jar, together with two sherds of SSW, indicating deposition between c.1170 and c.1220. Fill [119] produced later types of pottery indicating deposition between c.1240 and c.1350. The main pottery type present in this fill was SHER, consisting of seven sherds derived from four rounded jars with external sooting and internal deposits, indicating that they had been used for cooking. The four sherds of SSW came from two rounded jars, one of which was also sooted. Both jars had expanded rims, one squared with two thumb impressions on the top surface. Other types of pottery were present in small quantities, including two sherds of early medieval gritty ware (EMGY), dated c.1080–1200, and two glazed sherds of LCOAR. The latest fabric present was a sherd of the Surrey white ware Kingston-type ware (KING), which appeared in London between c.1240 and c.1400

(Pearce & Vince 1988); it was a jug sherd with an unusual horizontal red slip band. There was also a sherd of central Italian maiolica (CITG), which appeared to be intrusive.

#### *Phase 5*

Phase 5 produced 163 sherds of pottery representing 69 MNV. The main sources of pottery were Hertfordshire (48.5% SC/34.8% MNV) and London (42.3% SC/44.9% MNV), followed by the Thames Valley (4.3% SC/10.1% MNV), Surrey (3.7% SC/2.9% MNV) and Buckinghamshire (1.2% SC/2.9% MNV).

Sealing the Phase 4 deposits was a series of dump layers. The earliest deposits produced mostly late 12th- to early 13th-century pottery types: early south Hertfordshire-type coarse ware (ESHER) and SSW as jar forms, besides EMGY, in layer [122], while early medieval sand- and shell-tempered ware (EMSS), LCOAR early rounded jugs, a London-area grey ware (LOGR) pitcher and a SSW thumb rim jar were present in layer [117].

Layer [116] was dated to 1240–1300 as it contained mostly LOND, as 17 sherds representing some four vessels, and mostly jug sherds with rod handles, some with white slip and green glaze, but 13 sherds came from a highly decorated (LOND HD) jug with applied white slip decoration as lines either side of scales or strips with rouletted notch decoration. London-type ware in the highly decorated style (LOND HD) is more common in the mid to late 13th century and less frequent afterwards. There were also single sherds of SHER and a green-glazed KING. Layer [115] was also dated to 1240–1300 and SHER was the most frequent fabric with 64 sherds (9 MNV) mostly from cooking pots, but there was a jug with a rounded rim and a rod handle with thumb decoration (a characteristic of the industry). London-type wares accounted for 26 sherds (8 MNV). Two LOND HD vessels were present as 17 sherds: the first is a jug with diamond rouletted white slip strips and the second is a possible aquamanile, suggested by the right-angled rod handle and the body sherds with applied white slip rosette flowers and a green glaze (Fig 14.2). Kingston-type ware (KING) was found as five sherds (4 MNV) and included jugs.

#### *Phase 6*

Phase 6 produced 52 sherds of pottery representing 46 MNV. This pottery was derived from a wide range of sources, with London being the principal one (36.5% SC/39.1% MNV), followed by Hertfordshire (13.5% SC/10.9% MNV), Surrey (11.5% SC/8.7% MNV), the Thames Valley (9.6% SC/10.9% MNV), Surrey-Hampshire (9.6% SC/10.9% MNV) and Essex (9.6% SC/8.7% MNV).

Much of the pottery from layer [97] is fragmentary and residual including early medieval wares, sandy ware with calcareous inclusions (EMCALC), flint-tempered ware (EMFL) and sandy ware (EMS), besides contemporary sherds of KING and LOND jugs and SHER. The latest pottery types present were small sherds of late London-type ware (LLON) and its white slip-coated version (LLSL), both dated *c.*1400–1500, besides a sherd of oxidised London-area post-medieval slip-decorated red ware (PMSL), dated *c.*1480–1600, indicating a deposition date of *c.*1480–1500 for this context.

Dug into layer [97] was a series of postholes and pits, some of which produced pottery all of which appears to be residual: a base sherd of EMS in the fill of posthole [109]; a sherd of a white-slipped and green-glazed Mill Green ware (MG: Pearce *et al* 1982) derived from a jug in pit [107]. Single sherds of a MG and coarse Surrey-Hampshire border ware (CBW) jugs and a sherd of EMGR were recovered from pit [103]. Ten sherds of pottery were recovered from fill [111] of pit [112] and these were mostly sherds of LOND HD jugs with rouletted applied strips of decoration, as found on an accompanying sherd of highly decorated Kingston-type ware (KING HD), which additionally had an applied chevron.

Sealing the pits and postholes was a topsoil horizon, [88]. The main pottery types present in this deposit were CBW and LOND, present as four jug sherds each from the same number of vessels. Three small sherds of LLON were also recorded, while all other pottery types were present as single sherds and included a sherd of Late Saxon shelly ware (LSS), EMCH with a combed wavy line, and glazed jug sherds in KING, MG and late medieval Hertfordshire





glazed ware (LMHG). The latest pottery type present was a small sherd of London-area early post-medieval red ware (PMRE: Nenck 1999), dated to c.1480–1600. The earliest imported pottery present in the site assemblage was recovered from this layer as sherds of Langerwehe/Raeren stoneware (LARA) and CITG dating to c.1450–1550.

#### Phase 7

The largest quantity of pottery recovered from any phase of activity was present in the Phase 7 deposits as 248 sherds (118 MNV). The main sources were London (71% SC/67.8% MNV), Surrey-Hampshire (16.9% SC/11% MNV) and Germany (6.9% SC/12.7% MNVs). Imported pottery, including wares from France, Italy and the Low Countries, consisted of 10.1% by SC and 16.9% by MNV. The pottery from the backfill of posthole [99] mostly consisted of PMRE, seven sherds from three vessels of which the rim and rod handle of a cauldron could be identified. Three sherds of London-area post-medieval slipped red ware with clear (yellow) glaze (PMSRY) were present in the form of two carinated bowls. The same number of sherds occurred as two CBW jugs, and there was a sherd of early Surrey-Hampshire border white ware (EBORD), dated to c.1480–1550 (Pearce 1997; 1999). Other medieval wares occurred as two sherds of LLON and single sherds of LLSL and an internally glazed sherd of KING. Imported pottery was represented by single sherds of a jug in French Saintonge ware with mottled green glaze (SAIM) and German Siegburg stoneware (SIEG). The types of pottery present in this context indicate a deposition date of c.1480–1500.

The main pottery type present in topsoil horizon [63] was 112 sherds (46 MNV) of PMRE. Forms present included bowls or dishes, some with pulled feet indicating a mid-16th-century date, cauldrons, a rounded jar, pitcher, tripod pipkins and the pierced base of a watering pot. A calcareous variant of the PMRE fabric (PMREC) occurred as three sherds from a dripping dish with a complete internal glaze; usually 16th-century London red wares have partial splash glazes. London-area post-medieval slipped red ware with clear (yellow) glaze (PMSRY) was present as

31 sherds (15 MNV), while the green-glazed ware (PMSRG) was represented by three sherds (3 MNV) and the forms consisted of bowls or dishes, a flared bowl, carinated bowls and a dish, cauldrons and jugs. London-area post-medieval slip-decorated red ware (PMSL) occurred as nine sherds derived from two vessels. The forerunner of PMRE was LLON and the two sherds in this layer are from a pitcher, while a single sherd occurred as LLSL.

Residual Surrey white wares were fairly well represented in this deposit, [63], and consisted of four residual sherds of CBW and a single sherd of 'Tudor Green' ware (TUDG). There were 34 sherds (6 MNV) of EBORD rounded drinking jugs. The northern England counterpart to the fine tablewares of EBORD in the 16th century was Cistercian ware (CSTN), a highly fired red ware with good glaze coverage. It was represented by three sherds (3 MNV) consisting of two rounded cups and part of a lid decorated with vertical white slip lines and dots.

This deposit produced 23 sherds (10.2%) or 18 MNV (17.8%) of imported pottery, mostly German Raeren stoneware (RAER) (14 sherds, 12 MNV) drinking jugs, dating to c.1480–1550. There were also two sherds of Siegburg stoneware with iron wash (SIEB), representing a sherd of a jug and the base of a *Trichterhalsbecher* or *krug* (SIEG TRIC). Dutch red wares occurred as four sherds of Dutch slipped red earthenware with sgraffito decoration (DUTSG) and two sherds of the slipped red earthenware (DUTSG/SL) representing two chafing dishes and a DUTSL jug. The final import is the rare occurrence of a single sherd of a CITG closed form decorated with blue bands and a floral motif on a white background. Imported tin-glazed wares dating to this period were formerly thought to be from the south Netherlands, but chemical analysis of the fabrics indicates that they were manufactured in central Italy (Blake 1999). The pottery types recovered from layer [63] indicate a deposition date of c.1500–50, but the red ware forms probably refine the date to the third quarter of the 16th century.

#### Phase 8

Phase 8 produced 36 sherds of pottery

representing 34 MNV. The main sources of pottery were Surrey-Hampshire (33.3% SC/29.4% MNV), London (22.2% SC/23.5% MNV) and Essex (13.9% SC/14.7% MNV). The imported pottery mostly came from Germany, with only single sherds coming from France, Italy and the Low Countries. Imports accounted for 19.4% by SC and 20.6% by MNV of the assemblage.

Sealing the topsoil horizon, [63], was dump layer [26], which contained 31 sherds of pottery. Residual medieval pottery consisted of LOND and the Surrey white wares, such as two sherds each of Cheam white ware (CHEA) and CBW, including a bifid rim cooking pot (CBW BIF), besides a sherd of TUDG. The latest Surrey white wares present are the Surrey-Hampshire border white ware (Pearce 1999) with either green glaze (BORDG: 6 SC, 4 MNV) as a drinking jug, olive glaze (BORDO: 1 SC) in the form of a rounded mug, and clear (yellow) glaze (BORDY: 1 SC). These white wares date mostly to *c.*1550–1700. London-area red earthenwares were present as four sherds of PMRE, and identified forms were two cauldrons. London-area post-medieval slipped red ware with clear (yellow) glaze (PMSRY) was present as a single sherd of a bowl or dish. London-area post-medieval red ware (PMR), represented by a single sherd, developed at the end of the 16th century and was a better fired and glazed innovation of PMRE. Essex-type post-medieval fine red earthenwares (Nenk 1999) were present as four sherds of Essex-type post-medieval black-glazed red ware (PMBL), and a body sherd of Essex-type post-medieval fine red ware (PMFR) with a loop handle, probably represents a drinking vessel. There was also a single sherd of CSTN. Imported pottery was represented by a single fragment of a DUTSG chafing dish and four sherds (4 MNV) of RAER drinking jugs. The combination of red wares (PMBL, PMR, PMRE, PMFR) along with the other pottery types indicates a deposition date of *c.*1580–1600.

Dug into layer [26] were four features, [59], [81], [85] and [92], of which only two contained pottery. Pit [81] produced two sherds of pottery (CBW and PMRE) and pit [85] only produced single sherds of imported pottery of Beauvais white ware with green glaze (BEAG) and CITG. An

unstratified BEAG dish decorated rim with a floral stamp was also recovered from the site. The majority of the pottery present in these features appeared to be residual.

#### *Phase 9*

The pottery in this phase consisted of nine sherds derived from the same number of vessels. A number of the posthole fills produced 16th- and 17th-century pottery types. Posthole [32] contained the base of a CSTN cup and a small sherd of Frechen stoneware (FREC), while posthole [50] produced the rim of a PMBL chamber pot and a sherd of RAER. Frechen stoneware (FREC) and a PMRE dripping dish were recovered from fill [54] of posthole [55].

#### *Phase 10*

The pottery in Phase 10 consisted of 45 sherds representing 42 MNV. The main sources were London (60% SC/57.1% MNV), followed by Germany (13.3% SC/14.3% MNV). Other imported wares from China and France totalled 15.6% SC/16.7% MNV. All the other sources (Essex, the Midlands and Surrey-Hampshire) of pottery were present as three sherds or three MNV (6.7%/7.1% respectively).

Some of the pits and postholes produced pottery: pit [5] – PMR and London tin-glazed ware with plain pale blue glaze (TGW BLUE); posthole [17] – PMR; posthole [48] – a late 19th-century refined white earthenware (REFW) bear's grease type pot; pit [52] – RAER, PMR and a English tin-glazed ware (TGW) plate rim with a *c.*1700–20 geometrical border. The pottery from posthole [22] included the flat base of a medieval CHEA vessel and a residual sherd of imported Middle Saxon North French grey ware with a fine sand temper vessel with a simple (slightly inturned) rim (Blackmore 1988, 90, NFGWB). Posthole [30] produced six sherds of pottery consisting of CSTN, a metropolitan slipware (METS) dish, PMR and a charger in London tin-glazed ware with blue- or polychrome-painted decoration and external lead glaze (TGW D).

The construction backfill, [8], of brick-lined well [7] produced a late 17th-century TGW bowl. The backfill, [6], of this well



contained residual BORDY chamber pots and sherds of RAER, while contemporary material was represented by a Chinese blue and white porcelain (CHPO BW) bowl and a TGW BLUE chamber pot with a pale blue glaze and dark blue decoration. London tin-glazed ware with pale blue glaze and dark blue decoration (TGW H) was present as an albarello and a plate base, indicative of an 18th-century date.

The majority of the latest series of Phase 10 postholes were sealed by dump layer [9] which produced a sherd of PMR and a transfer-printed Pearlware (PEAR TR) carinated bowl with a landscape scene dating to the early 19th century. Cutting layer [9] were four postholes. One of these postholes, [11], contained tin-glazed ware present as TGW BLUE and a mid to late 18th-century TGW H plate with a floral design. Pit [38] produced residual pottery: BORDG, FREC with a bartmann face, a PMBL jar and PMR.

### *Discussion*

The pottery assemblage reflects activity on Thorney Island during the Late Iron Age to Early Roman period, then the environs of Westminster Abbey from the Middle Saxon period through to the early 19th century. The pottery types are very similar to those recovered from nearby archaeological investigations.

Although the two sherds of prehistoric or Early Roman shell-tempered pottery are small and non-diagnostic they are almost certainly contemporary with the context they occurred in. Stratified Iron Age fabrics, heavily flint gritted and a fine sandy one, were recovered from Cromwell Green (Platts 1980, 26–7). However, only flint-tempered sherds were recovered from the Dorter undercroft at Westminster Abbey (Swain 1995, 80). Most of the prehistoric pottery assemblages from the Jubilee Line Extension project and associated excavations also contained predominantly flint-tempered wares, but additionally there were fabrics with clay pellets or voids (Rayner 2006, 179–81). Residual Roman pottery recovered from the Dorter undercroft was dated to *c.*AD 70–300 (Waugh 1995, 80).

Although the French sherd of imported Middle Saxon pottery was residual in Phase

10, it is probably derived from Middle Saxon activity on Thorney Island (see 'Archaeological and Historical Background' above). This sherd from Dean's Yard, together with 32 sherds of contemporary pottery from the Dorter undercroft of Westminster Abbey (Blackmore 1995, 80) confirms there was Middle Saxon activity within the vicinity. The only imported ware from the Dorter undercroft was a sherd from Badorf/Walberberg, while the most frequent pottery type was Ipswich-type ware, found in London between *c.*AD 730 and *c.*AD 850/70 (*ibid.*).

The medieval pottery from Dean's Yard reflects activity associated with the development of Westminster Abbey (see 'Archaeological and Historical Background' above). The early medieval pottery types found at Dean's Yard were all residual, but an important sequence of early medieval pottery dating from *c.*1050 to the late 12th century was recorded nearby in the Dorter undercroft (Goffin 1995, 80–7). The stratified medieval sequence at Dean's Yard dates from the end of the 12th century. South Hertfordshire-type grey wares and the shelly-sandy ware (part of the London red ware industry) provided the kitchen and storage wares, while the tablewares (jugs) were provided by the London-type wares. This pattern was typical in London during this period. This is also true for the mid and late 13th-century pottery groups where highly decorated jugs are notable, including examples from Kingston (Surrey). This pottery may have been derived from the abbey or other buildings surrounding Dean's Yard. The presence of a possible aquamanile (Fig 14.2), a vessel used to wash hands while eating, is of interest and indicates possible formal mealtimes within the abbey or the surrounding properties. Aquamaniles are viewed as high socio-economic status items.

Late medieval pottery is very poorly represented from Dean's Yard and examples of coarse Surrey-Hampshire border ware were hardly represented, whereas excavations from the City of London show it to be the main type of pottery marketed in the City between 1360 and 1500 (Pearce & Vince 1988, 16, fig 9). Other comparative assemblages of medieval pottery have been recovered nearby at 17 Dean's Yard (Murray

2003) and the sub-vault of the Misericorde of Westminster Abbey (Platts 1976, 158–70). However, many of the medieval pottery types from the Jubilee Line Extension excavations carried out within the area of the abbey and palace of Westminster (Stephenson & Pearce 2006) are the same as the Dean's Yard material.

The early post-medieval pottery was well represented on the site; in addition to a good representation of local and non-local wares, there was also a good selection of imported wares. Pottery such as the Beauvais white ware with green glaze, central Italian maiolica, Dutch slip and sgraffito wares and Raeren and Siegburg German stonewares reflects the influence of the Renaissance and demand for quality and showier table and drinking wares (Gaimster 1999). The home-grown Cistercian ware and early Surrey-Hampshire border ware may also have tapped into the Renaissance period demand for high-quality drinking wares. Drinking forms were frequently represented in deposit [63], dated to the early 16th century; drinking jugs in Raeren stoneware (14 sherds, 12 MNV) and early Surrey-Hampshire border ware (34 sherds, six MNV) are a notable component. They may have come from the abbey refectory or grammar school. Establishments such as the Inns of Court ordered large quantities of good-quality drinking forms (and other shapes) from the Surrey-Hampshire border potters for use in the halls for mealtimes (Jarrett 2005), while a cache of early 16th-century Surrey-Hampshire red border ware cups at Cripplegate Buildings (Museum of London site code WFG18) may represent the refuse from the hall of a livery company and one of their feasts (Pearce 1997). Raeren stoneware drinking jugs were imported into London in vast quantities.

The pottery types post-dating c.1580 from the Dean's Yard excavation are typical of the London area, but more impressive assemblages of post-medieval pottery have been recovered from other excavations within the environs of Westminster Abbey (eg Stephenson & Pearce 2006). Of note from previous excavations are the ceramics recovered in 1951 from a pit located within the area of the deanery on the west side of the abbey cloister. This pit contained three

distinct groups of ceramics: late 15th century, early 16th century and c.1600, the last two periods producing 14 complete vessels (Hurst 1960). Of note was a dish in Spanish blue and white tin-glaze, a north Netherlands albarello, both dated c.1600, early 16th-century Siegburg stoneware with iron wash and London-area post-medieval slipped red ware jugs, and a 15th-century Cheam white ware rounded jug. In 1963 the excavation of the silts within the 16th-century extension to the abbey's drain revealed a group of pottery dated to c.1670–80. Published are a 'Dutch fashion' red earthenware chamber pot, two costrels, one probably from the Surrey-Hampshire borders and modified into a money box by the addition of a post-firing slot and the other described as Portuguese in origin, together with three stoneware Frechen Bartmann drinking jugs (Huggins 1976, 73–5).

### *The Clay Tobacco Pipes*

*Chris Jarrett*

#### *Introduction*

The condition of this small assemblage of clay tobacco pipes is good, indicating that it had not been subject to much redeposition or that it was deposited soon after breakage. The bowl shapes were classified according to Atkinson and Oswald's (1969) typology (AO) and 18th-century examples by Oswald's (1975) typology and prefixed OS. The degree of milling on 17th-century bowls has been noted and recorded in quarters, in addition to the quality of finish.

#### *The Clay Tobacco Pipe Types*

The clay tobacco pipe assemblage from the site consists of ten bowls, 28 stems and two nibs or mouthparts. The stems and nibs are only dated to the broad date range of production (c.1580–1910) and on their own were only found in Phase 10 deposits, the exception being a stem from layer [88] in Phase 6. The stratified clay tobacco pipe bowl types found in Phases 8 and 10 deposits ranged in date between c.1640 and c.1780.

Clay tobacco pipes dated c.1640–60 occurred as the spurred AO9 and the heeled AO10 types. Two examples of spurred bowls



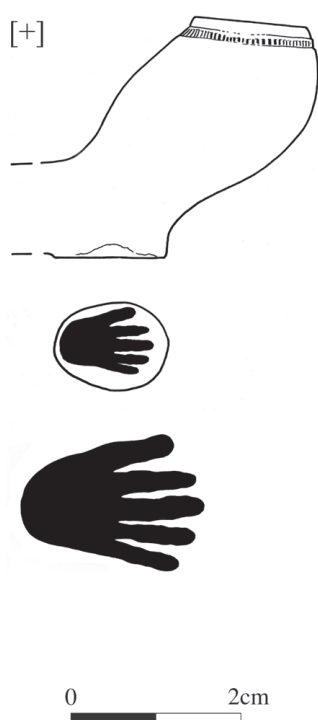


Fig 15. Unstratified AO13 clay tobacco pipe bowl with gauntlet stamp (scale 1:1, detail of stamp 2:1)

were discovered, both with complete milling and of a good or fair quality of finish. Both bowls are taller variants, one is unstratified and the other was recovered from a Phase 10 pit, [23].

The c.1660–80 dated bowls occurred as three types and all as single items. The unstratified heeled AO13 type with a rounded bowl profile has no milling, a fair finish and was unstratified, as was the West Country heeled AO16 type with an overhanging bowl. It has full rim milling, a very good finish and a large incuse gauntlet stamp on the heel underside (Fig 15). Gauntlet stamps have quite a wide distribution in the West Country but are known also in the Staffordshire/Cheshire area and at Much Wenlock, Shropshire (Jarrett 2012). However, the distribution of West Country type pipes in London is mostly confined to the Westminster area, on the river front and the corresponding south bank. This may allude to a migrant pipe maker in the vicinity. The AO18 type heeled bowl has a straight sided, angled profile, quarter milling and a fair finish. It was found in the backfill of the Phase 10 well, [7].

Two unclassified bowls are present, but they are represented only by heels and could date to between the end of the 17th and the 18th century. One was unstratified and the other came from the Phase 8 levelling layer, [26]. The backfill of Phase 10 well [7] included two heeled OS12 bowls with narrow stems dated to c.1730–80, and both have the initials of the pipe makers on their heels. The first is 'W P', possibly for William Pearce, 1754 (Oswald 1975, 143), while the second is marked 'B T' and could have been made by a local Westminster pipe maker Benjamin Turner, 1739–57, working at St Anne's Lane in the parish of St John the Evangelist (Heard 2009).

### *The Ceramic Building Material*

*Kevin Hayward*

#### *Introduction and Methodology*

A diverse group of Roman and later ceramic building material (70kg) was recovered. It was examined using the MOLA system of fabric classification.<sup>2</sup> The application of a 1kg mason's hammer and a sharp chisel to each example ensured that a small fresh fabric surface was exposed. The fabric was examined at x20 magnification using a long arm stereomicroscope or hand lens (Gowland x10). Comparison was made with the ceramic building materials recovered from other excavations in Dean's Yard (Black 1976; 1977; Murray 2003).

#### *Roman*

Quantities (9kg) of reused, highly fragmentary Roman ceramic building material were found, mainly within the medieval reclamation dumps (Phases 3–5). It is likely that much of this building material was salvaged from Roman London and brought upstream for reuse in buildings, such as the 11th-century Pyx Chamber (W Rodwell, pers comm).

#### *Brick*

London sandy fabric group 2815; Sussex fabric group 3054, 3057; Radlett group 3023, 3060

The assemblage is dominated by 8kg of Early Roman brick represented by two

common London fabric groupings: the sandy 2815 (c.AD 50–160) and the iron oxide rich 3023 (c.AD 50–120). These are the same fabrics present elsewhere on Thorney Island (Smith 2006, 174). One glazed example was probably reused in a medieval kiln or a hearth to manufacture pottery or tiles on Thorney Island before being discarded. Some fragmentary bricks represented by the early grog-tempered Hampshire fabrics 3057 and 3059 were especially thick (43mm), indicating substantial bricks the size of a *lydion* or a *sesquipedalis*.

### Roofing Material

London sandy fabric group 2815; Radlett fabric group 3023, 3060; Calcareous fabric group 3013

The same common fabric groups are also present in 1kg of highly fragmentary *tegula* and *imbrex*. The exception was a much later example of the rare iron oxide rich, calcareous fabric 3013 (c.AD 130–350) (Pringle 2009).

### Medieval and Post-Medieval

Fragmentary examples of medieval peg roofing (both bat-shaped and rectangular) tiles and various glazed medieval floor tiles were a common constituent of the assemblage at Dean's Yard. This range of ceramic building material is to be expected given the proximity of Westminster Abbey and attests to the numerous phases of rebuilding (and therefore also discard).

Post-medieval building material is less frequent, and although still mainly fragmentary does contain complete late post-medieval bricks in the mid-18th- to mid-19th-century culvert structure [12].

### Floor Tiles

The earliest group of glazed Westminster floor tiles (c.1250–1300+) were represented by four fragments of black plain-glazed or worn, narrow (24mm) inclined edged tile from Phases 4, [119], and 5, [115], reclamation dumps. Although no patterning was present, the fine sandy fabrics 2195 and 2199 are diagnostic of the Westminster tiles found elsewhere in the abbey such as the mid-13th-century Muniment Room

and manufactured in Clerkenwell (Crowley 1997, 195–6). This material may represent demolition debris from the 1298 fire that affected the cloister (Murray 2003, 44).

Decorated, narrow Penn tiles (fabrics 1811, 3076), manufactured in Buckinghamshire between c.1350 and c.1390, are found redeposited higher up the sequence. One floral design with a fleur-de-lys in the centre is comparable with Eames type EAM 2230/31 (Eames 1980). They may have originated from the demolition of the nearby Misericorde from where Penn tiles have been recorded (Black 1977, 202). Examples of later medieval flooring from areas of the abbey adjoining Dean's Yard are represented by thicker (28–34mm) plain black- and yellow-glazed imported Flemish tile (fabrics 1678, 2323) with calcareous inclusions (c.1300–1550) from redeposited Phase 7 demolition layers. Finally, plain-glazed and unglazed silty Flemish tile (fabrics 1977, 2850), manufactured after c.1450, only was present in Phase 10 deposits.

### Medieval Bat-Shaped Peg Roofing Tiles

The glazed medieval roofing tiles represented by thick (18mm) curved bat tile (also called shouldered peg tile) and both thin (8–10mm) and thick (18–22mm) peg tiles (fabrics 2271; 2272; 2273; 2586 and 2587) were concentrated in the Phase 4 and 5 deposits along with the Westminster floor tiles. These roof tiles were made from the very shelly 2272 and sandy 2273 fabrics (dated to c.1135–1220), a thinner finer 2271 (3.3kg) (manufactured after c.1180) and the glazed iron oxide fabric groups 2586 and 2587 (c.1180–1450). From this it is clear that ceramic building material was the preferred material of choice over stone for roofing the medieval parts of the abbey adjoining Dean's Yard (eg the Misericorde).

### Post-Medieval Unglazed Peg Roofing Tiles

Large quantities (25kg) of the common unglazed peg tile in sandy fabric 2276 were recovered from Phase 7–10 dumps, [42], [63], [86] and [89].

### Post-Medieval Bricks

There were a number of early post-medieval



(1450–1700) sandy unfrogged bricks (fabrics 3030, 3033 and 3046) recovered from the Phase 7–10 dumps. The earliest of these, the rare chocolate brown earthy 3030 (c.1400–1660), which occurs in Phase 7 dumps, is narrow (97mm) and shallow (55mm) with sunken margins. Chopped up shallow (47mm), wide (104mm) chaff-tempered red sandy bricks (fabrics 3033 and 3046) (c.1450–1700) were also present in the Phase 7 and later deposits.

Later post-medieval brick fabrics are conspicuous by their near absence. The exception is a post-medieval unfrogged clinker (fabric 3032) and yellow Kent stock brick (3035) used in the Phase 10 brick-lined culvert [12].

#### *Origin of the Fragments*

As for the moulded stone (see Hayward below), the proximity of this excavation of Dean's Yard not only to the 11th-century cloister but also to the contemporary refectory and kitchen area (Misericorde) of 17 and 20 Dean's Yard would suggest that many of the fragments of redeposited clay peg tiles and floor tiles identified in the Phase 4 and 5 dump layers were the result of the renovation and rebuilds of this part of the medieval abbey. Amongst the array of broken up roofing material were some medieval floor tiles.

#### *The Worked Stone*

Kevin Hayward

#### *Introduction*

Over half (100kg) of the building material assemblage from Dean's Yard consisted of stone. Amongst the array of ashlar, rubble and mouldings, 15 different rock types could be identified, most of which could be sourced to a specific geological outcrop. This wide range of material types was to be expected, given the numerous episodes of alteration and construction of the abbey buildings which have taken place since the 11th century (see 'Archaeological and Historical Background' above). It was hoped that the material type from each dumping phase at Dean's Yard could be related to discrete phases of rebuilding especially from

the immediate surroundings of the cloister, deanery and kitchen area (including the Misericorde).

#### *Methodology*

The same methodology used in the study of the ceramic building material (see Hayward above) was followed for the stonework.<sup>3</sup> Comparison was made with the *in situ* stonework identified from other excavations in Dean's Yard (Black 1976; 1977; Murray 2003).

#### *Petrological Review*

A summary of the 15 rock types identified from Dean's Yard, their geological source, occurrence within the sequence and functions are summarised in Table 2.

#### *Rubble*

More than 13kg of a dark grey sandy limestone (Kentish ragstone) from the Lower Greensand outcrop at Maidstone, Kent, were present from the Phase 4 and later deposits. This durable stone had an important role to play as walling material at Westminster Abbey including the walls of the nearby 11th-century refectory (Black 1976) and the 12th-century abbey precinct wall (Murray 2003). In all probability some of this material, as well as the mouldings and ashlar described below, may well have come from the cloister area, close to Dean's Yard, which was severely damaged by fire in 1298 (*ibid*, 44).

#### *Mouldings, Ashlar and Paving*

Roll mouldings and broken up ashlar blocks made from many different types of freestone<sup>4</sup> formed an important component of the assemblage from Phases 4–6 and later deposits. These included roll mouldings of a low density, light green calcareous sandstone (Reigate stone from the Upper Greensand) and its denser stratigraphic equivalent from Leatherhead (Surrey), Malmstone. A paving slab from a Phase 5 dumping layer was made of a condensed freshwater limestone packed full of the diagnostic small freshwater gastropod *Paludina*, typical of Purbeck marble from the Upper Jurassic of Dorset. A moulding of a hard white sparry

Table 2. Stone types identified

Stone type	Code	Geological source	Phase	Function
Kentish ragstone	3105	Lower Cretaceous (Lower Greensand Limestone) Maidstone, Kent	4–10	ashlar, rubble, whetstone
Hassock stone	3106	Lower Cretaceous (Lower Greensand Sandstone) Maidstone, Kent	4–10	ashlar, rubble, whetstone
Reigate stone	3107	Lower Cretaceous (Upper Greensand) Mertsam-Reigate, Surrey	+ 4–8, 10	ashlar, roll moulding, fragments of rubble
Malmstone – variant of Reigate stone	3107V	Lower Cretaceous (Upper Greensand) Leatherhead-Farnham, Surrey	8	part-worked moulding fine tool marks
Chalk	3116	Upper Cretaceous Chalk, Thames Basin	4, 5	rubble
Flint	3117	Upper Cretaceous Chalk, Thames Basin	+ 5, 10	rubble
York stone	3120	Upper Carboniferous, Yorkshire	+	paving
Taynton stone	3151	Middle Jurassic (Bathonian), west Oxfordshire	4	heavily worn architectural moulding
Caen stone – white variant	3119	Middle Jurassic (Bathonian), Normandy	7, 10	moulding possibly statuary and rubble
Portland limestone (Whit Bed)	3110	Upper Jurassic (Portlandian), Isle of Portland, Dorset	+	ashlar fragment
Purbeck marble	3112M	Upper Jurassic (Purbeckian), Isle of Purbeck	5	paving
Kimmeridge Oil shale	3120	Upper Jurassic (Oxfordian) Kimmeridge Bay, Dorset	+ 5	fuel
Basalt	3120	Igneous source northern and western Britain	+	cobbles
Granite	3135	Igneous source northern and western Britain	+	cobbles
German Lavastone	3123R	Andernach Eifel Mountains, Rhineland, Germany	5	rotary quernstone





limestone was comparable with a variant of Caen stone and was recovered from the Phase 10 deposits. Finally there was a very large, heavily weathered, but partly worked freestone block from the Phase 4 redeposited alluvium. It is made from an orange banded shelly oolitic limestone very similar to the Bathonian Taynton stone, from west Oxfordshire.

What this suite of stone materials all have in common is their widespread use as architectural mouldings and ashlar in the substructure and superstructure in large medieval ecclesiastical buildings throughout Greater London, including not only Westminster Abbey but also Bermondsey Abbey (Dyson *et al* 2011) and Merton Priory (Miller & Saxby 2007). Ashlar blocks of Reigate stone were used in the mid-11th-century abbey including the Dorter undercroft (Samuel 1995, 103–4) and the Pyx Chamber, the later 11th-century refectory wall, the cloister (K Hayward, pers obs), plus the early 12th-century refectory walls (Black 1976), all of which lie close to Dean's Yard. A hard white variant of Caen stone was observed as two hearthstone corbels set in the refectory walls, as well as being used as the actual walls (*ibid*, 153–4). Shafts of Purbeck marble were used in the main cloister (K Hayward, pers obs), whilst another very large worked block of Taynton stone was reused in the Misericorde at 20 Dean's Yard (Black 1977). This Romanesque style block may originally have formed part of the 12th-century cloister capitals (*ibid*, 200), and the example from Phase 4, [118], may represent a heavily weathered capital fragment from this early period.

#### *Cobbles*

Granite and basalt setts along with York stone paving were recovered from the unstratified layers. It is probable that these represent *ex situ* 19th-century cobbling.

#### *Portable Stone Objects*

The backfill of the Phase 4 ditch, [120], contained a fragment of German lava rotary quernstone and a whetstone fragment made out of Kentish ragstone. A honestone, <sf 10>, from this ditch is included in the small

finds section (see Gaimster below).

#### *Discussion: Geological Sources and Origins*

The varieties of stone types identified from this small excavation in Dean's Yard are essentially a microcosm of what was going on during the construction of Westminster Abbey and other monastic houses in medieval London. During the medieval period, the upstream shipment (via the Medway) of Kentish ragstone for walling from the Lower Greensand quarries of Maidstone and the downstream supply of Taynton stone from west Oxfordshire via the Evenlode was supplemented by maritime access to the Purbeck marble quarries along the Dorset coast and Caen stone shipped from Normandy. In addition, the 40kg of Reigate stone from north Surrey would have been transported up to Battersea and thence downstream to Westminster Abbey.

The proximity of this excavation, not only to the 11th-century main cloister but also the 11th-century refectory and kitchen area (of 17 and 20 Dean's Yard), would suggest that many of the *ex situ* fragments of moulded stone and rubble identified from the Phase 4 and 5 medieval dump layers were the by-product of the various renovations and rebuilding of the adjoining portion of Westminster Abbey. In all probability at least some of this material may well have come from the cloister area, which lies close to Dean's Yard and was heavily damaged in a fire of 1298 (Murray 2003, 44).

#### *The Metal and Other Small Finds*

##### *Märit Gaimster*

Over 130 small finds were retrieved from the excavations, all dating from the medieval and post-medieval periods. The finds consisted largely of iron nails and undiagnostic metalwork, but a number of significant objects, including structural fittings, horseshoes, household furnishings and dress accessories were also identified and are discussed in this report.

##### *Medieval Small Finds (Phases 4–6)*

Among the medieval finds was a group of objects from Phase 5, associated with

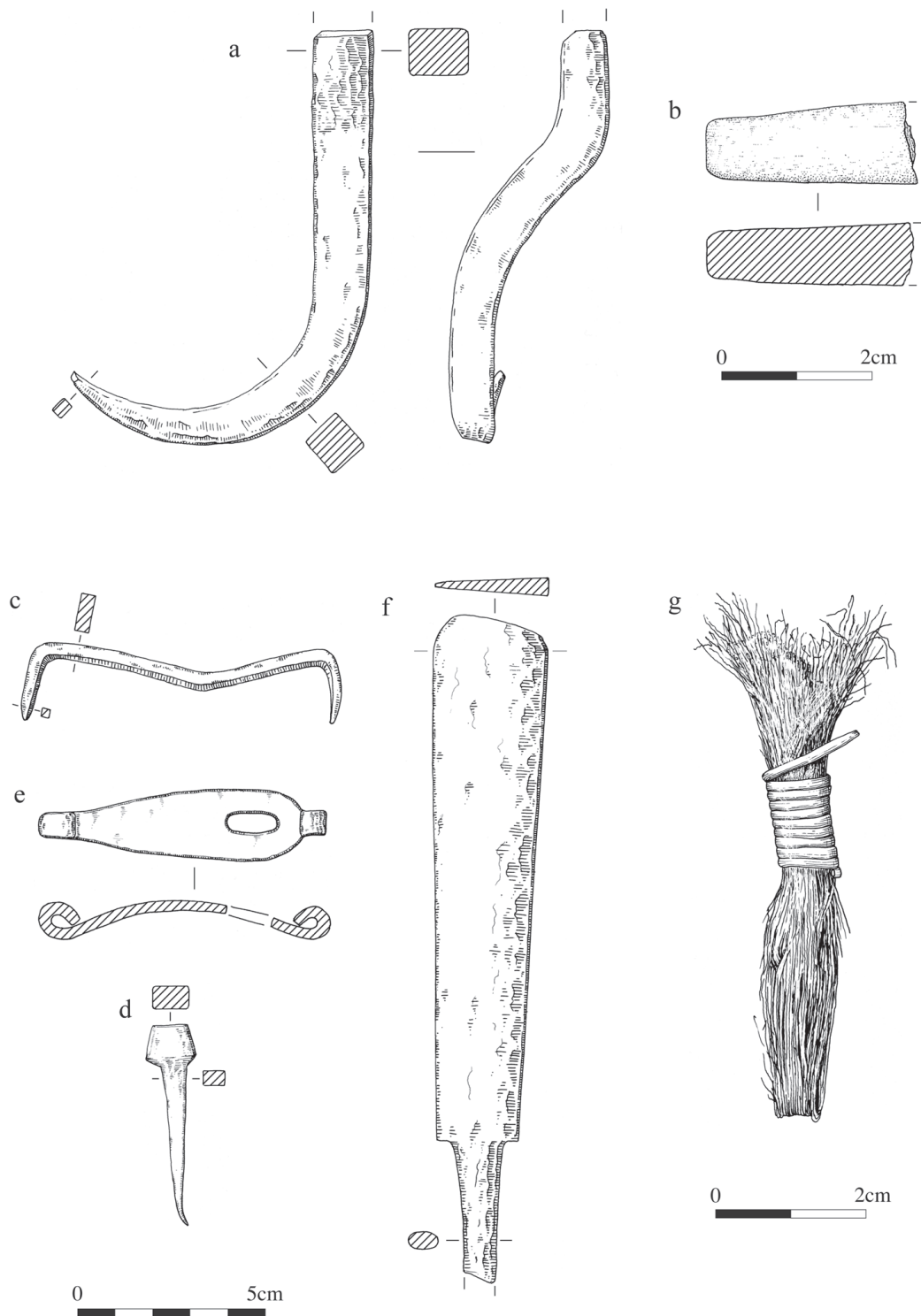


Fig 16. Medieval small finds from Dean's Yard (for context details see catalogue). Key: a. Fragment of iron flesh hook <sf 29>; b. Terminal of schist honestone <sf 10>; c. Iron staple <sf 24>; d. Iron fiddle-key horseshoe nail <sf 25>; e. Iron casket fitting, ?hinge for stapled hasp <sf 22>; f. Iron blade of carving or trencher knife <sf 30>; g. Copper-alloy wire brush/scourer <sf 18> (a, b and g scale 1:1, c-f scale 1:2)



pottery dated to c.1170–1220. These are all household objects, and include an iron slide key/handle for a barrel padlock, <sf 26>, and the probable fragment of an iron flesh hook, <sf 29>, a kitchen implement used for lifting pieces of meat out of the cooking pot (Fig 16a) (see catalogue below). There was also the terminal of a slender stone hone, <sf 10>, from Phase 4 (Fig 16b). The padlock slide key, <sf 26>, has a circular bit placed at an angle with the shank, a type of key used for padlocks with the keyhole in the endplate of the case (*cf* Ottaway & Rogers 2002, 2876, fig 1453; Egan 1998, 100). This appears to be the most long-lasting form of barrel padlock, originating in the 7th century AD and continuing into the early modern period (Ottaway & Rogers 2002, 2866). The curved iron prong, <sf 29>, is almost certainly of a flesh hook, with the scar of a second prong clearly visible (*cf* Egan 1998, fig 124 no. 435; Goodall 1990a, fig 242). The stone hone, <sf 10>, of grey schist, is of a characteristic long and slender shape with a rectangular section (*cf* Ellis & Moore 1990, fig 264 no. 2956). Such fine hones may have been primarily used for sharpening knives and craftsmen's tools (Ottaway & Rogers 2002, 2797).

Another group of medieval finds from Phase 5 was associated with pottery dated to c.1240–1300, and includes an early long-cross penny of Henry III (<sf 9>: minted 1248–50). The coin was found with an iron staple, <sf 24> (Fig 16c), a structural fitting intended to hold pieces of wood together (*cf* Ottaway 1992, 622–3), and a complete and unused so-called fiddle-key horseshoe nail, <sf 25> (Fig 16d). This type of nail, with a trapezoid head of the same thickness as the shank, is characteristic of Type 3 horseshoes of the 13th and early 14th centuries (Clark 1995, fig 66).

A small iron mount, <sf 22>, from Phase 6 deposits (1400–1500) is almost certainly the hinge for a stapled hasp, a fitting used to secure the lids of chests and caskets (Fig 16e). The hasp would have been attached by a loop to the curved finial of the hinge; its staple would have fitted into a slot in the front of the chest, and would have been secured by a mounted lock (Goodall 1990b, 973, fig 304). The curved profile of the mount suggests that it came from a casket with a domed lid (*cf* *ibid*, fig 304 no. 3507;

Ottaway & Rogers 2002, fig 1421 no. 12367). The same context, [111], also yielded a complete horseshoe of Type 3, <sf 23> and part of a substantial tanged iron knife, <sf 30> (Fig 16f). The size of the blade, which is widening towards the tip, suggests a use at the table as a carving or trencher knife (Cowgill *et al* 1987, 51). A Type 4 horseshoe, with characteristic broad webs and square holes without separate countersunk slots for the nail heads, <sf 31> (Clark 1995, 96), was also recovered from the Phase 6 deposits.

Of particular interest is an object formed of lengths of fine copper-alloy wire, folded once and tightly bound into a bunch with coarser wire, <sf 18>; at the open end, the wire is splayed and bent from use (Fig 16g). Several similar objects are known from medieval contexts, and are now interpreted as brushes or scourers; they would have been used to clean cooking vessels and other kitchen utensils, and would presumably have been mounted on a handle of wood or bone (*cf* Allan 1984, fig 194 no. 234). This scourer was actually found in Phase 9 deposits, but it is attributed to the medieval period on stylistic grounds and because it was found associated with medieval ceramics.

#### *Medieval Small Finds Catalogue*

Context [10]; external dumping in Phase 9; pot date c.1240–1350 (residual)

<Sf 18> Copper-alloy wire brush/scourer; lengths of fine wire folded once and wound into bunch with coarser wire; one end splayed and split; length 65mm; diameter 6mm (Fig 16g).

Context [88]; topsoil horizon in Phase 6; pot date c.1480–1500

<Sf 31> Iron Type 4 horseshoe; complete but heavily corroded with three nail holes to each side; width 110mm; length 120mm.

Context [111]; lower fill of pit [112] in Phase 6; pot date c.1270–1350 (residual)

<Sf 22> Iron ?hinge for stapled hasp; oval hole for fixing at one end and a looped finial at the other; curved profile suggests it was originally attached to casket with a domed lid; width 16mm; length c.65mm (c.72mm reconstructed length as per figure) (Fig 16e).

<Sf 23> Iron Type 3 horseshoe; complete

with caulkins and three rectangular nail holes to each side; width 100mm; length 120mm.

- <Sf 30> Substantial iron tanged knife; incomplete with blade widening from c.20mm to over 30mm towards the tip; length of blade 140mm+ (Fig 16f).

Context [115]; topsoil horizon in Phase 5; pot date c.1240–1300

- <Sf 9> Complete silver coin; Henry III long-cross penny; Class 3h (minted 1248–50); moneyer: Nicole; mint: London.  
 <Sf 24> Iron staple; complete; rectangular with broad top; width 80mm (Fig 16c).  
 <Sf 25> Iron fiddle-key horseshoe nail; complete and unused; length 55mm (Fig 16d).

Context [117]; external dumping in Phase 5; pot date c.1170–1200 (residual)

- <Sf 26> Iron barrel padlock handle with angled bit; incomplete; handle length 95mm+.

Context [122]; external dumping in Phase 5; pot date c.1170–1200 (residual)

- <Sf 29> Iron flesh hook; incomplete; complete curved prong with part of shank and visible scar of second prong; length c.60mm (Fig 16a).

Context [123]; fill of ditch [120] in Phase 4; pot date c.1170–1220

- <Sf 10> Hone of phyllite (metamorphic rock) from a northern British or Scandinavian source; incomplete; long slender shape with 9 x 11mm rectangular section; length 18mm+ (Fig 16b).

#### *Post-Medieval Small Finds (Phases 7–9)*

The largest individual assemblage of finds was retrieved from the Phase 7 (1500–c.1570) deposits. These finds consisted of a wide range of artefacts, including dress accessories, fragments of armour and vessel repairs, horse equipment, a book clasp and a lead weight. The only coin was a rose farthing of Charles 1, <sf 1>.

Finds from the lower fill of pit [112] included another Type 4 horseshoe, <sf 19> (Clark 1995, 96). The same context also contained a fragment of a knife tang, with rivets for securing the handle, <sf 21>, which reflects the popularity of this type of knife from the 14th century onwards; with

their greater scope for decoration, scale-tang handles also reflect the increased specialisation of knives at this time, with the emergence of the table knife (*cf* Cowgill *et al* 1987, 51).

Dress accessories included a copper-alloy lace-chape, <sf 11>, and nine corroded fragments of wound wire jewellery, <sf 44> (Fig 17 (lower), eight illustrated). Among these fragments are six pieces of finely wound wire, arranged around a core of coarser three-ply wire; one of these pieces (Fig 17f) appears to be a terminal or connecting piece, with additional metal loops or rings. A further piece (Fig 17h) is of a more complex basket construction overlying a core or spiral of wire. Most interesting is what appears to be a strap divider (Fig 17g), consisting of three rectangular pieces formed of three parallel strands of coarser wire neatly wound with finer gauge wire; one of the 'strap ends' is finished in a loop. The decorative use of coiled wire was a feature of dress and hair accessories of the 15th and 16th centuries, when the wire-work was frequently combined with small beads of bone and glass. Objects of wire-work included dress hooks, girdles and chatelaines, but in particular hair ornaments or head-dresses (Egan & Forsyth 1997, 226–9; Egan 2005, 55, fig 41; Woods 1982, fig 26 no. 12). The most complete surviving local example of this type of ornament is the wire-work head-dress, recovered from the Thames foreshore in Southwark (Fig 17). It is thought to date from the late 16th or early 17th centuries and consists of a hairnet-like construction of twisted wire-work embellished with bone and glass beads, metal sheeting and flattened decorative spirals (Weinstein 1989). The small wire-work fragments from Dean's Yard may well have originated from a similar head-dress, due to the presence of a strap divider (Fig 17g). Here, also, the fragment of a flattened copper-alloy strip with a curved finial (Fig 17b) may be compared to the flattened spirals in the Thames foreshore piece. A further flattened strip with a curved finial, <sf 13> (Fig 18a), is likely to also be part of the same ornament, as is the fragment of a fine wire ring, <sf 12> (Fig 18b). Probably unrelated to these pieces of wound wire is a small copper-alloy rivet, <sf 8> (Fig 18c).

From the same context also comes an



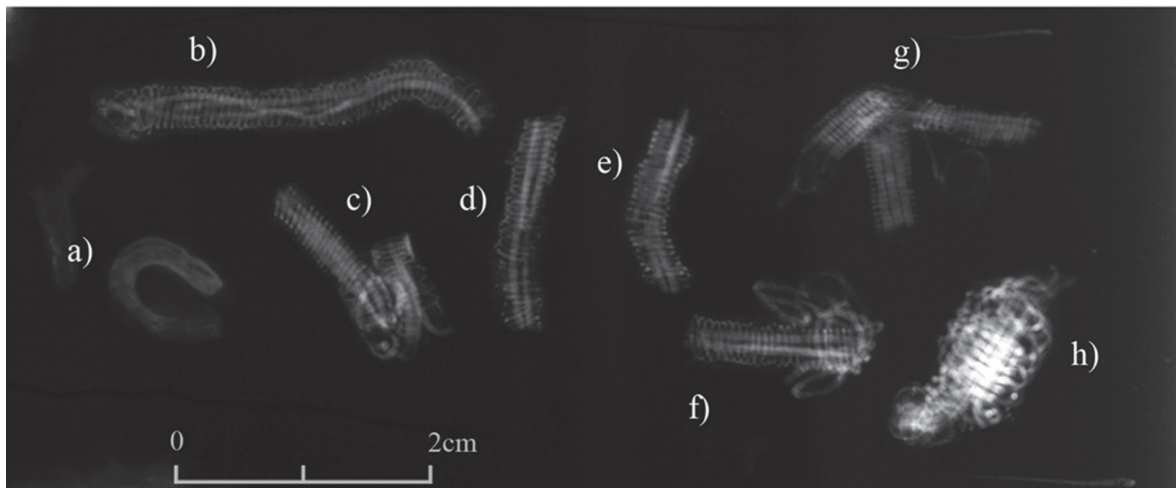
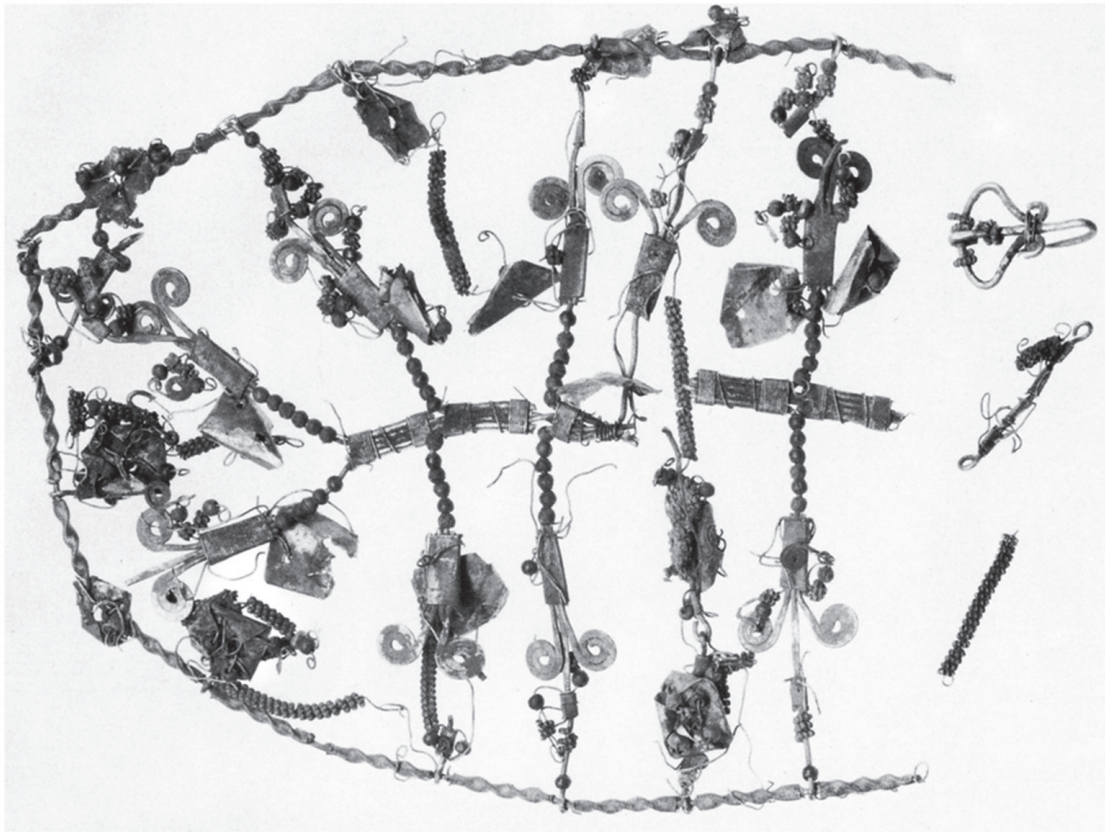


Fig 17. (lower) X-ray of the Phase 7 deposit [63] showing the intricately wound copper-alloy wire components of possible head-dress <sf 44>. Key: a. Hooked finely wound wire components; b. Flattened strip with curved finial; c–e. Various finely wound wire components; f. Possible terminal; g. Possible 'strap divider'; h. Piece of complex basket-work construction based around a wire core possible 'strap divider'. (upper) A fragment of an early 17th-century head-dress from the Southwark Thames foreshore; the wire-work decoration measures 170mm by 150mm (Weinstein 1989, pl LVb; MoL acc no. 87.26; © Museum of London)

unusually delicate double-oval copper-alloy buckle with a decorated frame, <sf 16> (Fig 18d). This buckle has a moulded bifurcated pin and a knop at either end of the strap bar.

It has parallels with shoe buckles from the later 16th and early 17th centuries (*cf* Hinton 1988, fig 184 no. 184; Whitehead 2003, 61, no. 359). These buckles are, however, far

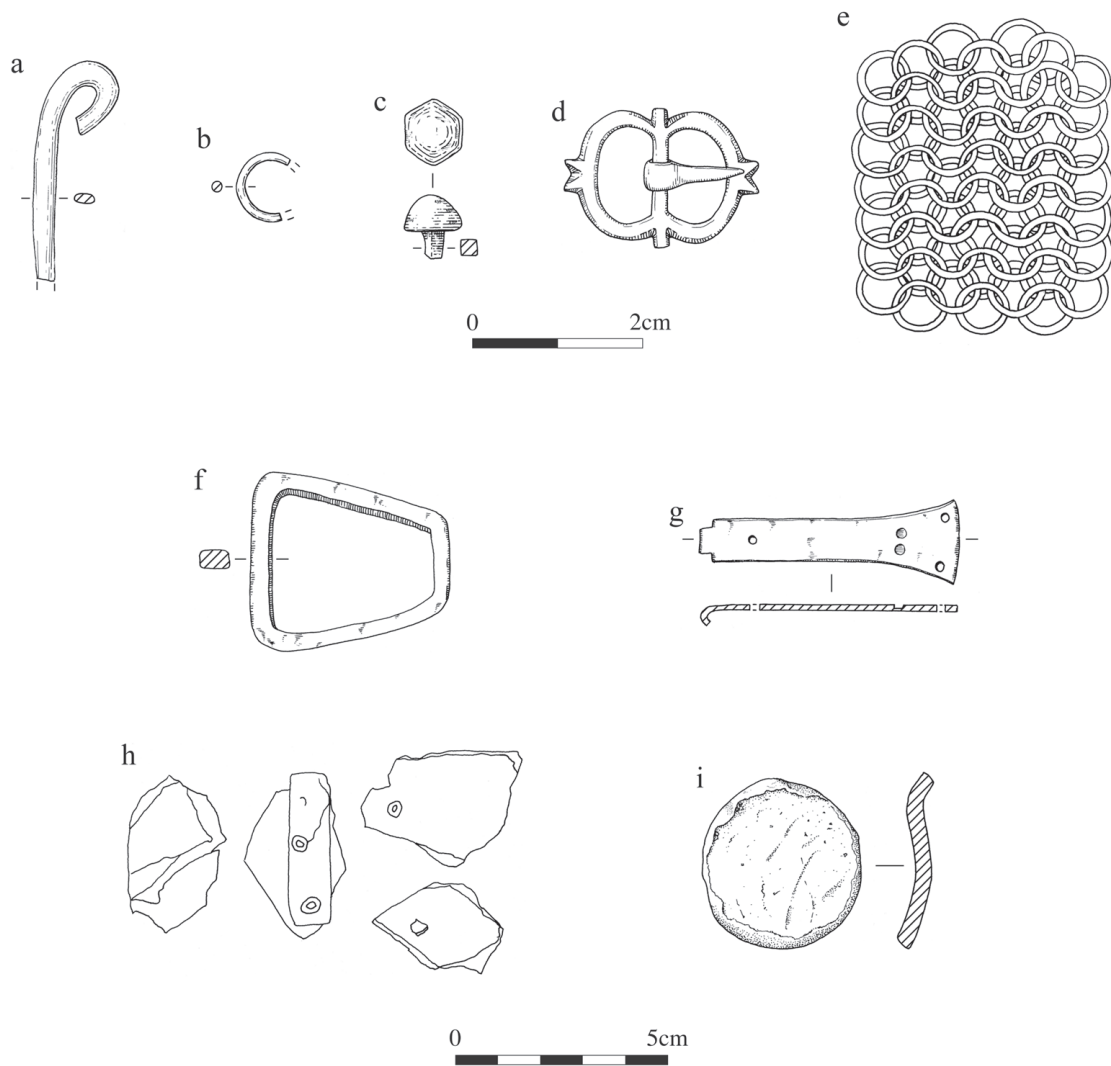


Fig 18. Post-medieval small finds from Dean's Yard (for context details see catalogue): Key: a. Copper-alloy fitting <sf 13>; b. Copper-alloy wire ring <sf 12>; c. Copper-alloy rivet with domed head <sf 8>; d. Copper-alloy buckle with double-oval moulded frame <sf 16>; e. Representative fragment illustrating construction of iron mail <sf 35>; f. Iron harness buckle <sf 37>; g. Copper-alloy book clasp <sf 14>; h. Four pieces of copper-alloy sheet vessel repair with tubular rivets <sf 17>; i. Lead disc weight <sf 7> (a–e scale 1:1, f–i scale 1:2)

larger in size than the Dean's Yard example, although smaller but plain double-oval buckles are also known from 16th-century contexts (*cf* Egan 2005, fig 17 nos 87 and 93).

Besides dress accessories, the same context also yielded two conjoined pieces of heavily corroded iron mail, <sf 35> (Fig 18e). This fragment appears to be constructed of rather fine wire rings, with a diameter of only c.5mm. Iron objects also include a trapezoid buckle, <sf 37> (Fig 18f), most likely from a horse harness (*cf* Goodall 1990c, fig 139 no. 1312), and an incomplete U-shaped staple, <sf 40>. A copper-alloy book clasp is

decorated with two semi-sunk holes near the rivets at the splayed end, <sf 14> (Fig 18g); similar book clasps are known from the 16th century (Margeson 1993, fig 40; Moorhouse 1972, fig 25 no. 162). Four fragments of copper-alloy sheet, two with tubular rivets, probably represent repair patches for vessel sheets, <sf 17> (Fig 18h; *cf* Mould 2006, 312, fig 11.16 NF20). Finally, the assemblage also included a circular lead disc weight, <sf 7> (Fig 18i). The actual function of these plain lead weights is unclear, with their weight rarely concurring with known standards (*cf* Egan 2005, 162–3, fig 160 no. 838).



### *Post-Medieval Small Finds Catalogue*

Context [3], gravel surface in Phase 9

<Sf 1> Charles I rose farthing; near-complete, but heavily corroded.

Context [63]; topsoil horizon in Phase 7; pot date c.1500–50

<Sf 7> Lead disc weight; complete with partly rolled edges; diameter 37mm; weight 41g (Fig 18i).

<Sf 8> Copper-alloy rivet with domed head; diameter 7mm (Fig 18c).

<Sf 11> Copper-alloy lace-chape; incomplete.

<Sf 12> Copper-alloy wire ring; incomplete; diameter 7mm (Fig 18b).

<Sf 13> Copper-alloy fitting; flat-sectioned with coiled finial; length 25mm (Fig 18a).

<Sf 14> Copper-alloy book clasp with splayed end; complete with hook and two rivets for fastening; decorated with two semi-sunk holes; length 60mm (Fig 18g).

<Sf 16> Copper-alloy buckle; complete double-oval frame with moulded bifurcated pin rests on sides and knobs at either end of the strap bar; pin of folded copper-alloy sheet; width 20mm; length 15mm (Fig 18d).

<Sf 17> Copper-alloy sheet; four pieces; two pieces with tubular rivets suggesting a sheet vessel repair (Fig 18h).

<Sf 35> Two conjoining pieces of iron mail; c.80 x 120mm (Fig 18e, representative fragment showing construction).

<Sf 37> Iron trapezoid harness buckle; complete; width 25–40mm; length 45mm (Fig 18f).

<Sf 44> Copper-alloy wound-wire dress accessories; nine corroded pieces; possibly derived from a head-dress; length 10–35mm (Fig 17).

Context [89]; lower fill of pit [90] in Phase 7; pot date c.1480–1500

<Sf 19> Iron Type 4 horseshoe; one side only, with three nail holes; length 13mm.

<Sf 21> Fragment of iron knife scale-tang handle, with two rivet holes with brass tube rivets; width 12mm.

### *The Animal Bones*

*Kevin Rielly*

#### *Introduction and Methodology*

A total of 915 fragments of animal bones

were recovered by hand collection and a further 1,867 bones were retrieved by the sieving of samples from the fills of the Phase 4 ditch. The sieved material included a large proportion of fish bones, which are described in a separate report (see Armitage below).

The sample collections were washed through a modified Siraf tank using a 1mm mesh and the subsequent residues were air dried and sorted. The collections recovered by hand as well as by sieving were well preserved and minimally fragmented. However, refitting was carried out where required, the refitted bones counted as one fragment. Each bone or refitted fragment (excluding the fish bones) was then recorded on to an animal bone database using Microsoft Access. Species could not be assigned to all the bones in these collections. This unidentifiable portion of the assemblage was recorded according to size class, generally to cattle- and sheep-size, and included ribs, fragments of long-bone shaft and the majority of vertebrae. Tooth eruption/wear recording uses the method devised by Grant (1982), while the measurements are essentially taken from von den Driesch (1976). Measurable bones essentially include the majority that can be classed as derived from an adult individual. This includes complete limb bones, mandibles where the adult third molar is in wear and various limb bones with fused intermediate and/or late epiphyses, for example distal tibia and proximal femur respectively.

In the analysis of the bones, quantification is based on total fragment (TF) as well as separate epiphysis only (EO) counts (see Table 4). The latter method sums the number of limb bone articular ends (whole bones, with the exception of phalanges, are counted twice) alongside the minimum number of mandibles and skulls (divided into maxilla and orbit/cranium) based on non-repeatable characteristics (*eg* the number of third molars). The approximate ages for the tooth eruption and epiphyses fusion sequences are taken from Schmid (1972, 75, 77) and Amorosi (1989, 98–9).

#### *Medieval Animal Bones (Phases 4–6)*

Phases 4–6 features revealed a wealth of species, in particular the sieved samples taken

*Table 3. Hand-collected species abundance by phase, with sieved collection results in brackets*

Phase	4	5	6	7	8	9	10
Species							
Cattle	23(1)	41	23	98	11	11	10
Cattle-size	12(31)	34	47	118	12	4	10
Sheep/Goat	13(1)	17	31	76	13	4	12
Sheep	3		14	23	3	1	3
Pig	29(19)	17	13	18	3	1	4
Sheep-size	15(346)	9	31	56	7	1	4
Red deer		1	1				
Roe deer	1		1				
Fallow deer				1		1	
Rabbit	1		1	4			
Small mammal	(32)						
Small cetacean	1						
Dog	2			2			
Cat	1			3			
Chicken	2(11)	1	2	6			
Chicken-size	(16)						
Goose	1(2)	1	1	2			
Goose-size	(1)	1					
Snipe	(1)						
Sturgeon		1					
Haddock	1						
Amphibian	(3)						
Indeterminate	10						
Total	115(464)	123	165	407	49	23	43

from the Phase 4 ditch, [120] (see Table 3 and Armitage below). The hand-collected assemblages are dominated by the major domesticates, cattle, sheep/goat and pig. The relative proportions of these three species is quite variable throughout the medieval sequence (Tables 3 and 4; Figs 19 and 20), starting with a species order of pig, cattle and then sheep, followed by a reduction in the abundance of pig in Phases 5 and 6, which was associated with first a dominance of cattle, then of sheep. The quantities of bones from the medieval deposits were not large. However, the changes may nonetheless be significant. The pig age pattern in the earliest phase (see below) could be indicative of local production, which may account for a plethora of pig remains, while later

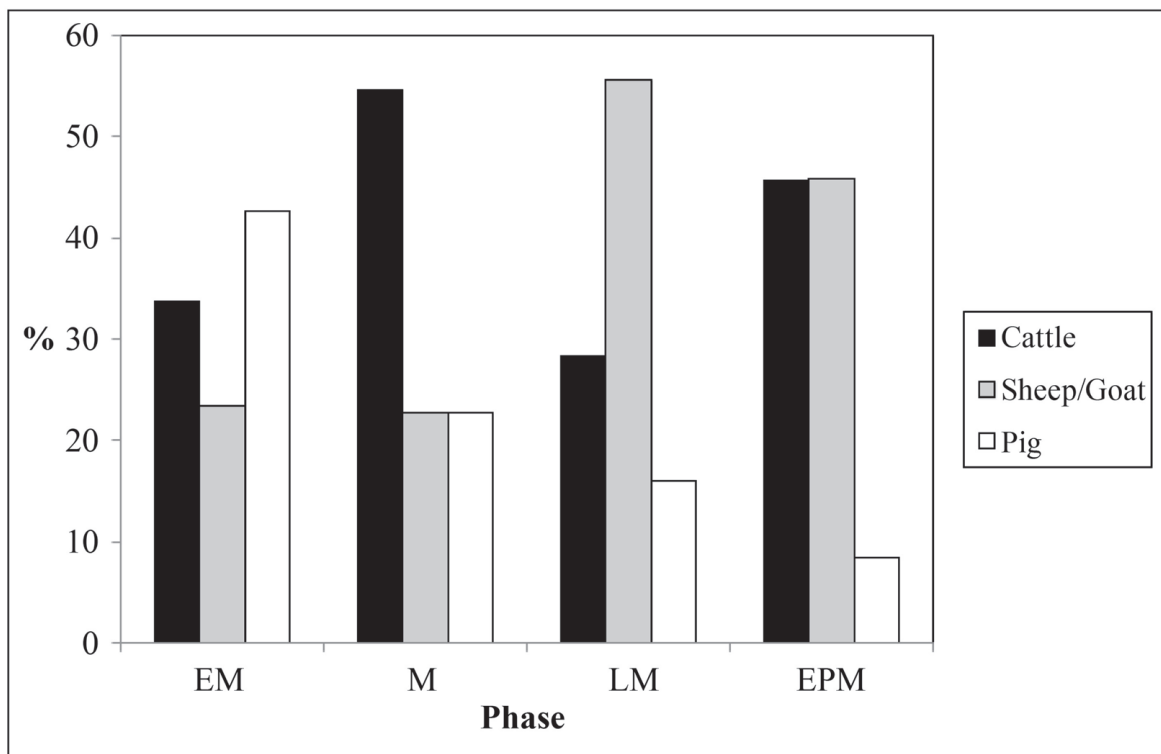
the decrease in pigs and the rise in sheep appears to follow a localised exploitation pattern (see 'Conclusions' to this section).

The age profiles of these three species (here limited by the size of the collections to the combined data from Phases 4 and 5, see Table 6) clearly shows a major contribution of adult cattle and sheep (above two years of age) and subadult pigs (less than two years old). This could suggest that most of the cattle and sheep were consumed after a number of years spent either working in the fields or supplying milk and/or wool. The quantity of data in the 'late' age groups is rather small but it is perhaps notable that a large proportion survived into and beyond the fourth year. In contrast the culling of pigs when young demonstrates their major



*Table 4. Percentage abundance of major domesticates using total fragment (TF) and epiphyses only (EO) counts, where N is the sum of cattle, sheep/goat and pig bones from that phase and % equals sum of individual species/N x 100 (see text for an explanation of the epiphyses only count)*

Method	Phase	Cattle %	Sheep/Goat %	Pig %	N
TF	4	33.8	23.5	42.6	68
	5	54.7	22.7	22.7	75
	6	28.4	55.6	16.0	81
	7	45.6	46.0	8.4	215
	8+9	46.8	44.7	8.5	47
EO	4	23.5	25.5	51.0	51
	5	53.5	20.9	25.6	43
	6	15.4	69.2	15.4	52
	7	35.1	55.2	9.7	134



*Fig 19. Percentage abundance of cattle, sheep/goat and pig in the early medieval (EM: Phase 4), medieval (M: Phase 5), late medieval (LM: Phase 6) and early post-medieval (EPM: Phases 7–9) eras using total fragment counts, with data taken from Table 4*

use as a meat producer, with the minimal number of older animals perhaps suggesting an intensive meat production strategy. It is feasible that some of this production may have taken place locally, as demonstrated

by the presence of an infant pig and by a few older youngsters. The same argument could be used to explain the young calves and lambs found in Phase 5 and 6 deposits (Table 5), although there is always the

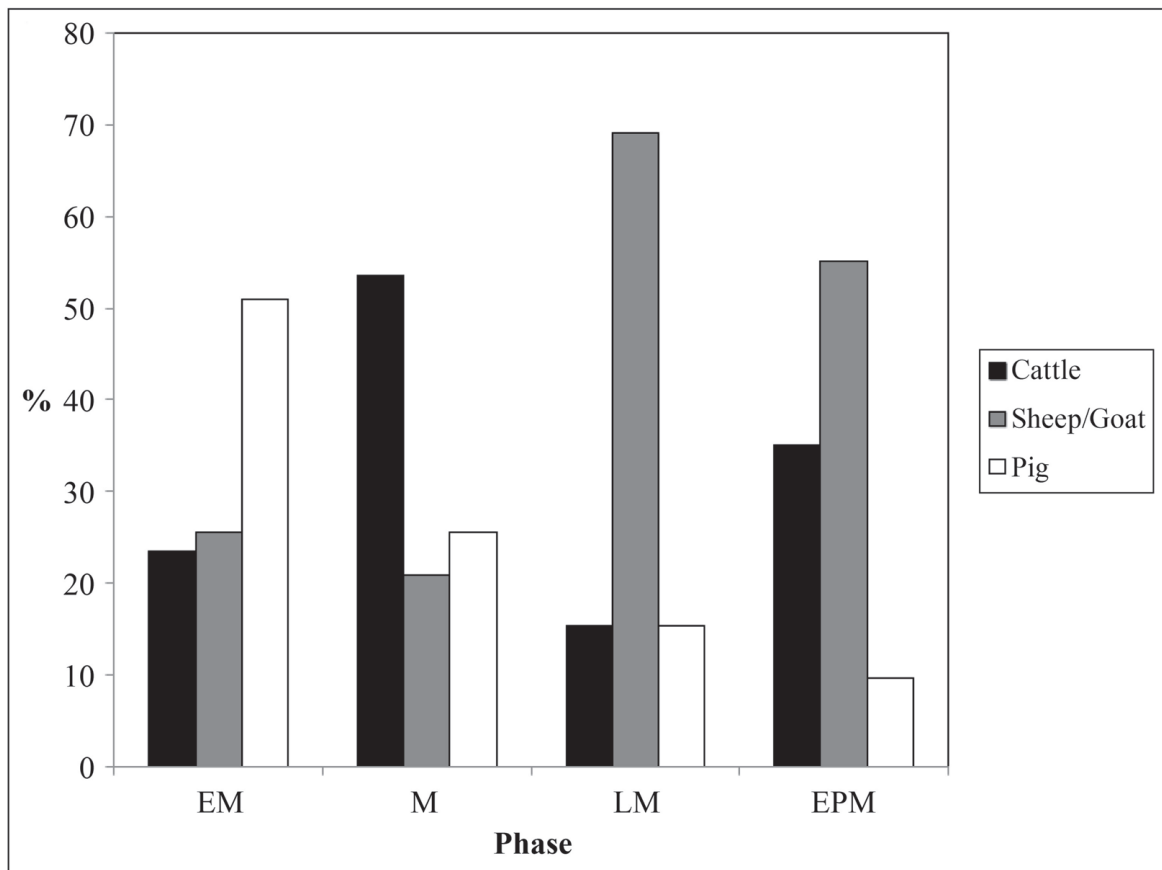


Fig 20. Percentage abundance of cattle, sheep/ goat and pig in the early medieval (EM: Phase 4), medieval (M: Phase 5), late medieval (LM: Phase 6) and early post-medieval (EPM: Phases 7–9) eras using epiphysis only counts, with data taken from Table 4

possibility that they actually represent food waste rather than infant mortalities (see below, post-medieval).

Each of the three major domesticates are represented by a wide array of skeletal parts (here including the vertebrae and ribs

classed as cattle- and sheep-size). It can be suggested that the major bulk of the faunal remains consisted of a mixture of processing and kitchen waste. Various butchery marks, particularly on the cattle bones, show the extensive use of the cleaver concerning

Table 5. The number of young major domesticate bones identified on the basis of teeth, epiphysis fusion and size/porosity evidence, with sieved collection results in brackets

Species	Age	Phase					
		4	5	6	7	8	9
Cattle	infant			2	9	1	
	juvenile		1	1	2	1	3
Sheep/Goat	juvenile	1		1	1		1
Pig	infant	1					
	juvenile	4(3)					

Table 6. Epiphysis fusion evidence for the major domesticates using three sets of articular end data, as follows: early – scapula P, humerus D, radius P, pelvis acetabulum and first phalange P; intermediate (int) – metapodial D and tibia D; and late – humerus P, ulna P, radius D, femur P and D, tibia P and calcaneus P (P is proximal and D is distal; N is the number of articular ends; %F equals the number of fused ends/N x 100; ages after Schmid 1972, 75)

Species	Age group	Age (yrs)	Phase			
			4+5		7+8+9	
			N	%F	N	%F
Cattle	early	0.5–1.5	17	100.0	19	100.0
	int	2–2.5	9	88.9	3	66.7
	late	3–4.5	7	42.9	21	76.2
Sheep/Goat	early	0.25–0.75	13	100.0	32	100.0
	int	1.25–2	5	80.0	17	100.0
	late	3–3.5	4	50.0	32	59.4
Pig	early	1–1.5	8	87.5	2	100.0
	int	2	5	20.0	5	0.0
	late	2.5–3.5	10	10.0	2	50.0

the major divisions of the carcass, dressing, halving and the production of joints as well as splitting bones for their marrow. Cut marks on the sheep and pig bones are less common and tend to be produced by a knife rather than a cleaver.

There are several other food species from the medieval collections, including small amounts of game and poultry. The former could be indicative of a high-status diet, especially the deer and the sturgeon, represented by a dermal skate. Of particular interest is the small cetacean (a caudal vertebra), possibly dolphin or porpoise, which could represent a captured or beached specimen. Either way, it would have been recognised, alongside the sturgeon, as a 'royal fish', which was first and foremost the property of the Crown (Wilson 1973, 28). Finally, just three out of the 19 chicken bones from Phase 4 which could be aged were juvenile, suggesting an overriding dominance of adult birds and therefore the importance of keeping birds first for their eggs and secondly for their meat.

The non-food element of these collections is limited to two smaller domesticates, cat and dog. Bones of the latter represent the partial remains of a large animal, measuring about 60cm at the shoulder (after Harcourt 1974). The 'small mammal' bones could belong to these species although they could

equally represent rabbit. There were also a few amphibian bones, including common frog, from one of the Phase 4 ditch samples.

#### *Post-Medieval Animal Bones (Phases 7–9)*

The largest post-medieval faunal assemblage was recovered from the Phase 7 deposits, mainly the topsoil horizon, [63], which produced 352 bones out of a Phase 7 total of 407 fragments. The array of food species (Table 3) was similar to the medieval assemblage, with the usual dominance of the major domesticates and minor quantities of game, including deer, and poultry. The good representation of sheep/goat relative to the other major domesticates continued into this period, although there was a rise in cattle and a further decrease in the abundance of pig (Table 4; Figs 19 and 20). Both the cattle and sheep were again dominated by older individuals and pig by youngsters (see Table 6). However, this period witnessed a rise in the presence of calves, many of which were very young (Table 5). The presence of butchery marks on a proportion of these bones clearly shows they represent the remains of veal cuts. Other similarities to the previous collections included a wide array of skeletal parts amongst the cattle, sheep/goat and pig assemblages and a small proportion of non-food waste, comprising the remains

of a medium-sized dog (shoulder height of 47.9cm) and one cat, both from [63].

*Late 17th-Century to Modern Animal Bones (Phase 10)*

Phase 10 produced just 43 bones, which were mainly derived from six rubbish pits ([5], [15], [23], [28], [38] and [52]; 31 bones) and the backfill of the brick-lined well, [7]. Of interest in this faunal material is the apparent absence of larger domesticates and sawn bones. Larger cattle began to enter the London meat markets from the latter part of the 18th century, as a result of stock improvements, while the same period also witnessed the use of the saw as a butchery tool (Albarella 2003, 74; Rixson 2000, 215). Their absence from these collections suggests a date range no later than the mid-18th century.

*Conclusions*

The medieval collections featured a wide variety of food species, including a number of indicators of affluence, such as the larger game species, the small cetacean bone and a variety of fish species (see Armitage below). In

addition, there were notable changes in the representation of the major meat providers through the medieval period, changing from pig, to cattle and then sheep/goat dominance. How can this evidence be interpreted in relation to local food use and especially with regard to the diet of the occupants of the adjoining Benedictine monastery?

Since the Dean's Yard medieval faunal assemblage is rather small, as a consequence any variation could in fact represent specific deposition events rather than be a reflection of more general dietary patterns. However, the major domesticate pattern appears to follow evidence derived from local and then more general medieval London site assemblages. The excavations nearby at the Dorter undercroft and the sub-vault of the Misericorde (Pipe 1995 as well as information taken from the London Archaeological Archive (LAA) archives; Locker 1976) both produced pig-rich collections (Table 7). The former site produced a small number of very young piglets, similar to Dean's Yard, which can potentially be interpreted as infant mortalities and therefore indicative of local production. This follows the historical evidence for a piggery associated with the abbey which 'occasionally sold surplus beasts

*Table 7. Percentage abundance of major domesticates from Westminster sites (Dorter undercroft: Pipe 1995 and archive information; Misericorde sub-vault: Locker 1976; Broad Sanctuary: Locker 1982; Westminster Station: Rielly 2006), using total fragment counts (N is the sum of cattle, sheep/goat and pig bones from that phase/site; % equals sum of individual species/N x 100; date is given to the nearest century; phasing is from the original site phasing for each individual site)*

Site	Date (century)	Phase	Cattle %	Sheep/Goat %	Pig %	N
<b>Westminster Abbey</b>						
Dean's Yard	12th	4	33.8	23.5	42.6	68
	13th	5	54.7	22.7	22.7	75
	15th	6	28.4	55.6	16.0	81
	16th	7	45.6	46.0	8.4	215
Dorter undercroft	11th	2	32.4	24.7	42.9	776
	11th	1–5	39.6	28.4	32.0	1809
Misericorde sub-vault	11th	1	35.3	42.2	22.5	142
	12th–13th	3	20.7	40.5	38.8	116
<b>Westminster</b>						
Broad Sanctuary	16th	1, 4, 6	44.7	50.0	5.3	1046
Westminster Station	14th–16th	8	48.8	34.9	16.3	381
	16th	9	47.2	36.9	15.9	233





on the open market' (Hammond 1993, 41), clearly suggesting it had been established for local usage and was sufficiently large to have some surplus production. While the dates of operation of the piggery are not mentioned, it can be suggested from the archaeological evidence that it was functioning between the 11th and 13th centuries. A high count of pig bones is generally rather rare at London medieval sites. Certain areas within the early medieval (c.1050–1200) collections at 1 Poultry did provide an abundance of pig bones and, as here, this was related to the presence of local piggeries (Burch *et al* 2011, 210–11). However, 1 Poultry, in common with the majority of early medieval sites, tended to be particularly rich in cattle bones (*ibid*, table 14). As the medieval era progresses these sites tend to show a gradual rise in sheep/goat culminating in sheep/goat and cattle parity or sheep/goat dominance by the later medieval era (as shown for example at medieval occupation just north of the Tower at Coopers Row: Hunt 2010, 67). A similar abundance of cattle bones has been demonstrated at other English medieval towns, where beef clearly remained the major meat preference irrespective of the burgeoning woollen industry and therefore the increasing availability of mutton (Grant 1988, 151; Sykes 2006, 62). The late medieval transition in London towards mutton consumption could signify the eventual acceptance of a producer rather than a consumer-led supply system.

The consumption of these major domesticates would appear to have been in contravention of the Benedictine Rule, which stated that the monks should abstain from the meat of quadrupeds except in time of sickness (Wilson 1973, 26). It had been modified by the early part of the 13th century (Knowles 1940, 458–63 in Hagen 1992, 102; Sykes 2006, 68–9), allowing a greater variety of meats into the diet. The good representation of 'quadrupeds' at all the early abbey sites, as well as the clear evidence for a piggery, could be interpreted as an abandonment of the Rule. Alternatively, a portion of these bone collections may have derived from another source within the abbey. Most monasteries would have included an 'infrastructure of lay servants', with clerks and possibly household officers, none of whom would

have been bound by the Rule (Hagen 1992, 101). It can be postulated that these other occupants also may have been the principal beneficiaries of the animals culled at the abbey's piggery. The Rule would have allowed the meats of various birds and fish, and both clearly form a large proportion of the bones from the Dorter undercroft, while fish are well represented at Dean's Yard (see Armitage below). Monks often came from 'the ranks of a class used to conspicuous consumption' (*ibid*), and whether or not the various quadrupeds were part of their diet there is clear evidence for the consumption of various choice meats which would have been allowed by the Benedictine Rule. As well as sturgeon, there are numerous game birds, including stork and crane from the Dorter undercroft and snipe from Dean's Yard. In addition, dolphin/porpoise bones were found at each of the other nearby abbey excavations. An interesting aspect of these cetaceans is that they were classed as a fish and could therefore be eaten during the many Christian fast days and holy days when all meat other than fish was forbidden (Gardiner 1997, 181).

After the Reformation, several London excavations continue to show a high proportion of sheep/goat, for example the Fleet Prison (Rielly in prep). The nearby Westminster site at Broad Sanctuary follows this general rule (Locker 1982) as indeed do the 16th-century collections from Dean's Yard. However, there are exceptions (see Table 7). For instance, the site at Westminster Station does show a good representation of veal calves, which is a typical early post-medieval trait (Rielly 2006, 206). Such young animals began to arrive at the London meat markets in reasonable numbers by this period (Rixson 2000, 172), essentially a by-product of the contemporary increase in the importance of dairy cattle (Albarella 1997).

### **The Fish Bones**

*Philip L Armitage*

#### *Introduction*

Five contexts from Phases 4 and 5, [115], [119], [122], [123] and [124], at Dean's Yard, produced evidence for the presence of 21 species from a total of 1,092 identified fish

bones. These fish remains are recognised as discarded food (kitchen and table) waste and together with the late 12th-/early 13th-century fish bone assemblage from the 1975 excavations of the sub-vault of the Misericorde (Jones 1976, 170–6) provide an insight into the role of fish in the diet of the residents of this monastic house during the late 12th and 13th centuries.

The results obtained by the present study and that of Jones (1976) also provide an opportunity to determine if the late 12th- and 13th-century fish diet differed from that enjoyed at the abbey during either the Late Saxon period or the subsequent later medieval period. Information on the Late Saxon monastic diet comes from the study of a large assemblage of fish remains excavated from a ditch, [238], dated to the mid-11th century (Locker 1995). Detailed information on the fish consumption by the monks at Westminster Abbey during the later medieval period are available from documentary sources, in the form of the surviving Kitchener's day-books dating from 1495 to 1525, which have been researched by Harvey (1995, 46–51). This report also considers the excavated fish bone assemblages from other London monastic sites.

#### *Methods and Materials*

Retrieval of the vast majority (99.7%) of the fish bones resulted from the wet-sieving of bulk soil samples and only a very few (0.3%) of the specimens had been hand-collected during the excavation of these same deposits – illustrating just how important sieved soil samples are in ensuring maximum recovery of biological evidence.

The Dean's Yard specimens were examined under low power (x10 magnification) using a Motic binocular microscope. Identifications of the Cyprinidae (roach, chub and barbal) pharyngeal bones/teeth were made using the author's comparative collections and with reference to Wheeler (1978), Libois and Hallet-Libois (1988) and Radu (2005, 62–3). Bone elements of plaice (*Pleuronectes platessa*) and flounder (*Platichthys flesus*) were distinguished using the criteria of Wouters *et al* (2007) and also compared against modern reference material. Other species identifications were based on the

author's comparative collections. Where individual species could not be determined in certain of the smaller Gadidae (cod family) bones, these were categorised as 'gadoid', which probably comprise mostly immature whiting and cod. Similarly, the categories 'flatfish (plaice/flounder)' and 'cyprinid' were applied when the precise species identification was uncertain for bones belonging to the flatfishes and carp family respectively. Excluded from the analysis (and this report) are quantities of highly fragmented fin rays/ribs/spines (from contexts [119], [123] and [124]), which cannot be readily assigned to taxon/species.

#### *Results of the Analysis*

##### *Species Identified*

Table 8 provides summarised counts of the numbers of identified specimens present (NISP) for each of the represented species, with comparison against the data collected by Jones (1976) from the Misericorde sub-vault at Westminster Abbey and the earlier (mid-11th century) assemblage from the Dorter undercroft at Westminster Abbey (Locker 1995), as well as the assemblages recovered from two other later London monastic sites (discussed below).

Overall, vertebrae predominate in the Dean's Yard assemblage (forming 89.6% of the total NISP) with noticeably a much smaller quantity of cranial elements, apart from the otic bullae of herrings (NISP = 23). A complete listing (in spreadsheet format) of the sets of recorded anatomical distributions (skeletal elements) for each species by phase/context/sample forms part of the site archive.

The analysis reveals that the late 12th- and 13th-century deposits at Dean's Yard included bones from a wide range of fish, representing marine, migratory and estuarine, and freshwater species. Marine species clearly form the greatest proportion of the recovered remains, predominated by herring, whiting and plaice. Of the migratory and estuarine category, freshwater eel was the most common component, with smelt second in importance. Although pike predominate the freshwater category, there was also a number of cyprinids, and although represented by a single dermal scute



Table 8. Summarised counts of the identified fish bone elements/fragments from Westminster Abbey (Dorter undercroft: Locker 1995; Misericorde sub-vault: Jones 1976), St Mary Graces, Tower Hill (Locker 2011) and Greyfriars, City of London (Locker 1985) (all assemblages comprise combined sieved and hand-collected specimens)

Site	Westminster Abbey	Dean's Yard	Misericorde sub-vault	St Mary Graces, Tower Hill	Greyfriars, City of London
Period (century)	mid 11th	late 12th/early 13th	late 12th/early 13th	14th	late 15th
Religious Order	Benedictine	Benedictine	Benedictine	Cistercian	Friars Minor (Greyfriars)
<b>Marine</b>					
Herring	2903	715	91	108	65
Cod	48	11	11	78	10
Whiting	791	51	68	84	28
Haddock	19	4	15	2	3
Hake				1	3
Gadoid	47	41		3	6
Garfish	35				
Mackerel	43	2	1		
Sprat				304	25
Plaice	185	50	8		14
Sole		3	13		
Turbot			3		
Brill/turbot	8				
Flatfish (plaice/ flounder)	1205	31	66	36	
Flatfish indeterm	33				
Conger eel			10	1	1
John Dory			1		
Thornback ray (roker)	329	12	2	3	1
Ray	231				
Elasmobranch	99		1	9	3
Tub gurnard	17	1			3
Grey gurnard		1			
Gurnard (sp indet)	87	2	2		
TLG mullet	35				
Mullet	1				
subtotal	6116	924	292	629	162
<b>Migratory and estuarine</b>					
Sea bass	3	2	5		
Flounder	53	3	4		

Table 8 (cont.). Summarised counts of the identified fish bone elements/fragments

Site	Westminster Abbey Dorter undercroft	Dean's Yard	Misericorde sub-vault	St Mary Graces, Tower Hill	Greyfriars, City of London
Period (century)	mid 11th	late 12th/early 13th	late 12th/early 13th	14th	late 15th
Religious Order	Benedictine	Benedictine	Benedictine	Cistercian	Friars Minor (Greyfriars)
Salmon	1			1	
Trout		1			
Salmonid	78	1			4
Sturgeon	16	1	2		
Smelt	1608	25	3	97	8
Freshwater eel	561	87	28	830	36
Shad (sp indet)			1		
subtotal	2320	120	43	928	48
<b>Freshwater</b>					
Pike	195	12	4	2	
Perch		2			
Roach	42	2		10	4
Chub	1	1			
Tench	5			1	
Barbel	4	2			
Dace	27				1
Dace/chub	74			3	
Bream	4				
Cyprinid	643	29	12	9	
subtotal	995	48	16	25	5
Total	9431	1092	351	1582	215

(context [115]), the presence of sturgeon is particularly noteworthy (as discussed below).

Despite the marked difference in sizes of the two assemblages from Dean's Yard and the Misericorde sub-vault, there is a remarkable

concordance in the occurrence of the main species identified and especially in respect of the calculated relative frequencies of the three categories: marine, migratory and estuarine, and freshwater (Table 9).

Table 9. Frequencies of the categories of fish species in the Dean's Yard and Misericorde sub-vault (Jones 1976) assemblages

Site	Marine %	Migratory and estuarine %	Freshwater %
Dean's Yard	84.6	11.0	4.4
Misericorde sub-vault	83.2	12.2	4.6





### Sizes of the Fish

Measurements taken on two cod bone elements enabled reconstructed total lengths (TL) to be calculated using a regression formulae (Wheeler & Jones 1976) as follows:

Context 119 premaxilla TL = 72.2cm

Context 124 dentary TL = 41.5cm

Context [123] yielded four pike vertebrae (same fish) comparable in size with a modern specimen of TL 45.7cm (author's collection); this value falls within the size range for mature pike (40–100cm) (Newdick 1979, 40). A very large sea bass was represented from context [123] by two articulating caudal vertebrae, one chopped through transversely, evidence of the removal of the tail prior to cooking/serving at the table. Among the bones of plaice from context [123] was an os anale from a large adult fish; other bones of flatfish from the site are notably much smaller and recognised as derived from immature individuals (possibly supplied by estuarine fisheries of the Thames). There was a large grey gurnard maxilla from context [124] with a proximal breadth (Bp) measuring 7.2mm, which may be compared against a Bp of 3.9mm in a modern grey gurnard of total length (TL) 39cm (author's collection).

### *Interpretation and Discussion of the Fish Bone Assemblage*

As already discussed by Jones (1976, 176), the Westminster Abbey monks during the late 12th and 13th centuries clearly consumed a wide variety of fish, which were probably caught in the River Thames, its estuary and the southern North Sea using a variety of fishing equipment such as kiddles (permanent shore-line fish traps), surface nets, hooks and lines, and seine nets. There is documentary evidence for the existence of a fish pond at Westminster Abbey, in the infirmary garden, during the early 14th century (Harvey 1995, 90), which would have been a source of freshwater fish (such as roach, tench and other cyprinids). However, it is now generally accepted that such fish ponds would not have been as productive or as reliable a source of fresh fish as previously believed by historians and, therefore, only played a minor role in provisioning the

monastic establishments that possessed them (see Bond 1992, 9–10). The freshwater fish eaten by the monks of Westminster Abbey therefore must have largely been river-caught and purchased, probably at considerable cost. As discussed by Dyer (2000, 101), the larger and good-quality freshwater fish, such as pike, were expensive luxuries in the Middle Ages. A mature pike cost 2s to 3s, equivalent to a skilled craftsman's weekly wage, and even a single chub could command as much as 7d to 8d (Dyer 2000, 109). Other luxury species at that period included salmon. In 1372 Abbot Litlington of Westminster Abbey is noted as having paid the very large sum of 21s 2d for two fresh Thames salmon to be included in a feast he organised for the monks during Holy Week (Peplow & Peplow 1988, 55). Given the high cost of fish such as pike and salmon, and the rarity in the availability of other highly prized luxury fish such as sturgeon, it is understandable that these sorts of fish were eaten almost exclusively at major feasts. The staple fish consumed by the Westminster Abbey monks were therefore the comparatively cheaper marine species, purchased fresh or in preserved form from the London fish market (Harvey 1995, 47). During the 12th and 13th centuries at Westminster Abbey the archaeological evidence shows that herring was the predominant marine fish, followed by whiting (Table 8). At Westminster Abbey, herring was also the prime food fish during the mid-11th century (31% of the bones from the Dorter undercroft) (Locker 1995; 2001, 198), but towards the end of the medieval period the Westminster Abbey Kitchener's day-books reveal that the frequency of consumption of herring had declined, and it was only generally eaten 'at lent, and again in the autumn, when fresh herring were easily obtained in the London markets' (Harvey 1995, 49). Substituting for herring during the other times of the year were cod and related species. This temporal dietary shift away from herring with a greater emphasis on cod and whiting at monastic establishments was perhaps commencing as early as the 14th century, as suggested by the archaeological evidence from the Cistercian monastery of St Mary Graces, Tower Hill (Table 8) (Locker 2001, 197; 2011, 165–6).

Judging by the fish bone evidence from the Dorter undercroft, the monks of Westminster

Abbey in the mid-11th century appear to have enjoyed a much richer diet than their counterparts did during the 12th and 13th centuries. With respect to the freshwater species, in the Dorter undercroft assemblage there was a very wide range of cyprinid species (six: roach, chub, tench, barbel, dace and bream) compared with the three species (roach, chub and barbel) in the samples from Dean's Yard. While the overall frequency of cyprinids formed 8.5%/total NISP in the Dorter undercroft assemblage compared with 3.3% in the combined Dean's Yard and Misericorde sub-vault assemblages. Pike, an expensive fish (see above), featured with greater frequency in the Dorter undercroft assemblage (2.1%) (Locker 1995) compared with the Dean's Yard/Misericorde sub-vault combined assemblage (1.1%). The other signature species associated with expensive, high-status dining (salmon and sturgeon) also are represented in notably higher frequencies in the Dorter undercroft, mid-11th-century assemblage, and garfish and mullet add to the variety of marine fish eaten (these fish are absent in the 12th- and 13th-century assemblages).

The dietary regimes for London's monastic establishments in the final decades before their dissolution are somewhat unclear on the scanty, presently available archaeological evidence. Although a relatively small sample, the fish bone assemblage recovered from a well at the Greyfriars, City of London, which was backfilled during the late 15th century (Armitage & West 1985, 107), suggests that the friars' diet at this establishment, just prior to its dissolution, comprised a somewhat limited range of fish. There was a predominance of the cheaper species and notable absence of those species (pike, salmon, sturgeon, John Dory) associated with high-status dining (Table 8), and viewed together with the evidence provided by the other excavated food remains (mammal and bird bones) presents a picture of rather frugal fare (Locker 1985; West 1985, 119–20). This rather economical diet contrasts markedly with that enjoyed by London's monastic institutions in earlier times, and especially with the evident upper-class, over indulgent diet of the privileged monks at Westminster Abbey. Their gluttonous lifestyle, however, would have come at a price

to their health and well-being: Harvey (1995, 71) suggested the Westminster Abbey monks were 'surely on average rather obese'. This observation has been borne out by recent studies of the excavated burials from three monastic sites in London (Merton Priory, Bermondsey Abbey and the Abbey of St Mary Graces, Tower Hill), which revealed clear skeletal evidence that monks were almost five times as likely to develop obesity-related joint diseases as their secular counterparts (Patrick 2005; Waldron 1985).

### ***Charred Plant Macrofossils and Wood Charcoal***

*Lucy Allott*

#### *Introduction and Methodology*

Samples recovered from the Phase 4 ditch [120] and hearth [129] produced small quantities of charred macrobotanical remains and moderate assemblages of wood charcoal. This report provides an overview of the botanical remains recovered and characterises the evidence for fuel use. The results are presented in Table 10.

Five bulk samples were processed by flotation using 1mm and 300 micron mesh sizes. Flots were measured, weighed and viewed under a stereozoom microscope at magnifications of 7–45x. Wood charcoal fragments present in each of the samples were fractured following standardised procedures (Gale & Cutler 2000) and viewed using both a stereozoom Leica EZ4D microscope at 8–45x magnifications (for preliminary sorting) and an incident light Olympus BHMJ microscope at 50, 100, 200 and 400x magnifications (for taxonomic identifications). Macrobotanical remains and charcoal were identified through comparison with modern reference material held at the Institute of Archaeology, University College London and with specimens documented in reference manuals (Cappers *et al* 2006; Hather 2000; Jacomet 2006; NIAB 2004; Schoch *et al* 2004; Schweingruber 1990). Nomenclature used follows Stace (1997).

#### *Results, Interpretation and Discussion*

##### *Ditch [120], Samples 2–4*

Samples were taken from three slots dug



Table 10. Summary of charred macrobotanical remains and wood charcoal from ditch [120] and hearth [129], Phase 4

	Feature	Ditch [120]			Hearth [129]	
	Sample no.	2	3	4	5	6
	Context	[119]	[123]	[124]	[127]	[128]
	Flot volume (ml)	10	12	11	3	22
Charred crops						
<i>Triticum</i> sp	bread/club wheat caryopses		+			
<i>Avena</i> sp	oat caryopses	+				
Indet Cerealia	indeterminate cereal caryopses	+	+			+
<i>Pisum/Vicia/Lathyrus</i> sp	pea/vetch/tare	+				
Charred weed/wild taxa						
<i>Silene/Stellaria</i> sp	campion/stitchwort	+				
<i>Ranunculus repens/bulbosus/acris</i>	buttercup					+
Asteraceae	daisy family		+			
Poaceae	grasses					+
Indet CPR	indeterminate charred plant remains		+		+	+
Wood charcoal identifications						
<i>Quercus</i> sp	oak	++	+	++	+	++
<i>Fagus sylvatica</i>	beech	+	+	+	+	
<i>Ligustrum/ Lonicera</i> sp	wild privet/honeysuckle		+			
Maloideae	hawthorn/apple/whitebeam			+ rw		
<i>Prunus</i> sp	wild cherry/sloe				+ rw	

Key: + = 0–10; ++ = 11–50; rw = round wood

through ditch [120]. The western slot revealed a single deposit, [124], containing small quantities of wood charcoal in which oak (*Quercus* sp), beech (*Fagus sylvatica*) and Maloideae taxa (a group which includes hawthorn/apple/whitebeam) were recorded. In the middle slot, the upper fill, [123], produced a small assemblage of charred cereal grains including some that are consistent with bread/club wheat (*Triticum* sp). In the eastern slot of the ditch, the single fill, [119], also contained poorly preserved cereal grains including some wild or cultivated oat (*Avena* sp), pea or bean fragments and occasional weeds that may be of arable origin. Oak and beech wood were

identified in both deposits with some wild privet/honeysuckle (*Ligustrum/Lonicera* sp) also recorded in [123].

The significant quantity of wood charcoal present in the later fills of this feature are almost certainly secondary deposits of charcoal. It is possible that charcoal accumulated in the ditch gradually. However, the restricted range of taxa recorded and the moderately good level of preservation is perhaps more consistent with discrete episodes of deposition. The primary origin of the charcoal is unknown, although it could have been cleared from features such as the hearth, discussed below. The restricted assemblages therefore imply that

a limited range of woody taxa were used for fuel and, with the exception of honeysuckle which may have been present as a climber on larger trees, each of the taxa recorded would have provided good fuel wood. Wood from oak and beech trees could also have been used as structural timbers.

#### Hearth Feature [129], Samples 5 and 6

A clay-rich deposit, [128], at the base of hearth [129] produced a small assemblage of oak wood charcoal as well as poorly preserved cereal caryopses, grass seed and a buttercup (*Ranunculus* sp) seed. Charcoal fragments were also scarce in a small circular patch of red-brown burnt ground, [127], overlying the clay-rich deposit, although oak, beech and wild cherry/sloe (*Prunus* sp) were identified in this context.

Charred botanical remains from this feature provide little indication of its function. Although interpreted as a hearth, this is primarily based on its form, the presence of burnt animal bone as well as charring and staining of the adjoining soil. The scarcity of charcoal in the samples suggests that this feature was cleaned of large remnants of fuel debris with only small flecks of charcoal remaining, when it went out of use.

### DISCUSSION OF THE SITE SEQUENCE AT DEAN'S YARD AND ITS ASSEMBLAGE

#### *Natural Topography*

It is believed that Westminster Abbey is situated on the highest point of Thorney Island, which is made up mainly of sands and gravels overlying Eocene London Clay, with a top height of c.2m OD (Thomas *et al* 2006, 10, fig 4). Dean's Yard lies to the west of the abbey (Fig 1) on ground that is thought to slope to the west and the south down to the River Tyburn. A topographical map of Thorney Island produced from borehole data and stratigraphic data gathered during previous work shows that the site was situated on the western side of Thorney Island and that the top of the natural sands in the vicinity of Trench 1 should have occurred at approximately +1.00m OD (*ibid*, 10–11, fig 4). While natural deposits in the western part of Trench 1, reached +0.92m OD, in the eastern part of the trench the top surface of

these deposits sloped down to +0.64m OD. Some 40m further east in Trench 2 (Fig 2), natural gravel was recorded at 2.92m OD, showing that the original land surface of Thorney Island in this locality sloped from east to west. The build-up of fluvial sands and gravels at Dean's Yard was interrupted by the deposition of a clayey sand, and similar deposits have been observed at the north end of the island (*ibid*, 10). To the north, along Broad Sanctuary (Fig 2), natural clay was also observed at a height of +1.61m OD (Jorgensen 2008). These observations show that the natural topography of Thorney Island sloped very gently from Broad Sanctuary southwards to Dean's Yard. More recent observations at the Cellarium, to the east of Dean's Yard, revealed natural clay at +1.40m OD (Jorgensen in prep), confirming the prevailing east to west slope of the natural deposits in this locality.

#### *Phase 1: Late Neolithic/ Early Bronze Age (c.3300–1500 BC)*

A single flint flake recovered from the top of the natural gravels is the only evidence for human activity during this period. Other sites, particularly those excavated during the Jubilee Line extension in the 1990s, yielded evidence of activity on Thorney Island starting in the Late Neolithic period and continuing into the early part of the Bronze Age (Thomas *et al* 2006, 25).

#### *Phase 2: Late Iron Age/ Early Roman (c.400 BC–AD 200)*

This phase was represented by a single pit (Fig 4). It has been postulated that the level of the river rose from about -0.50m OD during the early first millennium BC to approximately 0.00m OD by the end of this millennium, which would have significantly reduced the area available for occupation during this period. It has further been suggested that areas above +1.00m OD, that is the area of the later abbey church and claustral buildings, would have been the most suitable for occupation (Thomas *et al* 2006, 31). The contemporary land surface around this pit would have been at c.0.80m OD. It therefore would have been within the marshy perimeter of the island and would certainly





have been prone to flooding. Therefore, it is likely that the pit reflects ephemeral use of the low-lying western periphery of Thorney Island.

A total of 9kg of reused Early Roman ceramic building material was recovered during the excavation. Most of this material was recovered from the earliest phases of medieval land reclamation (see Hayward above). Sherds of residual Roman pottery and a variety of building materials have previously been discovered nearby at the Dorter undercroft (Goffin & Crowley 1995, 97–9; Waugh 1995, 80) and 20 Dean's Yard (Platts 1976, 159). More recently, Roman building material has also been found at the Cellarium excavation (K Hayward, pers comm 2010). Across Thorney Island Roman finds, especially building material, have been found on many sites and a number of possible Roman features have been recorded. Antiquarian observations of possible Roman remains discovered beneath Westminster Abbey, including the *pilae* of a potential hypocaust, together with the discovery of a large amount of residual Roman building material indicates that a high-status Roman building lies under the abbey (Thomas *et al* 2006, 35–9).

While it is possible that some of the residual Roman building material recovered locally may have come from a large Roman structure on the site of Westminster Abbey, other origins for this material have been suggested. Some of it may have been shipped upstream from Londinium during the Saxon period for use in the construction of Edward the Confessor's church. This phase of church is known to have incorporated reused Roman building material into the fabric of its walls (Thomas *et al* 2006, 38).

#### **Saxon (c.AD 600–1050)**

Evidence of Saxon activity consisted of two residual sherds of Middle and Late Saxon pottery. Of all the sites excavated on Thorney Island to date, the Dorter undercroft (Blackmore 1995) has yielded the largest quantity of Middle Saxon material. The excavation within the Misericorde undercroft (Black 1976) at 20 Dean's Yard and the investigation at 17 Dean's Yard (Murray 2003) have also revealed Middle Saxon material (Fig 2).

While to date the only evidence for Middle Saxon activity on Thorney Island is in the form of residual material recovered during previous investigations as well as chance finds along the Thames, the sheer quantity of material recovered suggests that a minster existed on the island during the Middle Saxon period (Thomas *et al* 2006, 46). This may also explain the presence of a possible royal hall at the Treasury Green site, as some Anglo-Saxon royal sites seem to have been deliberately situated next to minsters (Cowie 2004, 208).

The presence of the Late Saxon sherd is reflective of activity occurring from around the time of the refounding of the abbey by St Dunstan and its subsequent rebuilding by Edward the Confessor.

#### **Phases 3 and 4: Late 12th/Early 13th Century (c.1150–1230)**

Previous excavations on Thorney Island have recorded episodes of flooding during the later 11th century. On the higher parts of the island this is seen in the form of the deposition (in some areas) of over a metre of silts. This fluvial material was recorded during excavations in the Dorter undercroft (Mills 1995, 72), the Misericorde undercroft (Black 1976, 142) and on some of the sites investigated during the Jubilee Line extension (Thomas *et al* 2006, 47). The absence of 11th-century fluvial deposits from the site may be due to its location along the western edge of the island, as on many of the archaeological sites situated along the periphery of the island there is a recorded hiatus in the sedimentary sequence until approximately 1200. It has been suggested that the absence of earlier deposits on these sites is due to erosion caused by the 11th-century floods (*ibid*, 56). The low tide mark of the River Tyburn during the 11th century has been estimated to have been between 0.55m and 0.85m OD, while the high tide mark may have been as high as 1.77m OD (Sloane *et al* 1995, 362). If these figures are broadly correct then the low-lying area of Dean's Yard would have been prone to flooding and this might explain the absence of deposits pre-dating the 12th century. By the 12th century it appears that the land surface of the Dean's Yard area stood at a

maximum height of *c.*1.35m OD.

Along Broad Sanctuary, to the north of the site, the 11th- to 12th-century land surface must have been situated somewhere between the top of the natural clay at 1.71m OD and the base of the 13th- or 14th-century reclamation dumps at 2.20m OD (Jorgensen 2008, 13–14). The late 11th-century land surface of the Dorter undercroft site to the east was *c.*3.50m OD (Mills 1995, 76). Further west, roughly midway between the Dorter and the trench in Dean's Yard, by the south-west corner of the late 11th-century refectory, the ground level during the construction of this building stood at *c.*3.30m OD (Jorgensen in prep). This demonstrates that the land surface of this locality sloped both from north to south and also from east to west, towards Black Ditch, which ran along the western boundary of what is now Dean's Yard.

The structural remains from Phase 4 consisted of an external hearth and a ditch (Fig 5). It seems that this ditch drained westwards towards the southern branch of the Tyburn. It also was used for the disposal of rubbish from the abbey, as it contained a large quantity of animal and fish bones, much of which could have originated from the nearby kitchens. This faunal assemblage is somewhat atypical as it has a relatively high frequency of young pigs, which might be explained by the presence of a piggery (see Rielly above). This piggery was probably located near the southern parts of the present Dean's Yard, in the vicinity of the abbey's farm. It is uncertain exactly what function the area later known as Dean's Yard served during the 12th and 13th centuries. However, it is possible that this area was part of the abbey farm, until the construction of the brewery and bakery in the southern part of the yard during the 14th century, which might explain the presence of so many pig bones.

#### ***Phase 5: Mid- to Late 13th Century (c.1230–1300)***

The rebuilding of the abbey church started in *c.*1245 (see 'Archaeological and Historical Background' above). This involved the demolition of a large part of the earlier church to make room for the new one. It

is possible that the dumping that occurred during this period was a by-product of this rebuilding. This material contained fragments of ashlar and mouldings, together with large quantities of peg and bat tiles and Westminster floor tiles (see Hayward above). Curiously there was a lack of deposits conclusively dating to the 14th century on site despite the major building projects undertaken by Abbot Litlington within the immediate vicinity (see 'Archaeological and Historical Background' above). Perhaps by the 14th century this area had been transformed into a yard, which might have prevented any further dumping of waste materials.

#### ***Phase 6: 15th Century (1400–1500)***

The beginning of the 15th century saw the demolition of some of the columns of the Romanesque church and new marble columns were erected in their place (Tatton-Brown 1995, 176). Interestingly, the material dumped in Dean's Yard during this period contained a relatively large assemblage of late 10th- to late 11th-century pottery. Therefore, it is possible that some of the material deposited on site during this period was the spoil from the excavation of the foundations for the new column bases. After the raising of the ground level several postholes were dug (Fig 8). These posts may represent several phases of timber fencing delineating part of Dean's Yard. By the close of the century the posts had apparently been removed and the area subjected to further dumping.

#### ***Medieval Finds and Faunal Assemblages***

The pottery consisted of utilitarian types with south Hertfordshire-type grey wares and shelly-sandy ware providing the kitchen and storage wares for the abbey, whilst the tablewares were provided by the London-type wares. However, the presence of a possible aquamanile fragment (Fig 14.2), which was used to wash hands during formal meals, is indicative of high-status dining within the abbey (see Jarrett above). The discarded medieval building materials recovered from the site included various types of floor tiles: Westminster, Penn and some imported Flemish examples. Roofing



material consisted of both peg and bat tiles. There was a wide variety of stonework including mouldings, ashlar and paving fragments (see Hayward above). All of these building materials were presumably derived from the abbey and its ancillary buildings.

A number of the medieval small finds from the site may have originated from the abbey's kitchens. These included an iron flesh hook, <sf 29>, used for lifting pieces of meat out of a cooking pot, a schist honestone, <sf 10>, used to sharpen knives, a large tanged knife, <sf 30>, which may have been used as a carving or trencher knife, and a copper-alloy wire scourer, <sf 18>, which may have been used to clean kitchen utensils and vessels (Fig 16) (see Gaimster above).

The medieval faunal assemblage from Dean's Yard was dominated as usual by the three major domesticates, but was unusual in the relatively high proportion of young pigs, which may reflect pig production within the abbey precinct for which there is documentary evidence (see Rielly above). Other animals being consumed included rabbits, chickens, geese and snipe. High-status foodstuffs included red deer, roe deer, sturgeon and a dolphin or porpoise, which would have been the property of the Crown. Apart from the sturgeon, a wide variety of fish were consumed, as might be expected in a monastic community. These included marine species such as herring, whiting and plaice, and freshwater species such as eel and pike (see Armitage above).

#### ***Phase 7: Early to Mid-16th Century (1500–c.1570)***

During the post-medieval period the area continued to undergo regular episodes of dumping, which raised the ground level by c.1.70m from 2.64m OD in the 15th century to the current ground level of 4.24m OD (Fig 3). The features revealed on the site during Phases 7 to 10 were largely those that could be expected to be found within a yard, including a path, a gravel surface, possible fence lines, occasional pitting, a well and a culvert. The crushed green sandstone and tile path, [86], which extended east-west across Trench 1, would seem to align with the entrance to Dean's Yard to the north-west and the entrance to the monastic kitchen

yard through Blackstole Tower to the east-south-east (Figs 2 and 9). The remains of two postholes along the southern side of the path might suggest that its route was delineated by a fence.

#### ***Phase 8: Late 16th Century (c.1570–1600)***

By the close of the 16th century the ground level had once again been raised sealing the path, and four pits were dug (Fig 10). These features seemed to roughly follow the alignment of the earlier path (cf Fig 9). By Phase 8, this path was no longer in existence, but it is possible that this area still served as a thoroughfare between Blackstole Tower and the gate in the north-west corner of Dean's Yard.

#### ***Phase 9: Early 17th Century (1600–50)***

During the early 17th century another episode of ground raising occurred, which culminated with the construction of a metalled gravel yard surface (Fig 11). Posts were again used to partition the area. By the 18th century the area formerly known as the Elms was known as 'Great Dean's Yard' on Kip's plan of 1719 (Fig 21) or just Dean's Yard on Rocque's map of 1746 (Hyde 1982, pl 18). However, the yard at this time, was still much smaller than its later manifestation. An annotated anonymous plan dated 1715 describes the central area as being 'Gravel'd and Posted and Rail'd'.<sup>5</sup> While the plan post-dates the gravel surface by about a century it is likely that the recorded surface and posts represent the start of the usage of the area as a gravelled courtyard – a convention which continued well into the 18th century. The post and rail fencing within the courtyard then known as 'Great Dean's Yard' was depicted both on the 1719 plan of the abbey precinct (Fig 21), and in a view of the yard by Capon dated 1815 (Fig 22). Capon's view shows a courtyard, with metalled surfaces and a central oval area of grass containing a number of mature (elm?) trees, the boundaries of which are delineated by post and rail fencing.

#### ***Phase 10: Late 17th Century to Modern***

Throughout the 17th century the dumping





of material continued within this area of the yard (Fig 3). The fence posts appear to have been periodically replaced, although no major alteration to the alignment of the fence seems to have occurred (*cf* Figs 11 and 12). During the second half of the

century a brick-lined well was constructed within the courtyard (Fig 12). This well went out of use and was backfilled with rubbish during the 18th century. It is possible that the well was backfilled as part of the programme to enlarge the yard proposed





*Fig 22. View of Dean's Yard by Capon, 1815 (London Topographical Society 1923–4; reproduced by permission of the Dean and Chapter of Westminster)*

in 1756 by Dr Markham, headmaster of Westminster School. This resulted in the demolition of the former monastic granary and brewhouse, both located along what was then the southern perimeter of the yard. The demolition material from these buildings was spread across the yard and more material was brought in to level up the area (Tanner 1923, 7, 9). This practice corresponds with the pattern of soil dumping recorded in Trench 1, which continued until the final enlargement of the yard during the mid-19th century. A brick-lined drainage and sewage culvert was installed under Dean's Yard in response to the cholera epidemic of 1848–9 (Rodwell 2009, 2).

#### ***Post-Medieval Finds and Faunal Assemblages***

The post-medieval finds reflect the status of those inhabitants of the abbey and Dean's Yard. The pottery included a wide range of both imported and home-produced wares. The imported pottery included

Beauvais white ware with green glaze, central Italian maiolica, Dutch slip and sgraffito wares and Raeren and Siegburg German stonewares which reflect the influence of the Renaissance and demand for quality and showier table and drinking wares (Gaimster 1999). Home-produced Cistercian ware and early Surrey-Hampshire border ware may also have been intended to meet this demand for high-quality drinking wares. These drinking vessels may have come from the abbey refectory and the grammar school. The small finds consisted of a wide range of artefacts, including a buckle, fragments of armour, horse equipment, a book clasp, a lead weight and nine tiny wound wire objects possibly part of an ornate wire-work head-dress (Figs 17 and 18). The post-medieval faunal remains showed a similar range of species to that of the medieval, including chicken, geese and fallow deer, although there was a smaller proportion of pigs. One new trend was the consumption of calves as veal.

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## NOTES

- <sup>1</sup> MOLA Resource Library, [www.mola.org.uk/resource-library](http://www.mola.org.uk/resource-library) (accessed 4 December 2015).
- <sup>2</sup> MOLA Resource Library, [www.mola.org.uk/resource-library](http://www.mola.org.uk/resource-library) (accessed 4 December 2015).
- <sup>3</sup> Stone fabric codes (see Table 2) were agreed in liaison with Ian Betts and Sue Pringle; full list available from the author, updated December 2011.
- <sup>4</sup> A soft fine even grained sandstone or limestone, with an open porous texture that enables the rock to be worked or carved in any direction (Leary 1989; Stanier 2000; Sutherland 2003).
- <sup>5</sup> Westminster Abbey Muniment Collection, WAM 24879.

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