



ROMAN AND SAXON BURIALS AT STEWARD STREET, TOWER HAMLETS

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SUMMARY

Excavation revealed a sequence of pits and quarries from the Roman, Saxon and medieval periods, and the site had also intermittently been used as a cemetery, with three early Roman, three or four late Roman and certainly one, perhaps two, middle Saxon burials. One of the Saxon burials has been radiocarbon dated to cal AD 774–1017 (KIA35236) and was buried with a hoard of 8th-century sceattas. All these burials were aligned east–west. One was buried with a dog, and one with part of a horse. Two dogs were also interred separately. The report describes the skeletons, accompanying animal bone and pottery and attempts to put these discoveries into a local and regional context.

INTRODUCTION

Planning permission (app no. PA/02/01093) had been granted to Mizen Design Build by London Borough of Tower Hamlets Council to redevelop land between Steward Street, Brushfield Street and Gun Street, Spitalfields, London (TQ 33502 81735) (Fig 1) for new offices, subject to a condition relating to archaeology requiring the provision of an archaeological survey prior to the commencement of work. The site was a T-shaped plot covering approximately 630m², at 13m above Ordnance Datum. Geological maps (BGS 1994) indicate that the underlying geology is brickearth (Langley Silt) above river gravels.

A watching-brief and evaluation were carried out over parts of the area from September 2005 to July 2006, following demolition of the structures on the site. This revealed that although much of the site had been deeply truncated by those structures, features and deposits of Roman date were preserved below modern levels. The excavation was carried out between 28 July and 13 September 2006 by Thames Valley Archaeological Services in two halves, due to space constraints. All archaeological deposits were cleaned and excavated by hand and bulk soil samples for environmental evidence were taken from a number of sealed and securely dated contexts. Human remains were removed under licence from the Minister of State for Constitutional Affairs (Licence 06-00162). The archive will be deposited with the Museum of London's Archaeological Archive and Research Centre in due course, except the coins which have been retained by the landowner pending a decision under the provisions of the Treasure Act. The site code/museum accession code is SSZ05.

The features uncovered, other than late post-medieval and modern truncations, included gravel extraction pits, inhumation graves, and one feature that appeared to be a grave but contained no bone. These features can be dated to the Roman, Saxon and medieval periods. Figs 2 and 3 show the areas of investigation in plan, with related section drawings on Fig 4.

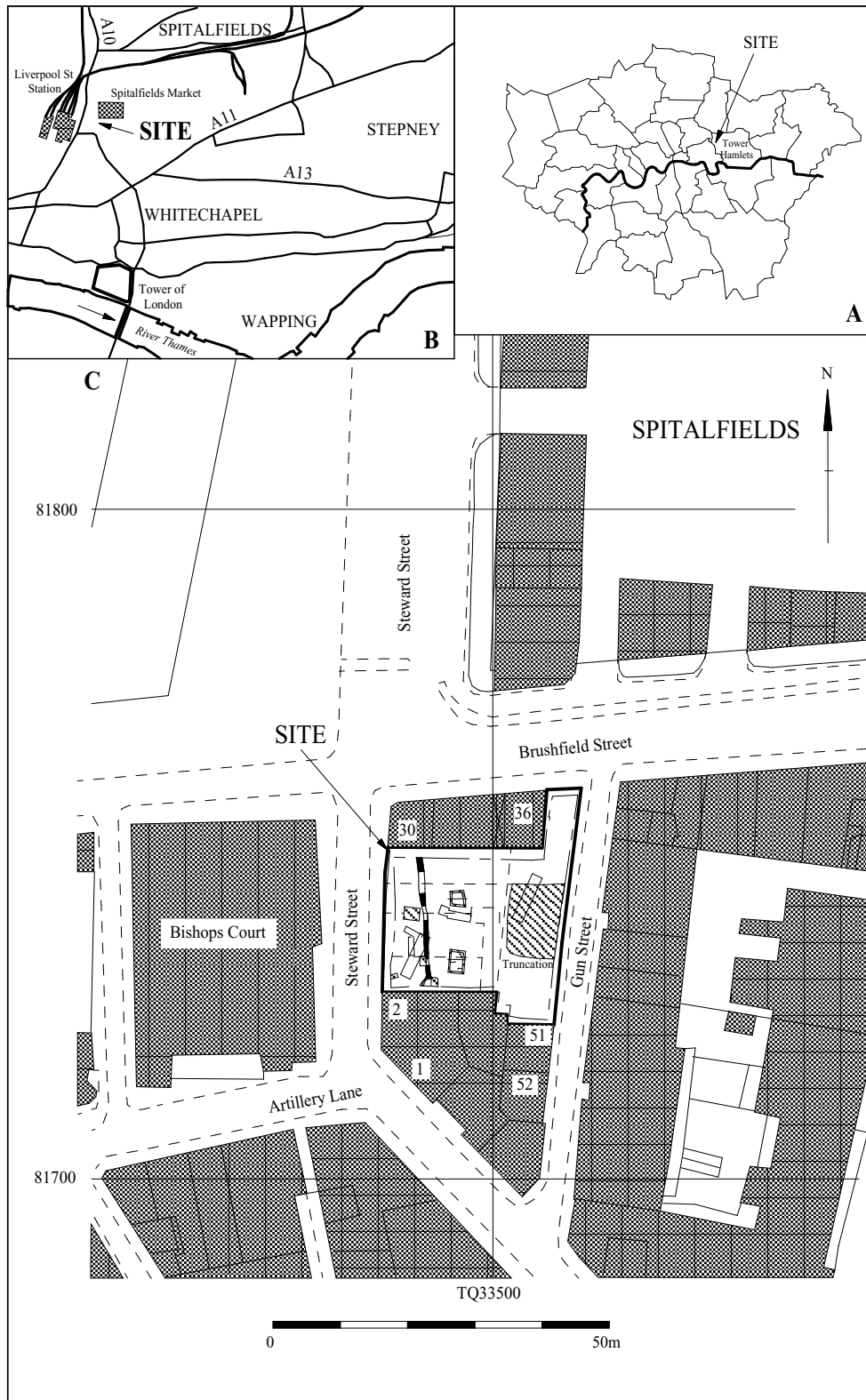


Fig 1. Location of site, evaluation trenches and test pits, showing areas of truncation and 17th-century gully

ARCHAEOLOGICAL BACKGROUND

There was no previous record of either prehistoric or Saxon activity close to the site. Known Roman activity in the area consists of occupation deposits, quarrying and burials. This is not surprising given its location not far outside the walls of the Roman city. In general, the area outside the walls, north-west of Bishopsgate seems to have been extensively used for cemeteries, apparently mainly small and dispersed, but these have as yet not been as intensively studied as other Roman cemeteries in London (MoLAS 2000, 148), although work is currently underway (MacKenzie & Thomas in prep). The most recent excavations of *c.*200 Roman graves in the immediate vicinity have so far been published only in summary (Maloney & Holroyd 2000, 60) or as 'grey' literature (Douglas 2005).

Though the site lies outside the medieval city walls, it is known that by the 16th century occupation had begun to move outside the walls. The site also lies close to the priory and hospital of St Mary Spital and within the hospital precinct. Large scale excavations in the area (in 1998–9) revealed a huge number of inhumations (8,500), parts of the medieval hospital structure and quarry pits (Thomas *et al* 1997). In addition, a possible medieval plague pit has been found just to the south of the site (GLSMR reference 080985). The site is also not far from the location of a post-medieval plague pit excavated in 1926, which contained over 3,000 burials (GLSMR reference 084001).

PHASE SUMMARY

Early Roman

At the bottom of the stratigraphic sequence, was a large feature, [109]=[110]=[113]=[139], of uncertain size and shape, extending beyond the excavated area, and cut into the brickearth (Fig 2); it may have been a quarry. It was cut by late Roman pit [112]. Feature [109] produced eight sherds of fresh Bronze Age pottery, but [139] also produced early Roman pottery which must date this feature. One sherd of Late Bronze Age or Early Iron Age pottery also came from Roman pit [111] (Fig 4).

Early Roman pottery was found throughout the sequence, but most of this was in clearly later features, the result of the extensive truncation of the early Roman features by later activity. Where a feature contained only early Roman pottery, and stratigraphy did not contradict, it has been assumed here to be early Roman, but it must be admitted that rarely is this a very secure date, since no early Roman feature produced as many as 20 sherds of pottery, and most of the early Roman pottery is demonstrably residual. It is possible that some of the features with only early Roman pottery are actually later, their pottery being redeposited even if not obviously so. On this basis, early Roman features include the large quarry pit, a small shallow pit [125], and perhaps three graves.

Certainly in this phase was grave [142] (2.14m long, 0.76m wide, 0.34m deep, with skeleton (sk) [367]), and perhaps grave [115] (2m long, 0.52m wide, just 0.20m deep, with sk [256], which was truncated by quarry feature [110]), and truncated grave [120] (legs only of sk [273]). The latter two features are undated but seem likely to belong to this phase ([115] cannot be later). The three skeletons ([256], [273], [367]) are fully described below (see Human Bone). Pits [111] and [121] contained only early Roman pottery (very small amounts) but were above features with middle to late Roman pottery and so are phased later.

Late Roman

The late Roman period produced the chief concentration of features of interest on the site. As noted above, several features containing only early Roman pottery were stratigraphically above features containing small amounts of late Roman pottery; the latter have been allowed to date this phase.

Several large pits all appear to have been quarries: [104] (phased on the assumption that its top fills, [157] and [158], are a later slump into the top) was 5m across and at least 1.7m deep; pit [111]=[112] was at least 6m across (Fig 4); pit [116] was almost 4m across, while pit [117] seemed smaller but extended out of the excavated area. Pit [122] was only 1.13m in diameter and 0.24m deep, and was cut into the natural below

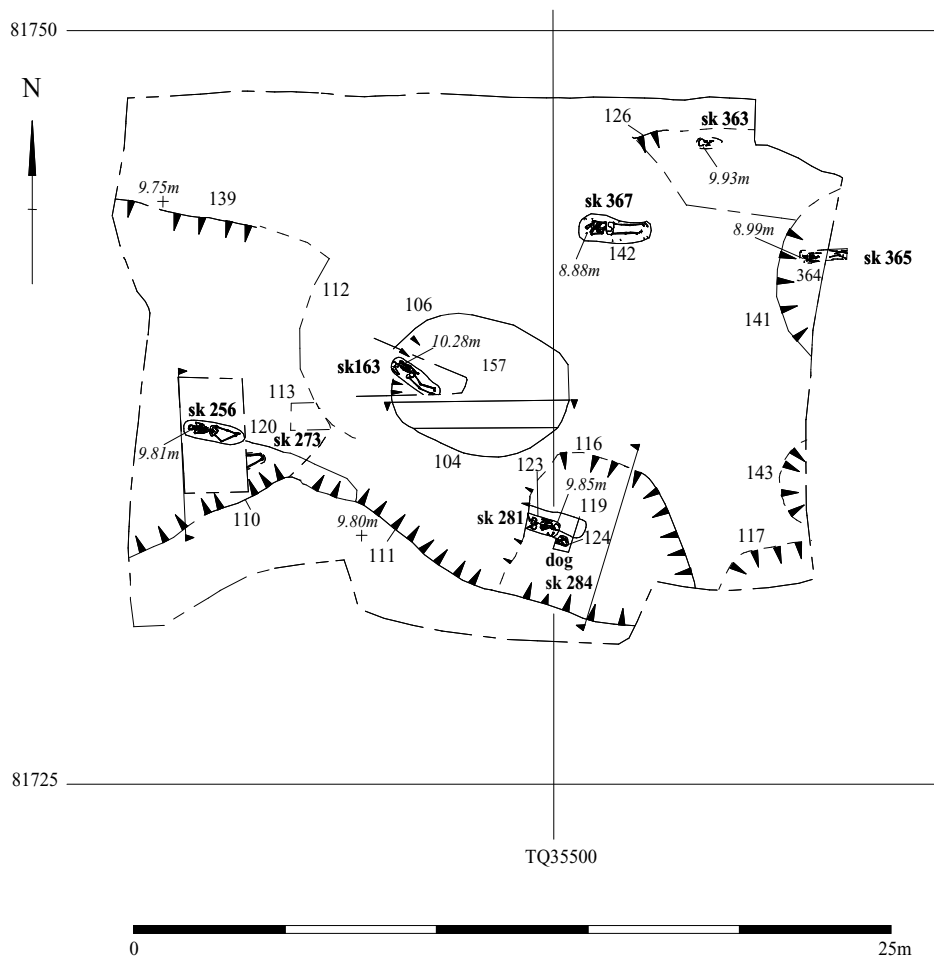


Fig 2. Early Roman features excavated

quarry pit [112]. Pit [121] was circular (1.4m diameter) and had vertical sides, but the obvious interpretation as a well is ruled out since it was only 0.87m deep and did not reach the gravel.

Grave [106] (sk [163]) was cut into the top of backfilled quarry [104]; grave [123] (sk [281]) was cut into an earlier shallow pit (possibly another grave) [119]; animal burial [124] was also cut into [119] and may have been intended to accompany [123]. Grave [143] (sk [369]) seems to have been set into the top of pit [117], skeleton [365] was set into pit [141]. There was no obvious sign of a separate cut, and although this is not entirely unusual for a late Roman burial, it may be due to the excavation conditions.

Skeletons [163], [281], [365] and [369] are fully described below (see Human Bone).

Skeleton [363] was the remains of an upper body and skull only, accompanied by a single early Saxon pottery sherd, lying on a deposit containing fresh early Roman pottery in cut [126] and overlain only by modern cuts. Taking the pottery at face value as dating evidence, this should be a Saxon burial inserted into a Roman pit (as [163], below), although no cut was visible for the grave. However, it seems unlikely that pit [126] stayed open for 500 years or more. More probably, the single Saxon pottery sherd was intrusive, and [126] was a Roman grave disturbed in some way that was not detected during the excavation.

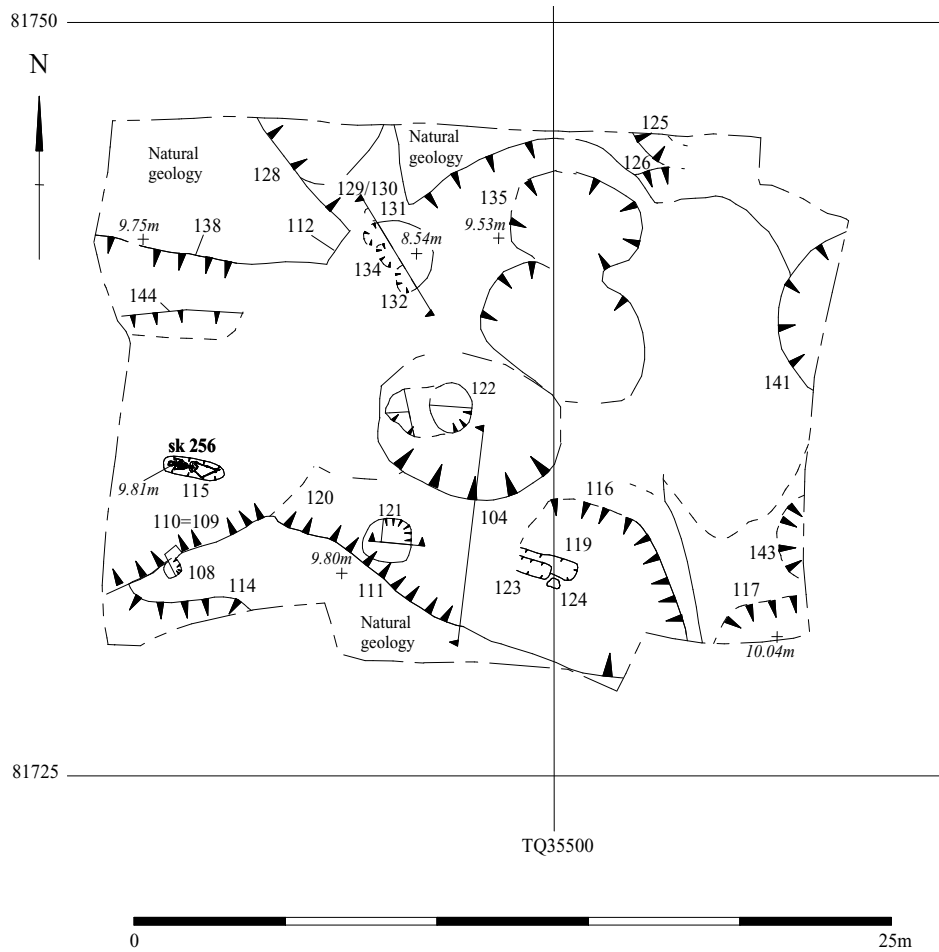


Fig 3. Late Roman, Saxon and medieval features excavated

Saxon

Supine skeleton [163] was accompanied by a small hoard of *sceattas* on its right shoulder. However, it was overlain by a fill containing only abraded late Roman pottery, and this in turn was below a deposit [157] of 11th- to 12th-century date, all apparently neatly within grave cut [106], which had been dug into pit [104] when the latter was fully infilled but before it had slumped significantly. The burial was radiocarbon dated to cal AD 774–1017 (KIA35236) (Table 6) and is thus of middle to late Saxon date: the coins may have been old when deposited.

Saxo-Norman

Layers [157] and [158] (interpreted as later

fills into slump hollows above pits [104] and [106]) and large quarry pits [128], [131–5] all seem to date between the mid-11th and mid-12th or 13th centuries. Post-medieval features also typically contained small amounts of medieval pottery, often quite small sherds but equally often not badly abraded.

Post-medieval and modern

Later features truncated the sequence at all points; these are not described here, details are in the archive. The areas these disturbed are shown on Fig 1. The only one of these features of note was a gully which contained a wide range of pottery, much of it clearly derived from the medieval pits below, but with enough later material to suggest that it was open as late as the middle of the 17th

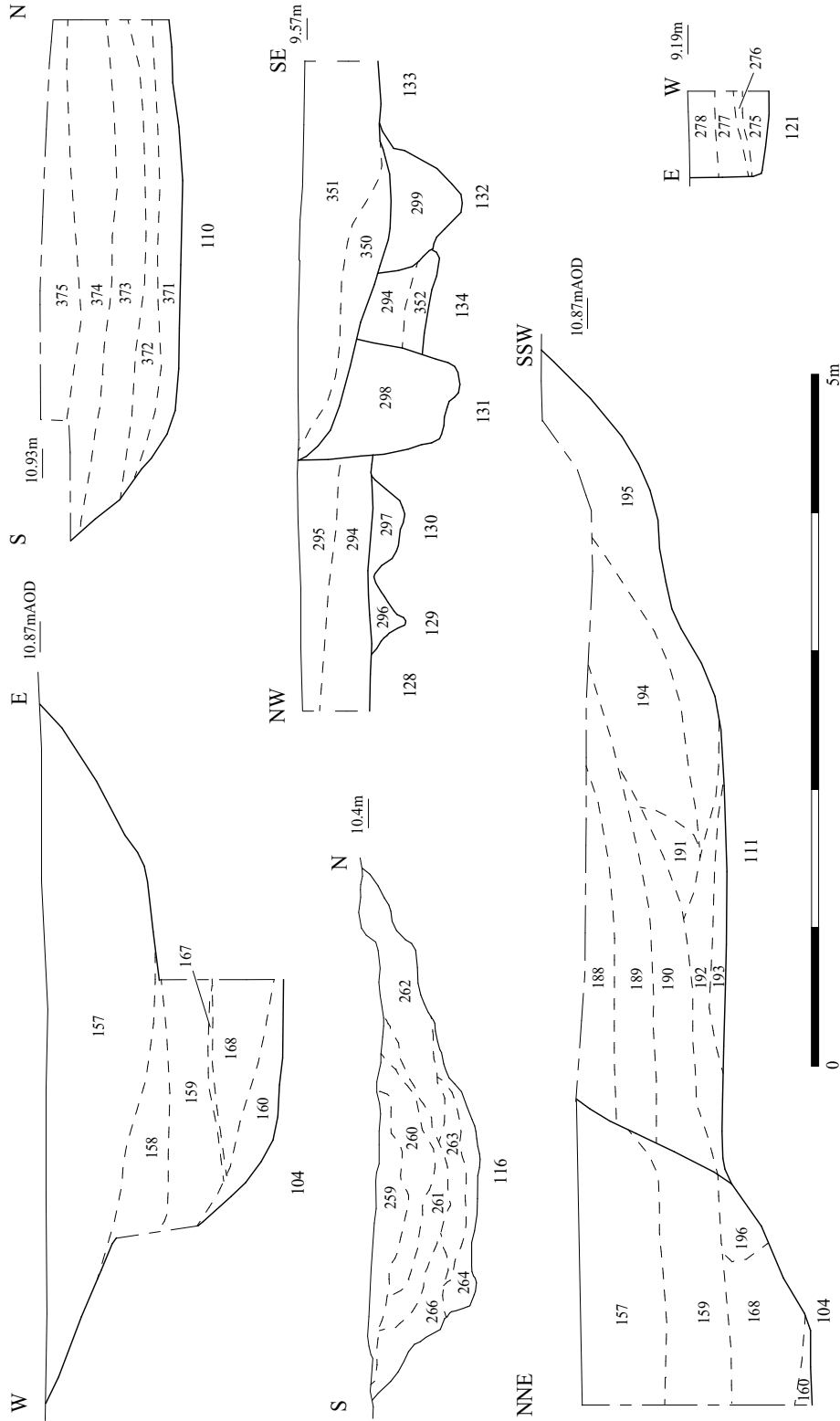


Fig 4. Selected sections

century; its wide range of animal bone probably belongs mainly in the 17th century but may also include earlier material, limiting any conclusions that could be drawn.

POTTERY

Malcolm Lyne

The assemblages

The excavation yielded 431 sherds (7,266g) of pottery from 43 contexts: a further 31 sherds (66g) were recovered from environmental

samples and 12 sherds (100g) from the evaluation. The sherds are wide-ranging in date, with Late Bronze Age, Early Iron Age, Roman, Saxo-Norman, medieval and post-medieval assemblages (Table 1). The codings devised by the Museum of London (MoLSS 2000) are used for most of the fabrics but numbered codings have been created for others not covered by MoLSS, with the prefixes P, R, M and PM for Prehistoric, Roman, medieval and post-medieval respectively. More detailed quantification by context is in the archive.

Table 1. Pottery summary by fabric

Roman			Medieval			Post-medieval		
<i>Fabric</i>	<i>No.</i>	<i>Wt(g)</i>	<i>Fabric</i>	<i>No.</i>	<i>Wt(g)</i>	<i>Fabric</i>	<i>No.</i>	<i>Wt(g)</i>
AHFA	5	32	ANDE	1	17	BORDG	2	67
AHSU	2	73	CBW	17	100	CHINA	2	152
BAET	47	1059	EMCH	1	7	LANG	14	21
BB2	7	19	EMGR	1	3	PM1	3	18
CAMP1	1	70	EMIS	14	92	PM2	9	494
DORBB1	3	41	EMSH	1	5	PM3	1	19
ERSA	2	6	EMSS	2	12	PM4	3	47
HARSH	3	34	ERMS	6	22	RAER	3	3
HOO	9	3	ESUR	12	125	RBOR	61	1630
HWB	3	38	LCGAR	2	30	Total	98	2451
HWC	1	8	LLON	2	22			
KOAN	1	51	LOGR	1	19			
MHADOX	1	11	LOND	12	71	Prehistoric		
MICA	1	1	LSS	3	32	<i>Fabric</i>	<i>No.</i>	<i>Wt(g)</i>
MORT	2	6	M1	3	15	P1	8	53
MOSL	1	2	M2	22	214	P2	1	5
NKFW	2	4	NFRY	2	23			
OXID	7	11	THWH	1	37			
OXMO	1	144	TUDG	16	30	Others	13	202
OXRC	2	4	Total	119	876			
R2	1	5						
R3	1	144						
R4	1	291						
RBGW	1	2						
SAMLG	12	246						
SAMLZ	5	44						
SAND	27	135						
TSE	29	303						
VCWS	29	121						
VRW	8	650						
Total	215	3558						

Prehistoric

Assemblage 1 from pit [109]: a large fresh bodysherd from an urn or large storage vessel in pinkish-brown crumbly fabric with sparse up-to 3.00mm shell filler. A Middle or Late Bronze Age date seems likely.

Early Roman

Assemblage 2 from the fills of quarry pit [111]: four sherds (92g) of pottery, comprising an abraded prehistoric fragment in calcined flint-tempered fabric P2 (?Late Bronze Age/ Early Iron Age), a basal fragment from a South Gaulish samian Dr 18 platter (c.AD 43–90), an abraded bodysherd from a Campanian black sand-tempered amphora of uncertain type (c.AD 50–100), and a small abraded fragment in oxidised very-fine-sanded fineware. These few sherds suggest that the quarry was filling c.AD 50–90.

Assemblage 3 from the fills of pit [121]: the four fresh sherds comprise two joining fragments from the base of a ?Class 1 jar in Alice Holt/Surrey greyware (c.AD 50–140), a large piece from a South Gaulish samian Ritterling 12 bowl (c.AD 43–80), and a jar fragment in Highgate Wood B fabric (c.AD 40–100). The presence of the Ritterling bowl fragment suggests that this pit was filled before AD 80.

Assemblage 4 from the fills of grave [126]: five sherds (579g) of Roman pottery, including three large fresh joining sherds from a Verulamium Region Whiteware mortarium of Davies *et al* (1994) type 209 (c.AD 90–150), fired white with a pink core and including the spout. Other sherds comprise a tiny chip of South Gaulish samian and an abraded fragment in early Roman sand-tempered fabric A.

Assemblage 5 from the fills of pit [141] and grave [364]: the 55 sherds include 46 fragments from a Dressel 20 amphora (c.AD 43–250), four from a honey pot of Davies *et al* (1994) type 177 in Verulamium Region Whiteware (c.AD 60–120), and one fragment each from a Central Gaulish samian Dr 18/31 platter (c.AD 120–150) and an open form in Highgate Wood C fabric (c.AD 70–140). An early 2nd-century or later date is indicated.

Assemblage 6 from the fills of pit [117]: the 32 sherds (196g) of pottery include 26

fresh sherds from one flagon in Verulamium Region Coarse White-slipped ware (c.AD 140–250)

Late Roman, c.AD 270–400

Assemblage 7 from the fills of pit [104]: nine sherds, comprising a large fragment from an Oxfordshire Whiteware M17 mortarium (c.AD 240–300), five fresh sherds from closed forms in coarse sanded late Thameside greyware (c.AD 270–400), a fresh piece from a closed form in Verulamium Region Coarse White-slipped ware (c.AD 160–250), and residual abraded sherds in South Gaulish samian and uncertain fabrics. This pit was probably filling c.AD 270–300.

Assemblage 8 from the fills of quarry pit [110]: the uppermost fills [374] and [375] yielded nine fragments of late Roman pottery, including five from a beaded-and-flanged bowl in late BB2 fabric (c.AD 270–370), one from an undecorated straight-sided dish in Dorset BB1 (c.AD 280–370), and one from a bottle or flagon in coarse late Thameside greyware (c.AD 270–400): the latter sherd and the beaded-and-flanged bowl fragments are fresh. An early 4th-century date for deposition is indicated.

Late Saxon/early medieval, c.AD 1000–1150

Assemblage 9 from context [157]: the 73 sherds from this context form one of the largest assemblages from the site. Three fragments from a ?lobed cup in Coarse Border Ware with external mottled apple-green glaze (c.1270–1500) are the latest in an assemblage which also includes 22 largely fresh sherds in a variety of Saxo-Norman wares. These include cooking-pot fragments in Late Saxon Shelly ware (c.AD 900–1050) and Early Medieval Sand and Shell-tempered ware (c.1025–1175), as well as the illustrated sherds (Fig 5, 1–3) listed below.

Saxo-Norman sherds are also present in the fills of pits [131] and [132].

Late and post-medieval, c.1350–1700

Assemblage 10 from the fills of a post-medieval gully: the 146 sherds (2,439g) include those illustrated below (Fig 5, 4–6) from fill [359], plus: six fragments from a frying pan (c.1350–1450) and other forms



in Coarse Border Ware (c.1270–1500), two pieces from a jug base in Late London Ware with external splashed green glaze (c.1400–1500), 14 fragments from a jug in Langerwehe stoneware (c.1350–1450), three sherds from another jug in Raeren stoneware (c.1480–1610), 61 sherds from pipkins, tankards and costrels in Red Border Ware (c.1500–1700), and 16 fragments from lobed cups in Tudor Green fabric (c.1380–1500). This gully appears to have remained open from the 15th to the late 17th century.

Illustrated sherds (Fig 5)

1. Fresh cooking-pot rim sherd in Early Surrey ware (ESUR) fabric fired rough grey (Vince & Jenner 1991, fig 2.58–144). c.1050–1150.
2. Fresh cooking-pot rim sherd in Early Medieval Iron-rich Sandy ware (EMIS) fabric fired grey. c.1050–1150.
3. Fresh lid-seated cooking-pot sherd in

- Coarse London-type ware (LCGAR) fabric (Vince & Jenner 1991, fig 2.74–194). Ext rim diameter 140mm. c. 1066–1150.
4. Mammiform costrel in Red Border Ware with patches of dark green glaze (Pearce 1992, fig 37-287G). c.1500–1550.
5. Pipkin in similar fabric with internal colourless glaze (Pearce 1992, fig 29-164R). c.1640–1700.
6. Lower part of jug in Raeren stoneware. c.1480–1610.
7. Fragment of glazed encaustic floor tile of Eames (1980) design no. 1663 with shield motif, paralleled at Lesnes Abbey. Thought to be of Kentish origin and 13th- to 14th-century in date.

COINS

Malcolm Lyne

Four Roman coins and a small group of ten Saxon coins (partially fused together) were

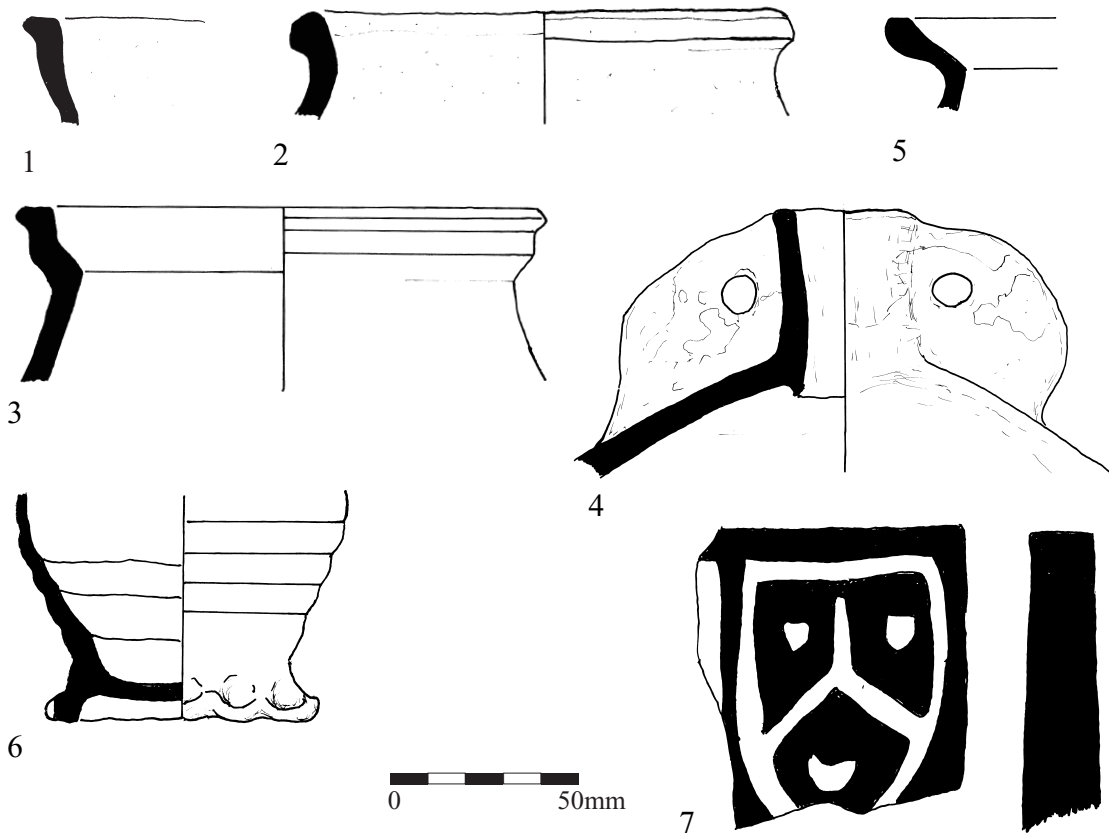


Fig 5. Pottery and tile (see text for details)

recovered. The small group of *sceattas* was probably interred with the corpse during the second quarter of the 8th century. The Coroner's Office has been informed of the find, via the Museum of London, as required under the Treasure Act; a decision is pending.

Roman

- Context [173]: nummus of Constantine II, 18mm, die axes 12/6, wear EF, *RIC* no. 434, AD 323–324.
Obv: CONSTANTINVSIV[NNOBC, bust, laureate and draped, right.
Rev: CAESARVM NOSTRORVM, VOT/X in wreath. Mintmark: PTR crescent.
- Context [173]: totally disintegrated.
- Context [180]: miscast fragment of counterfeit base metal coin, 15 by 11mm, late 3rd century.
- Unstratified: debased antoninianus of ?Claudius II, 15mm, die axes 12/12, wear EF, unpub, AD 268–270.
Obv:]SAVG, bust, radiate and draped, right seen from rear.
Rev: H III [, female draped figure standing left but facing right with right foot on prow of ship, holding vertical spear in left hand, right hand inclined downwards. No mintmark.

Hoard of *sceattas* from Grave [106] (Context [163])

- Obv: Series T. Quilled crescent coiled left, thin body with globular head, enclosing four bars (Abramson 2006, T220). AD 710–760.
Rev: Series J Type 36. Diademed bust right with coiled serpent before (Abramson 2006, J220 var). AD 710–725.
- Two fused coins.
Series S Type 47. Wolf whorl clockwise, with elongated tongues joining in beaded spiral cross; central pellet (Abramson 2006, S200). *c.*AD 730–740. Other face fused to third coin.
Wolf whorl partially obscured by corrosion products. Other face fused to second coin.
- Three fused coins.
Series S. Stiff legged female centaur left, torso forward, looking back, holding palm fronds; linear tail intertwines rear legs (Abramson 2006, S200). AD 730–740. Other face fused to fifth coin.
Series S. Stiff legged female centaur right, torso forward; beaded tail intertwines rear legs (Abramson 2006, S100 variant). AD 730–740. Other face fused to fifth coin.

7–10. Four fused coins.

- Series T. Quilled crescent coiled left, thin body with globular head, enclosing four bars (Abramson 2006, T220). AD 710–760. Other face fused to eighth coin.
- Series S. Stiff legged female centaur left, torso forward, looking back, holding palm fronds (Abramson 2006, S100 or S200). AD 730–740. Other face fused to ninth coin.

OTHER FINDS

The excavation resulted in the retrieval of 80 fragments of metalwork weighing 1.279kg. These mainly consist of iron coffin nails with a single object of copper alloy. The coffin furniture was, unsurprisingly, primarily found within the context of the burials and consisted of unremarkable coffin nails and fragments. A tiny fragment of frosted blue glass was retrieved from late Roman pit [104]. A total of 553 fragments of brick and tile weighing 30.2kg were recovered, both Roman and medieval. Other finds were all post-medieval and later (details can be found in the site archive).

HUMAN BONE

Ceri Falys

The skeletal remains of eight individuals were recovered (Table 3). All individuals were assessed taking into account guidelines suggested by Buikstra & Ubelaker (1994) and Brickley & McKinley (2004). Estimations of age-at-death and sex were made where possible, as well as identification of any pathological alterations and non-metric traits present.

The degree of skeletal completeness greatly varied between individuals. Half of the individuals had at least 75% of the skeletal elements present, while the rest were much less complete. Plans of the more complete skeletons are shown as Fig 6. In general, all of the bone was in poor condition with frequent surface damage and occasionally covered with a hardened cement-like substance, presumably remnants of the grave fill. All elements demonstrated at least a moderate amount of fragmentation. Those elements primarily composed of compact bone remained relatively intact (*ie* long bone shafts). Areas of the skeleton

Table 2. Metalwork catalogue (excludes post-medieval and modern)

Cut	Deposit	Type	Material	Type	No.	Wt (g)	Comment
106	162	Grave	Fe	Nail frags	3	9	
	172	Layer	Fe	Nails	3	17	
	173	Layer	Cu Alloy	Ring?	1	3	Flattened on side
	173	Layer	Fe	Nail frag	1	9	
	173	Layer	Fe	Corrosion	8	19	
114	178	Pit	Fe	Nail frags	3	40	
123	281	Skeleton	Fe	Nail?	1	1	Square section narrows to point
	293	Grave	Fe	Nail frag	4	67	
131	298	Pit	Fe	Nail	1	5	
141	365	Skeleton	Fe	Nails and frags	11	141	
141	365	Skeleton	Fe	Nail head?	1	10	Rounded top concave base
141	365	Skeleton	Fe	Nail head?	2	21	Rounded
141	365	Skeleton	Fe	?coffin fitting?	2	56	rounded blob
141	365	Skeleton	Fe	rounded frag	3	139	
142	366	Grave	Pb	object	1	1	flattened
142	366	Grave	Fe	Nail frag	3	10	
142	367	Skeleton	Fe	Nails and frag	18	418	Includes 11 coffin nails

Table 3. Human bone summary

Skeleton	Completeness (%)	Age (years)	Sex	Pathology*
163	90	14–18	Male?	-
256	80	35–45	Male	Angled 1 st toe?
273	20	Adult	?	-
281	75	35–45	Male?	Healed rib fracture, AMTL, C, LEH
363	25	Mature adult	Female?	OA, AMTL
365	30	< 15	?	LEH
367	80	25–35	Male	LEH, C, AMTL, NBG, Bowed tibia
369	25	?	?	-

* AMTL = Ante-mortem tooth loss; C = Dental Calculus; OA = Osteoarthritis; NBG = New bone growth; LEH = Linear Enamel Hypoplasia

composed of mostly trabecular bone were severely damaged, and were very brittle to the touch (*ie* the vertebrae, pelvis, long bone ends, tarsals). This resulted in the majority of long bone ends and joint surfaces not being preserved to a satisfactory level for analysis. The cranial elements were slightly better preserved, although commonly fragmented, with frequent surface damage due to root activity. Ultimately, this poor preservation

limited the amount of retrievable metric, demographic and pathological data.

Demographic data

Applicable techniques for age estimation were limited as the standard skeletal elements affected by age (pelvis, crania and ribs), if present, were damaged or obscured by the cement-like substance. As a result, assessment

of the morphology of the pubic symphyses, morphology of the auricular surfaces of the ilia, and analysis of the rib-ends could not be utilised. Age was estimated most reliably through the degree of tooth wear (Brothwell 1972) and presence of unfused epiphyses (Ferembach *et al* 1980; Buikstra & Ubelaker 1994; Scheuer & Black 2004).

Sex was determined using pelvic and cranial morphologies, if present and preserved to a satisfactory level. Where possible, skulls were partially reconstructed to allow morphological traits to be assessed. Sex estimation was also attempted using the morphology of the distal humerus (Rogers 1999; Falys *et al* 2005), as humeri are commonly less prone to damage in the burial environment, compared to the more fragile skull and pelvis.

Again, poor preservation hindered the identification of surface pathological lesions. However, details of pathology were described when found (Roberts & Manchester 1995; Ortner 2003). Non-metric traits were not seen on any skeletal element for any individual.

Results

Eight articulated skeletons were present (Table 3). The remains varied widely in preservation as well as completeness from 90% to 20%. The assemblage contained two sub-adults, one young middle adult (25–35 years), two old middle adults (35–45 years), a probable mature adult (possibly over the age of 46), and two individuals of unknown age. Two males were identified, two probable males, one probable female, and three indeterminate individuals (based on lack of necessary elements, and the presence of immature individuals).

Cranial pathological alterations that were identified related solely to dentition. Calculus (dental plaque), ante-mortem tooth loss, carious lesions (cavities) and grooves of enamel hypoplasia were found in most individuals. The last of these conditions are linear defects in the enamel caused by systemic stresses affecting the body during development of the tooth crowns (Ortner 2003). These stresses could be nutrition-related (*eg* malnutrition) or the result of disease (*eg* high temperature) (Roberts & Manchester 1995).

Osteoarthritis was the other most com-

monly expressed pathology. These alterations were found most frequently in the spine (osteophytes, Schmorl's nodes, eburnation). Two individuals also showed osteoarthritic alterations in the shoulder girdle.

Another interesting pathology was found in two individuals, which had quite widespread new bone formation on the lower limbs and feet, cause unknown.

Of the eight articulated skeletons, all were orientated approximately W (head)–E, with the exception of skeleton [281]. All were buried in a supine position, except for juvenile [365], who was prone. Coffin remains were occasionally found. The great majority of the burials were truncated, decreasing the amount of skeletal material present. A wide range of ages was represented, from an early teenager through to an elderly woman. The assemblage did appear to be biased towards males (4:1 if the probable males are counted as males), but since three individuals remained unsexed, this may be misleading. The majority of the pathological alterations observed are common in ageing adult individuals (*ie* dental problems and osteoarthritis).

Catalogue of skeletons (by context number)

Skeleton [163] (middle Saxon) was supine and orientated WNW (head) to ESE. The body was slightly rolled onto its right side, with the face pointing S. The left arm was fully extended by the side of the body, with the hand under the proximal femur. The right arm was bent at the elbow with the hand resting by the head. The legs were parallel with one another, with the knees slightly bent, and the feet also parallel. The bone was very degraded and fragile at the time of excavation. Evidence of coffin fittings was not recovered from the grave-cut; however the presence of a coffin at one time could not be ruled out.

This skeleton was approximately 90% complete; however the elements of the axial skeleton (cranium, ribs, vertebrae and pelvis) were highly fragmented. The majority of surfaces were covered in the hardened grave fill, obscuring much of the surface characteristics: as a result pathologies and non-metric traits were not observed. Age was estimated based on the presence of several

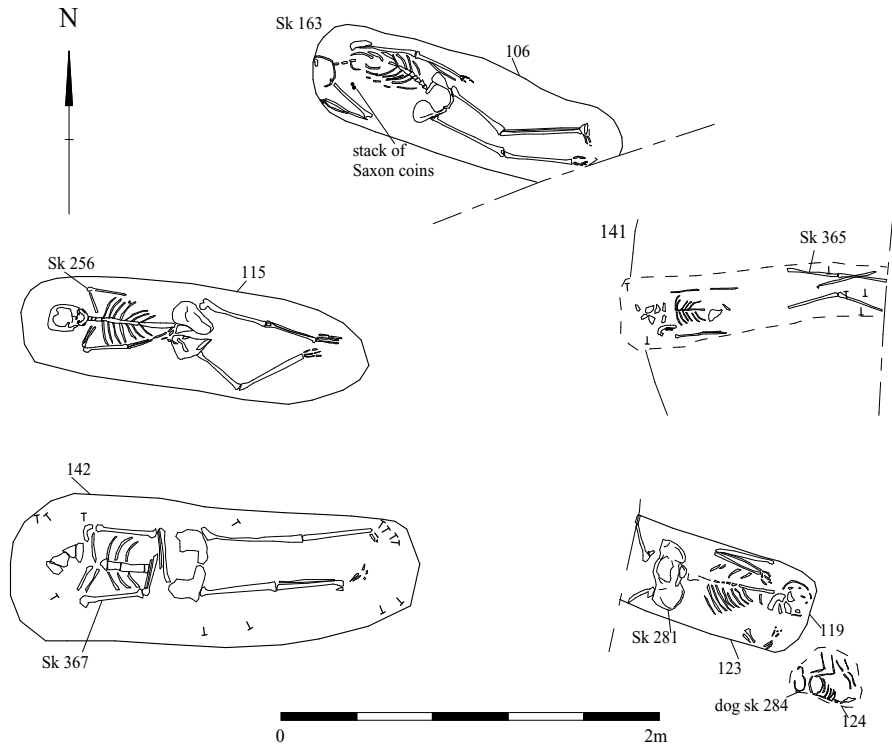


Fig 6. Detailed plans of the more complete skeletons

unfused and newly fused epiphyses from different parts of the body. It was estimated that skeleton [163] was between the ages of 14 and 18 years at the time of death, based on the ages of epiphyseal union. Timing of epiphyses fusions depends on the sex of the individual, which cannot be reliably assessed in the sub-adult skeleton. Standardised methods of sexing non-adult skeletons have not been established (Rösing 1983), as the true sex may not be expressed in the immature skeleton. However, sex was suggested very tentatively as the distal humerus was fused. The techniques of Rogers (1999) and Falys *et al* (2005) for sex determination based on the morphology of the distal humerus were applied, resulting in an estimation of possible male. More research into these sex-estimation techniques is required to indicate their reliability on immature remains with fused distal humeral epiphyses. It is unknown if the shape of the distal humerus alters once it has fused with the humeral shaft.

Skeleton [256] (early Roman) was in a supine position, orientated E–W (head). The right arm was extended straight beside the torso, the left was missing. The left leg was straight, while the right was laterally rotated and bent at the knee. The feet were orientated right under left. These remains were not found with any coffin fittings, or any other evidence of a coffin.

The preservation of these remains was fair, although the bones of the face and ribs were highly fragmented. The skeleton was approximately 80% complete. Age was estimated to be 35–45 years based on the degree of dental wear (Brothwell 1972). Sex was determined to be male, based on the morphological characteristics of the cranium, mandible and pelvis. The overall robustness of the skeleton and its strong muscle markings also indicated the individual was male.

Several pathological alterations were identified, primarily the result of osteoarthritis.

All vertebrae demonstrated some form of osteoarthritic change. Eburnation was present on the anterior articulation of the dens of the second cervical vertebra. The upper cervical vertebrae (C3–5) had marked porosity and osteophytic lipping of the anterior bodies. The degree of osteophytic lipping increased in severity from the first thoracic vertebrae down to the lumbar vertebrae. Small erosive lesions (suggestive of Schmorl's nodes) began appearing on the superior and inferior surfaces of the fourth thoracic vertebrae, and occurred regularly throughout the rest of the lower thoracic vertebrae and the first four lumbar vertebrae. The lateral right clavicle and corresponding articulation on the superior aspect of the right acromion of the scapula also have indications of osteoarthritis, notably osteophytic growths and porosity. The same observation was found on the left acromion; however the lateral aspect of the left clavicle, which would articulate with the acromion, was not preserved for analysis.

The bones of the right foot showed some pathological changes of unidentifiable cause. Porous and striated new bone growth was present on the proximal shafts of all five metatarsals, as well as on some proximal phalanges. Distal phalanges had occasional osteophytic growths. The shape of the distal joint surface of the first proximal phalanx was altered and notably flat, which was ultimately reflected in the proximal articulation of the distal phalanx. The altered orientation appeared to make the articulated toe deviate laterally (towards the second toe). The same elements from the left foot were absent, preventing a comparison.

Cranial pathologies identified were ante-mortem tooth loss of the right central mandibular incisor and healing loss of the left first mandibular molar. Faint lines of enamel hypoplasia were seen on the mandibular canines.

Skeleton [273] (early Roman) was the least complete (20%) of all individuals excavated and consisted solely of the lower legs and feet. It was orientated approximately NE–SW (head). The left tibia, fibula and foot bones were fairly well preserved. The right tibia, fibula and foot bones were highly fragmented. The proximal tibia's epiphysis

was fully fused; Scheuer & Black (2004) suggest the fusion of the proximal tibial epiphysis occurs by the age of 17 (♀) and 19 (♂). In general terms, the individual is probably an adult, but a more precise age could not possibly be suggested. No other demographic information could be retrieved from these remains.

Skeleton [281] (late Roman) was found orientated E (head)–W. The body was supine, with the skull rolled to its left, facing S. Both arms were bent at the elbow, with hands situated up near the head/neck. The legs were completely absent below the upper femoral shafts. There was no evidence of a coffin. Small amounts of animal bone (of a dog) were also recovered.

The skeleton was approximately 75% complete and moderately well preserved, with frequent porosity and high fragmentation. Some reconstruction of the skull was possible. Again, some surfaces were obscured by the presence of hardened grave-fill.

Age was estimated to be 35–45 years based on the degree of dental wear (Brothwell 1972). Sex was assessed as male based on traits of the cranium, mandible, pelvis and the overall strong muscle markings present. Estimation of sex using the morphology of the distal humerus (Rogers 1999; Falys *et al* 2005) also indicated a probable male.

Identified pathological alterations were primarily dental: ante-mortem tooth loss of the right mandibular first molar and the left maxillary second molar; and calculus on all teeth. Faint lines of enamel hypoplasia were identified on maxillary incisors, extending from the neck of the teeth to the middle of the crown. All other teeth (maxillary molars and all mandibular teeth) demonstrated clearly defined grooves of linear enamel hypoplasia from the neck of the teeth to just below the cusp.

Post-cranial pathologies recorded were two well-healed fractures of the left rib shafts, and osteoarthritic changes to the right distal ulna and scaphoid. It was noted that the right distal radius was damaged, and thus could not be assessed for any corresponding osteophyte growth.

Skeleton [363] (?Saxon) was very incomplete at the time of excavation. Approximately 25%

of the skeleton was recovered, all originating in the upper body. The only elements present consisted of a fragmented cranium (later partially reconstructed), the right side of the mandible, the clavicles, and the right humeral shaft. Fragments of the scapulae, ribs, cervical and thoracic vertebrae were also recovered.

Estimation of a precise age at death was not possible, as all standard age-estimating traits were absent. There were indications that this individual was an older adult, due to the extensive ante-mortem tooth loss, the significant closure of the sagittal suture, and partial closure of the lambdoid suture. These observations are only generalised indicators of advanced age (mature adult: 46+ years), and fusion of cranial sutures is not entirely reliable when applied to archaeological populations (O'Connell 2004).

Sex was estimated to be probable female, based on the overall gracile appearance of all elements, notably the mandible and the reconstructed cranium.

Pathologies observed were the ante-mortem tooth loss of the left mandibular incisors, second and third molars. Indications of osteoarthritis were found on the bodies of cervical and thoracic vertebrae, and the right shoulder girdle (scapula, clavicle and humeral head).

Skeleton [365] (early Roman) was orientated W (head)–E, in a fully extended prone position. The probable remains of a coffin (nails and studs) were found associated with the skeleton. The feet had been removed by a modern foundation, which also resulted in disturbance of the left tibia. The upper body was poorly preserved compared to the lower limbs.

Although all elements were highly fragmented, and only approximately 30% of the skeleton was present, it was apparent that the remains were those of a juvenile individual. The epiphyses of the left proximal humerus and lower limbs were not yet fused. Based on the timings of epiphyseal fusions suggested by Ferembach *et al* (1980), Buikstra & Ubelaker (1994) and Scheuer & Black (2004), the individual was estimated to be younger than 15. A lower age estimate could not be suggested due to the lack of more unfused/newly fused skeletal elements

and dentition for comparison. The sex of this individual could not be determined from the immature skeleton (Scheuer & Black 2004). Clear, white-coloured grooves of linear enamel hypoplasia on all teeth were the only pathology. The right mandibular lateral incisor, first and second molars, the left mandibular central and lateral incisors were all affected from the neck of the teeth to just below the cusps.

Skeleton [367] (early Roman) was in a supine position, orientated W (head)–E, with the face pointing S. The body was fully extended, with the arms folded across the torso, and the feet splayed. It was estimated that the individual was 80% complete; however the hands, feet, cranium and axial skeleton were very poorly preserved. All surfaces of the bones were covered in the hardened grave fill. This substance, however, held many of the fragmented elements together. Without it, elements would be in hundreds of small fragments. 18 nails were found in association with skeleton [367].

Age was estimated to be 25–35 years based on dental wear (Brothwell 1972). All teeth, including maxillary and mandibular incisors, show some degree of dental wear. Sex was determined to be male, due to the morphological characteristics of the cranium, mandible and distal humerus, as well as the robusticity of all skeletal elements with the strong muscle markings.

Pathological alterations were present in the dentition, as well as the lower limbs. Moderate amounts of calculus and lines of enamel hypoplasia were found. Very faint cream-coloured linear horizontal grooves were identified on the mandibular and maxillary incisors and first maxillary molars, extending from the neck of the teeth to the middle section of the crowns. The left mandibular canine and maxillary canines demonstrated pitting.

Pathologies of the lower limbs were quite varied, and partially obscured by the presence of hardened grave-fill. The right tibia had a marked bow mid-shaft, with the distal end of the tibia veering laterally with respect to the proximal end. There was no surface indication of fracture of the tibial shaft, and overall, the bone is still quite robust with strong muscle markings and

no signs of atrophy (indicating the leg was still in use). The right femur did not possess any observable abnormalities, beside the presence of very pronounced muscle markings (primarily the linea aspera).

The lower limbs also demonstrated a great deal of new bone growth. The remodelled compact bone was striated and porous and slightly greyer and lighter in colour than the surrounding bone. The tibiae and fibulae had extensive new bone growth. The right fibula had the striated porous bone growth also, but it was slightly less organised than in the tibia, with frequent irregularly-shaped nodules of striated porous new bone. The bones of the feet also displayed the new bone growth, primarily the right first and fifth metatarsals. The distal end of the proximal phalanx of the right first toe appeared to be flattened, although it was fragmented and did not show any evidence of osteoarthritis. The bones of the left foot were highly damaged. The cause of these alterations could not be confidently stated, but a suggested aetiology that could inflict such changes could be a case of healing rickets. However, no other elements demonstrated bowing, as would be expected in a case of rickets, making this an unlikely culprit. It is possible that the new bone growth was the result of a foot injury or deformity.

Skeleton [369] (late Roman or later, within pit [117]) was very fragmented and estimated to be 25% complete. It was primarily composed of the lumbar vertebrae, the pelvis, the femora and upper tibiae. No demographic or pathological data could be retrieved from the very poorly preserved remains.

ANIMAL BONE

Matilda Holmes

Just 146 bones (articulated skeletons counting as 1) came from Roman contexts and 73 from medieval (Table 4). The post-medieval bones are not discussed, although this phase had a larger assemblage; details are in the site archive. Unfortunately, other than the articulated remains discussed below, the sample size for all phases was too small to make any significant interpretations of animal husbandry, diet or economy; the few details available are in the archive. However,

Table 4. Animal bone species representation (fragment count; articulated skeletons counted as 1)

Species	Roman	Medieval
Cattle	13	16
Sheep/Goat	6	14
Pig	1	1
Horse	9	1
Dog	13	
Rodent	1	
Total identified	43	33
Unidentified Large Mammal	58	15
Unidentified Medium Mammal	8	10
Unidentified Small Mammal	2	
Unidentified Mammal	34	15
Total	146	73

the evidence from the Roman assemblage does suggest that dogs were important in the ritual use of the site, as evidenced by their deliberate, isolated deposition in association with the human burials. The high incidence of burnt and calcinated bone in this phase may suggest that the other animals were present as a result of sacrificial offerings.

In all phases bones were present from all parts of the carcass, suggesting that there were no specific dumps of industrial or bone working refuse. Butchery (chop) marks were consistent with the dismembering of a carcass to make joints suitable for the table, and were found on cattle, sheep/goat and pig bones in the Roman phase, but sheep/goat only in the medieval assemblage. Notably, 15% of the Roman animal bone fragments had been burnt, but none of those from medieval contexts. The high percentage of burnt bones from Roman contexts may be indicative of specific processing taking place, particularly in relation to the apparent ritual nature of the site. Signs of canid gnawing were present in all phases.

Articulated skeletons

A number of articulated and partial animal skeletons were recovered (Table 5). The isolated articulated remains from Roman contexts, particularly the dogs and horse from contexts associated with graves,

Table 5. Articulated animal remains

Feature	Deposit	Date	Comment
Pit 124	284	?Roman	388 fragments from the partial skeleton of a puppy less than 6 months.
Grave 140	362	Early Roman	78 fragments from a horse left fore leg and torso from an animal over 42 months of age, and 12.3 hands high (von den Driesch & Boessneck 1974) (pony size). The animal showed signs of a pathological lesion on a rib, suggesting trauma to this area.
Grave 123	281	Late Roman	7 fragments from the head, front leg and torso of a dog aged between 6 and 12 months.
Pit 111	192	Late Roman	24 fragments from a mature dog over 18 months old, measuring approximately 602mm at the shoulder (using indices from von den Driesch & Boessneck 1974)

possibly formed part of the ritual processes involved in the interment of the human skeletons in this area, as similar occurrences have been noted by Lauwerier (2004). However, the presence of complete dog skeletons is not unusual on Roman sites and such remains are noted countrywide, for example, from Wilcote, Oxon (Hamshaw-Thomas & Bermingham 1993), Dragonby, Lincs (Harman 1996), Chelmsford, Essex (Luff 1992), and Baldock, Herts (Chaplin & McCormick 1986). The dog found in the Roman pit [111] may be more likely to have been the result of domestic disposal, being discarded with other general waste.

PLANT MACROFOSSILS

Soil samples were taken from a range of deposits. Charcoal was also hand-picked from some contexts. No cereal or vegetable crops were represented, and charcoal was sparse and fragmentary. Roman and medieval samples contained only a few fragments of hawthorn/apple-type (Pomoideae) or oak (*Quercus* sp.) charcoal. Weed seeds were recovered from just four of the samples and included elder (*Sambucus nigra*), bramble

(*Rubus fruticosus*), black medick (*Medicago lupulina*), and nipplewort (*Lapsana communis*). These plants are all rural hedgerow, rough or wasteland-type species.

RADIOCARBON DATING

A single AMS radiocarbon determination was obtained by the University of Kiel on bone fragments from grave [106], skeleton [163] (Table 6). The dates were calibrated using the INTCAL04 curve (Reimer *et al* 2004). Details of methodology are in the archive: in summary, the result is considered reliable, although the amount of usable collagen was low and the error range is higher than normal.

CONCLUSIONS

Despite its limited extent, this small excavation has provided significant results for the understanding of the development of the local area, and of the hinterland of Roman, Saxon and medieval London more generally.

The latest Roman occupation in *Londinium* seems to have focused on the area later

Table 6. Radiocarbon dating

KIA35236: Bone, human burial 106 (163)		
Radiocarbon Age:	BP 1135± 55	δ ¹³ C(‰)-23.30 ± 0.19
	<i>Calibrated Ages</i>	<i>Probability</i>
One Sigma Range:	cal AD 784—786	1.4%
	826—840	4.8%
	863—985	62.2%
Two Sigma Range:	cal AD 774—1017	95.4%

occupied by the Tower of London (well to the south of this site, see Fig 1B). Nevertheless, even with the breakdown in organised town life in the later Roman period, it is likely that cemeteries would have continued to be located outside the walls, as required under Roman law. The present site would have lain about half a kilometre NE of the Roman walls — a location where a Roman cemetery might be predicted. The finding of late Roman burials in this location is thus not altogether surprising, and adds to the growing body of data for a large sprawling cemetery (or many smaller burial grounds dispersed over a large area) in this zone of modern London. It is of some interest, however, that the site was also used for early Roman burials, but nonetheless, was never entirely devoted to its cemetery function, as other features intervened (including quarrying) before the cemetery use was resumed. Also of some note is the relatively high proportion of continental imports amongst the (admittedly small) early Roman pottery assemblage: as the nature of the early Roman phase is poorly understood, however, the significance of this is unclear.

The finding of a Saxon burial, possibly two, was more of a surprise. A Saxon cemetery (or even as here, just two graves in a small area) overlying a Roman one is unusual. However, there is no question here of direct continuity, the better dated Saxon burial being 8th century, well after any sub-Roman influence, and the other having just one sherd of pottery. A similar, apparently unconnected, re-use is attested at St-Martin-in-the-Field (Westminster) where there was a 7th-century grave in the same burial ground as 4th- and 5th-century graves (http://www.museumoflondon.org.uk/English/aboutus/Newsroom/Archived07/St_Martin_release.htm). Tower Hamlets has almost no archaeological evidence for the Saxon period: a recent gazetteer (MoLAS 2000) lists just three metal finds from the river, a bead from Brick Lane, and two Viking spearheads from Shadwell. However, the site is close enough to the City to allow its Saxon evidence to be relevant too, and here Saxon evidence abounds. The middle Saxon town of *Lundenwic* lies well to the west, but there is evidence to suggest that parts of the old Roman walled town were re-occupied, even perhaps reasonably

systematically, before Alfred formally re-established it as a defended town (see Haslam, this volume). The site of a late Saxon church (St Botolph's without Bishopsgate) has been presumed to lie not far from the NW corner of the *Londinium* walls.

It is interesting that all the burials were oriented with the head to the W (except [281], head to the E), and some were certainly, [365], [367], or possibly, [366], within coffins (of which only the nails usually survived). This suggests they might have been Christians. They were generally unaccompanied by grave goods; exceptions seem to have included the forequarter of a horse and perhaps a pet dog. Early Christian burial was geared towards physical preservation of the body for imminent (physical) resurrection, and the combination of later disturbance followed by subsequent reuse as a burial ground is difficult to reconcile. There is little evidence for early Roman Christians in Britain, but it appears that the Church had been established by at least the early 3rd century, possibly earlier, and London would be the likeliest place to find any devotees of this imported eastern cult (Frere 1991, 321–2). However, a W–E orientation by itself may result from factors such as the alignment of plot boundaries in the area, and need not necessarily mean these burials were Christian, and again it is worth stressing that the early dating is far from secure.

Medieval features on the site amounted to domestic rubbish pits and perhaps more quarrying.

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