

NEW EVIDENCE REGARDING THE SOUTHERN END OF SAXON HAMWIC SOU 1332

By J I RUSSEL

ABSTRACT

The Archaeology Unit of Southampton City Council carried out a programme of archaeological fieldwork at The Deanery School, Chapel Road, Southampton SU 42671148 on behalf of Scott Wilson Ltd for Bellway Homes (Wessex), between 2003 and 2005. Prehistoric activity was found in the form of Neolithic and Bronze Age pottery. A field system may have been established in the late Iron Age and continued into the Roman period. Middle Saxon occupation was much in evidence with pits and three structures, one a post-built structure that had been consumed by fire. Local and imported pottery was found, some decorated. Evidence of iron-, copper-alloy- and silver working was recovered. The site occupied the southern edge of Hamwic, and analysis of the evidence from surrounding sites has thrown light on the nature of occupation at the south end of the town. An east-west road, now Chapel Road, seems to have been the southernmost Saxon street; the areas to the south of it were used for occupation. The street led east to the waterfront and occupation continued south from there along the shore. To the south of Chapel Road and west of the shore was lower lying land that was used for agriculture from the Saxon into the medieval periods. Examination of environmental evidence from pits and column samples suggests that this part of Hamwic was subject to occasional flooding in the Middle Saxon period and that the sea level eventually rose high enough for the area to be inundated by salt water, becoming saltmarsh in the early post-medieval period. Compared with the north end of the town the south edge of Hamwic seems sparsely occupied, despite its close proximity to the waterfront.

LOCATION, GEOLOGY AND TOPOGRAPHY

The Deanery School site was situated on low-lying ground on the flood plain of the river

Itchen, to the southeast of St Mary's church (Fig. 1). Geologically it lies on the 1st River Terrace Deposits (mainly gravel) (British Geological Survey, 1973) encountered at c1.30m OD at SOU 17 in the northern part of the development area. There are extensive spreads of brickearth above the gravel. The Ordnance Survey map of the area shows a spot height of 2.4mOD in Marsh Lane to the south of the site, but much of the land within the site boundary was higher, at about 3mOD. This raising of the ground happened during the second half of the 19th century when the area became railway sidings.

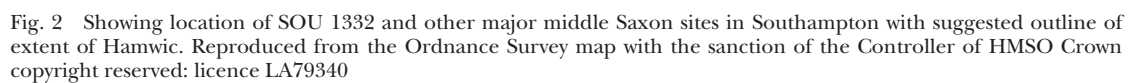
ARCHAEOLOGICAL BACKGROUND

The site lies at the southern end of Hamwic, a Middle Saxon trading port in existence from c650–850AD. Numerous excavations have been conducted in the area over the last 50 years (Fig. 2). Within the area of the Deanery School SOU 17 (Morton 1992, 96–100) had revealed pits dated to the Middle Saxon period and undated structural evidence, while SOU 655, in the eastern area of the current site, found no Middle Saxon evidence (Fig. 3). In 2000, an evaluation of the western area of the development site, SOU 1055, took place (Leivers & Russel 2000). Eleven trenches were excavated and evidence of Middle Saxon occupation was found in six trenches, being densest towards the north end of the site.

To the west of the Deanery various sites have been investigated (Fig. 2). At SOU 184, a number of pits and structural evidence dated to the Middle Saxon period was found (Garner & Brisbane 1984), together with evidence of iron smithing and textile making. At SOUs 254



Fig. 1 Showing location of the site. A in Hampshire, B in Southampton and C site location. Reproduced from the Ordnance Survey map with the sanction of the Controller of HMSO Crown copyright reserved: licence LA79340



(Garner 1990 & 1994), 823 (Garner 1997) and SOU 567 (Garner & Vincent 1997) evidence of a Middle Saxon cemetery was found, bounded to the west by a ditch, together with Middle Saxon and medieval occupation. Evidence of a medieval field system was also found.

To the north-east of the site excavations include SOU 14 (Morton 1992), and SOUs 952, 953, 954 and 956 (Russel 1999a–e) (Fig. 3). At SOUs 952 and 953 and in the southern half of 956 no Middle Saxon evidence was recovered and marsh deposits were encountered. SOU 1083 (Mead & Russel 2001) and SOU 1240, (Ellis & Andrews 2006) (Fig. 2) both produced Middle Saxon occupation and showed that the Middle Saxon settlement was concentrated towards Chapel Road and thinned southwards. At SOU 1083 evaluation trenches found pre-historic, Roman, Middle Saxon and medieval evidence, including a medieval field system, but the Middle Saxon evidence was slight. SOU 1240 revealed Middle Saxon evidence in the form of 22 post-holes and 56 pits. Although no structures could be identified in the distribution of the post-holes (Ellis & Andrews 2006, 90) they were clustered towards Chapel Road in the northeast corner of the site. Overall, much of the site can be considered a liminal space in the Middle Saxon period, with indications that it was used for pasture at times. On the east side of Paget Street, Middle Saxon occupation was found in abundance with a number of pits being found at SOU 986 (Russel 1999) (Fig. 3).

On the northeast edge of Hamwic, the opportunity to undertake large scale fieldwork was presented by the construction of the new St Mary's Stadium on the site of the former Southampton gas works (Fig. 2). Archaeological work – which uncovered an area of some 1.25ha – was conducted on the site between late 1998 and summer 2000. The most important discovery was that of an early Middle Saxon cemetery dating to the late 7th and early 8th century AD, which included both 26 well-furnished inhumations and 18 cremation burials. The cemetery had first been discovered during excavations at SOU 20 in 1975, which produced two weapon-burials (Stoodley 2005, 75). The rite of cremation, which previously was thought to have ceased by the end of the 6th century, alongside the rich graves of appar-

ently high-status men and women, has led to speculation that the earliest inhabitants of Hamwic were an elite Jutish group, predating the arrival of the Saxons in 686 AD (Stoodley 2005, 190–92).

From the later period of Hamwic's development, the St Mary's Stadium project revealed a further street, at least ten buildings and more than 400 pits as testament to the rapid expansion of the town during the 8th century. There was also evidence of its importance in trading as "a relatively high proportion (approximately 25% by weight) of imported pottery was present, perhaps reflecting a combination of the site's proximity to the waterfront and the presence of foreign traders" (Birbeck *et al.* 2005).

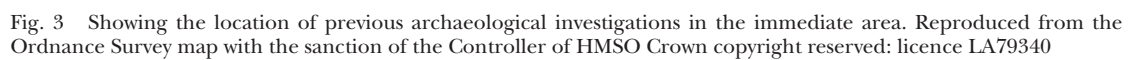
DOCUMENTARY AND CARTOGRAPHIC BACKGROUND

The development is bounded on the south by Marsh Lane, also known in the Late medieval period as Crampe Lane (Davies 1883, 52), possibly derived from *crempe*, Middle English for 'to draw in', suggesting a narrowing or hemmed-in way. In the medieval period this thoroughfare formed the northern edge of the common field known as the Marsh or the Saltmarsh. The Saltmarsh (or perhaps just part of it) was given to Southampton's Gods' House Hospital by the burgesses in the late 12th century (Kaye 1976, 128). Further to the east, near Cross House, was a further portion of saltmarsh known as the Little Marsh (Davies 1883, 53). To the north of the marshy area lay dry land; a deed of exchange dated 1278 refers to a field in the area as St Andrew's Croft.

The term 'Deanery' was applied to the development area in the 18th century. Before then it was known as the Chantry (Davies 1883, 336) and is shown as such on Speed's map, published in 1611, as a walled area with range of buildings, a courtyard and gatehouse and associated fields.

RESULTS

Eight trenches were excavated as part of SOU 1332 (Fig. 4). Trenches 2, 3, and 4 produced no



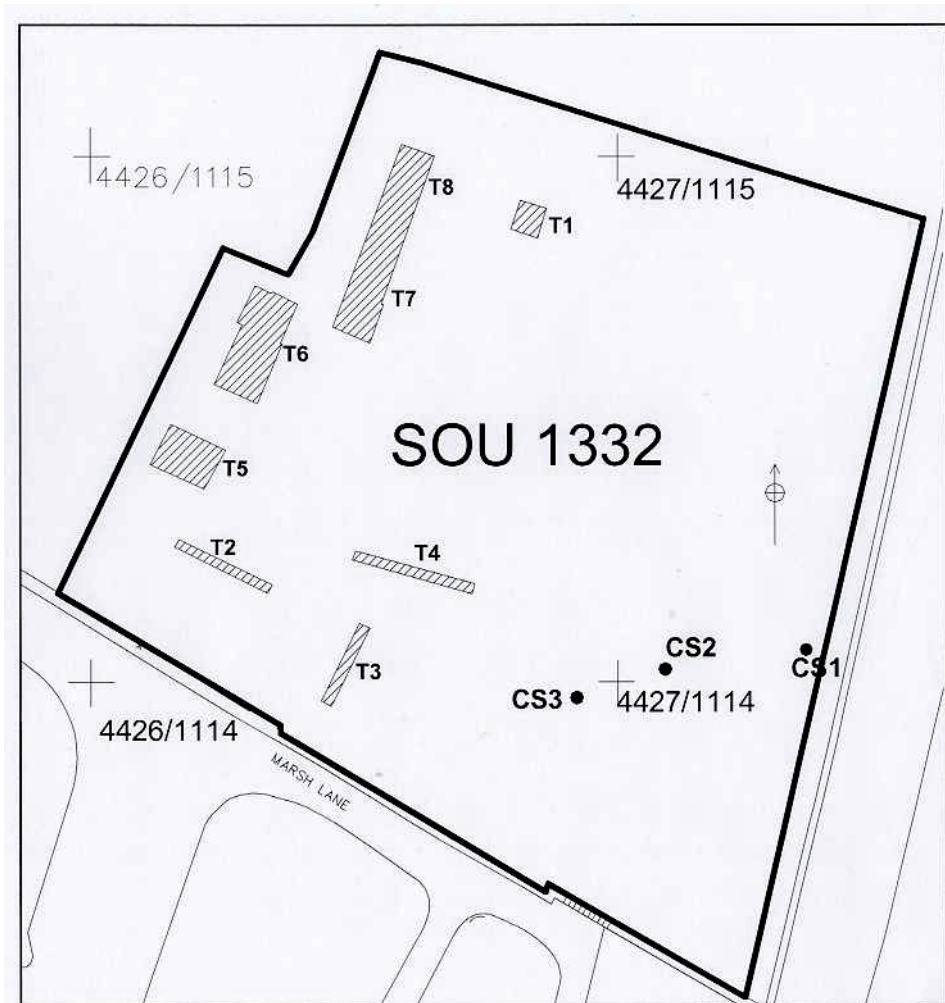


Fig. 4 Showing the location of the trenches and column samples. Reproduced from the Ordnance Survey map with the sanction of the Controller of HMSO Crown copyright reserved: licence LA79340

Middle Saxon evidence and appear to have lain outside Hamwic. The Middle Saxon evidence will be presented here, with some discussion of later activity. Details of all periods will be found in the archive which will be held by Southampton Museum. It has been possible to divide the Middle Saxon occupation into four phases.

Phase 1: pits, Structure 1 and Structure 2

The pottery evidence suggests a date around AD 700 for this phase. Three pits, 55, 39,

and 41 were found in Trench 1. Pit 55 was a shallow, circular, dish-shaped feature with an uneven base, which cut prehistoric ditch 085. It was 1.78m in diameter and 0.12m deep, and contained much animal bone and three sherds of imported Middle Saxon pottery. Previous excavators of Hamwic have suggested that many of the pits were first dug to quarry brickearth to make daub, and then used for a secondary purpose (Andrews 1997, 179). This pit was shallow and showed no signs of being used as a cess pit so it may have been primarily dug to

quarry brickearth for the purpose of making daub. The animal bone in the fill suggests its secondary purpose was for disposal of domestic waste.

Pit 39 was a roughly circular feature 1.49m in diameter and 0.44m deep with steeply sloping sides. It contained three charcoal-rich fills that included daub and burnt flint. The pit showed no evidence of having been used for the disposal of cess or domestic/industrial waste, so it had also probably been used as a quarry for brickearth. Pit 41 was seen only in section. It was 0.63m wide and 0.17m deep, with steeply sloping sides and a flat base. It contained no finds.

In Trench 6 four pits of Phase 1 were found: 181/187, 203, 215, and 270 (Fig. 5). Most were cut by later Middle Saxon or medieval features. All contained degraded animal bone, Middle Saxon pottery and burnt flint.

Pit 181/187 was a sub-circular feature 2.66m long by at least 1.96m wide by 0.62m deep, with near vertical sides and a slightly dished base. It contained burnt flint and daub, two sherds of Middle Saxon flint-tempered pottery, four sherds of sand-tempered Middle Saxon pottery and a loomweight fragment. Residual Roman pottery and Roman brick were also found. A soil sample from the lower fills contained cess, with fragments of bone including crushed fish vertebrae, showing that the pit was used for the disposal of excrement. This pit was probably originally intended as a cess pit. The small amount of pottery and the loomweight fragment suggest debris from a house floor was also disposed of.

Pit 203/291/519 was a shallow, slightly oval-shaped pit measuring 2.57m by 2.14m by 0.32m deep. It was dish-shaped with a flat base (Fig. 6). It contained bone, Middle Saxon pottery in organic-tempered and sand-tempered fabrics, and a fragment of glass of unidentifiable form. The pit was shallow and extensive which suggests that it may have been dug to quarry brickearth, although later on it seems to have been backfilled with domestic rubbish.

Pit 215 was a sub-rectangular pit measuring 1.80m by at least 1.03m and was 0.93m deep. It had near-vertical sides and a flat base (Fig. 7a). It contained three sherds of sandy Middle Saxon pottery, bone, burnt flint, a piece of iron

smithing hearth bottom, a possible craft tool (item 15), and eight fragments of a German lava quern. A soil sample yielded fly pupae, fish bones and cess, suggests that the pit was dug as a cess pit to which other waste was added.

Pit 270 was an irregular-shaped pit, measuring 1.06m by at least 0.62m and at least 0.37m deep, with steeply sloping sides. It contained two sherds of sand-tempered, and one sherd of organic-tempered Middle Saxon pottery, an iron smithing hearth bottom, animal bone, daub, and a ceramic loomweight.

The Phase 1 pits in Trench 7 were 305, 307, and 311. All could have been originally dug for brickearth although later used for rubbish disposal. Pit 305 was a sub-rectangular pit which measured 1.70m by at least 1.47m and was 0.97m deep. It had near-vertical sides which flared slightly at the top and it had a slightly uneven flat base (Fig. 7b). The primary fills contained daub, animal bone, charcoal, and plant material. The pit seems to have been backfilled with domestic rubbish and was later cut by the post-holes of Middle Saxon Structure 3.

Pit 307 was a sub-circular pit which measured 1.53m by at least 0.96m and was 0.86m deep. It had irregular, near vertical sides, the western edge sloped outward more than the rest (Fig. 7c). Its primary fills contained an unusual iron pin, item 29, with a spherical glass head (Fig. 11b), the first such artefact from Hamwic, as well as bone and charcoal. The pit was cut by the post-holes of Structure 3. It seems to have been backfilled with domestic rubbish, the pin presumably being included accidentally.

Pit 309 was a sub-circular, shallow pit measuring 1.54m in diameter and 0.42m deep. It had steeply sloping sides and a flat base. Its primary fills were rich in charcoal and burnt brickearth pieces. Above the primary fills was a 180mm thick fill of redeposited brickearth containing a single sherd of sand-tempered Middle Saxon pottery, suggesting that when the pit went out of use it was deliberately backfilled. Fill (579) was cut by pit 633 (Middle Saxon Phase 2), and was overlain by deposits associated with Structure 3 (Middle Saxon Phase 3). The charcoal and burnt brickearth from its primary fills suggest it was used to dispose of fragments of a burnt structure.

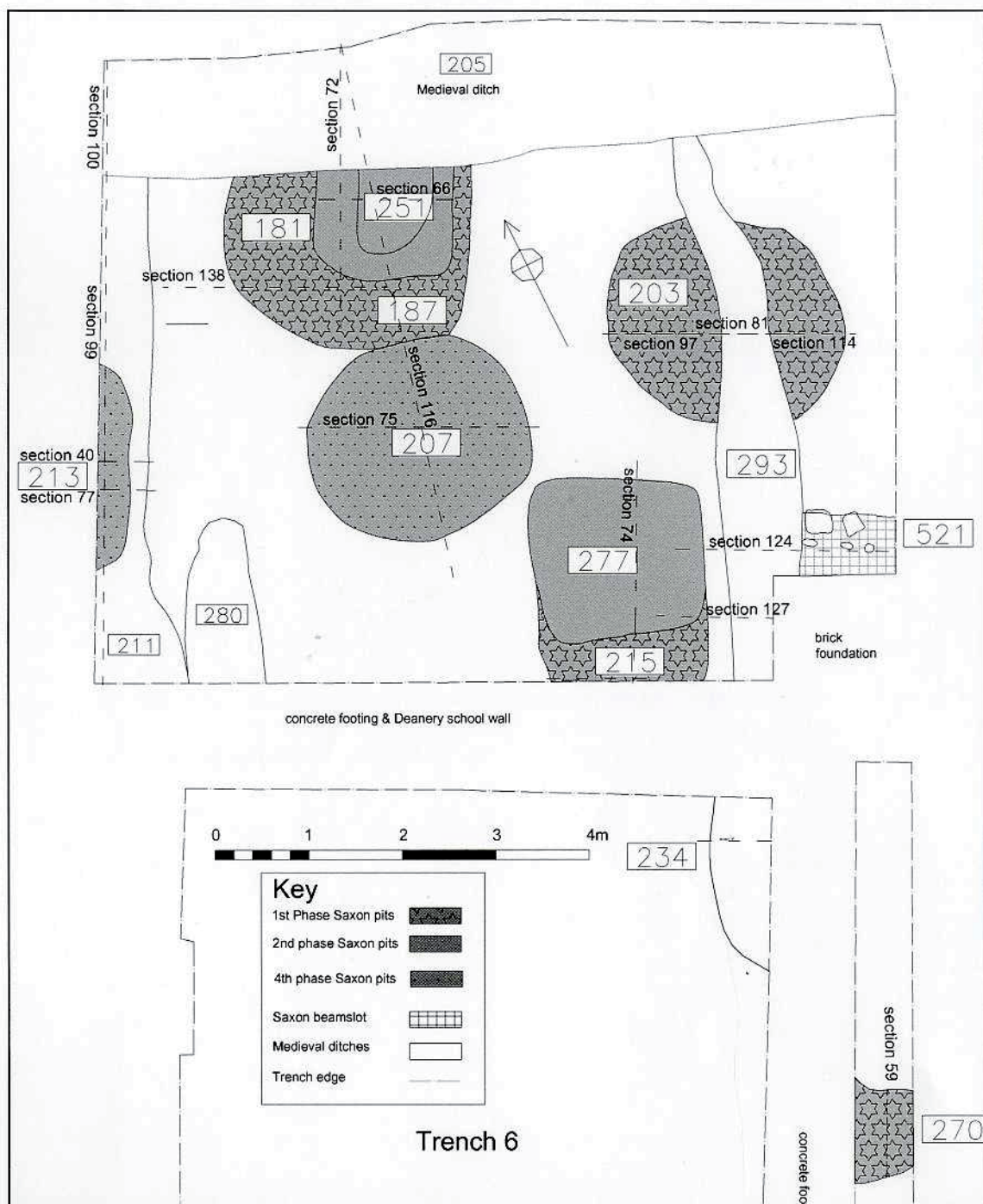


Fig. 5 Post-excavation plan of Trench 6 showing Saxon pits, the beamslot of Saxon Structure 1 and later ditches



Fig. 6 Photograph of ditch 293/542 cutting pit 203/519 in Trench 6

Pit 311 was a circular pit 1.49m in diameter, 0.52m deep and bowl-shaped with a gently curving base (Fig. 7d). It contained a fragment of a glass funnel beaker or palm cup rim, item 19, with white reticella decoration (Fig. 11a). The pit fill was cut by a post-hole of Structure 3. The purpose of this pit is not clear.

A group of stake-holes have also been placed in Phase 1 (Fig. 8a). The nine stake holes, which did not form any discernable alignments, were found at the southern end of Trench 7 beneath a layer of disturbed 'dirty' brickearth, 346, which was cut by Middle Saxon pits 305 and 307.

Structure 1

Structure 1 consisted of a beamslot with a number of post-holes (Trench 6, Fig. 5). The

beamslot (521) measured at least 630mm wide by 1.16m long and was 100mm deep. It contained only burnt flint. The beamslot cut a line of two square post-holes and a parallel line of three stake-holes. These post-holes and stake-holes were revealed when the fill of the beamslot was removed, suggesting that the smaller features were the original supports for the building; the beamslot representing a repair or replacement that had partially removed the earlier features. The west end of the beamslot had been removed by medieval ditch 293. Although no artifacts were recovered, this structure has been dated to the Middle Saxon period by its construction technique. Post-in-trench and beamslot construction are a common technique in Hamwic. Of the sixty eight buildings identified at Six

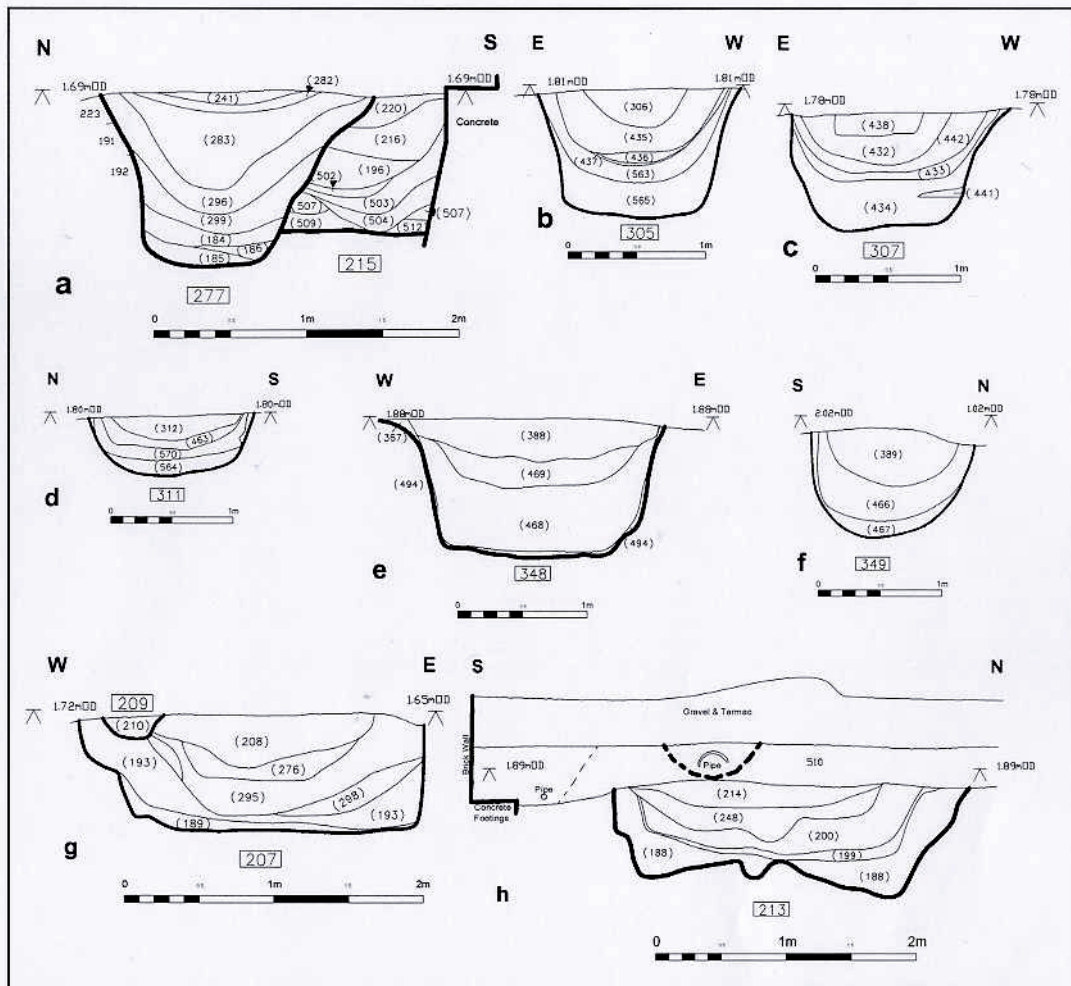


Fig 7. Selected sections

a) Pit 277 cutting pit 215 (section 74 Figure 5). b) Pit 305 (section 160 fig. 8a). c) Pit 307 (section 131 fig. 8a). d) Pit 311 (section 163 fig. 8a). e) Pit 348 (section 164 fig. 9f) Pit 349 (section 155 fig. 9g) Pit 207 (section 75 fig. 5h) Pit 213 (section 99 fig. 5).

Dials twenty four used such construction techniques (Andrews 1997, 52–53).

Structure 2

Structure 2, found in Trench 7, consisted of eleven post-holes (Fig. 8b) that defined an area 2.7m wide by at least 3.5m long. The postholes had very different fills from the daub and charcoal-rich fills of the post-holes that formed Structure 3 which lay in the same area. There were six brown-soil-filled post-

holes which formed a tight group, and five gravel-filled post-holes surrounding the soil-filled group. These postholes appeared to form a structure around shallow pit 309 which contained much burnt material. The full size and layout of the structure is unclear, but it appears to have been of two separate phases. Both pit 309 and some of these postholes were cut by the postholes of Structure 3. This structure, to judge by its size and nature, fits into Andrews' category of sheds/shelters, often

with open sides, of which five were found at Six Dials (Andrews 1997, 53).

Phase 2: pit digging

Phase 2 dates to the first half of the 8th century and consisted of four pits. Pit 59 was in Trench 1. It was 0.18m deep and had one fill which contained no finds. In Trench 6 there were two Phase 2 pits (Fig. 5). Pit 277/194 was sub-square/trapezoid in shape with a length of 1.85m, and a width of 1.80m, narrowing to 1.56m at its eastern end. It cut Phase 1 pit 215 and was 1.16m deep (Fig. 7a). The lower part of the pit had near vertical sides, the upper part sloped less steeply, and the base was slightly rounded in profile. The pit contained daub, two German lava quern fragments, and a fragment of sarsen, possibly used as an anvil (item 24). The lava quern fragments may have been redeposited from Phase 1 pit 215, the only other Saxon feature to produce such finds. Three iron objects included a fragment of an angled-back knife (item 6). The pottery consisted of sand-tempered and imported Middle Saxon sherds. This pit is unlikely to have been a brickearth quarry pit as it was cut through earlier pit fills. It may have been used to dispose of domestic rubbish, if so no bone or shell survived. The lava quern fragments, sarsen, and Roman brick may have been hearth stones but none showed signs of burning.

Also in trench 6 was pit 251/249, a shallow, sub-rectangular, dish-shaped pit with an irregular base, measuring 1.46m by at least 1.21m and some 340mm deep. It contained daub, two sherds of sandy Middle Saxon pottery, and an imported Middle Saxon sherd. This pit was cut entirely into earlier pit fills (of pits 187 and 181), so it clearly had not been dug to gain brickearth. Neither did it seem to contain much domestic waste leaving its purpose uncertain.

In Trench 7 pit 633 (Fig. 8a) was a sub-circular pit 1.24m in diameter and 0.41m deep, with near vertical sides and a flat base. It cut pit 309 of Middle Saxon Phase 1, and was itself cut by the post-holes of Structure 3 of Middle Saxon Phase 3. No finds were recovered.

Phase 3: Structure 3 and its associated features

In Trench 7 a large number of post-holes delineated a post-built structure (Fig. 9). Two pits, 348, and 349, and a hearth 358, were associated with it. The pottery evidence suggests a date in the mid-8th century.

Twenty nine post-holes have been interpreted as the three sides of a building 10.75m long and at least 4.11m wide. The south, west and north walls were present, with the eastern wall thought to lie beyond the east edge of the excavation. Seventeen post-holes formed three internal walls, dividing the structure into four compartments with widths, from the south, of 3m, 3m, 2m and 1.6m.

The post-holes of the building cut the fills of pits 305, 307, 309, 311 (all Middle Saxon Phase 1), and pit 633 (Middle Saxon Phase 2).

Many of the post-holes were double post-holes, having two holes conjoined or separated by only a few centimetres. These might indicate repair or a technique where the wall members passed between two posts. Nearly all of the post-hole fills contained abundant charcoal (mostly oak with some hazel) and most contained burnt clay or daub fragments with fragments of burnt flint. In several places the natural brickearth was burnt around the post-holes, which suggests that the building burnt down. Post-holes 352, 362 and 376 all contained bone, whilst post-hole 362 contained a sherd of imported Middle Saxon pottery. Post-hole 376 contained another sherd of an imported vessel, together with a sherd of locally made mixed-grit-tempered pottery.

A single post-hole 652, fill (643), situated well to the north of the building and truncated by the medieval ditch 303, was the only other post-hole in Trench 6. This post-hole has been phased with Structure 3, although it was not necessarily associated with it.

Much daub was recovered from the post-holes and other nearby features. Analysis of the daub fragments showed that the daub had been applied to a wattle substructure formed from woven rods. These appeared to have been of two sizes: thinner rods of 10mm to 14mm in diameter, woven around larger rods of 17mm to 25mm in diameter. In some cases

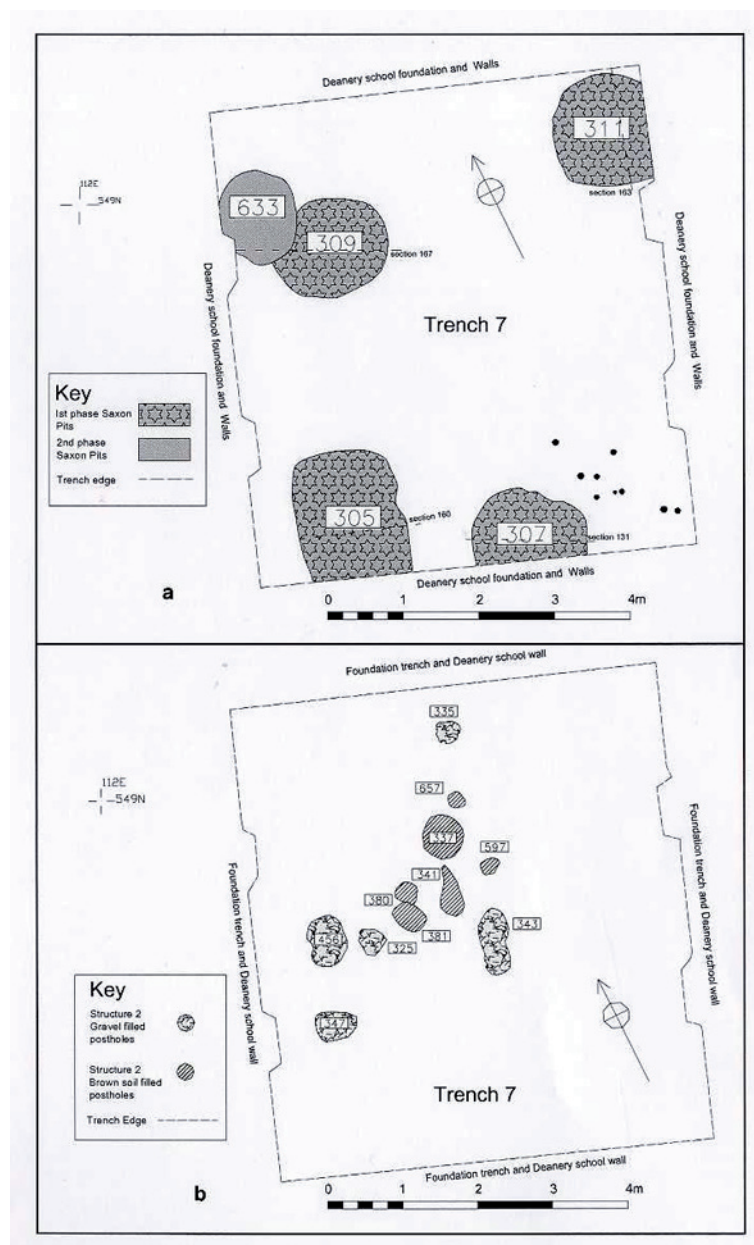


Fig. 8 Plans of the southern end of Trench 7. a) showing Phase 1 & 2 Saxon pits and stakeholes. b) showing Structure 2

it appeared that the thinner rods were woven in pairs. Two of the largest pieces of daub showed flat surfaces meeting at a right angle or a near right angle, these perhaps came from the edges of individual panels where the daub

met the uprights or cross members. If so the uprights or cross members were timbers with flat surfaces, not rough rounded poles.

The fills of the post-holes all contained large amounts of charred plant remains including

Table 1 Radiocarbon dates from SOU 1332

<i>Lab no</i>	<i>context</i>	<i>BP</i>	<i>Calibrated age range – 95 %</i>	<i>Sample type</i>
WK 21732	Fill 324 of post-hole 323	1263 ± 28	660–860AD	Hazel charcoal
WK 21731	Fill 334 of post-hole 333	1236 ± 28	680–880AD	Barley
WK 21733	Fill 330 of post-hole 329	1190 ± 28	720–950AD	Barley

wheat, barley and occasional oat grains (see Gray below), suggesting that the building was being used to store grain when it caught fire.

Barley grains from post-hole 329 (SS 44) and post-hole 333 (SS 40), together with hazel charcoal from post-hole 323 (SS 42) were sent for radiocarbon dating to Waikato University. The results (per Stuiver & Polach 1977) and based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied, were as follows (Table 1):

Within the northern part of Structure 3, Pit 348 (Fig. 9) was roughly square and measured 1.91m by 1.73m by 1.09m deep. It had vertical sides flaring at the top and a slightly uneven, flat base 9 (Fig. 7e). Its primary fill was 494, a thin layer of silt. This was sealed by fills (468), (469), and (388), which were all rich in charcoal and daub and have been interpreted as the burnt debris from building's destruction. Fill 388 had built up around the bases of the posts that supported the house, showing that the pit had been dug after the house was built and that the edge of the pit had eroded back to the posts. The fills contained 13 sherds of imported Middle Saxon pottery, animal bone, and four fragments of iron smithing hearth bottoms (see Appendix 7).

The pit would seem to have been empty until filled with debris from the burnt building and is interpreted as an internal storage pit. There was no sign of a covering, or supports for one.

Hearth 358 (Fig. 9) was a shallow, circular, dish-shaped feature within Structure 3, situated within the second compartment from the northern end of the building. It was 1.00m in diameter and 0.14m deep, and was completely filled with burnt flints (423).

Pit 349 was situated outside the building (Fig.

9) and may have been a rubbish pit associated with the use of Structure 3. It was a sub-circular pit measuring 1.40m by at least 0.99m and 0.90m deep. It was bowl-shaped with a rounded base (Fig. 7f). Its primary fill (467) contained animal bone, Roman brick and one sherd of Middle Saxon imported rouletted pottery. The secondary fills, 466 and 389, contained an iron clench bolt (item 12), daub, a fragment of stone, a fragment of sawn antler and one of the few oyster shells from the site. Fill 389 included two sherds of mixed-grit and a sherd of imported pottery. The upper fills contained charcoal and burnt plant remains, probably carried into the ground by bioturbation. Only one fragment of daub was recovered suggesting the pit been backfilled before Structure 3 burnt down.

The upper part of the brickearth in the area of the structure contained quantities of charcoal, probably derived from the burning of Structure 3 and carried down, by bioturbation, into the natural. Two gravel layers that had slumped into the Phase 1 pits 307 and 305 may have been a yard surface to the south of the building.

The upper (secondary) fills of most of the Middle Saxon Phase 1 and Phase 2 pits in the vicinity of Structure 3 consisted of deposits of burnt daub and charcoal. These deposits are interpreted as the remains of a layer formed by the destruction of Structure 3. This layer slumped into the pits as the organic component of the original fills decomposed, thus reducing the volume of space occupied by the original fills. Later truncation of the site, probably by ploughing in the medieval period, has removed this once widespread collapse deposit so that it survives only in those areas where it

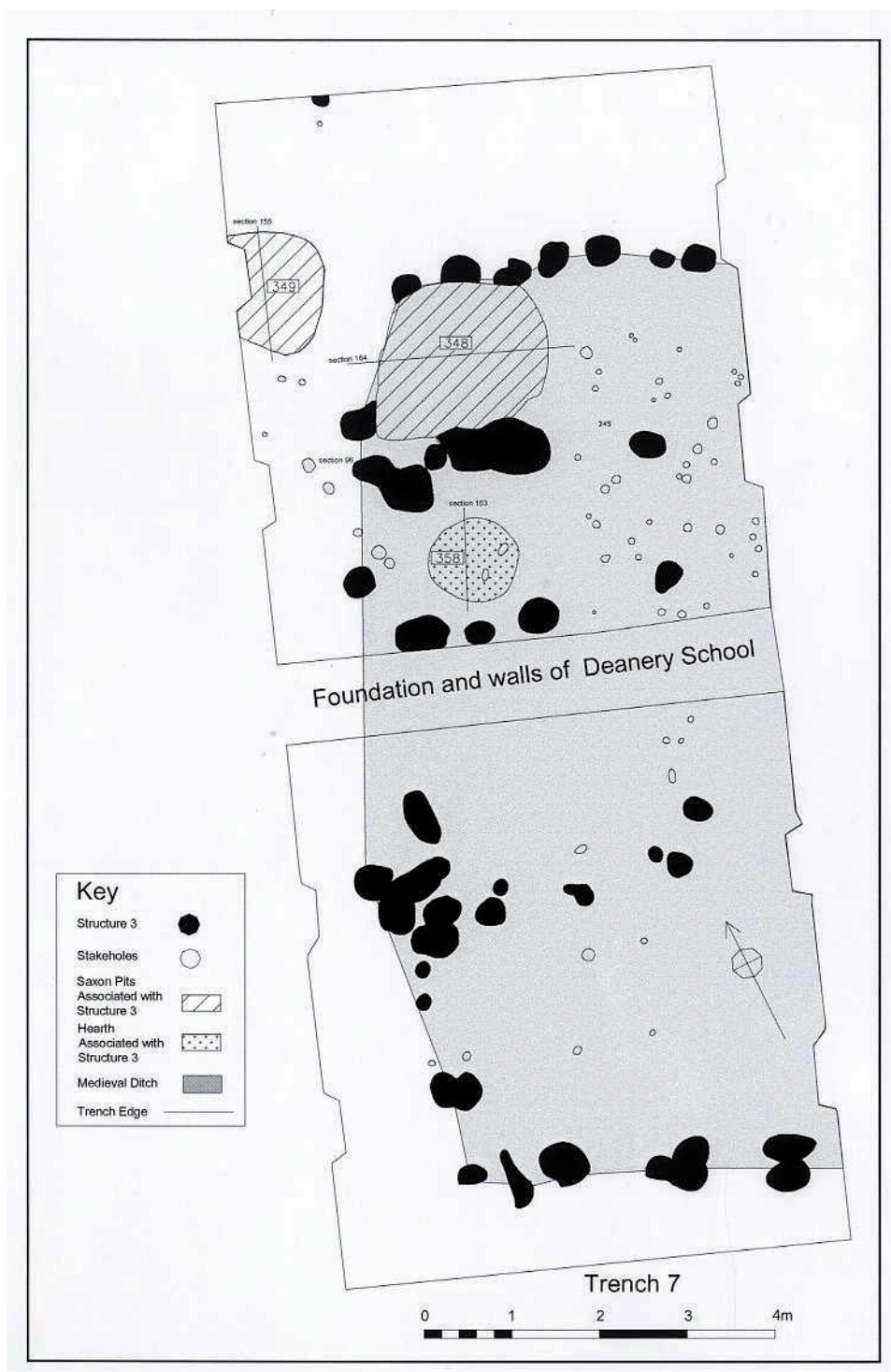


Fig. 9 Structure 3, its associated pits, hearth and stakeholes

had slumped below the level of the brickearth surface.

The secondary fills (306, 435 and 436) of Phase 1 pit 305 (Fig. 7b) also contained a fragment of loomweight, a fragment of Roman pilae tile and 3 iron smithing hearth bottoms. The 20 pottery sherds included 13 imports with 11 from a rouletted jar, three organic-tempered sherds, and four sand-tempered sherds. A sample of soil from fill 306 contained well preserved pollen (see Scaife below), showing the environment was dominated by grassland at this time.

The secondary fills of Phase 1 pit 307 (308, 432, 442 and 438) (Fig. 7c) also contained Middle Saxon pottery. The pottery included 12 imported sherds, together with one densely-tempered organic sherd in the Early Saxon tradition, and two in the flint-tempered fabric normally seen as an indicator of late Middle Saxon occupation. Pollen in fill 432 showed that grassland was dominant although elm made a significant contribution (see Scaife below).

The fills of pit 309 were cut by the post-holes of Structure 3. Around the post settings was a deposit of burnt material, thin spreads of soil 449, 448 and 310, all marked by burnt and unburnt brickearth pieces, charcoal, and daub, which had slumped into the upper portion of the earlier pit. Fill (449) also contained burnt cereal grains.

The secondary fills of pit 311 consisted of 312, 463 and 570 (Fig. 7d). These contained hearth lining, slag, iron smithing hearth bottoms, charcoal and charred plant material, animal bone and ten sherds of sand-tempered pottery.

The fragments of hearth bottoms in pits 305, 311 and 348 are indications that iron smithing had taken place nearby, but hammer scale was not recovered from the environmental samples taken from this trench, suggesting that iron working had not been practiced in the building.

Stake-holes

The area of Structure 3 was scattered with a large number of stake-holes (Fig. 9). Some possible alignments could be seen but there were so many stake-holes and post-holes

that many alternatives could be proposed. Although it is impossible to know exactly why so many stake-holes were required, possible activities that may have caused their formation include the erection of screens, the temporary zoning of space for particular activities and the temporary supports for looms or other craft equipment.

Phase 4: two pits with metal working evidence

Two adjacent pits in Trench 6, pit 207 and pit 213 (Figs 5, 7g and 7h), had upper fills rich in charcoal and both contained crucible fragments. Both pits also contained mixed-grit pottery, which is considered to be a marker for later occupation in Middle Saxon Hamwic (Timby 1988, 114). A date in the second half of the 8th century is suggested.

Pit 207 was sub-circular, 2.36m in diameter and 0.77m deep with vertical sides, except on the west where it was stepped, and a flat base (Fig. 10). It cut prehistoric ditch 540 and the edge of Phase 1 Middle Saxon pit 181/187. It contained a number of fills. The lowest fill (189) contained daub and a rim fragment of greenish glass (item 8) from a funnel beaker or palm cup. The inward folded rim of this sherd suggests a late date in the Hamwic sequence. The upper fills, (276) and (208), were charcoal-rich with daub and much pottery (106 sherds) including four stamped and grooved sherds of mixed-grit-tempered pottery (Fig. 11a). In addition, the pit produced two fragments of loomweight, a piece of Roman brick, a fragment from a pair of tweezers with ring-and-dot decoration (Fig. 11b), an iron stud, three fragments of a copper-plated iron object, a piece of copper alloy scrap, iron slag, iron stone and flint flakes. Fill (276) contained hearth lining and a crucible fragment that had been used to melt copper alloy. A sample of soil from (276) was analysed for pollen. It suggested an environment dominated by grassland but with hazel and alder, together with sedges from a wetland area.

The contents of this pit suggest a gradual filling with soil, followed by a more rapid filling with waste from metal-working, with both iron and copper working evidenced by iron slag, hearth lining and the crucible fragment. The

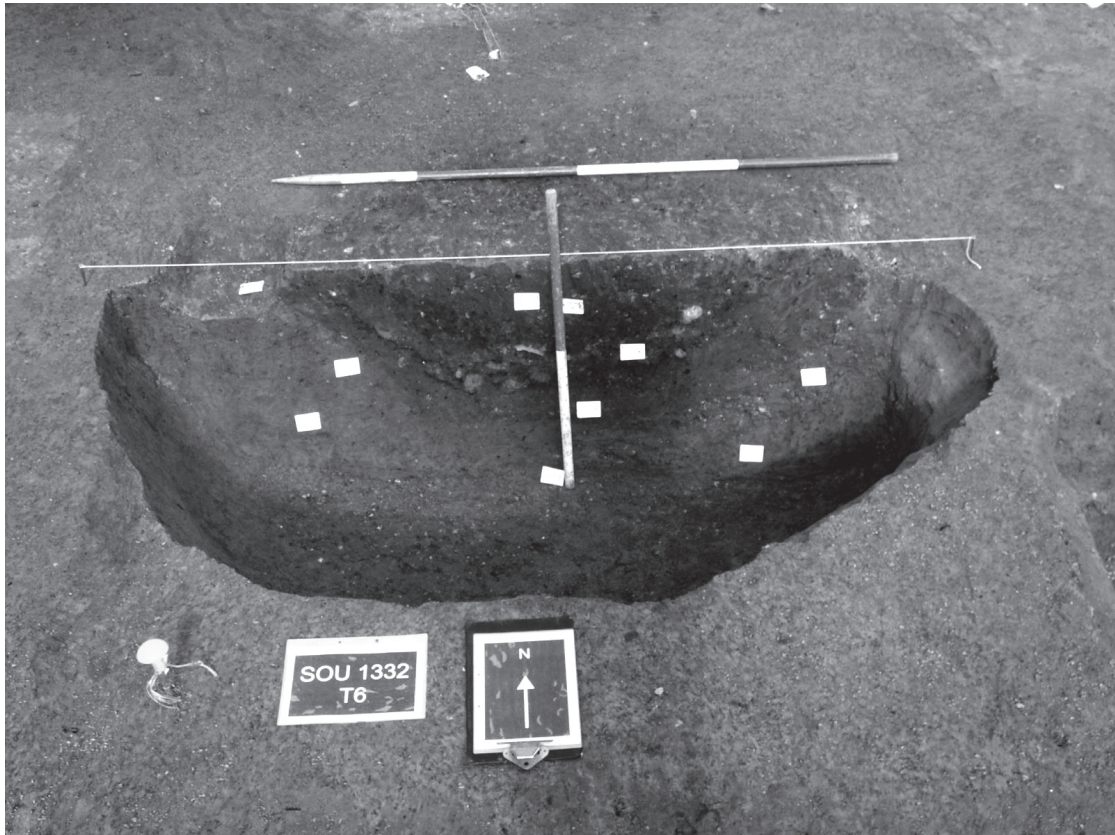


Fig. 10 Photograph of section through pit 207

metal objects, one iron, one copper alloy and one of iron plated with copper alloy could have been products of this activity, while the fragment of copper alloy was probably scrap awaiting re-melting. The ironstone could have been a raw material for smelting, but there was no evidence to link it to that process.

Pit 213 was sub-square measuring 2.28m north-south and 0.57m deep, although most of it lay beyond the limits of the excavation (Fig. 5). It had steeply sloping irregular sides and an undulating convex base (Fig. 7h). It contained fills (188), (199), (200), (214), and (248). Fill (200) produced a sherd of sand-tempered pottery. Fills (214) and (248) contained daub and (248) a crucible fragment (Fig. 11) that had been used to melt silver. The soil adhering to the crucible fragment contained detectable

levels of copper, zinc, tin, and lead, indicating that it was not only silver that was being worked. The uppermost fill (214) produced four sherds of mixed grit-tempered pottery.

Post-Middle Saxon activity

Following the abandonment of Hamwic there is no evidence of occupation until the post-medieval period. During the medieval period a series of ditches formed a grid pattern across the site, running either north-south or east-west and they have all been interpreted as part of the same medieval field system. Ditches on similar alignments have been found to the north and east. Sherds of medieval pottery and West Country roof slate from the fills suggest that these fields were manured with refuse

from the local settlements, and that the field system was in existence in the Anglo-Norman period AD1066–1250. The medieval field system went out of use by the 18th century. The ditches silted up and were sealed by a soil layer. By the 19th century, maps show a series of large ponds, apparently associated with the Chantry/Deanery and these were encountered in trenches 1, 7 and 8. The ponds were filled with soil and artifacts which included evidence of kitchen gardening activity in the form of fragments of 18th–19th century forcing bells, and fragments of rubbed bricks from a window head, possibly of the 17th or 18th century.

THE SAXON ARTIFACTS

The worked stone by A D Russel

Eight fragments of lava quern were found in Phase 1 pit 215, with a further two from Phase 2 pit 277 which cut it. Fifteen further fragments were residual finds in medieval field ditches. The quern fragments are all German lava, probably from the Mayen-Niedermendig area of the Eiffel Hills region. These are the most common type of quern found in Hamwic, and they also found in such places as London, Lincoln, Winchester, and York (Goffin 2003). They are in poor condition, being very fragmented and show no diagnostic features.

The stone rubble was mostly limestone and undiagnostic. It was perhaps collected from the site of nearby Roman Clausentum or else brought by the Saxons from elsewhere. A fragment of Bembridge limestone was found used as packing in slot 360 of Structure 2. Another piece of Bembridge limestone, burnt, was found in the base of Phase 3 pit 349. A piece of sarsen (item 24) was recovered from fill (501) in Phase 2 Pit 277. One surface bore a number of chop and scuff marks; it may have been used as an anvil.

Two fragments of ironstone were found in fill (208) of the Phase 4 pit 207.

The daub by P Cottrell

A total of 1114 fragments were collected, weighing 10,036g. Most of the daub was asso-

ciated with the Phase 3 Structure 3 in Trench 7. Of the 990 fragments associated with the building 85 showed wattle impressions, a smoothed surface, or both. The methodology used to make the wattle walls is very similar to that used on the buildings excavated at the Royal Opera House site in London (Malcolm *et al.* 2003, 152). The rods used there were slightly thicker, small rods 12–16mm in diameter, with the larger being 20–35mm, some associated with flat timbers.

The pottery by A D Russel

Middle Saxon

A total of 261 sherds weighing 3266g was recovered. Individual sherds were allocated fabric groups and fabric numbers from the Southampton type series, after Timby (1988). By this means the amounts of the different pottery fabrics from SOU 1332 can be compared with the larger Timby study (Table 2).

Local wares (each fabric will be discussed in turn)

Organic-tempered. Organic-tempered pottery formed 7% by weight of the assemblage studied by Timby, and she considered it to be a marker of early occupation. On this site it forms 3.9% of the Middle Saxon pottery. Of the stratified sherds one sherd, from context (442) was densely-tempered with organic material recognisable as chaff fragments and cereal grains, probably from horse dung. This is in the Early Saxon tradition, but it was found mixed with the burnt debris of Structure 3 in Saxon Phase 3. It may have been residual. Most of the organic-tempered sherds were in fabric 11, exhibiting small amounts of organic material, and thought to be a later tradition, perhaps mid- to late-8th century (Timby 1988, 111–112). Fabric 11 is in fact the sand-tempered fabric 12 with the addition of very small amounts of organic matter, possibly accidental, and it may be best to consider it a sand-tempered fabric, rather than an organic-tempered one. Sherds of this fabric were present in Saxon phases 1 and 3.

Chalk-tempered. No chalk-tempered sherds were recovered, despite this fabric forming 15% of the Timby study. Timby considered the chalk-tempered wares to be an indicator

Table 2 Quantities of pottery fabrics from SOU 1332, compared with Timby's study of Hamwic as a whole

<i>Timby Group</i>	<i>Timby Identifier</i>	<i>No of sherds from SOU 1332</i>	<i>% of assemblage at SOU 1332 by number</i>	<i>% of Timby study by number</i>	<i>Weight of sherds from SOU 1332 in grams</i>	<i>% by weight in SOU 1332 assemblage</i>
1	Organic	16	3.2	7	128	3.9
2	Chalk	0	0	15	0	0
3	Sandy	93	35.6	29	1203	36.8
4	Mixed grit	75	28.7	27	913	27.9
5	Shelly	0	0	1	0	0
6	Flint	4	1.5	2	61	1.9
7	Calcite	0	0	<1	0	0
8	Igneous	0	0	<1	0	0
9	Imported	73	27.9	18	961	29.4
Total		261			3266	

of mid-Middle Saxon activity, from AD 750 to AD 850. The absence of this fabric suggests the occupation of this area may have ceased by AD 750.

Sand-tempered. The sand-tempered pottery formed the largest ware on the site, at 35.6%. Timby considered the sandy wares to be early in the sequence, with a zenith of manufacture in the mid-8th century. This fabric formed 61% of the pottery in Middle Saxon Phase 1, 27% of the pottery in Middle Saxon Phase 2, 21% of the pottery in Middle Saxon Phase 3, and 45% in Phase 4.

Mixed-grit-tempered. Middle Saxon mixed-grit pottery is characterised by the presence of quartz grit, flint, shell and chalk. It formed 27% by weight of Timby's study, where it was considered a late Middle Saxon fabric. On this site it forms nearly 29% by weight, in a fabric dominated by chalk. Most of this is contributed by the vessels in Phase 4 pit 207, including one pot decorated with stamps and incised lines (Fig. 11a). The stamps are the hot-cross bun type Briscoe Type B1A, and the dot in circle motif Briscoe type A1c (Briscoe 1981). Stamped and incised decoration is

more commonly associated with Early Saxon pottery, but there are a number of examples in Hamwic of pots decorated with panels of stamping outlined by incised lines (Timby 1988, fig. 3). The stamps were often used in alternating rows or were used to fill alternating panels. Both such schemes are present on the pottery from pit 207, perhaps on the same vessel. Pit 207 was allocated to Middle Saxon Phase 4. Some 46% of the pottery from this pit was in sandy fabrics generally considered to be early, with 54% being mixed grit. The overlapping of both early and late fabrics in the same pit suggests a mid-8th century date.

The deposits associated with Structure 3 in Middle Saxon Phase 3 contained 4.5% of mixed grit pottery, suggesting Phase 3 should not be placed late in the Hamwic chronology.

Flint-tempered. The flint-tempered pottery from Hamwic is characterised by the admixture of fine flint gravel, generally patinated and rounded or sub-angular in shape. This fabric formed only 2% of Timby's study and is similarly rare on this site comprising 1.9% by weight of the Middle Saxon assemblage. Flint-tempered pottery is seen as an indicator of later Middle

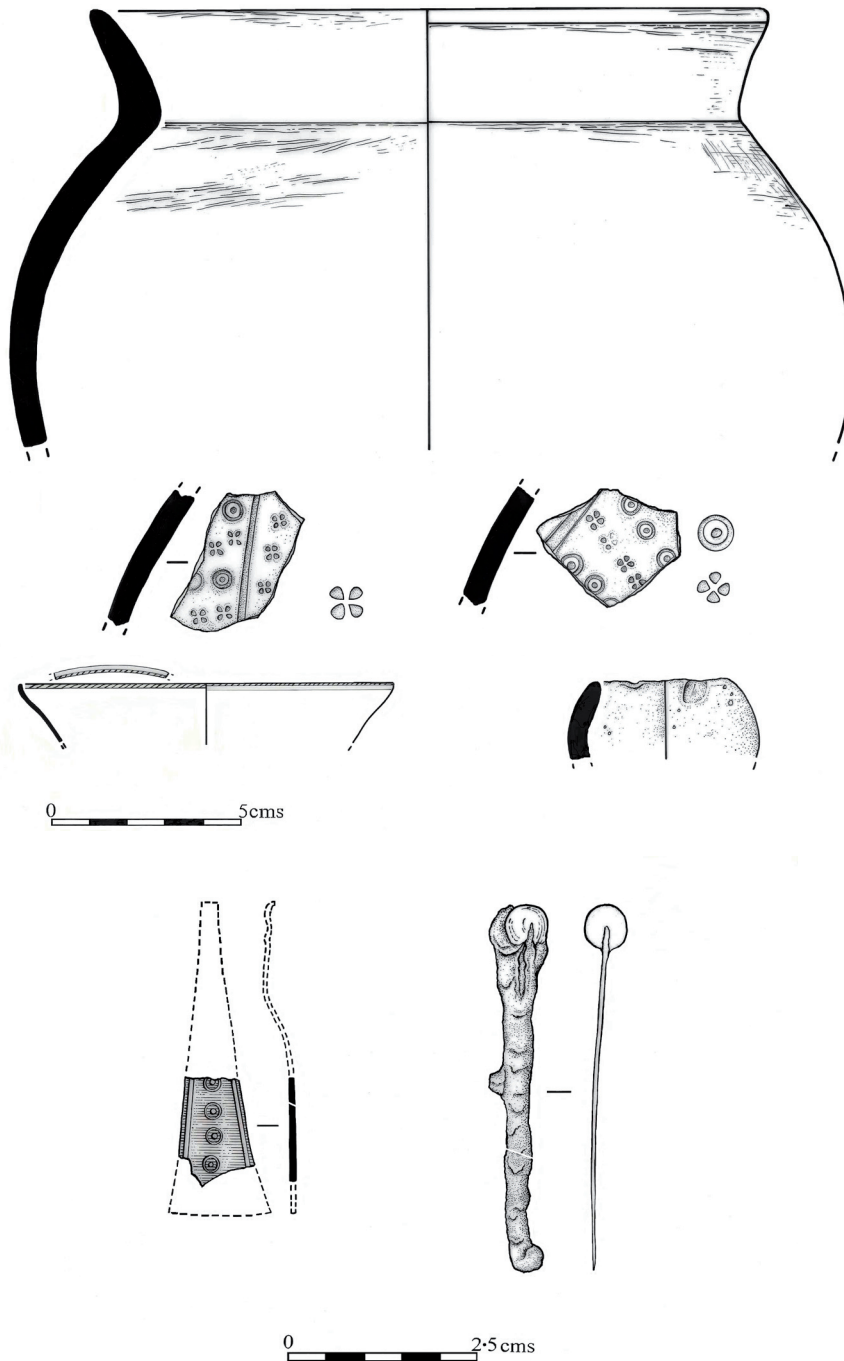


Fig. 11 Selected finds from Saxon contexts

Top: mixed grit, stamped pottery from fill 208 of Phase 4 pit 207.

Centre: left: glass beaker rim from fill 564 of Phase 1 pit 311; right: crucible from Phase 4 pit 213.

Bottom: left: tweezers from fill 208 of Phase 4 pit 207; right: glass headed iron pin from fill 434 of Phase 1 pit 307

Table 3 Quantities of different fabrics in the imported pottery from SOU 1332

<i>Group</i>	<i>Fabric</i>	<i>No</i>	<i>Wt g</i>
Black	130	5	31
	131	13	203
	136	3	80
	137	1	5
	139	9	195
	unmatched	1	9
White	128	1	14
	176	14	221
Grey	154	3	7
	161	22	192
Brown	205	1	4
Total		73	961

Saxon occupation (Timby 1988, 114), but on this site it was found in Saxon features of the earliest and latest phases. Four sherds of this fabric were recovered, two from 515, the lower fill of pit 181 of Middle Saxon Phase 1 in Trench 6, and two from 442, the Middle Saxon Phase 3 upper fill of pit 307 in Trench 7.

Imported pottery

The imported pottery, consisted of 73 sherds weighing 961g, forming 29.4% by weight of the Middle Saxon assemblage, which is higher than expected. The sherds from this site fell into the black-, white- and grey- and brown wares as identified by Timby (Table 3).

The quantities of imports across Hamwic has been examined in two studies; Timby (1988) and (Morton 2005). Timby showed that imports form a higher percentage of the pottery assemblages on sites that are close to the waterfront, but Morton has argued that the area of Hamwic with the largest quantity, and highest density of imports, was in the northwest part, known

as Six Dials, where there was a mean of 102 sherds per 100m². A typical waterfront area, such as the Chapel Road area, had a density of 59 sherds per 100m². The Stadium site, well to the north of the Chapel Road area had only 12 sherds per 100m². These figures can be set against that of 28 sherds per 100m² from SOU 1332, to the south of the Chapel Road area (discounting the unoccupied area from the calculations of area excavated). Within the site there seems to be a definite fall off in density of imports from north to south, with imports forming 80% of the pottery in Trench 1, 63% of the pottery in Trench 7, and 7% in Trench 6. There was redeposited Middle Saxon pottery in trench 5; 50% was imported.

Form and function. Known forms in the blackware fabrics include jars with flanged rims and spouts and handles. An everted rim and a handle were present at SOU 1332. Such forms were probably made for the storage and serving of liquids, but sherds from a third of the contexts showed sooting or spalling, which

Table 4 Quantities of pottery fabrics from SOU 1332, by Phase

<i>Phase</i>	<i>% organic</i>	<i>% sandy</i>	<i>%import</i>	<i>%mixed grit</i>	<i>%flint</i>
1	8	61	12	8	8
2	0	27	73	0	0
3	6	21	65	4	3
4	0	45	0	55	0

indicate some of these vessels were used for cooking. Known forms in the whiteware fabrics are spouted pitchers, jars, cooking pots and bowls. There were no diagnostic sherds from SOU 1332, but all the sherds recovered showed signs of sooting or spalling, one having burnt-on food residue just below the outer surface of a rim. Known forms in the greyware fabrics are jars and spouted pitchers. SOU 1332 produced two everted-rim jars together with rouletted sherds from vessels of unknown form. Half of the sherds showed signs of burning, sooting or spalling. This use of imported wares for cooking, as evidenced by sooting and spalling, has been noted on a number of other Hamwic sites (Timby 1988, 91, 98).

Conclusion

Most of the pottery discarded at this site was locally made. Timby's chalky wares were absent, but the mixed grit wares contain significant amounts of chalk so wares were being sourced from outside the Hampshire basin. Most of the local coarse wares show sooting and were presumably used as cooking vessels. At least a dozen imported pots reached the site during its life, both black, white and grey wares. Once they had reached the site they may have had various functions, but many, perhaps all, were finally broken by being placed on a fire. This probably indicates use for cooking, certainly one sherd has a burnt-on food residue at its rim. The role of imported pottery in Hamwic, why it was taken there, what it was used for, and who used it, is not yet understood.

The conflagration that destroyed Structure 3 in the late 7th or first half of the 8th century was comprehensive, and the debris sank into a number of nearby pits. The pottery from the

debris layers may well represent the pots being used in the house at the time of the fire, or broken there during the life of the building. At least eight different imported vessels are represented, together with three organic-tempered vessels, three sand-tempered vessels and one each in flint- and mixed-grit-tempered fabrics.

Timby's work enabled a tentative division of the Hamwic pottery into three phases. The earliest phase, prior to AD750, was marked by contexts containing organic-tempered, sand-tempered and imported wares, with negligible quantities of other types. By the mid-Middle Saxon period mixed grit and sandy wares dominate the assemblage, with mixed grit becoming the most common type in the late-Middle Saxon period. This sequence can be used to suggest dates for the phases identified on SOU 1332. Table 4 shows the proportions of the fabric groups. Phase 1 has a low level of organic wares, suggesting it does not lie particularly early in the Hamwic sequence, probably after AD700. Phases 2 and 3 with high levels of sandy and imported sherds would suggest an 8th century date, probably early in the century rather than late. Phase 4 shows a marked change, with a high level of mixed grit wares and no imports. This suggests a mid- or late-Middle Saxon date, but the absence of the definitive late fabrics such as a shell- and flint-tempered fabrics suggest it should not be placed too late, so a date in the later half of the 8th century or the early 9th is likely.

The glass by V I Evison

Three fragments of vessel glass were recovered. All were of Middle Saxon date, and were recovered from pits. One was too small for its

form to be identified. The other two were from palm cups or funnel beakers and are typical of Hamwic. The type of inward-folded vessel glass rim of item 8 has been recorded previously at Hamwic, where it is called a tubular rim without cavity (Hunter & Heyworth 1998, 12, fig. 6). A diameter of c.100 mm indicates that the vessel was probably a funnel beaker. The distinctive rim fragment (item 19) has a reticella trail applied on top (Fig. 11a) and is similar to a number already published from Hamwic. There is a more recent find of this type of vessel from St. Mary Street, Southampton (SOU1353).

Hunter and Heyworth considered the glass vessels from Hamwic to be restricted to perhaps 100 years of production, from the early 8th to the early 9th century, on the basis of the stratigraphy and the associated artifacts. Within that narrow period the inward folded rim of item 8 (in a Phase 2 pit) was considered likely to be later rather than earlier, and the reticella decoration of item 19 (in a Phase 1 pit) could be seen to be present on the whole range of rim forms from Hamwic (Hunter & Heyworth 1998, 56–7).

In terms of the role that glass vessels played in the town Hunter and Heyworth concluded that much of the glass was from ‘vessels of considerable quality and presumably of high value’ and that it ‘must be assumed to represent complete vessels within the town, either in use as domestic items or as broken stock’. The ultimate origin of the glass is less certain, there is little evidence of production within Hamwic, but the compositional analysis has shown no links with Helgo, Dorestadt, Winchester, France or the south-western areas of the Continent (Hunter & Heyworth 1998, 60–1).

Item 8. Context 189 in Phase 4 Pit 207

Glass rim fragment, light blue-green bubbly glass, out bent and folded inwards.

Thickness: 1 mm
Diameter: c. 100 mm

Palm Cup or Funnel Beaker, probably the latter.

Item 13. Context 292 in Phase 1 Pit 203/291/519

Light green-blue glass vessel fragment. Small bubbles, some black flecks. Too small for identification.

Maximum Length: 19 mm
Thickness: c. 1 mm

Item 19. Context 564 in Phase 1 Pit 311

Glass rim fragment. The rim is slightly out bent and incurved at the edge where a twisted self-colour and opaque white trail is applied on the inside edge.

Maximum Length: 32 mm
Thickness: 1 – 2 mm
Diameter: c. 100 mm

Palm Cup or Funnel Beaker.

The metal working evidence

The non-ferrous metalworking evidence by J Bayley

Two crucible sherds were recognised in the fills of Saxon pits on site SOU 1332. Their surfaces were analysed by Neil Hall at the English Heritage Laboratories using an X-ray fluorescence (XRF) spectrometer.

The first came from context (248) in Phase 4 pit 213. It was a rim sherd in a gritty fabric from a small hand-made thumb pot (Fig. 11a) similar in size and form to those published by Addyman & Hill, 1969. The outer surface had a small patch of red-coloured vitrification, suggesting the crucible had been used to melt a metal that contained at least some copper. The pale mud-like deposits that covered much of the surfaces and the fracture contained detectable levels of copper, zinc, tin, and lead, but as this deposit was a post-depositional accretion, the metals in it must relate to the burial environment (perhaps coming from an adjacent metal object) and not to the use of the crucible. However, silver was detected on several areas on the inside of the sherd, suggesting that the metal being melted in it was silver that contained minor amounts of copper and possibly other base metals in addition.

The second sherd was made of a sandy fabric; it was found in context (276) in Phase 4 pit 207. The sherd was from the lower body of a similar crucible to that described above, and had slight traces of external vitrification, confirming it had been heated to high temperatures. XRF analysis detected copper, zinc and lead on both its inner and outer surfaces. It is likely that this was part of a vessel used to melt a zinc-rich copper alloy, perhaps a brass, which contained at least some lead.

The evidence of iron-working by P Andrews

Approximately 4.43kg of ironworking debris

was recovered, 2.89kg from mid-Saxon contexts and 1.54kg from medieval contexts, though at least some of the latter could be residual Saxon material. All of this represents smithing debris and includes fragments of smithing hearth bottoms (SHBs), the hemispherical bun-shaped lumps of slag, usually up to 150mm in diameter and weighing up to 1kg (but generally *c.* 0.5kg), which formed in the base of iron smithing hearths. A small quantity of fuel ash slag and a few fragments of hearth lining were also present.

The Saxon material includes two pieces of relatively dense SHBs (from Phase 3 pit 348, fill (469), and fill (570) of Phase 1 pit 311), both from trench 7, and a less dense SHB fragment with a straight edge on one side with hearth lining attached. These fragments probably represent small-scale smithing activity in the vicinity, with 1.28kg coming from trench 6 and 1.61kg from trench 7. Little more can be deduced from this evidence which is in keeping with that from many other sites in Hamwic, reflecting a patchwork of small-scale crafts and industries.

Approximately half of a relatively large, dense SHB weighing 1.14kg came from High medieval ditch 138. This may be of that period, rather than residual Saxon material, as it does have a slightly different, more amorphous, cindery appearance in comparison to the Saxon smithing hearth bottoms.

The metal objects by A D Russel with assistance from D Hinton

The copper alloy

Four copper alloy objects were recovered from Middle Saxon contexts.

Item 1, context 208 in Phase 4 Pit 207

A fragment of a pair of tweezers (Fig. 11b). The piece is 1mm thick, with breaks at either end. It tapers from 9mm to 7mm over 14mm. One surface is decorated with a shallow groove worked down each edge and a line of ring and dot motifs between them. Each ring and dot is only 1.5mm across, and they are spaced 1mm apart. Ring and dot decoration has been found on a number of objects from Hamwic, such as hooked tags, pins, handles, and tweezers (Hinton 1996, *passim*). The form and decoration of this fragment is paralleled in two pairs of

tweezers, one SOU 39 item 40, and the other SOU 99 item 75 (Hinton 1996, fig. 18). A number of similar examples are known from Middle Saxon sites at Staunch Meadow, Brandon (Riddler *forthcoming*), Maidenhead (Foreman *et al.* 2002, fig. 4.3.1) and Shakenoak (Brodribb *et al.* 1972, fig. 30.134–5).

Item 2, context 208 in Phase 4 Pit 207

A fragment of bar of unknown length and 15mm wide. One edge is 5mm thick and is worn, tapering down to 3mm on the other edge. The two broken edges exhibit hackly fractures, suggesting that the original object was broken up with sharp blows. This item is probably a fragment of scrap awaiting re-melting. Crucibles and ingot moulds are widely found in Hamwic, as are other broken fragments of objects (Hinton 1996, *passim*).

Item 9, context 294 in Ditch 293

Five fragments of a ring. The diameter would seem to have been about 30mm, on the large side for a finger ring. A tapered end is present suggesting an ear ring. A similar Late Saxon example is known from the excavations in the Above Bar suburb in Southampton (Russel *forthcoming*).

Item 18, context 420 in Pit 350

A fragment of 0.5mm thick sheet some 11mm by 5mm, of oval shape but all edges show fresh breaks. The whole item is corrugated, and presumably formed part of a larger object.

The iron

Eight iron objects were retrieved from Saxon contexts, seven from pits and one from a post-hole.

Item 6, context 283 in Phase 2 Pit 277

The tip of a Saxon knife surrounded by massive corrosion, with little original metal present. The object is some 79mm in length; 39mm is the body of the blade and 40mm is the angled tip. On the X-ray the back of the blade shows clearly suggesting it was quite robust; the blade itself, some 15mm deep, shows no signs of pattern welding. The Southampton collections contain over 624 iron knives from the Middle Saxon period. The angled back blade is Ottaway's Type A, which originated in the Roman period and continued to be popular into the 11th century. Ottaway's study of the Hamwic material showed that over 50% of the knives from Hamwic fall into this type (Ottaway 1990). The West Quay Shopping Centre excavations in Southampton revealed an extensive area of the Late Saxon town, but no knives of this form were discovered, suggest-

ing that in Southampton the form was less popular by the 10th–11th centuries (Russel *forthcoming*).

Item 12, context 389 in Phase 3 Pit 349

A corroded clench bolt; the X-ray reveals it had a head some 21mm across, with a thick shaft some 40mm in length. Clench bolts were used to join planks and other timbers in ship building. When ships were broken up or repaired the bolts may well have ended up in firewood.

Item 14, context 501 in Phase 2 Pit 277

A fragment of iron strip originally some 15mm wide and 1.5mm thick with rounded edges, it has been twisted and snapped off from a larger length.

Item 15, context 538 in Phase 1 Pit 215

A length of iron some 47mm in length. A fresh break at one end shows it to have a circular cross-section, and the X-ray reveals it to have a dense iron core of good quality metal, some 2mm in diameter, with an oblique tip. It was probably a craft tool.

Item 17, context 208 in Phase 4 Pit 207

A fragment of flat iron sheet some 75mm by 35mm, plated with copper alloy. The iron core has completely corroded away and has been redeposited on the outside of the copper alloy. Copper alloy plating was used in the Saxon period on objects such as padlocks. All seem to post-date the Viking invasions (Rogers 1993, 1422).

Item 28, context 208 in Phase 4 Pit 207

Three small lumps of soil and corrosion products. They may have been small studs some 15mm in diameter but the X-rays show that little of the original structure has survived.

Item 29, context 434 in Phase 1 Pit 307

An iron pin with a spherical head in colourless glass. The X-ray evidence suggests the pin was some 43mm long, 2mm in diameter at the thickest end and tapered gradually to a point. The glass head is 5mm in diameter with a hole some 3mm deep to take the pin (Fig. 11b).

Some 175 Middle Saxon headed pins in silver, gunmetal, leaded bronze and copper alloy are known from Hamwic (Hinton 1996, 14–37). Iron pins are rare, with only one example identified, unpublished, from SOU 169 at Six Dials (Andrews 1997). That pin is 63mm long with an iron shaft and a head of lead. Glass pin-heads are not known from Hamwic.

The only certain Saxon example is an iron

pin with a glass head found in the Buckland cemetery at Dover, Kent in a grave dated to 650–675 (Evison 1987, 84, 152/3, fig. 61.3).

A few glass-headed pins are known from Late Saxon and early medieval contexts in Winchester but all are on thin, copper alloy shafts. A Late Saxon iron pin (headless) has been published from Winchester, but it is incomplete and may have been a needle (Biddle 1990, 552–60). In Anglian York fourteen iron dress pins are known from deposits of the 8th to 12th centuries. Seven had lead heads, but none were of glass (Rogers 1993, 1367). The Mucking settlement (first half of the 5th century to *c.*AD700 if not later) produced numerous iron pins, most thought to be Roman, none had glass heads (Hamerow 1993, 63).

The animal bone by J I Russel

A total of 1132 fragments of animal bone were recovered by hand from Middle Saxon contexts. The bone was in poor condition, and it was likely that most of the bone originally present had completely decomposed, with many of the surviving examples being fragments of tooth enamel. The Middle Saxon phases produced mostly cow tooth fragments but there were also fragments of pig and sheep. A fragment of antler offcut was recovered from Phase 3 pit 349. Another 619 fragments weighing 116g were recovered through the soil sampling programme. Most were heavily abraded fragments of mammal bone and could not be identified to species. Of interest were crushed fish vertebrae from feature 319, showing direct evidence of consumption.

The sieving also produced fragments of mineralised cess from two pits of Phase 1, pits 181/187 (fill 506) and pit 215 (fill 196). These fragments could be seen to include fish bones.

The plant remains by L Gray

The only features to provide groups of material that were more than background noise were the post-holes of Structure 3, which produced a sizeable assemblage of charred plant material and charcoal.

Table 5 Charred plant remains from soil samples

Context			334	324	330	403	424	424	418	396	407
Feature			333	323	329	363	377	377	361	364	406
Sample volume (L.)			5	5	10	5	10	10	5	5	5
Macros											
Scientific Name	Common name	item									
Triticum dicoccum/spelta	emmer/spelt	grain	1	–	–	–	–	–	–	–	–
Triticum aestivum	bread wheat l.	grain	5	7	–	–	–	–	2	–	–
Triticum cf.aestivum	bread wheat l.	grain	1	–	–	–	3	1	–	–	–
Triticum spelta/aestivum	spelt/bread wheat	grain	2	2	1	1	8	–	–	–	–
Triticum sp.	wheat	grain	3	9	8	3	3	1	–	–	–
Secale cereale	rye	grain	–	–	–	–	–	–	–	–	1
Triticum/Secale sp.	wheat/rye		1	–	–	–	–	–	–	–	–
Hordeum spp.	barley	grain	25	29	56	13	40	–	11	–	9
Hordeum vulgare	barley	grain (hulled straight)	5	10	4	4	14	–	2	–	1
Hordeum vulgare	barley	grain (hulled twisted)	1	3	3	–	1	–	–	–	2
Hordeum vulgare	barley	grain (naked straight)	9	3	1	2	3	–	1	–	–
Hordeum vulgare	barley	grain (naked twisted)	–	–	3	–	–	–	–	–	–
cf.Avena sp.	oat	grain	–	–	–	–	–	–	–	–	1
Avena sp.	oat	grain	9	–	3	–	5	–	–	–	–
cf.Avena sp.	?oat	grain	–	2	6	–	–	–	–	–	–
cf.Avena sp.	oat	spikelet	–	–	1	–	–	–	–	–	–
Avena/Hordeum/Secale/Triticum	indet. cereal	grain fragments	+++	++	++	+	++	–	++	–	++
Avena/Hordeum/Secale/Triticum	indet. cereal	culm node fragment	2	–	1	–	–	–	–	–	–
Ranunculus/Acris/Bulbosus/Repens	buttercups	fruit	–	–	–	1	–	–	–	–	–
cf. Pisum sativum L.	?pea	seed fragment	–	–	1	–	–	–	–	–	–
Vicia/Lathyrus/Pisum sp.	vetch/tare/vetchling/pea	seed	2	–	–	–	2	–	–	–	3
cf, Vicia/Lathyrus/Pisum sp.	vetch/tare/vetchling/pea	seed	–	–	3	–	–	–	–	–	–
cf, Vicia/Lathyrus/Pisum sp.	vetch/tare/vetchling/pea	seed fragment	–	–	2	–	2	–	–	–	–
Fabaceae indet.	legume	seed	–	–	–	–	–	–	–	2	–
Polygonum sp.	knotgrass type	fruit	–	–	4	–	–	–	–	–	–
cf. Fallopia cf. convolvulus	black bindweed	seed	–	–	–	1	–	–	–	–	–

Table 5 (cont.) Charred plant remains from soil samples

Context			334	324	330	403	424	424	418	396	407
Feature			333	323	329	363	377	377	361	364	406
Sample volume (L.)			5	5	10	5	10	10	5	5	5
Rumex crispus L.	curled dock bract	seed	–	–	–	–	1	–	–	–	–
Corylus avellana L.	hazel	shell fragment	3	–	1	–	–	–	1	1	–
Galium verum/mollugo	bedstraw	seed	1	–	1	–	–	–	–	–	1
Anthemis cotula L.	stinking chamomile	seed	–	–	2	–	–	–	–	–	1
Anthemis cotula L.	stinking chamomile	seed head	–	2	1	–	–	–	–	–	–
Eleocharis sp.	spike-rush	fruit	–	–	1	–	–	–	–	–	–
Carex sp.	sedge	seed	1	–	1	–	–	–	1	–	–
cf. Lolium spp.	rye-grass	seed	–	1	2	–	–	1	–	–	–
Bromus sp.	brome	seed	1	–	–	–	–	–	–	–	–
indeterminate non-woody plant			–,	–,	++	+	–,	–,	–,	++	+

The plant remains

The charred material was dominated by cereal grains. Most of these were barley (*Hordeum vulgare*) grains. They included hulled and naked grains. Most were straight and some were twisted meaning these could be the remains of a six-rowed crop. The wheat (*Triticum* sp.) grains were next most frequent. These were generally poorly preserved and somewhat distorted by charring but several had clear hexaploid traits and were identified as breadwheat (*Triticum aestivum* L. s.l) or spelt/breadwheat (*Triticum spelta/aestivum*). Oat (*Avena* sp.) and rarer rye (*Secale cereale* L.) grains were present in lower quantities. None of these grains had sprouted and the only chaff surviving were three culm nodes in post-holes 329 and 323. The absence of chaff made finer identifications impossible.

Seeds of cultivated ground, wasteland, grassland and occasionally damper ground were present in all of the samples. They were all of similar size ranging from spikerush (*Eleocharis* sp.) to the seed heads of stinking mayweed (*Anthemis cotula* L.).

All of the cereals observed here are typical of those found in Saxon assemblages in Hamwic

(Green, 1981 and 1994; Carruthers, Hunter & Clapham 2005). These would have provided ingredients for pottages, bread and brewing (Hammond, 1994, 26–28.). It is possible that the grains came from a mixed crop such as dredge – barley and oats (Hammond, 1993, 2) but the presence of other cereals and seeds seems to indicate sieving waste from several crops. Unfortunately many of the small legumes were too badly preserved to allow for closer identifications. Hazelnuts (*Corylus avellana* L.) were common, possibly part of a locally managed resource.

The presence of stinking chamomile (*Anthemis cotula* L.) can indicate the use of calcareous loam to clay soils (Campbell, 1994) and this, along with the seeds from damper areas such as spikerush (*Eleocharis* sp.) and sedge (*Carex* sp.) could indicate the exploitation of damp marginal soils such as would be found in close vicinity to the site. Similar weed seeds were recovered from the Middle Saxon deposits at the Stadium site (Carruthers, Hunter and Clapham 2005).

The charcoal

The fact that the building burnt *in-situ* and

this charcoal was recovered from the post-holes of the building suggests the fragments of charcoal recovered were from components of the building. The most frequent wood was oak (*Quercus* sp.). The next most frequent wood was hazel (*Corylus avellana* L.). A fragment of possible ash (*Fraxinus excelsior* L.) was observed. All of the charcoal types identified here could have been present as part of the structure of the building, oak structural components with hazel wattle infill, or as fuel stored within it. Analysis of charcoal from the Stadium site to the north of SOU 1332 revealed a wide range of species being used for fuel (Gale in Birbeck *et al.* 2005).

The environmental evidence by R Scaife

Introduction

The development of old Deanery School afforded the opportunity to examine sediments which had accreted in the marsh which existed prior to the mid 19th-century reclamation. Three column samples (Fig. 4) were obtained for stratigraphical, pollen and diatom analysis and the opportunity was also taken to examine four samples from Middle Saxon deposits.

Stratigraphy

Column samples were obtained directly from the sides of machine dug trenches. These column samples were examined, described and sub-sampled for pollen and diatom analysis in the palaeoecology laboratory of the School of Geography, University of Southampton. Colours were gauged using a standard Munsell colour chart. The stratigraphy of the column samples is as follows.

Column sample 1 (Fig. 12)

Depth cm.

- 0 – 11 Dark greyish brown, humic silt and fine sand containing occasional flint pebbles to 20mm. (10YR 4/2).
- 11 – 23 Grey silt and fine-medium sand. Becoming more clay downwards (10YR 5/2).
- 23 – 38 Homogeneous grey clay (10YR 5/1).
- 38 – 56 Increasingly sandy downwards in the profile in medium and coarse grey silt (10YR 5/1).
- 56 – 63 Basal gravels in sandy silt matrix.

Column sample 2 (Fig. 13)

Depth cm

- 0 – 6 Dark grey brown silt with occasional flint pebbles to 10mm. (10YR 5/1).
- 6 – 22 Grey/ bright turquoise silts. (10YR 5/1). Of marine/Salt marsh character.
- 22 – 64 Greyish pale brown sand and silt becoming increasingly sandy downwards. (10YR 6/2).
- 64 – Basal gravels in sandy matrix.

Column sample 3 (Fig. 14)

Depth cm

- 0 – 28 Dark grey silt with small flints. Grit. (10YR 4/1) or (10YR 3/1).
Fragment of red brick at 22cm.
- 28 – 45 Grey and bright turquoise silt (10YR 5/1). Of marine/Salt marsh character.
- 45 – 60 Mottled, pale orange (10YR 6/8 and 10YR 5/6) and pale grey (10YR 5/1) silt and fine-medium sand.
- 60 – 65 As above but containing flint pebbles.

Pollen Analysis

Method

Pollen analysis was undertaken on the three column samples. Sub-samples for pollen assessment analysis were taken from the columns at an interval of 10cm. Samples, of 2ml. volume, were prepared using standard techniques for the extraction of the sub-fossil pollen and spores (Moore & Webb 1978; Moore *et al.* 1992) with the addition of micromesh sieving (10u) to aid the removal of the clay fraction. Absolute pollen frequencies were calculated using added exotics (*Lycopodium* spores) to known volumes of sample (Stockmarr 1971). Pollen was identified and counted using an Olympus (BH) biological research microscope fitted with Leitz optics. A pollen sum of 100–120 grains of dry land taxa per sample level was counted. From these data, pollen diagrams (Figs 12, 13, & 14) were constructed and plotted using Tilia and Tilia Graph with percentages calculated as follows:

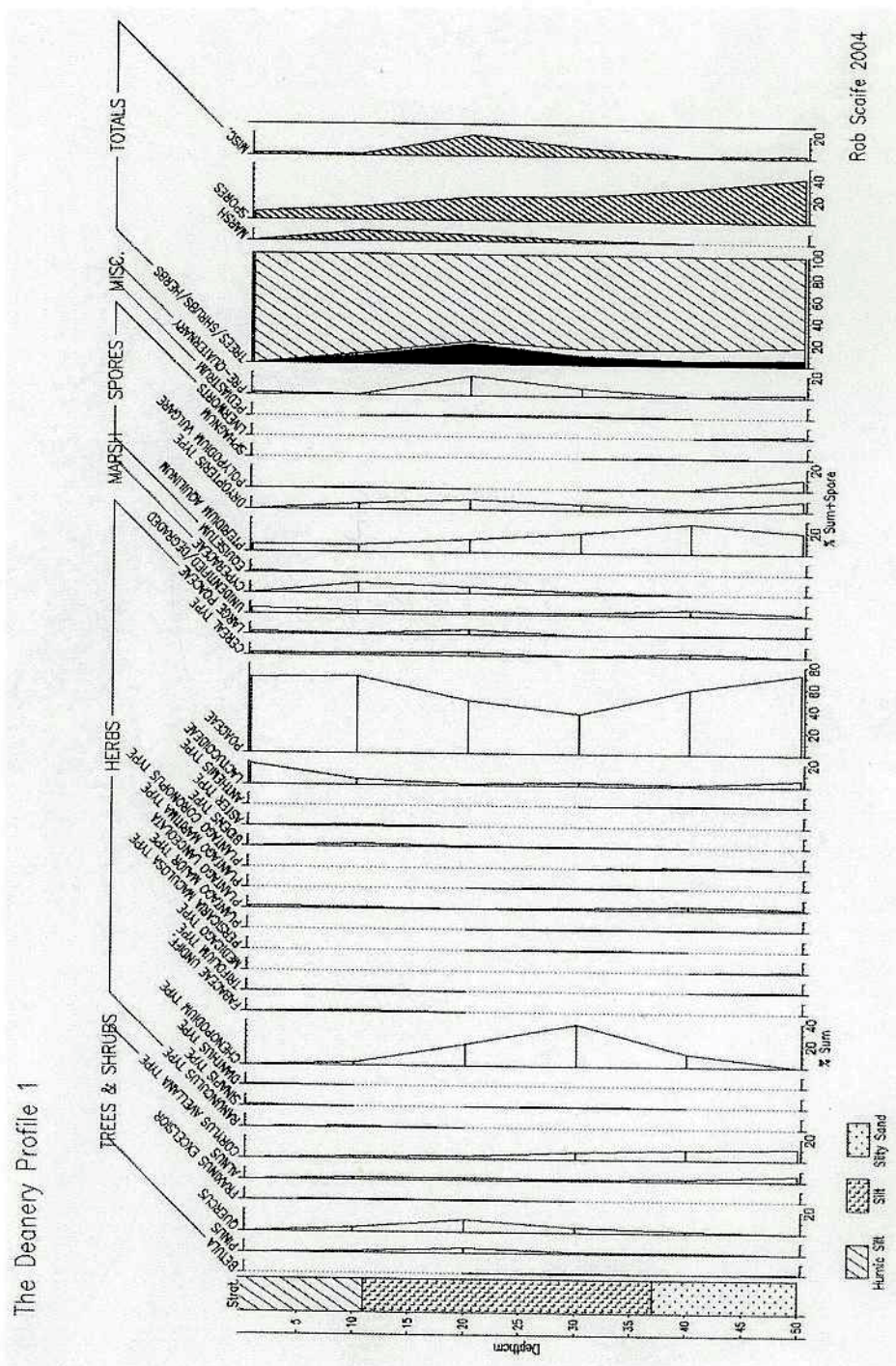
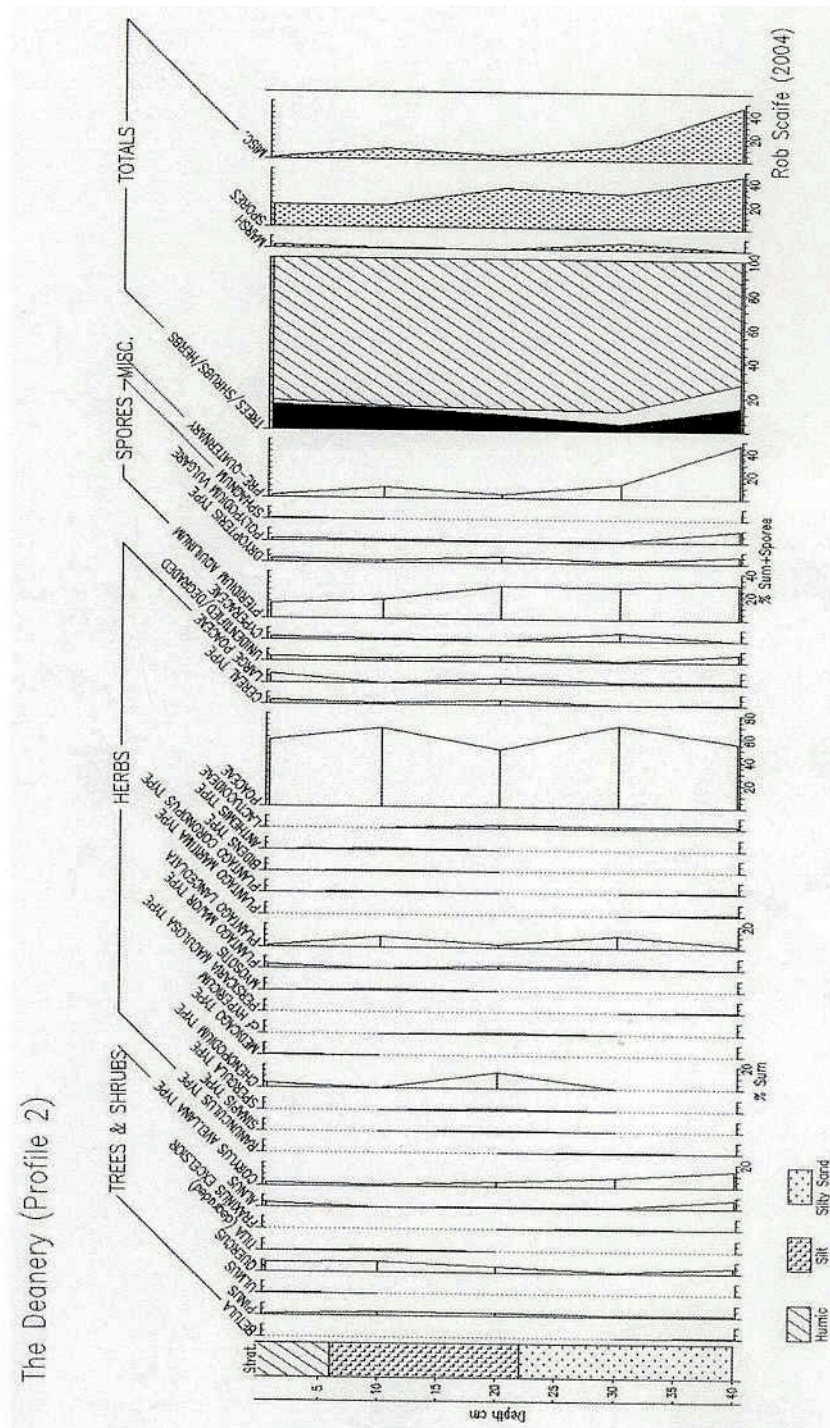


Fig. 12 Column Sample 1



Sum = % total dry land pollen
(tdlp)
Marsh/aquatic = % tdlp+sum of
marsh/aquatics
Spores = % tdlp+sum of spores
Misc. = % tdlp+sum of misc. taxa.

Taxonomy in general follows that of Moore and Webb (1978), Moore *et al.* 1993 modified according to Bennett *et al.* (1994) for pollen types and Stace (1992) for plant descriptions. These procedures were carried out in the Palaeoecology Laboratory of the Department of Geography, University of Southampton.

Results of the Analysis

A total of 19 samples were prepared and analysed from the columns. Of these, seventeen contained sufficient pollen to enable counts and production of standard pollen diagrams. Absolute pollen frequencies were calculated and ranged from between 8000 grains/ml at the base of column sample 1 and 107,000 grains/ml in the top of column sample 1. Thus, there was a substantial variation in preservation. Pollen was absent in the very lowest samples of silt/sand and within the basal gravels.

A total of 42 taxa was recorded which comprise largely herbs with only a small number of trees and shrubs. Although there are some variations in the pollen spectra, these have not been subdivided into local pollen assemblage zones. Instead the broad characteristics of the pollen assemblages are described and the variations discussed where appropriate.

Column sample 1. Herb pollen is dominant with only small numbers of trees and shrubs. The latter comprise *Corylus avellana* type (hazel) which is of greater importance in the lower part of the profile (12%) declining upwards. *Quercus* (oak) peaks to 17% at 20cm. Other trees/shrub taxa occur only sporadically with *Betula* (birch), *Pinus* (pine), *Fraxinus excelsior* (ash) and *Alnus* (alder). Herbs are dominant with Poaceae (grasses) attaining high values (to 75%) and a marked peak of *Chenopodium* type (goosefoots, oraches and glassworts) at 30cm (to 38%). There is a range of other herbs with Lactuoidae (dandelion types) becoming more important in the upper

part (20%). The latter, however reflects poorer pollen preservation in the upper levels and differential preservation in favour of those taxa with more robust exines. There is a small but continuous presence of cereal type pollen. Freshwater, marsh taxa become increasingly important in the upper half of the profile with Cyperaceae (sedges) from the point where Chenopodiaceae decline. Spores of ferns include *Pteridium aquilinum* (bracken; to 28%) with monolete, *Dryopteris* type (typical ferns). There is a peak of derived pre-Quaternary palynomorphs at 20cm associated with small numbers of algal cysts of *Pediastrum*

Column sample 2. Herbs are dominant (to 90%) with few trees and shrubs (max. 28% in the basal level). *Corylus avellana* type is most important in the lowest levels (to 18%) with *Alnus* (7%). Both decline upward to only sporadic occurrences. Conversely, *Quercus* (oak) values expand towards the top of the sequence although numbers are relatively small. There is also a minor expansion of *Pinus* that may, however, be of significance. Herbs, as with column sample 1, are dominated by high values of Poaceae (to 72%). Other taxa include especially *Plantago lanceolata* (to 11%) and a peak of Chenopodiaceae (20%) at 20cm. *Plantago maritima* type (sea plantain) and sporadic cereal type pollen are of note. Spores are dominated by *Pteridium aquilinum*, which have relatively high values throughout (c.30%) with some monolete forms (*Dryopteris* type and *Polypodium vulgare*). Values of derived pre-Quaternary palynomorphs are high in the basal sediments.

Column sample 3. As with column samples 1 and 2, trees and shrubs are most important in the lowest level although herbs are dominant throughout. Here, *Corylus avellana* declines from 22% to occasional occurrences. Other trees include a peak of *Betula* at 40cm (5%) and expansions of *Pinus* and *Quercus* from c.30cm. Poaceae are dominant (to 66%) with *Plantago lanceolata* (8%) and a peak of Chenopodiaceae at 30cm. Cereal pollen is present in the upper levels corresponding with the more humic, made ground. Freshwater marsh taxa include Cyperaceae (to 18%) with occasional *Lemna*

(duckweed). As with the other profiles, spores of ferns include largely *Pteridium aquilinum* with monolet *Dryopteris* type and *Polypodium vulgare*.

The Age of the Deanery Sediments. At the Deanery site, although there are few clear palynological indications as to the age of the sediments, it is likely that the sediments accreted in a freshwater and, periodically salt marsh habitat, prior to its reclamation in the mid 19th Century. Because the three column samples are in relatively close proximity, as might be expected, there is a degree of conformity between the sequences. In spite of these factors, pollen spectra obtained can, however, provide information on the background regional vegetation as well as the on-site (autochthonous) plant communities. The most useful indication of the age of the profiles is the minor expansion of pine (*Pinus*) which is seen in all of the column samples.

Pine is a copious producer of pollen that is disseminated by the wind and as such, it is often over-represented in pollen spectra and derives from long distances. Thus, the small values here might be construed as insignificant. However, private plantations from c. AD 1750–1800 resulted in increases in pine pollen which can provide a useful marker/index point in pollen sequence spanning the last few centuries (Haskins 1978; Scaife 1980, 1987; Barber 1981; Waton 1983; Long *et al.* 1999; Scaife & Long 2000). This expansion of coniferous woodland and thus pine pollen was the result of plantation in private estates after publication of *Sylva* by John Evelyn and later for forestry. Plantations are well documented for Dorset, Hampshire and the Isle of Wight (Flower 1977; Haskins 1978; Scaife 1980; and Waton 1983). The abundance of wind-dispersed pollen produced by pine has resulted in the widespread incorporation of pine pollen in a range of sediments from this period. Whilst there is some local variation in the apparent date of the pine pollen expansion due to plantation at different times, the broad range is from AD 1700–1800. This phenomenon is seen in a number of recent studies undertaken on the south coast salt marshes where pine pollen has been used as a bio-strati-

graphic marker (Long *et al.* 1999; Scaife & Long 2000). At the Deanery site, pine pollen values are smaller than expected or seen at sites previously studied. This is most probably due to the high levels of on-site (autochthonous) pollen from grasses. However, it appears that the datum point discussed above falls broadly at 35–40cm in the three column samples and hence some clearer indications of the vegetation development can be made.

The inferred vegetation and environment. Interpretation of the pollen spectra can be viewed in terms of the on-site (autochthonous) and off-site local and regional vegetation. Overall, there is a marked paucity of tree and shrub pollen. This is not unexpected for the medieval and Tudor periods when most remaining woodland was in relatively small parkland enclosures or areas maintained for coppice (oak and hazel). In all of the column samples and especially in column sample 3, the lower sediments resting on the basal gravels show a greater amount of hazel (*Corylus avellana*). This position in the stratigraphy below the suspected 'pine rise' discussed dates this phase to the Saxon to medieval at earliest or most probably the Tudor period. In the case of column sample 3, the highest values in the lowest level might represent its growth on site on the basal gravels (i.e. old land surface) prior to inundation. Generally, however, the small values suggest a more regional input. It is surprising that there is not a better representation of oak from this period. It might be postulated that it was in short supply during this period from building construction and shipbuilding. There is very little evidence of any other woodland with only sporadic occurrences of wind dispersed pollen such as alder from woodland at distance from the site. Whilst a proportion of the Poaceae pollen will have come from the on-site marsh plants, the presence of ribwort plantain (*Plantago lanceolata*) and other pasture types suggests that the terrestrial habitat, at least in proximity to the marsh, appears to have been open grassland dominated (most probably pasture). Small numbers of cereal pollen (and possible weeds of disturbed/arable ground) indicates that arable cultivation was also taking place during this period. This would obviously have been on

better-drained soils. The on-site marsh vegetation during this period was a grass-sedge fen with possible brackish water/saline influences. Indeed, it is probably due to gradually rising relative (to land) sea level that conditions became wetter as rivers were ponded back and conditions suited to sediment accretion occurred.

There is a clear reduction in hazel pollen with time but also, some evidence of oak expansion. However, this is minimal, although the dominance of local and on-site herb pollen has perhaps suppressed what might be a greater than observed expansion. This phase started from the approximate period of pine expansion and thus this reflects oak regeneration from c.1700–1750. This is at depths of 40cm (column sample 1), c. 25cm (column sample 2) and 30–35cm (column sample 3). It is not clear whether this relates to establishment of woodland with enclosure and hedgerows or from changing pollen taphonomy.

Salt Marsh Development. All the columns have a marked peak in *Chenopodiaceae* (goosefoots, oraches and glassworts) which are from salt marsh, halophytic plant communities. These peaks correspond stratigraphically with the finer grained grey and turquoise grey sediments which appeared to be of typical salt marsh character. This is best seen in column sample 1 with high percentages of these halophytes. Other plants of salt marsh origin are also recorded in the column samples with sea plantain (*Plantago maritima*), Sea aster (*Aster* type), *Spergula* type (Spurrey) and possible hoary plantain (*Plantago coronopus*). This phase of salt marsh expansion is associated with the rising pine pollen percentages so the brackish water/marine influences and expansion of marsh probably occurred during the 18th and early 19th century. Subsequently this salt marsh habitat became less important and there was a return to freshwater marsh or more probably damp/floodplain grassland with accretion of over-bank sediments (possibly reclamation).

The marsh sediments described were all overlain by coarse rubble and soil overburden when the land was further reclaimed for railway sidings. In the case of column sample 3 there was a more humic overburden (soil)

with occasional red-brick fragments. Pollen samples were continued into this upper unit (0cm to 11cm). These samples have few trees and shrubs but slightly greater herbaceous diversity which include higher values of cereal pollen. It is most probable that this is derived from domestic refuse containing pollen from waste materials including human and animal ordure.

The Diatom Content

A total of 9 samples from the three column samples analysed for pollen were also examined for the presence or absence of diatoms. If present, these microfossils were expected to provide a useful indication of the saline or freshwater status of the environments in which the sediments were deposited.

Preparation used digestion of humic/organic material using Hydrogen Peroxide. Samples were dried on microscope cover slips and mounted on microscope slides using Naphrax mounting medium. Examination was carried out at high power x400 and x1000 using a biological microscope (see pollen method above).

Diatoms were only present in 2 of the 9 samples and only from column sample 3. Diatom frustules were extremely sparse and, in most cases, very fragmentary. Total numbers were also extremely small and not abundant enough to allow statistical counts to be made. This poor preservation is due to the coarseness in general of the sediments.

Observations show the presence of salt marsh taxa with the presence of *Diploneis didyma*. The only other taxon identified was *Nitzschia* sp. This confirms the results obtained from pollen analysis.

Pollen analysis of the Saxon pit contexts

In addition to the study of the natural sedimentary contexts of this site, a number of samples taken from the primary fills of Middle Saxon pits have also been analysed. The study was undertaken as a comparison to the longer column sequences and the possibility of examining the local environment and use of the pits.

Four samples were examined of which three, from pits 207, 305, and 307, contained

pollen and spores. The total numbers were small from pits 207 and 307, and only pollen totals *c.* 100 grains, plus spores, were identified and counted for those pits. Pollen was more abundant in Phase 1 pit 305 and a total of *c.* 300 grains produced a relatively diverse flora. Such variable pollen preservation is in accord with the overall poor pollen preservation on this site and from pit fills in general.

The Pollen data

Spot samples were examined from the larger samples taken as part of the soil sampling programme. Samples of 3ml volume were processed. The pollen spectra are dominated by herbs but with an interesting number of trees and shrubs. The characteristics of the three individual polliniferous samples are as follows:

Phase 3 fill 306 Of Pit 305, sample 62. This sample contained the best-preserved pollen obtained from this site. Herbs are dominant (94% of total pollen) with a small but diverse range of trees (6%). The latter comprise largely *Ulmus* (2%), *Quercus* (2%) and sporadic occurrences of *Pinus*, *Fagus sylvatica* (beech), *Alnus glutinosa* and *Juglans regia* (walnut). The herb assemblages are dominated by Poaceae (71%) with Lactucoeae (15%) and *Plantago lanceolata* (2%). Small numbers of cereal pollen and other herbs are also present. Spores comprise largely *Pteridium aquilinum* (8% pollen + spores). *Pediastrum* is also present.

Phase 3 fill 432 of Pit 307, sample 63. Pollen was poorly preserved although this sample contained the highest values of *Ulmus* (19%) with only occasional occurrences of other trees and shrubs. Herbaceous diversity is low with Poaceae (47%) and Lactucoeae (20%) being dominant. In addition there are small numbers of *Plantago* spp., Chenopodiaceae and *Sinapis* type. Spores, as with the other pit samples, comprise *Pteridium aquilinum*, *Dryopteris* type and *Polypodium vulgare*.

Phase 4 Pit 207; (276) <22>. Trees and shrubs total *c.* 17% of total pollen and include *Corylus avellana* type (hazel; 8%), *Alnus glutinosa* (alder; 4%) and smaller numbers of *Pinus*

(pine), *Ulmus* (elm) and *Quercus* (oak). Herbs are dominated by Poaceae (grasses; 49%) with Lactucoeae (dandelion types; 18%). Other more important taxa include *Plantago lanceolata* (ribwort plantain; 7%), *Sinapis* type (charlocks; 6%) and Chenopodiaceae (goosefoots and oraches; 8%). This is the only sample which contained (albeit in small numbers), pollen from Cyperaceae (sedges) and *Sparganium* type (bur-reed or reedmace) of wetland affinity. Algal *Pediastrum* is also of note. Spores of ferns include *Dryopteris* type (typical ferns), *Pteridium aquilinum* (bracken) and sporadic *Polypodium* (common polypody fern). Derived/reworked pre-Quaternary palynomorphs are present.

Interpretation

Pollen analysis of the sediment fills of pits (and ditches) is notably difficult given the complex taphonomy of the sub-fossil pollen and spores that may be encountered due to the fact that recovered pollen may come from a number of different sources. Despite this uncertainty some conclusions can be drawn from the analyses of these sediments.

All of the samples/contexts are of Middle Saxon Age and contain pollen assemblages that comprise a tree/shrub and a dominant herb component. The latter also contain pollen elements from a number of different habitats. The former includes elm, oak and hazel, the former being of some importance in pit 307 (context 432). Given that the pollen catchment of such features is small it is likely that some local oak, elm, hazel woodland was present (however see below). Phase 1 pit 305 contains beech, a taxon that is poorly represented in pollen assemblages unless growth was very local/on site. Walnut is also present and provides a useful record for this tree introduced into Western Europe by the Romans. Alder and pine have wind pollination (anemophily) and produce copious quantities of pollen that is disseminated over great distances. Presence of their pollen here is not regarded as significant in the numbers found.

Herb assemblages show a preponderance of grassland taxa with dominance of grasses, dandelion types (possibly over represented through differential preservation in their favour) and ribwort plantain. It is likely that

these taxa derive from local, possibly floodplain, grassland. Origins of the small numbers of cereal type pollen with occasional segetal taxa present are less easily interpreted as these may derive from human and/or animal faecal debris, waste food or directly from areas of crop growth. The former is always considered more likely.

The pit samples show little evidence of proximity of the salt marsh with only Phase 4 pit 207 having any quantities of *Chenopodiaceae* that might be attributed to halophytic communities. It should also be noted that such plants are also diagnostic of nitrogen rich habitats (i.e. where there have been grazing animals). Although the presence of the salt marsh at this time is not definite, it does appear that the area was subject to periodic freshwater flooding as evidenced by cysts of algal *Pediastrum* found in all of the samples. If this was the case, it should also be considered that pollen recovered may in part also be derived from fluvial transport.

Comparison between the columns and pit samples. From discussions above, it is apparent that the lower parts of the column samples, which have been tentatively attributed to the Saxon/medieval periods, contain greater numbers of trees and shrub pollen. Hazel was of importance, probably forming local scrub or in hedgerows, along with oak. These correspond with data obtained from the pits although the latter, in addition, shows some importance of elm. All sequences also show the dominance of grassland/pasture that is doubtless referable to the adjacent marsh/floodplain. It appears that this habitat was subsequently encroached by salt marsh after the Middle Saxon period.

Comparison with Anderson's Road, Southampton. The only other data which are comparable with the Deanery are those obtained from the analysis of a nearby Middle Saxon pit at Anderson's Road, Southampton (Ellis & Andrews 2006). At this site, the same problems associated with pollen taphonomy are more in evidence with many taxa associated with domestic waste material that was dumped into the pit (Scaife 2006). There, the fills were substantially more humic/organic than the sediments encountered at the Deanery. The two profiles also differ significantly with the Deanery showing a much stronger tree and

shrub component than at Anderson's Road although the two sites are broadly contemporaneous. Whether this reflects less tree growth locally is not clear. It is possible that the many stronger, secondary pollen components derived from domestic waste have a masking effect on the 'natural' component/assemblage. The fact that cereal pollen and associated arable weeds may come from faecal debris is evidenced at Anderson's Road by the presence of intestinal parasites. These were not found at the Deanery site although poor preserving conditions may in part be responsible. These two sites have provided the only direct, Saxon related pollen data from this region to date.

Summary and conclusions

Three pollen column profiles have been examined from the Deanery site. Pollen has been extracted from these minerogenic sediments and the count data has been used to construct three preliminary pollen diagrams. Pollen has also been obtained from a number of dated Middle Saxon pits. The essential points resulting from this analysis are summarised as follows.

The column sequences

The lower parts of the columns were high in sand and rested on basal gravels. The lower pollen spectra are herb dominated with generally few trees and shrubs. The vegetation was predominantly pasture with perhaps localised arable cropping. The latter may, however, have been more important at some distance (i.e. on the limits of the pollen catchment). Where trees and shrubs are present, there is evidence of hazel woodland, perhaps with oak. The former is most important in the lower levels of the profiles and data from column sample 3 suggests that it may have been growing on-site prior to water-logging and deposition of alluvial/marsh sediments.

The upper parts were composed of grey and turquoise silts of freshwater marsh/floodplain and marine/salt marsh origin. Preservation of diatoms is extremely poor because of the generally coarse nature of the sediments but two samples produced fragments of diatom frustules which confirm that saline conditions were present. Tentative identification of a pine

rise suggests a mid- to late- 18th century date for the saltmarsh inundation. If correct this provides a useful datum for reduction of hazel woodland and development of the salt marsh. Oak becomes slightly more important in the upper levels of the profile. Rising relative (to land) sea level resulted in a salt marsh habitat developing on an earlier floodplain/marsh. This is evidenced by halophytic plants (largely *Chenopodiaceae*). This reverted to wet floodplain grassland, perhaps deliberately reclaimed for grassland. Overburden was dumped on this environment in the middle 19th century for railway development.

The Saxon pit samples

The spot pollen samples obtained from three of four Middle Saxon pits produced evidence of oak, elm and hazel in the proximity of the site. The pollen assemblage was dominated by grassland/pasture, probably the adjacent freshwater marsh that subsequently developed into salt marsh with rising sea-levels. Small numbers of cereal pollen and associated weed taxa, demonstrating agriculture, but may derive from secondary, waste material which was dumped in these features.

CONCLUSIONS

The excavations at SOU 1332, placed in context with surrounding sites, have revealed important information about the occupation and layout of the southern end of the Saxon town. The Middle Saxon occupation was not dense, as has been found at the northern end of Hamwic on sites such as Six Dials and Clifford Street. At those sites the large number of inter-cutting pits and post-holes make it difficult to see a sequence of events. Such a sequence can be seen at the Deanery School site.

In Phase 1 a post-in-trench building, Structure 1, and a post-hole structure, Structure 2, were associated with eleven pits. Of the four pits close to Structure 1, two contained cess deposits and probably functioned as toilets. Three of the four pits contained evidence of industrial activity, with textile production represented by loomweight fragments and iron production evidenced by a smithing hearth bottom.

One pit produced a fragment of a glass vessel. To the north of Structure 1 was Structure 2: post-built and possibly of two phases, although its character is unclear because the posts did not form a coherent pattern. Four pits were adjacent to it, but they produced no evidence of craft production. One, however, pit 311, produced a fragment of a decorated glass beaker, and another, pit 307, an unusual iron pin with a glass head, which is paralleled in the Early Anglo-Saxon cemetery at Buckland, Kent.

These two buildings may have belonged to separate households. The occupiers of Structure 1 were possibly engaged in textile production and iron working, with wealth or trade connections that facilitated the acquisition of items such as glass vessels and imported lava querns, but not imported pottery. The pottery suggests a date early in the Hamwic sequence of around AD 700. It is suggested that Structure 1 was subject to refurbishment, with a beam slot replacing a wall of postholes, alternatively an earlier building was replaced by another, but on the same footprint. Similar episodes of re-building were seen at Six Dials, with buildings on the street frontages demonstrating up to five superimposed structures, while fewer rebuilds were evidenced on plots further away from the main street (Andrews 1997, 54).

Structure 1 was perhaps refurbished in phase 2 and the pottery suggests that a date in the period 700–750 is probable. Phase 2 also consisted of four pits, the most notable artefacts coming the pits in Trench 6 and produced lava quern fragments, iron objects, including a knife, and local and imported pottery, but these artifacts could have been residual from the Phase 1 pits.

In Phase 3 a large post-built structure (Structure 3) some 10.75m long and at least 4.11m wide was encountered in Trench 7. The building was divided into four 'rooms', with varying widths, while the internal partition walls had less substantial post-holes compared to the main walls. The smallest, northern most, room contained a storage pit, while the next room to the south produced a flint-packed hearth, but neither of the two largest rooms had internal features.

Structure 3 had a curved west wall which bowed outwards in the centre of the building and both the north and south walls were also slightly curved. Other structures with curved walls are known from elsewhere in Hamwic. Structure 8 at St Mary's Stadium, with an 11m curved long wall is a recently excavated example (Birbeck *et al.*, 2005, 96–7). Other examples have been found at Six Dials (Andrews 1997): at SOU 31 Structure 1 consisted of a 7m long curved wall, while Structure 15 was a more classic bow-sided structure. Andrews (1997, 56, 86, 112) dated these examples to the first half of the 8th century AD. In the southeast of Hamwic, Structure 1 (SOU 21), was a Late Saxon, post-built, slightly bow-sided building, 5.8m wide at its greatest extent and at least 8.5m long (Morton 1992, 157).

The example from St Mary's Stadium was unable to be closely dated, but the other examples demonstrate that this style of building was current from the early eighth century until the Late Saxon period. Few of the buildings from Hamwic demonstrate regular plans, however, which suggests that little importance was placed on achieving straight walls. The examples of curved walls are probably just the extreme of a wide range of building styles and probably had little cultural significance.

Nearly all of the post-hole fills of Structure 3 contained abundant amounts of charcoal, while most also contained burnt clay or daub fragments. In several places the natural brickearth was burnt around the post-holes demonstrating that the building had burnt down. The upper fills of the surrounding pits contained similar material. The charcoal in the post-holes was either oak or hazel, with one possible fragment of ash and it can be suggested that the building had oak structural timbers with hazel wattle infill, daubed with brickearth. Examination of the daub showed that it had been applied to a wattle substructure woven from rods of two sizes. In some cases it appeared that the thinner rods were woven in pairs. A number of the daub fragments had flat edges, presumably from where they met timber components. This suggests that the structural timbers were sawn or cleft rather than being rough, round, poles.

The post-holes also produced charred plant

remains. The most common were cereals, predominantly barley, followed by wheat. Oats were present but their low numbers indicate that they may have been a weed in the crop. The grain had presumably been stored in the building in some quantity and had not been rescued from the fire. Other possible foods are represented by hazel nut shells, a fragment of pea, and a possible piece of charred bread. Fruiting bodies from sedge and spike rush could have been remnants of thatch, but no obvious charred thatching material was found.

Other artefacts from the burnt layers around the building included evidence of craft activity including an antler offcut, a loomweight, hearth lining and smithing hearth bottoms. The absence of hammer scale shows that iron working did not take place within Structure 3. Also incorporated in the destruction deposits were 78 sherds of pottery, the majority of them imported wares. A number of the sherds were spalled, perhaps caught in the fire, or suggesting use as cooking vessels.

The function of this building is not clear. The burnt floor surfaces suggest that it had a surface of beaten earth. The hearth with its bed of burnt flints shows that the building was heated and also that cooking probably took place. No evidence was found for what, if anything, the pit contained, or whether it had been covered. The numerous stake-holes at its north end, suggest that it may have been associated with craft activity, such as textile production where the loom needed to be held fast. The other pits included evidence of crafts, in particular iron working, but there was no evidence from the soil samples that it took place in the building and the presence of charred barley and oats suggest that grain had been stored in the building when it was destroyed by fire. The position of the building, at the very south end of Hamwic, and overlooking a low lying marginal area, might suggest that it was involved in farming, but it is difficult to square this idea with the high proportion (50%) of imported wares, which argues against such an association.

The building shares a number of attributes with other examples from Hamwic. Of the 68 structures from Six Dials (Andrews 1997) 31% had internal hearths, 34% had internal pits,

and 26% had partitions. Only one, Structure 31 dated to the period AD 750–800, had all three: it was 10.5m by 5m in size, and was divided into three rooms, with an internal storage pit in the north room and a hearth in the next. It is thus very close in size, range of internal fittings and date to Structure 3. Structure 48 of the first half of the eighth century was another similar building: 12m long by 5m wide; the north end was partitioned off into two rooms (2m and 1.5m wide) that contained a small storage pit in the north-west corner. In this case there was no hearth.

Buildings of similar size and construction are known from other Saxon sites, such as Chalton (Hampshire) (Addyman & Leigh 1972 and 1973), Mucking (Essex) (Hamerow 1972), and Catholme (Staffordshire) (Losco-Bradley & Kinsley 2002). Buildings such as Structure 3, some 11m in length, are towards the upper end of the scale, although considerably smaller than the large halls excavated at the elite sites of Yeavering (Northumberland) and Cowdery's Down (Hampshire) (Dixon 2002, 95). Within the context of Hamwic, Structure 3 is one of the larger examples (Andrews, 1997, 53, fig. 22), and in combination with the high proportion of imported pottery should perhaps be seen as having been occupied by an elite.

Structure 3 was probably built in the late 7th or early 8th century. One radiocarbon date suggests the hazel for the wattle walls was cut down in the late 7th or first half of the 8th century, AD 685–755. The dates for the carbonised barley, assumed to be contemporary with the destruction of the building, are harder to interpret. One suggests AD 690–750, the other AD 805–855. The pottery assemblage suggests a date shortly after 750. The building could have been constructed and burnt down within a period of only a few years, perhaps around 750AD, or it may have existed for a generation. If the latter is correct then by this time its earthfast posts may have been beyond repair and the fire that destroyed it may have been deliberate in order to clear the area, although whichever was the case, the site appears not to have been reoccupied during the life of Hamwic.

Phase 4 consisted of two pits, 207 and 213 (Trench 6). They both contained mixed-grit

pottery, which is considered to be a marker of mid-to late-Middle Saxon activity in Hamwic. No other late fabrics were present and a date in the late 8th century is likely. The pits may have been contemporary. One pit contained a crucible fragment with copper residue, while the soil in pit contained traces of copper, zinc, tin and lead and produced a crucible fragment with silver residue. Crucibles are known from twelve sites in Hamwic – a distribution that covers the whole town (Bayley in Hinton 1996). In each site, crucibles had been used for copper alloy, seven sites had examples associated with silver, and three had examples that had been used for gold. In this context the examples from SOU 1332 are not particularly unusual. Industrial activity is also represented in phase 4 by pieces of slag and hearth lining from iron-working, and a loomweight from textile production. Finished artifacts include an iron stud, a copper alloy-plated iron object, and copper alloy tweezers. Taken together, the evidence indicates that in the mid-8th century a metal-worker was in the vicinity who mainly specialised in non-ferrous metals. Similar small craft workshops were postulated at the Royal Opera House site in London where crucibles for copper alloy and silver were found (Malcolm *et al.* 2003, 179).

The environmental data collected from the column samples and background samples from the Saxon pits from SOU 1332 have helped to place this part of the Middle Saxon town in context. The lower parts of the column samples, which have been attributed to the Saxon/medieval periods, showed much tree/shrub pollen declining to show a dominance of grassland/pasture, with some tree and shrub pollen. Hazel was of importance, probably forming local scrub or hedgerows, along with oak. The Saxon pits produced similar evidence, with elm in addition. Pit 305 produced pollen of walnut, a Roman introduction. Only one Saxon pit showed signs of salt marsh species, suggesting the marsh had not formed at that time; rather the upper levels of the column samples showed a rise in freshwater marsh plants, such as sedge. These suggest the Itchen was being ponded back by rising sea levels. The grey deposits of the Salt Marsh levels, marked by high levels of pine and oak pollen, lay

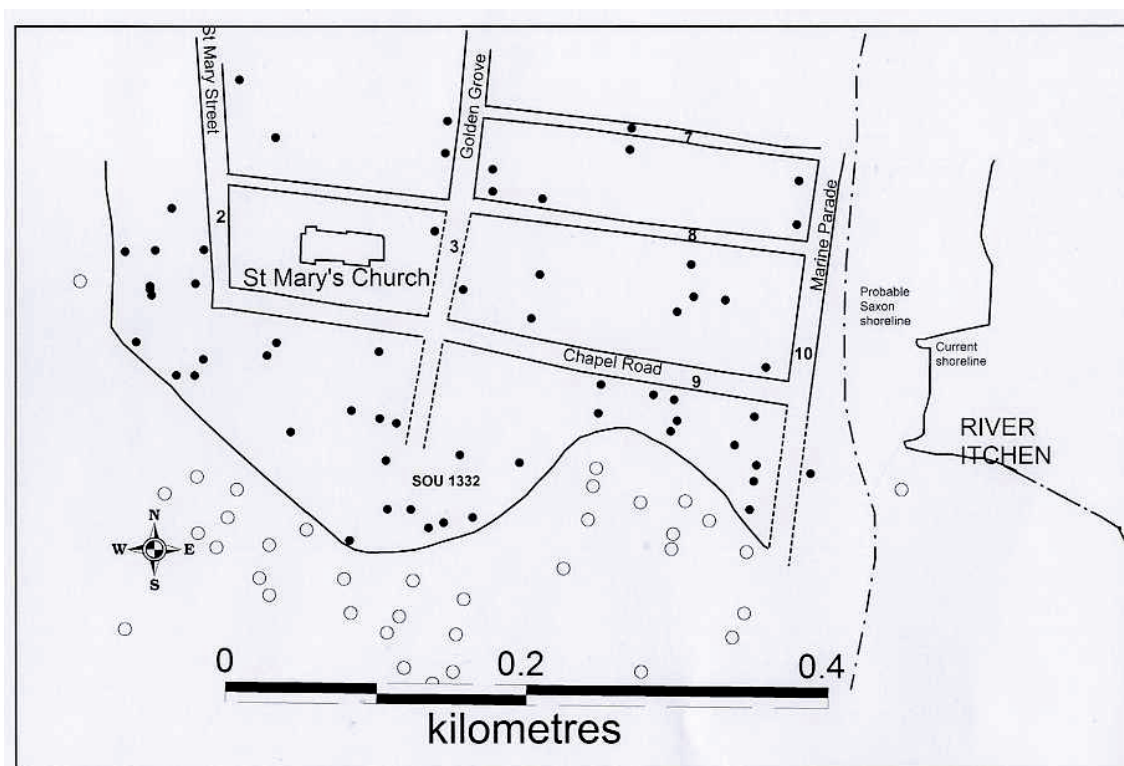


Fig. 15 The archaeology of the southern end of Hamwic. Solid circles indicate investigations that produced Saxon occupation, open circles those that did not. Roads with solid lines after Morton 1992, roads with broken lines conjectural. A southern limit to Hamwic is suggested

towards the top of the columns and the high levels of pine pollen suggest a post-medieval date for the inundation of the area, leading to the spread of salt marsh to the north of Marsh Lane.

Across the excavated area Trench 6 shows the most intensive use of space with pits being dug in Phases 1, 2 and 4, and evidence of textile production and metal working in Phases 1 and 4. No evidence of late-Middle Saxon activity was found, although the possibility that it exists outside the limits of the excavation cannot be discounted.

THE LAYOUT OF THE SOUTHERN END OF HAMWIC

Over fifty archaeological sites, from watching briefs to full excavations, many consisting of

multiple trenches, have taken place at the southern end of Hamwic (Fig. 15). In light of the recent work this is a good opportunity to assess the evidence for the layout, topography, and economy in the southern part of the town.

Morton has produced a putative street plan for Hamwic (Morton 1992, 33, fig. 10d). Chapel Road, Morton's Street 9, runs east-west across the southern end of Hamwic. It lies parallel to other east-west Saxon streets and at its east end (SOU 92) consisted of at least five layers of gravel some 6.4m wide (Morton 1992, 36). No features were found beneath the gravel surfaces and like other streets within Hamwic it is assumed to be a primary feature of the Saxon town. The first surviving reference to it dates to 1217, and unlike most of the other east-west Saxon streets it still survives today. As such it must have been a key element in the layout of

the southern part of Hamwic, and is assumed to have been one of the major links between the town and its waterfront.

The southwest corner of Hamwic is in the Cook Street area (SOU's 254/567/823). To the west of St Mary Street, the main north-south street (Morton's Street 2), a boundary ditch marked the western limit of Middle Saxon activity, and east of the ditch was a cemetery with perhaps 50 burials. A late 7th century date is suggested by a female burial accompanied by linked pins and other burials within a penannular ditch, and the cemetery probably continued to be used into the 8th century (Garner 2001, 181). It is unclear when the cemetery went out of use, but the area to the east of it was used for habitation, evidenced by pits, some with cess deposits, and post-holes, presumably from buildings. Evidence of industry included iron slag, crucibles, and bone- and antler- working debris. Saxon occupation was densest towards the east of the site, assumed to be an indicator of the presence of Morton's Street 2, St Mary Street. That said, no evidence of pre-modern metallurgy has been found to the west of St Mary's churchyard, and it has been suggested that this corner of the town might have had a different function, perhaps that of a *monasterium* (Morton 1999, 56).

Further to the east a number of investigations have been made in the Deanery area, including the present work. These have shown a concentration of occupation evidence towards the north, just south of the present line of Chapel Road. At SOU 184, south of St Mary's church and to the west of the present site, some 35 pits were found, together with a well and post-built structures. Spindle whorls and loomweights point to textile production, while crucibles show specialist metal working. In the southern part of the Deanery grounds a number of excavations have revealed that the area was little used in the Saxon period, with a scatter of pits north of a possible boundary ditch. This ditch may have marked the boundary of the settled area, if so it was much smaller than the boundary ditch at the north end of Hamwic. It was similar in size to the Cook Street ditch, and it has been suggested that they formed a single feature (Garner 1994, 121). It has not been found to the east of the Deanery area.

Dense Middle Saxon occupation seems to have stretched furthest south at the present site, marked by the buildings and pits in Trench 6, but this southern spread was also seen just to the west on the eastern side of SOU 184. To the south and east of this peninsula of occupation, situated at some 1.7m OD, the ground drops down towards the east into a shallow basin at c.1.4m OD. Saxon occupation has been found down to 1.65m OD but no lower in this area.

This low-lying area does show evidence of prehistoric settlement at 1.2m OD, but seems to have been avoided by the Saxons, suggesting it was inhospitable by then. By the medieval period it was probably marginal land and needed numerous ditches, perhaps to keep it dry, with evidence of inundation in the post-medieval period when grey silty clay formed across the area. Present high tide is at some 1.7m OD. The water probably came in from the south, filtering in and out through the shingle bank on which Canute Road now runs, and creating the north-south aligned watercourse (4.5m wide and 1.15m) deep found at SOU 573 to the south of the Deanery site.

Further east towards the Itchen, beyond the low-lying basin, the ground rose again, and dense Saxon occupation has been found south of Chapel Road's east end. SOUs 14/1240 revealed at least two post-built structures together with 56 Saxon pits. Crafts were represented by melted glass and iron slag, with large amounts of bone- and antler- working waste. A definite fall-off in density of features to the south could be seen (Ellis & Andrews 2006, fig. 3).

The Saxon occupation continued to the east towards the Itchen shore. Occupation here has been found at SOU 652, where a number of Saxon pits were found to the east of Marine Parade. Only one was investigated, it was interpreted as a cess pit, and contained local and imported pottery, iron slag and a Roman intaglio. The top of the brickearth adjacent to the pits was at 1.4m OD. Land was therefore being occupied that was closer to the high tide level compared to those areas south of Chapel Road which were unoccupied. Closer to the shore, at 1.2m OD, there was no evidence of Saxon occupation.

The layout of the southern end of Hamwic

would therefore seem to have been controlled by the need to have access to a street, or a waterfront. On the western side of the town occupation was densest towards the line of St Mary Street, and on the strip of land just south of Chapel Road. South of St Mary's Church occupation spread further south, on the east side of SOU 184 and on the west side of SOU 1332, and the presence of buildings here raises the possibility of a north-south street to the south of Chapel Road, perhaps a continuation of Morton's Street 3, the central north-south street through Hamwic. No evidence of metalling has yet been found so, if present, the road was not as substantial as the main Hamwic thoroughfares. This putative street perhaps gave access to the fields to the south of the settlement, where archaeological watching briefs have found evidence of ploughed fields with occasional Saxon pottery sherds and fragments of animal bone. An unmetalled short street was found at Six Dials, running between the main north-south street and the boundary ditch to the west of the settlement (Andrews 1997, 27 & fig. 13). The southern spread of settlement by the waterfront, to the east of the Deanery site, also suggests a further street in this area, a southern continuation of Morton's Street 10.

The southern edge of Hamwic does not seem to have been formed by an artificial boundary such as a ditch. The work at Cook Street and the Deanery shows that a ditch existed in the

southwest corner of the town, but it does not seem to have continued to the Itchen shore. Rather than being a boundary to the town, it was perhaps a boundary to Morton's *monasterium*. Neither does the edge of the settlement seem to have been dictated by topography, the low lying land along the waterfront was occupied, but the higher ground to the west was not. None of the southern sites have produced the density of settlement seen at Six Dials, in the northern part of the Saxon town, although the southern part was utilised from the early period (as evidenced by the Cook Street cemetery) to the later period (as evidenced by the Late Saxon buildings at SOUs 16/21/22 to the south of Chapel Road (Morton 1992).

The archaeological evidence to date would suggest that the southern part of Hamwic was less intensively occupied than the northern part, despite the purported presence of a trading shore at the end of Chapel Road. This trading shore should have been the place where Hamwic generated wealth from international trade, the fact that it seems less intensively used throughout the life of the settlement implies that the economic focus of the town was in its interaction with its hinterland. Hamwic was perhaps more thoroughly embedded in Wessex, economically and politically, and less in international trade, than has hitherto been thought.

REFERENCES

- Addyman, P & Hill, D H 1968 Saxon Southampton: a review of the evidence, part 1, *Proc Hampshire Fld Club Archaeol Soc* **25** 61–93.
- Addyman, P & Hill, D H 1969 Saxon Southampton a review of the evidence. Part II Industry, trade and everyday life', *Proc Hampshire Fld Club Archaeol Soc* **26** 61–96.
- Addyman, P, Leigh D & Hughes, M 1972 Anglo-Saxon Houses at Chalton, Hampshire, *Medieval Archaeol* **16** 13–31
- Addyman, P & Leigh, D 1973 The Anglo-Saxon Village at Chalton, Hampshire, *Medieval Archaeol* **17** 1–25.
- Andrews, P 1997 *Excavations at Hamwic Volume 2: excavations at Six Dials*, (CBA Res Rep **109**), York.
- Barber, K E 1981 Pollen-analytical palaeoecology in Hampshire: problems and potential, in Shennan, I & Chadla-Hall, T (eds), 1981 91–94.
- Bennett, K D, Whittington, G & Edwards, K J 1994 Recent plant nomenclatural changes and pollen morphology in the British Isles, *Quaternary Newsletter* **73** 1–6.
- Biddle, M 1990 *Dress and Hair Pins*, in Biddle, M *Object and Economy in Medieval Winchester*, Winchester Studies **7ii**, Oxford, 552–60.
- Birbeck, V, Smith, R, Andrews, P & Stoodley, N 2005 *The Origins of Mid-Saxon Southampton: excavations at the Friends Provident St Mary's Stadium 1998–2000*, Wessex Archaeology, Salisbury.

- British Geological Survey, 1973 *Geological Survey of Great Britain (England and Wales) – Drift*. Sheet 315.
- British Geological Survey, 1987 *Geological Survey of Great Britain (England and Wales) – Drift*. Sheet 315.
- Brodribb, A C C, Hands, A R & Walker, D R 1972 *Excavations at Shakenoak Farm, near Wilcote, Oxfordshire. Part III: Site F*, Oxford.
- Campbell, G 1994 The preliminary archaeobotanical results from Anglo-Saxon West Cotton and Raunds, in Rackham, J (ed.) *Environment and Economy in Anglo-Saxon England: a review of recent work on the environmental archaeology of rural and urban Anglo-Saxon Settlements in Southern England*. (CBA Res Rep 89), York. PP
- Davies, Rev. J S 1883 *A History of Southampton*, Southampton.
- Dixon, P 2002 The Reconstruction of the Buildings, in Losco-Bradley & Kinsley, 2002 89–99.
- Ellis, C & Andrews, P 2006 A Mid-Saxon site at Anderson's Road, Southampton, *Proc Hampshire Fld Club Archaeol Soc* 61 81–133.
- Evison, V I 1987 *Dover: Buckland Anglo-Saxon Cemetery*, HBMC Archaeological Report 3, London.
- Foreman, S, Hiller, J & Petts, D 2002 *Gathering the People, Settling the Land. The Archaeology of a Middle Thames Landscape. Anglo-Saxon to Post-Medieval*. Thames Valley Landscapes Monograph 14, Oxford
- Flower, N 1977 *Forestry and land-use in the New Forest*, unpubl Ph.D. thesis of University of London.
- Garner, M F 1990 Cook Street, in Morton, A D (ed.) 1990 *Southampton Archaeology and Heritage Management Section Annual Report 1990*, Southampton City Council.
- Garner, M F 1994 Middle Saxon evidence at Cook Street, Southampton (SOU 254) *Proc Hampshire Fld Club Archaeol Soc* 49 77–127.
- Garner, M F 1997 Report on the Excavation of Test Holes at 18–21 St. Mary Street and Land to the Rear of Capella House, Southampton, Southampton City Council Archaeology unpubl Unit Report 151.
- Garner, M F 2001 A Middle Saxon Cemetery at Cook Street, Southampton (SOU 823), *Proc Hampshire Field Club Archaeol Soc* 56 170–91.
- Garner, M F & Brisbane, M 1984 Archaeological Investigations at The Deanery, St. Mary's, Southampton, Southampton City Council Archaeology unpubl Unit Report 286.
- Garner, M F & Vincent, J 1997 Further middle Saxon evidence at Cook Street, Southampton (SOU 567), *Proc Hampshire Fld Club Archaeol Soc* 52 77–87.
- Goffin, R 2003 The Quernstones, in Malcolm, Bowsher & Cowie 2003, PP
- Green, F 1981 Iron Age, Roman and Saxon Crops: the archaeological evidence from Wessex, in Jones, M & Dimbleby, G (eds) *The Environment of Man – the Iron Age to the Anglo-Saxon Period*, (BAR Brit Ser 87), 129–153.
- Green, F J 1994 Cereals and plant foods: a re-assessment of the Saxon economic evidence, in Rackham, J (ed.) *Environment and Economy in Anglo-Saxon England*, (CBA Res Rep 89), York, 83–8.
- Hammond, P W 1993 *Food and Feast in Medieval England*, Gloucester.
- Hamerow, H 1993 *Excavations at Mucking, Volume 2: the Anglo-Saxon settlement*, English Heritage, London.
- Haskins, L E 1978 *The Vegetational History of South-East Dorset*, unpubl Ph.D. thesis, University of Southampton.
- Hinton, D 1996 *The Gold, Silver and Other Non-Ferrous Alloy Objects from Hamwic*, Southampton Finds Vol. 2, Southampton.
- Hunter, J R & Heyworth, M P 1998 *The Hamwic Glass*, (CBA Res Rep 116), London.
- Kaye, J M 1976 *The Cartulary of God's House Hospital*, Southampton Record Series 19.
- Leivers, M & Russel J I 2000 Archaeological Evaluation of land at the Deanery, Chapel Road, Southampton SOU 1055, Southampton City Council Archaeology Unit unpubl Report 414.
- Long, A J, Scaife, R G & Edwards, R J 1999 Pine pollen in intertidal sediments from Poole Harbour, UK; implications for late-Holocene sediment accretion rates and sea-level rise, *Quaternary International* 55 3–16.
- Losco-Bradley, S & Kinsley, G 2002 *Catholme: an Anglo-Saxon settlement on the Trent Gravels in Staffordshire*, Nottingham.
- Malcolm, G, Bowsher, D & Cowie, R 2003 *Middle Saxon London: excavations at the Royal Opera House 1989–99*, MOLAS Monograph 15.
- Mead, V & Russel J I 2001 Report on the Archaeological Evaluation of Anderson's Road

- Lorry Park area to the north of Anglesea Terrace and to the West of Paget Street, Southampton (SOU 1083), Southampton City Council Archaeology Unit, unpubl report 440.
- Moore, P D & Webb, J A 1978 *An Illustrated Guide to Pollen Analysis*, London.
- Moore, P D, Webb, J A & Collinson, M E 1991 *Pollen analysis* (2nd ed.), Oxford.
- Morton, A D (ed.) 1992 *Excavations at Hamwic: vol 1*, (CBA Res Rep 84), London.
- Morton, A 1999 Hamwic in Its Context, in Anderton, M (ed.) *Anglo-Saxon Trading Centres: beyond the Emporia*, Glasgow, 48–62.
- Morton, A D 2005 Pottery Distribution, in Birbeck *et al.* 2005, 123–28.
- Ottaway, P 1990 *Anglo-Scandinavian Ironwork from 16–22 Coppergate, York, c850–1100AD*, unpubl Ph.D. thesis, University of York.
- Riddler, I D forthcoming Objects of Copper Alloy and Silver, in Tester, A & Carr, R A *High Status Middle Saxon Settlement at Staunch Meadow, Brandon*, East Anglian Archaeology, Gressenhall.
- Rogers, N S H 1993 *Anglian and Other Finds from Fishergate*, The Archaeology of York 17/9, London.
- Russel, A D The Late Saxon metalwork, in Russel J I forthcoming *Excavations at the West Quay Shopping Centre, Southampton*, Hampshire Field Club and Archaeological Society Monograph Series.
- Russel, J I 1999a Archaeological Evaluation of Land at ‘Synergie’ site, Anderson’s Road, Southampton SOU 952, Southampton City Council Archaeology Unit unpubl Report 239.
- Russel, J I 1999b Archaeological Evaluation of Land at Eastern District School, Anderson’s Road, Southampton SOU 953, Southampton City Council Archaeology Unit unpubl Report 240.
- Russel, J I 1999c Archaeological Evaluation of Land at Anderson’s Road Lorry Park, Anderson’s Road, Southampton SOU 956, Southampton City Council Archaeology Unit unpubl Report 242.
- Russel, J I 1999 Summary Report on Archaeological Evaluations of Land at Anderson’s Road Lorry Park and Adjacent Areas, Chapel, Southampton SOU 952, 953, 954, 956, Southampton City Council Archaeology Unit unpubl Report 243.
- Russel, J I 1999 Archaeological Evaluation of Land at City College Annexe Anderson’s Road, Southampton SOU 954, Southampton City Council Archaeology Unit Report unpubl 241.
- Russel, J I 1999 Archaeological Watching Brief and Excavation at Trimline, Paget Street Southampton SOU 986, Southampton City Council Archaeology Unit unpubl Report 262.
- Russel, J I 2004 Archaeological Watching Brief on Land at the Deanery School Southampton SOU 1277, Southampton City Council Archaeology Unit unpubl Report 642.
- Russel, J I 2005a Archaeological Summary Report on Evaluation of Land at the Deanery School Southampton SOU 1332, Southampton City Council Archaeology Unit unpubl Report 683.
- Russel, J I 2005b Archaeological Summary Report on Excavation of Land at the Deanery School Southampton SOU 1332, Southampton City Council Archaeology Unit unpubl Report 692.
- Russel, J I 2006 Assessment Report on the Archaeological Investigations at The Deanery School, Chapel Road, Southampton SOU 1277 and 1332 Southampton Archaeology Unit unpubl Report 709.
- Scaife, R G 1980 *Late-Deviensian and Flandrian Palaeoecological Studies in the Isle of Wight*, unpubl Ph.D thesis, University of London.
- Scaife, R G 2006 The Pollen pp.116–122, in Ellis, C & Andrews, P A Mid-Saxon site at Anderson’s Road, Southampton, *Proc Hampshire Fld Club Archaeol Soc* 61 81–133.
- Scaife, R G & Long, A 2000 Bio-stratigraphical Markers and their Application to Coastal Sedimentary Dynamics, in *Coastal Change, Climate and Instability*, European Commission LIFE project (LIFE-97 ENV/UL/000510 (1997–2000)), Isle of Wight Council, 26–32.
- Shennan, I & Schadla-Hall, T (eds), *The Archaeology of Hampshire*, Hampshire Field Club and Archaeological Society Monograph 1.
- Stace, C 1991 *New flora of the British Isles*, Cambridge.
- Stockmarr, J 1971 Tablets with spores used in absolute pollen analysis, *Pollen et Spores* 13 614–621.
- Stoodley, N 2005 *Discussion: the Early Cemetery and its place within southern England*, in Birbeck, *et al.* 2005, 75–81.

Stuiver, M & Polach, H A 1977 *Radiocarbon* **19**
355–363.

Watson, P V 1982 *A Palynological Study of the Impact of
Man on the Landscape of Central Southern*

*England, with Special Reference to the
Chalklands*, unpubl Ph.D. thesis, Uni-
versity of Southampton.

Author: J I Russel MIFA, Southampton Archaeology Unit, 93 French St, Southampton, SO14
2DY

© Hampshire Field Club and Archaeological Society