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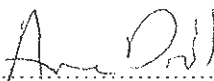
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Prepared by: S Clough
Position: Osteoarchaeologist
Date: 25th July 2006

Checked by: A. Hardy
Position: Senior Project Manager
Date: 31 July 2006

Approved by: Anne Dodd
Position: Director of Post-excavation
Date: 25 September 2006

Signed 

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Oxford Archaeology

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Janus House

Osney Mead

Oxford OX2 0ES

t: (0044) 01865 263800

f: (0044) 01865 793496

e: info@oxfordarch.co.uk

w: www.oxfordarch.co.uk

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EXCAVATIONS AT ST LAWRENCE PRIMARY SCHOOL, ALTON, HANTS.

POST-EXCAVATION REPORT

By Sharon Clough

With contributions by Leigh Allen, John Cotter, Rebecca Devaney, Emily Edwards, Seren Griffiths, Cynthia Poole

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Summary

During August and September 2005, Oxford Archaeology (OA) carried out an archaeological excavation at St Lawrence Primary School, Alton, Hampshire (NGR SU 71765 39650). The work was commissioned by Gifford and Partners, following previous evaluation work on the site for Hampshire County Council, in advance of a proposed extension to the school's existing buildings.

The excavation revealed 56 single earth-cut graves containing single inhumations. These dated two distinct phases of activity: early medieval (12-13th centuries) and post-medieval (18-19th centuries). The medieval burials produced evidence for burial practice, including 'ear-muff' stones and early coffins. One adult female was buried holding a stone spindlewhorl.

The post-medieval inhumations were bounded to the north by a boundary ditch, wall and fence line, their NE - SW orientation clearly respecting this land division. The inhumations had been interred within fairly modest wooden coffins, some decorated with coffin furniture. The style of two grip plates has not previously been catalogued. Amongst the burials found was a child of 5-6 years with a set of marbles placed at its feet.

Osteological assessment of human bone revealed a fairly healthy population in both the medieval and post-medieval periods. However, one infant showed evidence of early congenital syphilis.

A little residual Bronze Age flint and pottery was recovered but the bulk of the finds assemblages dated to the two main periods of activity.

In November 2005, a watching brief was undertaken in the area immediately adjoining the existing school building, revealing a series of four pits, all post-medieval in date and truncated by the existing school building. A further watching brief in July 2006 for a pipe trench, adjacent to the north-eastern edge of the excavation area, revealed no archaeological features.

1 PROJECT BACKGROUND

(Figs 1 & 2)

- 1.1.1 In August and September 2005, and November 2005, archaeological work was undertaken by Oxford Archaeology (OA) in the grounds of St Lawrence Primary School, Alton, Hampshire, on behalf of Gifford and Partners for Hampshire County Council. Following a desk based study and an archaeological evaluation, the site was deemed to have archaeological potential. Oxford Archaeology began work in August 2005 on two areas, one for new buildings as an extension to the existing school (Area 1) and the other for a new hard surface play area (Area 2).
- 1.1.2 After stripping the site, it became clear that the area of mitigation impacted on the graveyard of St. Lawrence's church. There were 56 single graves dating from the early medieval (12th and 13th centuries) and post-medieval period (18th and 19th centuries), and post-medieval features associated with a possible boundary. There was also evidence for features associated with post-medieval agricultural activity, and residual evidence for prehistoric activity.

1.2 Location, topography and geology

- 1.2.1 The following information is taken from St. Lawrence Church of England Primary School, Alton Archaeological Impact Assessment for Hampshire County Council Forum Heritage Services (2002).
- 1.2.2 The Church of England Primary School of St Lawrence, Alton (NGR SU 71765 39650) is located to the north-west of the medieval parish church of St Lawrence. The site is bounded by Amery Hill to the north and Church Street to the east. The churchyard of the Church of St Lawrence lies on high ground overlooking the valley of the River Wey, which bisects the town of Alton. To the south and south-west, the land slopes steeply away to the valley bottom.
- 1.2.3 The underlying geology of the site is lower chalk, overlaid by riverine gravels and alluvial deposits. Overlying this is a yellowish brown sandy clay loam that is, or is similar to, brickearth.

1.3 Archaeological and historical background

- 1.3.1 The site lies within the former boundary of the 11th-century church of St. Lawrence, near the centre of Alton. The tower of the church dates to the Norman period and the carvings are dated to 1070 onwards (Couper 2002, 7), although it is thought there would have been an earlier timber church (a minster church) in the vicinity. The medieval church was extended several times and what we see today is mainly 15th century in date.
- 1.3.2 During the Civil War, documentary sources record a defensive ditch being dug to the north of the church in the churchyard in 1643. A barn was mentioned as defended by the Royalist soldiers and it is possible that this stood in the north-west corner of the churchyard and belonged to the manor farmhouse of Amery House. The barn may be the unidentified feature on the earliest map of Alton (see Figure 18) which was made 23 years after the battle (Wilson 2005).
- 1.3.3 In 1841 the National School was created. A piece of ground was conveyed adjacent to the churchyard, described as 'the yard and the site of the late barns, stables and other buildings belonging to the site of the Rectory of Alton for a school and a school teacher's house' (Couper 2002, 31). A school extension was built c.1890-1910.
- 1.3.4 Previous archaeological work in the vicinity consisted of work on the site of the former Amery House, which lay to the west of Amery Hill. A scatter of features and finds of different dates was found, including Mesolithic, Neolithic and Bronze Age flints, 2 probable Roman ditches, 2 probable Saxon pits, 2 medieval gullies and 2 probable 19th-century pits (Archaeology and Historic Buildings Record 34016, 34017, 34036, 34038, 34041, 34044).
- 1.3.5 Archaeological work on the school site during extension work consisted of a watching brief in 1998 (Brading 1998), a desk based assessment in 2002 (Forum

Heritage services 2002) and a site investigation within the school yard (Brading 2004). These works encountered post-medieval activity in the form of ditches/gullies and postholes.

1.4 Excavation methodology

- 1.4.1 The excavation consisted of two areas, one for the erection of extension buildings to the existing school (hereafter Area 1), 239.67 sq m in area (Fig. 2) and one for the creation of a hard surface play area (hereafter Area 2), covering 93 sq m.
- 1.4.2 Under close archaeological supervision, the two areas of impact were stripped of overburden by mechanical digger using a toothless ditching bucket.
- 1.4.3 In Area 1 the overburden of modern tarmac, concrete and gravel was removed and the ground was reduced to the level of the top of archaeological features. These were then hand dug. The graves were 100% excavated, with due care and consideration given due to the nature of these particular archaeological deposits. Where an inhumation extended beyond the boundary of the area of impact, skeletal remains beyond the baulk were left *in situ*. The rest of the skeleton was recorded and removed for analysis and reburial.
- 1.4.4 Slots (1 m in width) were excavated at right angles to the long axis of linear features in order to characterise the cut and deposits, and to recover artefactual dating material. Circular features were half-sectioned, and their profile and sequence of deposits were recorded.
- 1.4.5 Area 2 was reduced to 0.5 m below the present ground surface to the limit of impact. As no further ground work was to take place in Area 2, the archaeological features were left *in situ* and recorded in plan only.
- 1.4.6 Each deposit was given a unique context number, and where skeletons were encountered these were revealed and recorded by rectified digital photography and subsequently plotted using Auto Desk Map 2004 (CAD) to create an accurate plan of the burial. Colour-transparency and black-and-white negative photographs were taken of each deposit and feature. Sections and plans where appropriate were drawn to a scale of 1:10 or 1:20. Environmental samples were taken from around the skeletons for the retrieval of small bones and artefacts, and charred, mineralised and calcified remains. Finds were recovered by hand and bagged by context, finds of special interest were given a small find number and their location recorded three dimensionally. All recording was done in accordance with established OA practices as detailed in the OA fieldwork manual (Wilkinson 1992).

2 RESULTS

2.1 General

- 2.1.1 The earliest deposits encountered on site were the Pleistocene river and valley gravels. These were exposed in the bottom of the deepest graves (at 110.3 m OD, 1.8 m below the level of the modern playground surface). Above the gravel lay an orange brown sandy clay loam (brickearth), mixed in patches with rounded/subangular flint gravels. This was exposed at a depth of 0.3 m below ground level in the north of the site and at 0.7 m - 0.9 m in the south where the graves and other features lay. The features, which were predominantly graves, were clearly defined and there was little modern truncation. The limited stratigraphy between features, such as the ditches, is not thought to have seriously compromised the overall understanding of the site.
- 2.1.2 The earliest evidence for activity on site is inferred from residual evidence. Grave group 1330 had three sherds of early Bronze Age grog-tempered pottery and 6 scrapers from the late Neolithic/early Bronze Age. It also had frequent charcoal and two fragments of *Corylus avellana* (hazel nutshell). It is therefore inferred from this evidence that grave group 1330 (fill 1332) cut through an early Bronze Age feature. Fired clay, probably from a hearth, was found in features close to grave group 1330, which may represent associated activity (see specialist report - Section 7.5). There is further evidence for late Neolithic/early Bronze Age activity in the area from the 255 pieces of worked flint (discussed in the flint report - Section 7.4) recovered from the fill of the graves and other features. Layer 1351 had two fragments of residual late Bronze Age/early Iron Age pottery. Given the location of the site on the high ground just above the river on the gravels, the evidence indicates that there was prehistoric activity in the immediate area.

2.2 The phasing

- 2.2.1 The chronological phasing of the principal archaeological deposits is based on a combination of the stratigraphy of the features and the orientation and spatial relationships of the graves, in conjunction with the dating of associated finds, principally the pottery. The phasing framework is as follows:
- Phase 1: Early medieval (12th - 13th century)
 - Phase 2: Late medieval - early post-medieval (14th - 17th century)
 - Phase 3: Post-medieval (18th - mid 19th century)
 - Phase 4: Early modern/modern (late 19th - 20th century)

The features are referred to by cut number and the graves are referred to by grave group number.

3 AREA 1

(Figs 3 and 5)

3.1 Phase 1: 12th - 13th centuries

- 3.1.1 This period is dominated by graves aligned SW-NE. Given that the church tower is Norman (earliest reference 1070) if not earlier, and a possible earlier Anglo-Saxon timber church is thought to have stood on the site, then burials would have taken place from at least the 10th century onwards.
- 3.1.2 A late Anglo-Saxon (7th- to 8th-century) Wyvern decorated spherical pin (Fig. 19) was recovered from the fill of linear wall foundation 1019. This pin is residual in a post-medieval feature, but suggests Saxon activity in the area.

3.1.3 The burials have been dated artefactually to the 12-13th century. In some instances, burial practice (the use of 'pillow' or 'ear muff' stones) supports an early medieval date. The table below shows the graves that have been given this date (Table 1).

Table 1 : Graves of Phase 1 (12-13th century) (n=47; * not excavated)

Grave group number	Grave cut number	Skeleton number
1026	1027	1106
1032	1033	1035
1041	1042	1044
1046	1047	1048
1050	1040	1052
1061	1062	1063
1065	1066	1068
1073	1074	1077
1090	1091	1092
1094	1095	1096
1101	1017	1103
1110	1108	1107
1113	1114	1115
1117	1118	1120
1123	1124	1126
1130	1131	1129
1142	1143	1146
1149	1151	1150
1155	1156	1158
1159	1160	1162
1168	1169	1171
1172	1173	1175
1176	1177	1178
1198	1196	1199
1200	1193	1195
1204	1190	1192
1225	1226	1227
1232	1229	1231
1235	1236	1238
1242	1243	1244
1255	1249	1250
1256	1252	1253
1257	1258	1259
1270	1267	1269
1273	1274	1275
1277	1278	1279
1299	1296	1298
1300	1301	1303
1306	1307	1308
1328	1326	1325
1330	1331	1333
1338	1339	1341
1358	1354	1352
1359	1360	1346
1362	1363	1365*
1367	1355	1353
1368	1369	1370*

- 3.1.4 The graves were all aligned SW-NE and sub-rectangular in shape. The sides were vertical with a flat base. They were on average 0.5 m wide, 1.8 m long and 0.2 m deep (from reduced ground level). They contained firm, greyish brown, silty clay with frequent flint and charcoal fleck inclusions.
- 3.1.5 Eight of the graves contained small to medium sized angular green sandstone or flint stones, also known as 'ear muff' stones (see below and Figures 6 - 9). In each case these were located at the west end of the grave either side of the skull. There were also iron nails recovered from some of the graves (discussed below). An early medieval incised annular brooch (SF 537, Fig. 19) was recovered from a post-medieval grave fill. This grave had truncated an early medieval grave (1300), and it is likely that the brooch was from this earlier grave. A stone spindlewhorl (SF 681) (Fig. 19) was recovered from grave 1168, and dates to between the 11th and 13th centuries.
- 3.1.6 Other than graves, Phase 1 features mostly occupied the north eastern corner of the site and included a large shallow sub ovoid pit (1111), which contained some human bone, probably from the grave it truncated (1117). Another pit (1104), oval with a flat base and straight sides, has also been dated as early medieval from the pottery it contained. It cut grave 1101 and contained some human bone, probably from this feature. Within the same area a third shallow pit (1184), was also dated to early medieval period containing charcoal, pottery and flint in a mid grey silty clay. A nearby posthole (1182) measuring 0.18 m in diameter, contained early medieval pottery in a mid grey brown silty clay fill.

3.2 Phase 2: 14th - 17th centuries

- 3.2.1 This Phase is represented by an absence of archaeological activity on the site, other than possibly the accretion of a small scatter of finds, redeposited in Phase 3 features. The implications of this absence of activity is discussed below.

3.3 Phase 3: 18th-19th centuries

- 3.3.1 The features represent the final phase of use of the site before the school was constructed. The largest feature is the U-shaped ditch (1003) which runs NE-SW across the site, measuring approximately 1.0 m wide and 0.5 m deep (Figs 5 and 16). The ditch contained two fills (1004, 1025), the lower of which was a greyish brown fine sandy clay with inclusions of sub-angular flint gravels, indicating that the ditch was left open and this fill represented silting accumulation. The upper fill (1004) was dark orangey brown clay with sub-angular gravel inclusions, indicative of deliberate backfilling of the ditch, perhaps after it went out of use. The ditch (1003) cut through six Phase 1 graves, and redefines the northern boundary of the graveyard. Parallel to the ditch is a small gully (1019) containing a compact mix of chalk and flint that may have been a base for a wall defining the same boundary as 1003. Neither the ditch (1003) nor the gully (1019) were observed during the pipe trench watching brief (area defined on Figs 2 and 3). The trench for the watching brief went to a depth of 1 m and was 0.3 m wide. The first 0.7 m consisted of building rubble and the remainder of natural clay and flint (1002). This suggests that the ditch either stopped short of the modern pavement or the trench was neither deep nor wide enough to observe these features
- 3.3.2 It is proposed that the ditch was excavated after the northern boundary along Amery Hill had become obscured and the early graves unmarked. It was necessary to create a ditch and wall to divide the area occupied by farm buildings and later a school from the graveyard. It is also proposed that the line of postholes to the south-east of the

ditch (approximately 1.5 m away) is contemporary with the ditch, forming part of the boundary for the newly enclosed area in the north west part of the graveyard (postholes: 1395, 1153, 1133, 1399, 1055, 1053, 1166, 1239, 1261, 1241, 1208, 1206, 1221, 1223, 1304). These averaged 0.5 m wide x 0.5 m deep. Several still contained the postpipe and/or remains of a post (1239, 1241, 1395 and 1055). Of the postholes six have been dated to the 18th or 19th centuries by the pottery and building material they contain. Where the postholes truncated graves, human bone and coffin furniture were found in the fill.

- 3.3.3 After the establishment of the new boundary, there were several more interments. Nine post-medieval graves were excavated, oriented parallel with the posthole line and ditch 1003. These graves are on a slightly different alignment to the Phase 1 graves. They were the deepest and most elaborate on site (with coffin furniture, discussed later). They date from the late 1750s to the 1840s, from the coffin fittings and pottery finds. The deepest grave (1029) was 1.85 m deep (from playground level) and 1.8 m long by 0.6 m wide. The shallowest was 1185, only 0.12 m below the machine excavated level (1.02 m below the level of the playground). The composition of the fills was much more loose, dark and mixed than that of the Phase 1 graves.

Table 2: Graves of Phase 3 (18th-19th century) with their dimensions

Grave group number	Length (m)	Width (m)	Depth (m) below machined level
1029	1.8	0.6	1.5
1036	1.5	0.6	1.06
1141	1	-	0.4
1185	1.68	0.57	0.3
1203	1.1	0.48	0.12
1211	2.23	0.64	1.15
1215	2	0.6	0.52
1284	1.4	0.6	0.15
1316	2.2	0.7	0.42

- 3.3.4 An interesting feature in two of the graves (1284, 1211) were two slots across the width about a third of the way down the grave cut. These shallow features have been interpreted as where planks for lowering the coffin lay, and then rotted away.
- 3.3.5 Other post-medieval grave cuts were observed in the section of the baulk (Fig. 14). These appeared to lie directly under the tarmac of the playground. However, what is more likely is that as the ground surface was levelled for the playground it removed the layer sealing the grave, leaving the grave to be covered by a layer of tarmac.
- 3.3.6 A series of linear features (1310, 1281/1319, 1344) were revealed on the north side of ditch 1003, which have been dated to the post-medieval period. All appear to define the same boundary as does ditch 1003, although whether they were contemporary, earlier or later than ditch 1003 is unclear. Shallow gully 1344 was filled with compact chalk and flint and 0.2 m deep, 0.5 m wide, ran parallel to wall foundation gully 1019 at the west end. This is another wall foundation, though undated its orientation suggests it is contemporary with 1019. Wall foundation 1344 truncated and overlay grave 1326. In the evaluation (Brading 2004, 6-7), gully 1344 and ditch 1310 were identified as an early modern ditch (14) - possibly part of the Civil War defences, and a post-medieval ditch (16), possibly a boundary ditch of the cemetery respectively. The character of these features exposed in the excavation argues against the evaluation interpretations.

- 3.3.7 In the centre of the site, gully 1233, orientated N-S, cut through five graves (1041, 1032, 1073, 1176 and 1273), and was itself truncated by grave 1215. The gully measured over 4.0 m long (continuing into baulk), 0.5 m wide 0.3 m deep, and may have been a drainage feature, dug while this part of the graveyard was still in use.
- 3.3.8 A further short shallow ditch (1323) was identified in the northern part of the site. It was truncated by both a post-medieval pit (1389) and modern disturbance, and its orientation suggests it may well be associated with the agricultural activity, rather than the graveyard. A series of intercutting pits (previously mentioned) occupied the area to the north-west of the site. Pit 1389, which contained a large number of disarticulated horse bones was one of a series of intercutting pits in the north of the site, which also appear to relate to the farming activity, prior to the construction of the school.
- 3.3.9 Further pits (1419, 1421 and 1423), revealed during the watching brief, are considered to be associated with the creation or extension of the school (1890-1910). All features recorded during the watching brief were post-medieval or modern in date. They contained rubbish dumps associated with the construction and/ or renovation of the existing school buildings. As there were no human bones or coffin fittings yielded by these features, it is unlikely that they truncated further burials.
- 3.3.10 The earliest pit 1423 was 0.2 m deep and yielded a small post-medieval ceramic building material (CBM) fragment. The eastern and northern edges of pit 1423 were truncated by a modern cut that extended to the northern limit of excavation. Pit 1421 was rectangular in plan, extending c0.9 m from the eastern wall of the school building and was situated to the south of and partly truncated the southern edge of pit 1423. Pit 1421 was in turn cut by circular pit 1419 which extended 0.5 m east of the footings for the eastern wall of the school and was contained within the edges of pit 1421. This pit yielded several iron objects that included a nail with a square cross-section. Pit 1414 lay south and adjacent to E-W south wall of the school and revealed three distinct fills within it. The primary fill (1417) yielded no finds, but overlying fill 1416 contained fragments of CBM and a struck flint flake.
- 3.3.11 Posthole 1005 cut the boundary ditch 1003 and grave group 1232. This posthole was straight sided with a flat base 0.76 x 0.9 m with a depth of 0.28 m (Fig 15). In the centre was a post pipe (1247) vertically sided and 0.22 m in diameter. The pottery and the coffin fittings dated this feature to the 19th century or later.
- 3.3.12 During the life of the graveyard a soil layer (1018) developed, a firm greyish brown silty clay containing flint and charcoal. It also yielded grave material such as coffin furniture, human bone, shroud pins, the result of intercutting graves and levelling events, which merged the upper level of grave fills and existing buried soil horizon. The Phase 3 graves cut through this layer, suggesting the levelling event occurred sometime before these interments (see Figure 14). The whole graveyard was again levelled after World War 2, and gravestones were removed, with some relocated to their present site, around the churchyard perimeter (Couper 2002, 48).

3.4 Phase 4: 20th century

- 3.4.1 The phase is mainly represented by dumped layers or construction activity associated with building work relating to the Primary School. Some areas of the site revealed a layer of concrete below the tarmac or an orange gravel (Fig. 14), presumably levelling for the present tarmac. Features directly under the tarmac included a drain for the toilet block which once stood in the north-east corner of the site and associated walls (structure 1377, not illustrated) and posthole 1321.

3.5 Discussion of the stratigraphy

- 3.5.1 Part of the development of St Lawrence churchyard, Alton can be seen through this small excavated area in the north-east part of the cemetery. The earliest activity on the site is represented by the prehistoric flint and pottery recovered in the area. The recovery of an Anglo-Saxon pin (Fig. 19) from ditch 1003 suggests an Anglo-Saxon presence in the area. The first phase of burials took place in this part of the graveyard in the 12th to 13th centuries. These burials were occasionally inter-cutting though predominantly evenly spaced. The graveyard at this time extended as far as 3 m from the current pavement on Amery Hill road in the north-east corner to 6-7 m from the pavement in the west. There was no evidence for a boundary. The extended break in graveyard activity (Phase 2) is noteworthy, and can possibly be accounted for by a number of factors.
- 3.5.2 It may be that areas of the graveyard were filled on a rotation, to avoid over-crowding of the burials in certain areas. The use of the NW corner of the churchyard for agricultural purposes in the post medieval period may have rendered this area as less desirable for burial. Such sentiments may have been exaggerated by personal perceptions that the area north of the church was 'undesirable' for burial and was only suitable for unbaptised infants, outcasts and felons (Friar 2003). Another possibility is that, if a churchyard was defiled by bloodshed, which documentary sources say took place during the Civil War, it may have then been considered unconsecrated ground, and therefore not fit for burial until reconsecrated (Dymond 1999, 465).
- 3.5.3 The coffin fittings found in several graves suggest that burials began to take place again in the northern part of the graveyard in the 18th and 19th centuries. These graves were limited to one part of the excavated area and appear to have respected a boundary defined variously by a wall, a ditch, and then a bank and fence (these features have no direct stratigraphical relationship). The boundary's function was to separate the graveyard still in use from the north-west corner of the original churchyard, which was now used by both the agricultural buildings and later the National School.

4 AREA 2

(Fig.4)

- 4.1.1 This area was reduced to an average depth of 0.5m, the impact level. A single inhumation (1079) was encountered in the south-west corner of this area and seen in section only (Fig. 17) and then left *in situ*. While no clear dating evidence was recovered from deposits associated with the grave, its location - to the south of the Phase 3 boundary ditch 1003 - suggests that it is more likely to be a Phase 3 burial. The skeleton (partially) revealed was that of a juvenile of about 5 years of age. As there was to be no further groundwork it was decided to leave the burial and other archaeological deposits unexcavated and record in plan and section only. This area had evidence for brick structures (1080) and a layer of broken tiles (1083). The structure is possibly the foundation of a burial monument, a surviving example of which stands a few metres away, recorded as structure 1078 (not illustrated). It is assumed that this area would also have once been part of the graveyard but there were no further burials visible. It may be that these were masked by later deposits.

5 BURIAL PRACTICES

5.1 Phase 1: Medieval (12th - 13th centuries)

- 5.1.1 All of the individuals had been laid out in a supine position (on their backs), with their head to the west and their feet to the east. Where it could be determined, there was some variation in the positioning of the arms and/or head. The arms were either extended by the side of the body, both arms flexed over pelvis, or one or both arms much more tightly flexed and bent at the elbow across the chest. This is shown in Table 3.

Table 3: Summary of the position of the arms (N=31)

Both arms extended by sides	Left arm flexed, hand on pelvis	Right arm flexed hand on pelvis	Both arms flexed hands on pelvis	Left arm bent at elbow 90 degrees	Right arm bent at elbow 90 degrees	Both arms bent 90 degrees
22	0	0	6	2	1	0

- 5.1.2 For all burials, legs were fully extended and straight. Skull position was predominantly facing forward, although one of the skeletons had its skull facing north.
- 5.1.3 These practices are typical of the medieval period. The west-east orientation was normative by the Middle Ages and may be linked to the Christian belief in the day of judgement when the dead rise to meet Christ who appears in the east. Other explanations for this burial rite may be linked to the fact that the cross of Calvary faced west so those looking at Christ faced east and that the west is the region of shadows and darkness, and the east of goodness and light (Daniell 1997).
- 5.1.4 In addition to grave orientation, body position was also very standardised during the medieval period. Most burials were supine), other positions being generally reserved for criminals or deviants of some kind (Daniell 1997, 118).

Coffins

- 5.1.5 Of the 46 burials assigned to the early medieval period, 13 had evidence for a coffin. These were represented by coffin nails, ranging from 8 to 21, that had remained in position in the grave.
- 5.1.6 Analysis of the distribution of coffin nails by age and sex (Table 4) indicates that these variables did not significantly influence whether burial took place in a coffin or not. Coffins were made with wooden pegs, as well as nails and, therefore, the absence of latter does not necessarily mean that a coffin was not used. Little is known about coffins from this period as they tend not to survive the burial environment. A rare example is a 14th century one found on the site of the Carmelite Friary in Cowgate, Norwich. This was a simple plank-made affair, rectangular in shape and made of oak (Litten 1991, 89). This under-representation of early medieval coffins in the archaeological record has led some historians to suggest that they were used to transport the body, but they were not used for burial (*ibid.*). However, this practice is clearly not reflected at Alton where the early use of coffins is suggested.

Table 4: Phase 1 graves with evidence for a coffin

Coffin number	Grave group	Sex	Age (in years)
1088	1026	F??	Adult
No number assigned	1032	M?	Adult
No number assigned	1046	M	Adult
No number assigned	1050	F	40+
No number assigned	1065	N/A	5
1076	1073	M	30
1098	1094	N/A	5
No number assigned	1117	M	30
No number assigned	1168	F	60+
1210	1204	F	25-35
No number assigned	1232	?	Adult
1245	1242	F	50+
No number assigned	1330	?	Adult

Key: M=definite male, F=definite female, M?=probable male; F?=probable female; M?? possible male; F??=possible female; N/A=not applicable, ?=indeterminate

Pillow stones

- 5.1.7 Eight graves contained pillow stones (also known as 'ear muff' stones), that had been placed either side of the skull. (Figs 6 - 9). The standard explanation for these is that they kept the face up-right so that on Judgement Day, when the body would rise from the grave, the head would be facing east towards the risen Christ (Daniell 1997, 161). However, it is also suggested that the stones were connected with penance (Daniell 1997, 160). Typical medieval symbols of penance were sack-cloth and ashes, on which monks were laid before they died. In the *Chronicon Lemovicense* by Geoffrey of Vigeosis, however, stones are mentioned together with sack-cloth and ashes. In this account, when Henry, eldest son of Henry II, lay dying he was put onto the usual sack-cloth and ashes, but also had stones placed under his head and feet, and the noose of a condemned criminal around his neck. Taken together, all of these elements give a powerful impression of penance (Daniell 1997).
- 5.1.8 The examples from Alton usually involved 2 uncut stones, either of green sandstone or flint (Table 5). Two of these were from child burials (Plate 3), and possibly discount the theory that the stones were a symbol of penance; baptised young children would have accumulated less sin of which to repent. Unusually, four of the examples are associated with coffins implying that the pillow stones were inside the coffins when they were placed in the ground. Pillow stones are thought to be Anglo-Saxon in origin, their use extending into the 12th/13th centuries. If this was the case, then late use of pillow stones is suggested among the post-Norman burials at Alton.

Table 5: Phase 1 graves containing 'pillow stones' (N=8)

Grave group number	Skeleton number	Coffin	Pillow stone
1046	1048	Yes	Green sandstone
1073	1077	Yes	Flint
1090	1092	No number assigned	Flint
1094	1096	Yes	Green sandstone
1113	1115	No number assigned	Flint
1123	1126	Yes	Flint
1149	1150	No number assigned	Sandstone & Flint
1306	1308	No number assigned	Flint

Grave goods

- 5.1.9 One item was found with skeleton 1171 (grave group 1168). This individual was a 60+ year old woman who had been buried holding a spindle whorl in her left hand (Figs 11 and 19, Plate 2). The stone spindle whorl has been dated to 11-13th century (see Shaffrey below). It is perhaps a symbolic memento of a favourite occupation. Gilchrist and Sloane (2005) maintain that during the 13th and 14th centuries it was common practice to place personal items on the corpse, including jewellery, domestic seals, coins, papal seals, spindle whorls and clothing.

5.2 Phase 3: Post-medieval (18th -19th centuries)

Body position

- 5.2.1 The post-medieval burials were all laid out in supine positions with the legs extended. They had their arms straight by their sides, unlike the earlier burials that were more likely to have their arms flexed.

The coffins

- 5.2.2 All nine post-medieval burials showed evidence of having being in a coffin. This is with the exception of one burial that was recorded in section only.

Table 6: Phase 3 coffined graves

Coffin number	Grave group	Sex	Age (in years)
1069	1029	F?	12
1045	1036	N/A	6
1140	1141	N/A	8
1189	1185	N/A	1
?	1203	M	60+
1220	1211	F	50-60
1217	1215	N/A	5
1287	1284	F	18
1314	1316	F	60+

Key: M=definite male, F=definite female, M?=probable male; F?=probable female; M?? possible male; F??=possible female; N/A=not applicable

- 5.2.3 The post-medieval coffined burials largely comprised female adults and subadults. The ratio of females to males was 4:1 and of subadults to adults, 5:4 (Table 6). The use of coffins was common during the later medieval and post-medieval periods and, therefore, this pattern is probably a result of cemetery organisation rather than a reflection of preferential treatment of certain individuals over others.

Post-medieval coffin construction and materials

- 5.2.4 Based on the positioning of iron remains around the skeletons it was determined that the coffins were of the flat lidded single-break type (Reeve and Adams 1993) (Figs 12 and 13). They consisted of a single layer of wood assembled with iron nails at the corners and along the coffin length. The more elaborate wooden coffin constructions may have been upholstered (as suggested by upholstery pins) and decorated with metal coffin fittings.

Grips and grip plates

- 5.2.5 Eight coffins were found to have grips and grip plates, which varied in number from two to six (Table 7). Grips originally had a purely functional purpose, that being to aid the transportation of the coffin by the mourners. However, by the post-medieval period they had become stylistically elaborate, as did the grip plates through which the grips attached to the coffin. Depending on their size, most post medieval coffins had between four and six grips. Pairs of grips and grip plates were attached along the long axis of the coffin. Frequently another pair was attached to the head and the foot ends of the coffin. In most cases, the grips and grip plates on a single coffin matched one another in style and in the type of metal used (Cox 1996).
- 5.2.6 Excavations of the 18th- and 19th-century churchyard and crypt of Christ Church, Spitalfields, London, undertaken in the 1980s, revealed a large number of coffin fittings. The taxonomy compiled from these fittings (Reeves and Adams 1993) forms the basis for identification of the styles in vogue throughout this period. Where new forms occur these are added to the catalogue currently being compiled at OA. Two new types of grip plate were identified from Alton and are now categorised as Alton Type 1 and Alton Type 2.
- 5.2.7 Six coffins had extant studs, all of which were composed of iron (Table 7) and all were painted black. Due to the poor preservation of the outer wooden coffins little of the decorative arrangement of the studs could be identified.

Departum plates

- 5.2.8 Plates of copper alloy found in the chest area and interpreted as departum plates were found in two burials (Grave groups 1284 and 1211). The departum plates found during excavations of the post-medieval crypt of St George's church, Bloomsbury usually bore the title, name, date and age at death of the deceased, and occasionally provided additional data, such as their place of birth or abode, their profession, and details of family connections. Several brass outer breastplates also bore crests. Footplates and headplates were less informative, usually giving only the title, name and year of death of the deceased. Unfortunately no such information was observed on the departum plates from Alton owing to the fact that they were highly degraded.

Grave Clothes

- 5.2.9 Janaway (1998) comments on the great variation that existed in the 18th and 19th centuries in the way corpses were dressed. A loose sheet or winding cloth was often placed under the corpse and was used to line the open coffin. In the latter part of this period, this was folded over to cover the corpse and was often pinned in place. The corpse itself was usually clothed in a crudely made shroud, a practice that replaced the earlier one of dressing the dead in everyday personal clothing (Janaway 1988). Shrouds were of a nightdress-like style and often had a ruffle round the neck and down the front (*ibid.*)
- 5.2.10 Evidence for the use of shrouds at Alton was identified in the form of shroud pins that were found in association with the remains of two coffins (Table 7). In both, one shroud pin was found on top of the skull, which may have held a cap or some kind of head covering in place. In addition, coffin 1287 contained copper alloy rings located next to the lower end of the arm. These were shroud buttons (cartwheel buttons), probably from the cuffs of the shroud.

Grave goods

5.2.11 In keeping with Christian beliefs of the period, very few coffins contained grave goods or personal effects. One exception was coffin 1217, a single-break coffin with grips and grip plates at each end which contained a 5-6 year old child (Fig. 10). In between the child's feet were six toy marbles made of flint (see specialist report and Plate 1). The marbles displayed some damage suggesting that they had been played with. This was a touching memento, perhaps a favourite toy, placed in the coffin for a much mourned child.

Table 7 : Coffin fittings

Grave group No.	Coffin no.	Grave Fill No.	Description	No. Plates	No. Grips	No. nails	No. screws	No. tacks	No. studs	other objects associated with grave
1026	1088	1028	coffin nails only.			7				1 iron lump
1029	1069	1031	Single-break coffin. 2 grips on sides. 1 each end	4	6	62		1	77	Cu alloy pins on skull
1032	N/A	1034				1				
1036	1045	1038	Single-break coffin, 2 grips on sides. 1 each end	3	6	37				
1046	N/A	1049				10				1 iron lump
1050	N/A	1051				1				
1065	N/A	1067				1				
1073	1076	1075	nails around skeleton.			15				
1094	1098	1097	Child coffin. 2 stones at head. 2 parallel stains.			8			5	
1117	N/A	1120				2			1	
1123	N/A	1125				21			1	
1141	1140	1138	Child sized. Shape not discerned. Some wood remains, textile impression.	6	6	32				
1168	N/A	1170				3				
1185	1189	1188	Infant coffin, single-break shape. grips 1 each end & 1 on each side	1	4	46		10		
1203	N/A	1202	Single-break? Screws half way down on opposite sides			46	2			
1204	1210	1191								1 iron object
1211	1220	1213	Single-break coffin. 2 grips on sides. 1 each end	6	6	51	1		592	Remains of possible chest plate. 4 shroud pins. studs in simple pattern. (Spitalfields S6)
1215	1217	1219	Single-break. Grips at each end	2	2	35				marbles at feet end
1232	N/A	1230				4				
1242	1245	1246	Only 1 fe object found near elbow.			1				
1284	1287	1288	Single-break coffin. 2 grips on sides. 1 each end	6	6	69	1		151	Remains of possible chest plate. Cu alloy object in chest area. shroud pin head area. Cu alloy rings (shroud buttons) lower end arm position (cuffs). Studs around lid only.
1316	1314	1315	Rectangular? Screws halfway down on opposite sides. Grips at each end	2	2	31	4			
1330	N/A	1332				12				

Key: N/A =no number assigned

6 THE HUMAN BONES

by Sharon Clough

6.1 Introduction

- 6.1.1 During excavation, a total of 56 skeletons were recorded, of which two were seen in section only. Therefore, 54 skeletons were available for analysis, 45 of early medieval date (Phase 1, see section 2.2.1) and 9 of post-medieval date (Phase 3, see section 2.2.1). For the purposes of analysis, these two groups have been analysed separately but compared where appropriate.
- 6.1.2 The preservation and completeness of the skeletons varied with those from the post-medieval group being the best preserved. There was an even number of males to females in the assemblage overall but, when considered by phase, there was a predominance of females in the post-medieval group. Overall, there was a large number of juveniles (a third of the total population). The range of observed health indicators suggests that, overall, the population had experienced low levels of disease. One interesting exception is the post medieval burial of a one year-old (1187 (1185)) whose severely deformed deciduous teeth may be indicative of congenital syphilis.

6.2 Methodology

- 6.2.1 All skeletons were examined to record their condition and completeness and estimate, where possible, their age, sex and stature and document metrical and non-metrical variation. Full skeletal and dental inventories were also made and skeletal pathology and dental pathology, recorded. In the following sections, the skeletons are referred to by skeleton number, followed by their associated grave group number, in parentheses, for ease of reference.
- 6.2.2 Adults were aged using a combination of methods, including those that relate to the degeneration of the pubic symphysis (Brooks and Suchey 1990; Todd 1921a and b), the iliac auricular surface (Lovejoy *et al* 1985) and the sternal rib ends (Iscan and Loth 1984; Iscan *et al* 1985). Stages of cranial suture closure (Meindl and Lovejoy 1985) and dental attrition (Miles 1962) were also employed, although it must be noted that the latter method tends to grossly under-age skeletons of post-medieval date. Sub-adults were aged by observing patterns of dental development (Buikstra and Ubelaker 1994) and epiphyseal fusion (Bass 1995; Schwarz 1995).
- 6.2.3 The sex of adult skeletons was estimated from skull and pelvic morphology (Buikstra and Ubelaker 1994), and from metrical data (Ferembach 1980). Skeletons were assigned to one of the following categories:

M=definite male

F=definite female

M?=probable male

F?=probable female

M?? possible male

F??=possible female

?=indeterminate

No attempt was made to sex sub-adults, in accordance with accepted practice.

- 6.2.4 The stature of all adults was estimated, where preservation permitted, from combined long bone length measurements, using the regression formulae developed by Trotter (1970). Wherever possible, combined femoral and tibia measurements were used. In the absence of either bone, stature was calculated using one long bone, preferably from the lower limb. Where this was not possible, the upper limb long bones were utilised.

6.3 Condition and completeness

- 6.3.1 The condition of the skeletons was rated on a four-point scale, ranging from 1 (poor) to 4 (excellent). The following scores were assigned:

1 = Poor (cortical bone completely eroded, cancellous bone small and infrequent and extremely fragmented)

2 = Fair (some cortical bone, though eroded in places, cancellous bone present and frequent fragmentation)

3 = Good (complete cortical bone with occasional damage, cancellous bone complete and occasional fragmentation)

4 = Excellent (cortical bone undamaged, cancellous bone complete and rare fragmentation)

The amount of the skeleton present was recorded as a percentage and, based on this, skeletons were assigned to one of the following categories:

1 = <25% complete

2 = 25-50% complete

3 = 50-75% complete

4 = >75% complete

- 6.3.2 The condition of all skeletons was found to be compatible with their completeness (Table 8). This means that the poorest skeletons were also the least complete (score 1), whereas skeletons in an excellent condition were also the most complete (score 4).

6.3.3

Table 8: Condition and completeness of the assemblage (N = 54)

Condition/Completeness	Total number of individuals	Early medieval	Post-medieval
1	1 (1.9%)	1	0
2	18 (33.3%)	18	0
3	27 (50.0%)	25	2
4	8 (14.8%)	1	7
Total	54	45	9

6.3.4 The condition of the ribs and vertebrae belonging to many of the skeletons was poor and small bones, such as carpals and phalanges, were under-represented. This is probably due to the burial environment. Over 50% of the skeletons were in a good/excellent condition and had most of their bones surviving. This resulted in the majority being assigned an age and/or sex. The best bone preservation was observed among skeletons that had been buried in post-medieval coffins. It is possible that the coffins had encouraged this better preservation, however, this may also relate to the fact that these skeletons had been in the ground for less time than those that are earlier in date. Many of the early graves had suffered from truncation by the later ones and this often meant that whole limbs or skulls had been removed. In a few instances, the limit of excavation prevented the entire skeleton from being lifted (see above).

6.4 Assemblage composition

Sex distribution

6.4.1 The proportion of adult males and females within the population is summarised in Table 9 and Figure 20 below. A total of six adults (14.6%) could not be osteologically sexed, as they lacked diagnostic elements. Although no attempt was made to sex the 14 sub-adults (25.9% of the total population), one older adolescent was identified as a female on the basis of pelvic morphology.

6.4.2 There appears to be little difference between the number of males and females (18 or 51.4% versus 17 or 48.5%) in the total population (Table 9). However, when split into the two time periods, the results show that there were more females and sub-adults in the post-medieval period (Table 10). This may relate to burial practices in the different time periods or the organisation of the graveyard.

Table 9: Osteological sex distribution (N=41)

Male	Male?	Female	Female?	Indeterminate
13	4	14	4	6

Figure 20: The distribution of sex categories within the population (N =41)

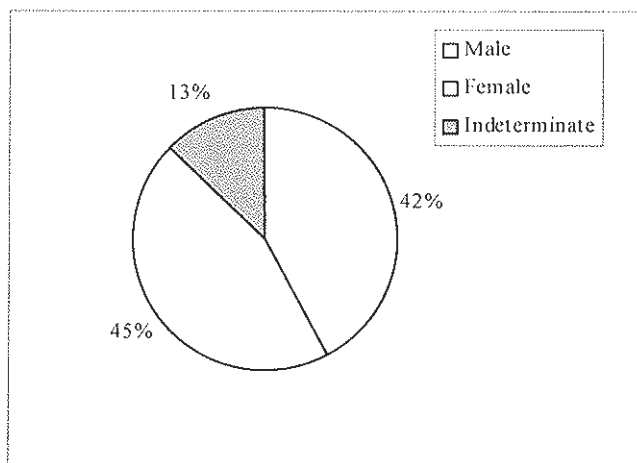


Table 10: Age and sex distribution by period

	Early-medieval	Post-medieval
Male	16	1
Female	14	3 (includes 1 female 18 years)
Indeterminate	6	0
Sub-adult	9	5

Age distribution

6.4.3 The individuals ranged in osteological age from just over one year to 60+ years. Due to the limitations of current ageing methods, it was not possible to estimate the age of skeletons beyond 60 years. However, it is probable that some individuals did survive well into old age. Ten skeletons (18.5%) were identified as adults, but a more precise age estimation was not possible. For the purposes of analysis, all skeletons were assigned to an age category based on their estimated age range (see Table 11 and Fig. 21).

6.4.4 The assemblage was composed predominantly of adults (75%), with 14 skeletons (25%) being 18 years old or younger.

Table 11 : Age distribution of the population (N=54)

Foetus	Neonate (0-11 months)	Infant (1-2 yrs)	Young child (2-5 yrs)	Older child (5-12yrs)	Adolescent (13-18yrs)	Young adult (19-25 yrs)	Prime adult (26-35 yrs)	Mature adult (36-45 yrs)	Older adult (46+ yrs)	Adult (<18 years)
0	0	1	5	5	3	2	8	12	8	10

Fig 21: Age distribution (N=54)

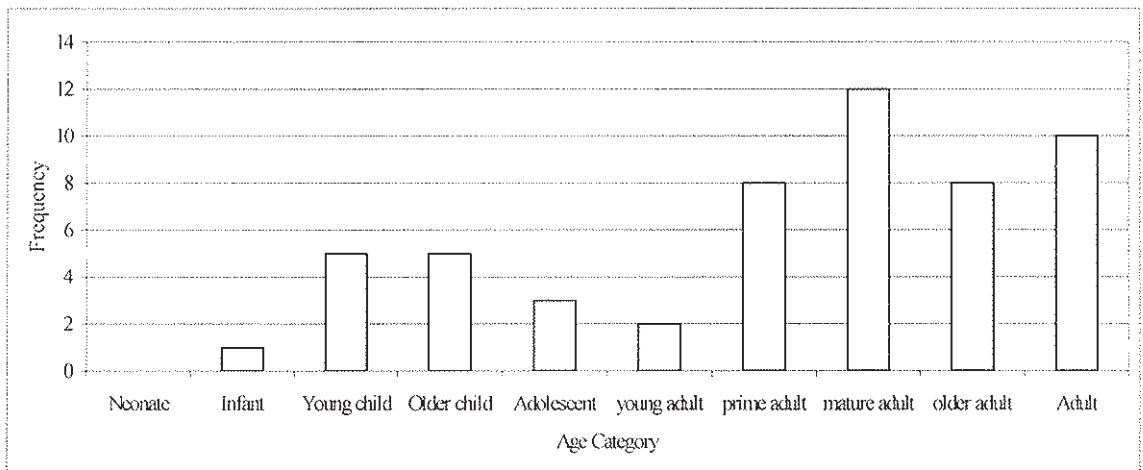
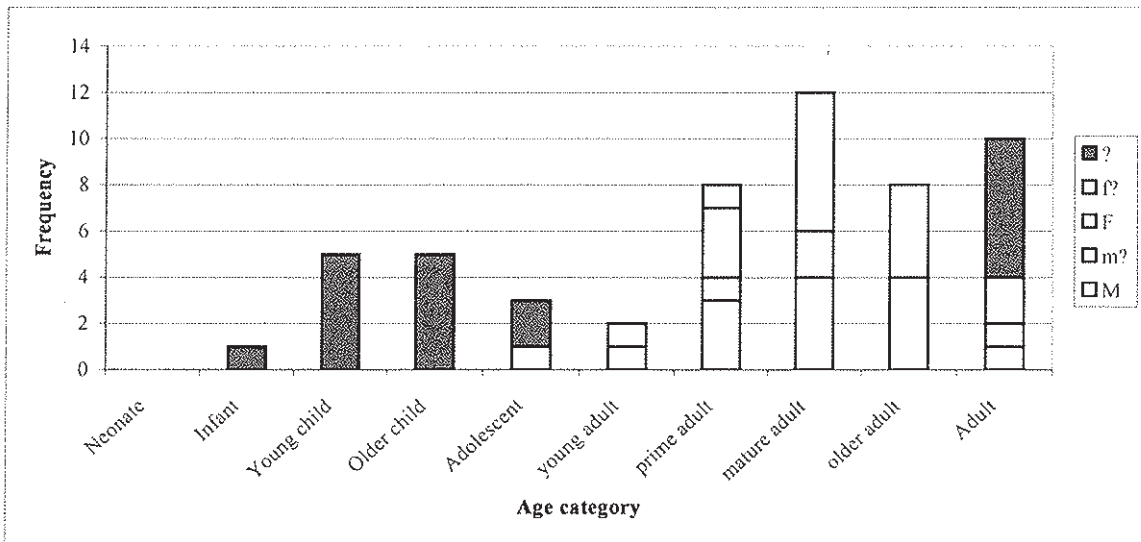


Table 12: Age and sex composition of the population (N = 54) (the definitions for ages given in Table 11 apply here)

	neonate	infant	young child	older child	adolescent	young adult	prime adult	mature adult	older adult	adult	Total
M	0	0	0	0	0	1	3	4	4	1	13
m?	0	0	0	0	0	0	1	2	0	1	4
F	0	0	0	0	0	1	3	6	4	0	14
f?	0	0	0	0	1	0	1	0	0	2	4
?	0	1	5	5	2	0	0	0	0	6	19
Total	0	1	5	5	3	2	8	12	8	10	54
		1.85%	9.25%	9.25%	5.56%	3.70%	14.81%	22.22%	14.81%	18.51%	

Figure 22: The distribution of age categories within the entire population (N = 54)



6.4.5 In pre-modern societies, infant mortality rates were considerably higher than in modern western societies. For example, this is reflected in Edwin Chadwick's survey of 1840, which explored childhood mortality patterns in seven different regions of England. Although considerable regional variation was identified, he estimated that, on average, one in five children of the gentry and professional classes would die before reaching adulthood, whereas, amongst the children of labourers, servants and artisans, the figure would be one in two (Rugg 1999, 216-7). Malnutrition, infectious diseases and poor living conditions were the major causative factors for these early deaths. Similar patterns would be expected in archaeological populations.

6.4.6 The mortality curve for the entire Alton population reflects no such mortality peak among infants. However, it is unlikely that this represents a real population trend. Excavation only recovered a very small fraction of the total buried population and it is possible that the very young were buried in a different part of the graveyard that was not excavated. Poor preservation and a lower success rate at identifying and recovering small infant bones during excavation and, in particular, disturbances caused by inter-cutting graves are other factors that are likely to have contributed to the under-representation of infants at Alton.

6.4.7 Overall, the mortality profile for the population indicates that most individuals died in mature adulthood (aged 36-45 years), or prime adulthood (26-35 years). Deaths in early adulthood (among females, most commonly from complications of pregnancy and childbirth, and among males, from trauma) were low, involving only two

individuals of the total population. No marked difference in mortality patterns could be discerned between the sexes.

- 6.4.8 When divided into the two time periods (Table 13), early medieval skeletons fall into a range of age categories, while post-medieval skeletons tend to cluster in the subadult and older adult age categories. However, numbers are very small and, therefore, these results must be viewed with caution.

Table 13 : Age categories by time period, excluding individuals aged 'adult' (N=44)

	Foetus	Neonate (0-11 months)	Infant (1-2 yrs)	Young child (2-5 yrs)	Older child (5-12yrs)	Adolescent (13-18yrs)	Young adult (19-25 yrs)	Prime adult (26-35 yrs)	Mature adult (36-45 yrs)	Older adult (46+ yrs)
Early medieval	0	0	0	4	2	2	2	8	12	5
Post- medieval	0	0	1	1	3	1	0	0	0	3

6.5 Stature

- 6.5.1 It was possible to estimate the stature of seven males and 10 females (41.46% of the total adult population). The early medieval period population had a mean height of 1.56 metres (five foot, 1 inch)) for females (range: 1.44-1.65 metres) and 1.7 metres (five foot, 7 inches) for males (range: 1.61-1.83 metres). Roberts and Cox (2003, 248) report that, during this period, the mean stature for females (based on 26 sites) was 1.59m (5ft 21/2in) and for males (based on 34 sites), 1.71m (5ft 71/4in). Males and females from Alton were, therefore, slightly shorter than average for this period.
- 6.5.2 It was only possible to calculate the stature of one male skeleton from the post-medieval population and this yielded a result of 1.72 m, or 5 foot 6 inches. Female statures ranged from 1.57 metres to 1.77 metres (mean of 1.65 metres or 5 foot 4 inches). This group is comparable with other post-medieval populations discussed in Roberts and Cox (2003) (Table 14).
- 6.5.3 Adult stature is determined by an interplay of inherited and environmental factors. Whilst we all born with the maximum genetic potential to reach a certain adult stature, physical and emotional stressors experienced during childhood and adolescence may prevent us from achieving this potential. If such stressors (such as malnutrition, infection or chronic illness) are too severe or prolonged for the growing body to 'catch-up' growth later, the individual will become permanently stunted. Thus, stature may be used as a rough yardstick against which to assess the overall health status of populations, provided the genetic component of populations does not change (as would happen, for example, with an influx of peoples of different average stature).

Table 14. Stature estimations for five post-medieval urban populations in England compared to those calculated for Alton

Total Skeletons	Male (Mean)	Male (Range)	Female (Mean)	Female (Range)
Alton, St Lawrence primary school	1.72 m	1.72 m	1.65 m	1.57-1.77 m
St.Luke's,Islington (unnamed)	1.70 m	1.49 m-1.94 m	1.58 m	1.39 m-1.74 m
St.Luke's,Islington (named)	1.70 m	1.55 m-1.93 m	1.58 m	1.49 m-1.72 m
St Bartholomew's, Penn	1.75 m	1.45 m-1.85 m	1.60 m	1.42 m-1.83 m
St Nicholas, Sevenoaks	1.73 m	1.62 m-1.83 m	1.61 m	1.49 m-1.72 m
St George's, Bloomsbury	1.72 m	1.52 m-1.85 m	1.60 m	1.49 m-1.72 m

6.6 *Dental pathology*

- 6.6.1 Dental pathology was recorded in 20 skeletons of the total assemblage. Teeth were fully analysed for calculus, periodontal disease, caries, abscesses, ante-mortem tooth loss (AMTL) and gross dental enamel hypoplasia in accordance with standard practice (Brickley and McKinley 2004). The calculation of caries, abscess and AMTL rates per tooth socket was beyond the constraints of the present analysis. Only crude prevalences are presented here which precludes meaningful comparisons with other sites of this period. Dental disease prevalence is displayed in Table 15 below. Where appropriate, differences between early medieval and post-medieval skeletons are indicated, but as the numbers, especially for the post-medieval group, are so small, direct comparison is meaningless.
- 6.6.2 Diet changed dramatically during the time periods that the site covers. This is reflected in the dental evidence from the skeletons. In the medieval period the diet of the majority of the population was grain based (bread of various kinds) and was supplemented by seasonal foodstuffs and occasional meat or dairy products. This may account for the heavy tooth wear exhibited on several of the skeletons, even the deciduous teeth of the subadults.

Dental calculus

- 6.6.3 Calculus was recorded on the teeth of 14 individuals in the assemblage. This was graded as flecks only in one individual, as slight in eight others and moderate in five. The low prevalence and lack of severity of calculus deposition is surprising for a population of a time when dental hygiene was minimal or entirely lacking. However, this may relate to a low consumption of refined sugar by this population.
- 6.6.4 Plaque is composed of oral micro-organisms that become imbedded within a matrix of protein, saliva and food residues that accumulate on the teeth after eating. Carbohydrates, particularly simple sugars, accelerate this process (Hillson 1996, 254-55). Plaque may become mineralised, forming calculus, the hard immovable deposit on the teeth colloquially known as tartar. There are two types of calculus: supra-gingival calculus, which is situated above the gum line, and sub-gingival calculus found beneath the gum line on exposed roots. Deposits are most heavy on teeth nearest to the salivary glands (Roberts and Manchester 1995, 55). Regular brushing will remove most plaque deposits, thus preventing calculus formation.

Periodontal disease

- 6.6.5 Periodontal disease refers to the inflammation of the soft tissues of the mouth, namely the gums, and/or the periodontal ligament and alveolar bone (Levin 2003, 245). The disease may express itself as either horizontal or vertical bone loss. In the former, more than one tooth is affected, often involving the whole dental arcade, with all alveolar walls being lost uniformly. This is by far the most common form of periodontal disease. In vertical bone loss, the lesion is localised around one or two teeth. This bony resorption around the tooth is irregular, and generally occurs without horizontal bone loss (Hillson 1996, 263-65).
- 6.6.6 Periodontal disease was recorded by subdividing the jaws into four quadrants, which were scored independently. The severity of the disease was scored as slight, medium or considerable, using the universally accepted standards set out by Brothwell (1981).

- 6.6.7 Periodontal disease affected five individuals (three of early medieval date and two of post-medieval date). It ranged in severity from slight (two cases), to considerable (three cases). Retraction of the gums exposes the vulnerable root of the tooth to attack by acidic plaques, commonly resulting in caries, abscesses and ante-mortem tooth loss. The main predisposing factor for periodontal disease is calculus build-up in the dental pockets. Periodontal disease is strongly associated with increasing age in both modern and archaeological populations. However, the aetiology of this disease is multi-factorial, with genetic predisposition, environment, diet and oral hygiene all playing a role.

Caries

- 6.6.8 Destruction of the tooth enamel results in the formation of caries which is irreversible and frequently results in toothache, abscess formation and, ultimately, ante-mortem tooth loss. In the population 20 individuals had caries who, among them, had 52 cavities, with as many as six affecting one individual. This gives an average prevalence of 0.96 caries per person. There appears to be little difference between the different time periods. Dental caries develop as a result of poor oral hygiene and a diet high in carbohydrates, particularly processed sugar.

Ante-mortem tooth loss (AMTL)

- 6.6.9 In the past, teeth were sometimes drawn electively, in anticipation of the agonies of toothache in later life, or lost as a result of trauma, however, most teeth were lost as a result of periodontal disease and caries. AMTL is diet-related but also age-related, and hence, it is no surprise that the older members of the Alton population suffered higher rates of tooth loss. One individual, skeleton 1313 (1316), an elderly female from the post-medieval group had lost all of her teeth ante-mortem.

Dental abscesses

- 6.6.10 Abscesses are caused by infection tracking down to the root canal or around the root to the apex. In untreated cases, the pressure of the inflammation and accumulated pus forces a path through the alveolar bone leaving behind a smooth-sided lesion in the jaw. Of the total population, four individuals had eight dental abscesses between them, a prevalence of 0.14 per individual of the total population.

Dental enamel hypoplasia

- 6.6.11 Dental enamel hypoplasia (DEH) manifests on the buccal surface of the tooth crowns as pits, horizontal lines or lines of pits. These features are the result of a thinning of the enamel caused by an interruption or slowing of the normal deposition of enamel during crown formation (Goodman and Rose 1990). DEH is induced by a number of metabolic insults, such as nutritional deficiency, weaning and bouts of childhood diseases lasting more than three weeks (Aufderheide and Rodriguez-Martin 1998; 405; Hillson 1996, 165-66). Unlike bone, enamel does not remodel during life, and so remains as a permanent indicator of such a stress episode encountered during the first six or seven years of life when the dentition is developing
- 6.6.12 In the present sample, dentitions were not systematically analysed for DEH and hence, fainter lines were not recorded. Eight individuals showed DEH on their teeth, with one individual (1178, grave group 1176) displaying numerous lines on 10 teeth, indicative of repeated childhood stresses. It is notable that this individual died at 18 years of age.

Dental non-metrics

- 6.6.13 Variation in tooth crown or root formation has been linked to some degree of genetic control (Hillson 1998, 100). In the present sample, four different variants were noted, these being congenital absence of teeth, partial eruption of teeth, accessory roots and fused roots.
- 6.6.14 Congenital absence of teeth, especially of the third molar, is a very common variant that involves up to a third of the population today (Brothwell 1981, 113). Skeleton 1103 (1101) had the 3rd left lower molar absent even though the other molars were fully erupted.
- 6.6.15 Partial eruption of the third upper right molar was observed in skeleton 1178 (1176), while all other molars were fully erupted. This may have been linked to overcrowding of teeth within the jaw.
- 6.6.16 An accessory root of the lower left canine was observed on Skeleton 1214 (1211) and Skeleton 1139 (1141), an 8-9 year old child, had the lower left deciduous incisor and canine fused from crown to root, an anomaly that is not that uncommon in skeletal material (Ortner 2003). Both of these individuals were from the post-medieval period.

Table 15: Dental pathologies (n=20)

Skeleton	Dental caries (No. of teeth affected)	Dental calculus (score)	Periodontal disease (score)	Abscess (No. of tooth spaces affected)	Hypoplasia (No. of teeth affected)	Dental anomalies
Phase 1 - Early medieval						
1035						
1044		medium			1	
1048	1					
1052						
1063						
1068						
1077	1	medium	medium-severe			
1092						
1096	4				4	
1103	2					congenital absence of 3rd molar
1106						
1107	1	slight	slight		1	
1115	3					
1119						
1126		slight				
1129	1					
1146						
1150	1	flecks		2	2	
1158						
1162	2			4		
1171	1					
1175						
1178	1	medium			10	partial eruption of upper R 3rd molar when others fully erupted
1192						
1195	2					
1199						
1227						
1231						
1238		slight				
1244		slight	slight	1	8	
1250						
1253						
1259		slight				
1269	1				1	
1275	6	slight		1		
1279						
1298						
1303						
1308	2	heavy on molars				
1325	3					
1333						
1341						
1346						
1352						
1353						
Phase 3 - Post - medieval						
1039						
1072						
1139	5					fused teeth, lower left incisor & canine.
1187						
1205	4	slight	moderate-severe			
1214	5	medium	severe			double rooted lower L canine
1218	1					
1286		slight			4	
1313						all teeth lost antemortem

6.7 *Skeletal Pathology*

- 6.7.1 Observed pathologies are described below. Owing to the small sample size, distinctions have not been made between phases.

Congenital disorders

Spina bifida occulta

- 6.7.2 This condition was observed in the first sacral segment of two individuals from this assemblage (skeleton 1205, grave group 1203; and skeleton 1352, grave group 1358). It is a defect in the bony spinal canal and has been found in 2.7% of British skeletons (Robert and Manchester 1995). It consists of incomplete fusion of one or more posterior neural arches of the sacrum. In life, this defect would have been bridged by cartilage or membrane and would therefore have had no significant effect on the individuals

Trauma

Fractures

- 6.7.3 Six individuals had sustained fractures and all of these involved adult skeletons, four males, and two females. They involved the vertebral column (three skeletons), the cranial vault (one skeleton) a humerus (one skeleton) and hand and foot bones (one skeleton).
- 6.7.4 Compression fractures of the vertebral bodies were observed in three individuals (skeletons 1353 (1358), 1313 (1316) and 1205 (1203)). Crush or compression fractures result when a sudden excessive force is applied to the bone (Ortner and Putschar 1981, 56), which is compressed along the plane of impact (in this instance vertically), either collapsing the body uniformly, or forming a wedge-shaped vertebral body. Crush fractures often occur where there is already an inherent weakness in the bone, most commonly due to underlying osteoporosis, but also as a result of other pathological conditions such as tuberculosis and metastatic carcinomas. In the present examples, no other changes were identified on the skeletons that would suggest the underlying cause. However, secondary change, as a result of the trauma, was apparent in skeleton 1353 (1358). Here, the thoracic vertebrae had fused together and this had caused a slight kyphosis (antero-posterior curvature of the spine).
- 6.7.5 Skeleton 1175 (1172), a mature adult male, had a depressed fracture on the cranial vault. This was very well healed indicating that the trauma had occurred a long time before death. A blow to the top of the head like this may have arisen as a result of inter-personal violence, or an accident.
- 6.7.6 Skeleton 1150 had a well-healed spiral fracture involving the right humerus. The fracture had resulted in a mis-aligned humeral shaft and head. There was no sign of osteoarthritis as a result, nor any active infection, although there was a healed sinus suggestive of healed infection.
- 6.7.7 Fractures involving a hand and foot of skeleton 1298 were observed on a proximal foot phalanx and proximal hand phalanx. Although both were healed it was possible to see that the pattern of the breaks had been transverse, a pattern that is associated with direct force trauma.

Possible osteochondritis dissecans

- 6.7.8 Skeleton 1178 (1176), an 18 year old male, had a depression (10mm in diameter) on the right distal joint surface of the femur and a corresponding depression on the

articulating surface of the patella. This is probably associated with trauma, possibly osteochondritis dissecans. Osteochondritis dissecans is caused by significant localised obliteration to the blood supply which results in necrosis of small areas of joint tissue (Roberts and Manchester 1995, 87). The necrotic bone plaque breaks off from the joint surface and may remain loose within the joint, causing pain and often precipitating osteoarthritis. Alternatively, the fragment may reattach in its original position or be resorbed, and no further symptoms will be experienced. This condition may arise as a result of trauma or be secondary to a congenital disorder. Physically active young males in their first two decades of life are most often affected by this condition.

Enthesopathy

- 6.7.9 Enthesophyte refers to new bone formation as a result of ossification of the tendons and ligaments at their point of insertion into the skeleton. They are associated with some pathologies, such as DISH and ankylosing spondylitis, but may also occur as a result of ageing, repeated stress, activity or trauma (which is why it is considered here). Enthesophyte was noted on one adult skeleton (skeleton 1352, grave group 1358) from the Alton assemblage. This was present where the cruciate ligament inserts into the knee. No other enthesopathies were observed in this individual. Enthesopathies that occur in isolation are more likely to be a result of activity or trauma, than those that involve several sites around the skeleton (Jurmain 1999).

Neoplastic disease

Button osteomas

- 6.7.10 Skeleton 1129 (1130) had two small button or ivory osteomas on the frontal bone. The skeleton was a female mature adult. Button osteomas are small circular lumps on the ectocranial surface of the cranial vault, most commonly on the frontal bone. They are benign tumours of no clinical significance (Roberts and Manchester 1995, 188) and are more commonly found in males. It is not surprising that the present example involved an elderly individual because button osteomas are more frequent among individuals over 40 years of age (Aufderheide and Rodriguez-Martin 1998, 375.)

Metabolic

Cribra orbitalia and porotic hyperostosis

- 6.7.11 Two skeletons (3.7%) showed bony changes in the eye orbits consistent with cribra orbitalia. Porotic hyperostosis, manifesting as thickening and pitting of the left and right parietal bones, was present in two adult individuals (3.7%), one of which also had cribra orbitalia (Table 16).
- 6.7.12 Cribra orbitalia and porotic hyperostosis are widely thought to occur in response to a deficiency of iron during childhood, most commonly as the result of inadequate dietary intake of iron, and/or as a result of severe intestinal parasite infestation (Stuart-Macadam 1991, 101). Iron is a central component of haemoglobin, the molecule necessary for the transportation of oxygen in the red blood cells of the blood. Red blood cells are produced within the red bone marrow of a number of bones in the body, including the diploë of the cranial vault, the sternum and the pelvis. In childhood, the diploë are particularly important, but become a secondary site of red blood cell production later in life. When iron deficiency anaemia arises, the body attempts to compensate for low serum iron levels by hypertrophy of these bones. In children, this manifests osteologically as an increased porosity and thickening of the diploë of the cranial vault (known as porotic hyperostosis) and of

the orbital sockets (Cribra orbitalia). Cribra orbitalia and porotic hyperostosis are often used as generic indicators of health stress in childhood.

Table 16: Prevalence of cribra orbitalia and porotic hyperostosis

	Cribra orbitalia	Porotic hyperostosis
Male	1077 (1073)	1077 1162 (1159)
Female	1150 (1149)	

- 6.7.13 This is an umbrella term that refers to joint changes that do not manifest specifically enough to allow for a diagnosis. On dry bone, the changes include new bone formation around the margin of a joint or, less frequently, on a joint surface ('osteophytosis'). The changes result from alterations to the mechanics of a joint, either as a result of a disease process, or as a normal accompaniment to ageing. In the vertebral column, the changes arise when the intervertebral discs become displaced as a result of stress. Osteophytosis may develop to increase the joint surface area, a compensatory attempt by the body to spread the load. In addition to new bone formation, the surfaces of the vertebral bodies may also become coarsely pitted, a change that is referred to as degenerative disc disease or spondylosis deformans. Osteophytosis may involve any joint in the skeleton, although it is most common in the vertebral column. Osteophytosis and degenerative disc disease are also linked to osteoarthritis, a disease of synovial joints. Osteoarthritis is often considered under the heading of degenerative joint disease, however, it also has distinct features and, therefore, is considered separately in the following section.
- 6.7.14 A total of 19 adults had degenerative joint disease in the Alton assemblage (46.4% of the adult population). The changes involved extra-spinal sites only in one skeleton, spinal sites only in 12 skeletons and a combination of both in six skeletons.

Osteoarthritis

- 6.7.15 Osteoarthritis is the most common joint disease in both humans and animals, affecting 90% of modern people over aged 40 years (Denko 2003, 234-236). In its mildest form, osteoarthritis is not symptomatic, but approximately 30% of those showing clinical evidence of the disease experience joint stiffness and chronic pain (Denko 2003, 235). These symptoms may become severely debilitating and may greatly affect the sufferer's quality of life, activities and work potential.
- 6.7.16 In accordance with the recommendations of Rogers and Waldron (1995), osteoarthritis was diagnosed on joints where eburnation was present, and/or where at least two other features of osteoarthritis were present (namely porosity, osteophytosis or bony contour change).

Osteoarthritis affected three skeletons (1107 (1110); 1313 (1316) and 1352 (1358)), or 5.5% of the total sample. It involved the elbow (2 skeletons) and the toes (one skeleton), sites that are affected in both modern and archaeological populations (Rogers and Waldron 1995). No spinal OA was identified. Comparison with other medieval assemblages indicates that the prevalence of OA among the Alton population was low for its time. For example, 14% of the post medieval samples analysed by Roberts and Cox (2003, 282) had extra-spinal OA and a third had spinal OA (*ibid.* 2003, 283).

Schmorl's nodes

- 6.7.17 Schmorl's nodes are the result of herniation of the intervertebral disc into the end plate. They are identified on dry bone as irregular depressions on the superior and/or inferior surfaces of the vertebral bodies. In modern humans, Schmorl's nodes are very common in individuals aged 45 years and over and tend to involve the lower thoracic and lumbar spines. Clinically, they usually present no symptoms and affect males more than females (Jurmain 1999).
- 6.7.18 Schmorl's nodes were found on the vertebral bodies of seven individuals. These changes were overwhelmingly located in the middle to lower thoracic region and, to a much lesser extent, in the upper lumbar region.

Other Pathology

- 6.7.19 Skeleton 1187 (1185) had severe dental deformations that are consistent with the changes seen in congenital syphilis. It occurs in 80% of pregnancies where the mother is infected (Aufderheide and Rodriguez-Martin 1998, 164). The spirochete bacteria are transmitted across the placenta to the foetus after the first 16-18 weeks *in utero*. Spontaneous abortion and stillbirth are commonly associated with the condition. Surviving infants frequently manifest with developmental anomalies, such as deafness, cusp malformations of the permanent dentition (Hutchinson's incisors and mulberry molars), interstitial keratitis, impaired cognitive development, periostitis, osteochondritis and osteomyelitis. Syphilitic infection of the scalp, historically described as 'scald head', was a very visual, unsightly manifestation of congenital syphilis.
- 6.7.20 The London Bills of Mortality attributed between 1 and 30 deaths per year to 'scald head' in the period between 1740-1810 (Roberts and Cox 2003, 341-2). The true mortality rate of congenital syphilis was probably much higher. Nevertheless, many sufferers of congenital syphilis did survive into mature adulthood. However skeleton 1187 was less fortunate, dying just after the first year of life. The skeleton displayed severe malformation of all the deciduous teeth with the characteristic mulberry molars of congenital syphilis and Hutchinson incisors (Plate 5). The hard palate of the maxilla had thin porous bone. There were no other obvious characteristics of congenital syphilis on the post-cranial skeleton and analysis at the micro-scopic level would be required to confirm the diagnosis.

6.8 Non-metric traits

- 6.8.1 All adult skeletons were examined for non-metric traits. Non-metric traits are minor variations of phenotypic expression, that occur in any tissue of the body, but which, in archaeological populations, are observed on the bone. These traits are too minor to influence the biological success of the individual. Non-metric traits have been used to indicate genetic relationships between individuals. However, their value has been questioned, as many traits may be environmentally produced (for example, a muscle pull during strenuous exercise may cause a trait that manifests as plaques of new bone on the femoral head to develop). Gruneberg (cited in Tyrrell 2000, 290) postulates that the expression of a genetically inherent trait requires certain environmental factors to coalesce and overcome a certain threshold before the trait may be expressed. These factors do cast doubt on the value of non-metric traits as indicators of familial relationships. Sjøvold's 1984 study of a European post-medieval sample with known familial relationships indicated that, overall, cranial non-metric traits are

more heritable than post-cranial traits (cited in Start and Kirk 1998, 171). The non-metric traits observed in the Alton sample were too infrequent to suggest familial groupings. They are summarised below.

Retention of metopic suture

- 6.8.2 A hypostotic feature resulting from incomplete or arrested ossification union of structures (Schwartz 1995); found on skeleton 1077 (1073) (male) and 1269 (1270) (15-16 years old).

Ossicle at lambda

- 6.8.3 Supernumerary or extra structures of small islands of bone called ossicles or wormian bones are often found along the sutural lines of the skull. Their aetiology is debated. Within this population Skeleton 1039 (1036) (a six year old child) had a large ossicle on right side of the lambda suture.

Septal aperture

- 6.8.4 Incomplete or arrested ossification in the olecranon fossa of the humerus results in a hole known as a septal aperture. This trait is more common among females and, in the Alton sample was observed on the left humerus of a female skeleton (1250).

Clavicle foramen

- 6.8.5 This trait forms when the clavicle ossifies around the supraclavicular nerve as a result of displacement of the nerve within the preossification matrix (Schwartz 1995). Skeleton 1275 (1273) had, on the left clavicle, such a foramen located on the inferior-anterior aspect.

Bipartite cuneiform

- 6.8.6 *Os cuneiform mediale bipartum* is an anomaly whereby there is a division of the medial cuneiform into two elements. It is a congenital anomaly (Scheuer and Black 2000) that occurs during development of the skeleton *in utero*. Skeleton 1205 (1203) had this trait on both the left and right feet.

6.9 Discussion

- 6.9.1 All age groups and both sexes were represented among the 54 skeletons examined from St Lawrence's Church, Alton. The early medieval assemblage comprised young children through to older adults, males and females, while the post-medieval assemblage comprised females, sub-adults and only one male. This difference may indicate differences in burial customs as regards burial location within the graveyard.
- 6.9.2 The skeletal pathologies that afflicted the population are within the normal range expected for medieval and post-medieval populations of this nature. The medieval group displayed age-related changes as well as more physical activity related injuries. No pathological conditions were observed on the sub-adult remains, except for changes involving the dentition of one skeleton, possibly as a result of congenital syphilis. The high level of subadults in the post-medieval period compares with the fact that infant and child mortality rates were high for the Georgian and Victorian periods in England (Roberts and Cox 2003, 303); Alton was no exception.
- 6.9.3 The statures attained by the individuals at Alton are comparable with contemporary populations. The early medieval females were shorter than average, but their post-medieval counterparts were taller than average. Male statures were average for both time periods. With many factors influencing stature such as diet, childhood health and

genetic potential, it is not possible to say for certain why the females appear to have become taller over time.

- 6.9.4 Besides stature, figures calculated for dental conditions revealed the most differences between both groups. For example, the post medieval population had much heavier tooth wear than the early medieval population, suggesting a change in diet and lifestyle. However, there was no difference in the caries rates between the two groups. Given the gradual increase in the consumption of cane sugar in the post-medieval period, it is unusual that a low prevalence rate for caries is indicated among the Alton assemblage (Roberts and Cox 2003, 396).
- 6.9.5 In the 16th and 17th centuries, sugar was an expensive and high status luxury, available only to the most wealthy. However, the development of sugar plantations in the West Indies in the 18th century generated a more ready and affordable supply of the commodity to markets in Europe. Sugar consumption gradually spread down the social classes, until by the latter half of the 19th century it was available to all but the most indigent. By the early 19th century, sugar was widely available to the middle classes, but was not yet cheap enough to be readily accessible to the lower classes. The availability of sugar had a dramatically deleterious effect on the dental health of the nation. Caries rates doubled from the late medieval to the post-medieval period and antemortem tooth loss increased by 4% over the same period (ibid). The results from Alton therefore may suggest that the post-medieval group are possibly from the lower classes, although owing to the small size of the assemblage this observation should be regarded with caution.

7 THE FINDS

7.1 *Post-Roman pottery*

by John Cotter

Introduction and methodology

- 7.1.1 The site produced a small multi-period pottery assemblage comprising a total of 193 sherds of pottery weighing 2031g of which a very small number of sherds was prehistoric and the bulk was post-Roman. Only five sherds (20g) were identified as definitely prehistoric, although several more small worn flint-tempered sherds are of ambiguous and could be either prehistoric or late Saxon in date.
- 7.1.2 All the pottery was examined and spot-dated during the assessment stage but not catalogued in detail. For each context the total pottery sherd count and weight were recorded on an Excel spreadsheet. Comments on the presence of datable types were also recorded, usually with mention of vessel form (jugs, bowls etc.) and any other attributes worthy of note (eg. decoration etc.).

Date and nature of the assemblage

- 7.1.3 Sherd size and condition varies from fairly large and fresh to very small and worn. The earliest post-Roman pottery types from the site comprise five small worn sherds of early Anglo-Saxon pottery, all of which were residual in medieval (Phase 1 or 2) or post-medieval (Phase 3 or 4) contexts. Three sherds are in a sand-free organic-tempered fabric varying from soft to quite dense. One appears to be from a jar neck. Organic-tempered wares have a typical date-range in southern England from the 5th to the 7th centuries but are most characteristic of the 6th and 7th centuries. Two other joining sherds from a jar neck are in a fairly fine dark grey sand-tempered fabric. This is probably of similar date to the organic-tempered sherds.
- 7.1.4 All the later types of pottery present are types well known from nearby Winchester (McCarthy and Brooks 1988, 189-190) and were presumably produced not far from that city although similar wares occur over much of Hampshire. By far the commonest post-Roman type present is a grey-brown unglazed coarse sandy ware (or unglazed coarse quartz - abbreviated ug cq in the spot-dates; Winchester fabric MOE). This handmade ware dates to the 11th and 12th centuries with possible continuation into the early 13th century. Forms present are mainly large sagging-based jars/cooking pots with a variety of simple everted, thickened or beaded rims. Many of these have characteristic external scratch-marked decoration, typical of post-conquest coarsewares in the region, although one example has a single incised wavy line on the shoulder. There are also two or three examples of wide bowls with either thickened flattened, or short flanged rims - the latter suggesting perhaps a 12th-century dating for most of this group. These also have external scratch-marking which, unusually, extends under the base (Fig. 19.1), and one example has traces of an applied thumbed strip (Fig. 19.2). In general the fabric of these vessels is noticeably more micaceous than that at Winchester and may imply a more local source. Three body sherds in this, or a very similar, fabric have a patchy greenish-brown external glaze and most probably come from tripod pitchers used for serving liquids (tpw; Winchester fabric MAD).
- 7.1.5 A small number of body and base sherds are in fabrics datable to between the 9th and 12th centuries. These include unglazed chalk-tempered ware (ug c; Winchester fabric MBX) which is the commonest pottery type in late Saxon and early medieval

contexts at Winchester. A related fabric has sparse-moderate flint tempering as well as chalk and some sand (ug c/f; Winchester fabric MAV). Potentially some of these could therefore be late Saxon but if so may be residual as they are mostly small and worn and from 11th-13th centuries contexts.

- 7.1.6 A few brown sherds in medieval unglazed fine sandy ware (msu; Winchester fabric MDF) appear to be from jars/cooking pots including sherds with brushed or wiped decoration rather than scratch-marked decoration. Two joining sherds in a similar fabric, however, are glazed internally and possibly from the lower walls of a jug or a glazed cooking pot. Medieval unglazed fine sandy wares are a broad Hampshire tradition generally dating from the 11th to the 14th centuries. The lack of glazed and decorated medieval jug sherds in the assemblage however might suggest that medieval activity on the site ended in the 13th century and possibly in the first half of the century.
- 7.1.7 Thereafter human activity is represented by a scatter of highly fragmentary post-medieval vessels, mostly of 17th- or 18th-century date and fairly locally produced. A fragment of a chafing dish (plate warmer) in glazed red earthenware is perhaps the only piece worthy of note. A few sherds of late 18th- and 19th-century 'china' and glazed red kitchen wares complete the list.

Conclusions

- 7.1.8 The pottery assemblage is not particularly large or remarkable although the late Saxon-early medieval element provides a useful addition to the known distribution of these fabric types and a useful contrast to larger urban assemblages in the county such as those from Winchester and Southampton. Slight variations in the fabric of the early medieval ware, for instance, could suggest a more local source than Winchester. Despite mostly deriving from grave fills, the size and quantity of the sherds attests to nearby habitation during these periods.

7.2 Clay pipes

by John Cotter

- 7.2.1 The clay pipe assemblage comprises 15 fragments weighing 67g. Only two pipe bowls are present - the earliest being a damaged short-spurred type of c. 1660-80 or c. 1680-1720. The second example is a complete mid 19th-century pipe bowl with moulded decoration including a stylized sailing ship and floral details. The heel of the pipe bears a blurred maker's mark - probably 'AC' - possibly for the maker Arthur Coster of Fareham (active c. 1841). The rest of the assemblage consists of a range of 17th- to 19th-century stem fragments.

7.3 Prehistoric pottery

by Emily Edwards

- 7.3.1 A total of five sherds were recovered from two contexts (1332 and 1351). The sherds have been quantified by count and weight and spot dated according to diagnostic characteristics such as decoration and fabric. The three from context 1332 (grave group 1330) were grog tempered early Bronze Age sherds with traces of faded comb decoration. The two from layer 1351 were probably late Bronze Age to early Iron Age; they were manufactured from flint and sand fabrics, the former possibly having been decorated with a single impressed fingernail. All five sherds are residual; the

two late prehistoric sherds were associated with early medieval sherds and the three early Bronze Age were recovered from a later grave.

7.4 Flint

by Rebecca Devaney

- 7.4.1 A total of 255 pieces of worked flint and seven fragments (75 g) of burnt unworked flint were recovered from the excavations at Alton. The unretouched debitage is dominated by flakes and exhibits characteristics associated with the hard hammer percussion industries of later Prehistory. The cores, which were all utilised for the production of flakes as opposed to blades, are irregularly worked and exhibit the scars of small flake removals. Retouched tools are represented by two irregular scrapers. The assemblage is dated to the later Neolithic and Bronze Age on technological grounds. It was recovered from both Phase I graves and later features, and is residual, but suggests some activity at the site during later Prehistory.

7.5 Fired clay and building material

by Cynthia Poole

Introduction

- 7.5.1 A small quantity of fired clay, ceramic building material and stone was recovered from the excavations. This amounted to 27 fragments of fired clay weighing 191 g from five contexts, 692 fragments of ceramic building material weighing 24580 g from 57 contexts and 11 fragments of stone weighing 364 g from eight contexts. The material has been fully recorded onto an Access database.

Ceramic building material

The fabrics

- 7.5.2 Seven fabrics, all sandy, were identified using a x10 hand lens and are described in the archive. Fabric E, characterised by chalk and flint grit was exclusively Roman, whilst fabrics B, C and F were only used for medieval or post-medieval material. Fabrics A, C2 and D were used in both periods. Fabrics A-D had various characteristics in common, especially laminated clay and clay pellets suggesting that they derive from clays of broadly similar geologies, probably the Reading Beds or London Clay.

Table 17: Summary of the building material and structural clay.

	Nos	Wt
Brick	133	9888
Floor	1	1481
Roof: flat	516	12373
Roof: pantile?	2	46
Roof: ridge	7	248
Sewer pipe (19C-20C)	1	110
Unid	26	219
Roman tile/brick	6	215
CBM Total	692	24580
Sandstone roofing	6	109
Slate roofing	4	77
1st floor tile	1	178
Stone BM Total	11	364
Fired clay Total	27	191

Roman

- 7.5.3 Six fragments of Roman material were found, largely undiagnostic though probably including tegula and brick. The fragments were moderately - heavily abraded and are not indicative of intense Roman activity in the immediate vicinity, but probably a result of manuring fields.

Medieval and post-medieval

- 7.5.4 Flat roof tile (always peg tiles if diagnostic elements survived) accounted for three-quarters of fragments. The only complete dimension was thickness (12-18 mm), apart from one late medieval tile fragment, which measured 186 mm wide.
- 7.5.5 Approximately a fifth of the roof tiles were assigned a medieval to early post-medieval date. The post-medieval roof tile totals about 400 fragments and much of this is of 18th- and 19th-century date.
- 7.5.6 Other roofing material included some curved fragments, probably ridge tile and pantile or chimney.
- 7.5.7 The earliest brick was a well-made Tudor brick measuring 43 mm thick by 107 mm wide that probably dates to the late 15th or 16th century. A few roughly finished bricks measuring 50-60 mm thick by 95-115 mm wide are probably of 16th- to 17th-century date. One brick - 50 mm thick - has mortar adhering that looks later, perhaps 19th century, suggesting possible re-use. The majority of the bricks are of 18th- or 19th-century date; there are a few of 20th-century date. Where complete dimensions survive these are 58-61 mm in thickness and 108 mm in width.
- 7.5.8 A Flemish-type floor tile of the 15th to mid 16th century measured 30 mm thick. The very worn surface may have been glazed originally.

Stone

- 7.5.9 Split fragments of sandstone (4-12 mm thick) and slate (5-7 mm thick) are all likely to be roofing material. The sandstone could be Roman or later date, whilst the slate is 18th to 19th century in date. All were found residually in grave and posthole fills. A

possible rhomboidal shaped floor tile 70 mm wide and 16 mm thick was found in a deposit of modern road make-up.

Discussion

- 7.5.10 The building material was found distributed through ditches, foundation trenches, pits postholes, graves, miscellaneous features and road make-up and levelling layers. Much of it is residual especially in the grave fills, but in the postholes and foundation trenches had been deliberately used as packing and as hardcore for road and levelling layers. No actual structures were identified in the excavation, though in Area 1 an extensive spread of broken tile was present (though not excavated) which may indicate a phase of demolition or repair to nearby buildings.
- 7.5.11 Several buildings stood in the immediate area of the excavations throughout the medieval and post-medieval periods. The church, originally Norman, underwent various alterations and refurbishments in the 13th, 15th, 17th and 18th centuries. A brick barn is mentioned during the Civil War. A vicarage was present from at least 1666 and may have had medieval antecedents. The Victorian school was built in 1841 on ground adjacent to the churchyard previously occupied by barns and stables belonging to the rectory. All of these buildings may have contributed as a source of the building materials found in the excavations.
- 7.5.12 Various refurbishments of the church roof in the early 18th century (Couper 2002, 22-3) may account for the predominance of 18th- to 19th-century roof tile, as well as discarded medieval roof tiles.
- 7.5.13 The vicarage or associated outbuildings may be the source of the 16th-17th century bricks and roof tiles. Flemish floor tiles were commonly used in churches forming a checkerboard pattern. The presence of a Tudor brick of approximately the same date as the floor tile (15th to 16th century), may suggest the presence of a brick building (perhaps the rectory) constructed or altered at this time.

Fired clay

- 7.5.14 The material had some surface but no diagnostic characteristics that could identify function. Two fired clay fabrics were identified one chaff tempered and one sandy. The material from contexts 1157 (grave group 1155), 1161 (grave group 1159) and 1170 (grave group 1168) in three contiguous graves is very similar and likely to derive from the same original structure, probably a small hearth or oven base destroyed by the graves. The other fragments come from the fill of a pit and a grave (1104, 1027 (group 1026)) situated close to the grave (group 1330) containing Bronze Age material.
- 7.5.15 The general character of the fired clay suggests it derived from domestic ovens or hearths. It is impossible to date the fired clay but in view of the presence of Bronze Age artefacts it is suggested these pieces represent associated activity.

7.6 Metalwork

by Leigh Allen

- 7.6.1 A total of 36 copper alloy objects were recovered comprising 25 pins, 3 rings, a coin, a brooch, a tack, and 5 miscellaneous fragments the majority of which were recovered from contexts dating from the 17th to the 19th centuries. However the assemblage also contained the upper half of a decorative pin of Saxon date and a possible annular brooch of a mid 12th to mid 13th century date (Fig. 19).

Pins

- 7.6.2 A total of 24 wire pins were recovered from the excavation, 10 of these are complete. A variety of sizes were represented although the most commonly occurring had lengths in the range of 21-24mm range. SF 1061 measuring 24mm was plated with a white metal coating (probably tin) and had textile fragments adhering to the shank; these pins are almost certainly shroud pins. Two longer pins (37mm and 44mm) with larger heads could also be shroud pins but may possibly be dress pins for securing light garments or head dress. The upper section from a much larger decorative pin (SF 3) was recovered from context 1020 (gully 1019). It has a solid Wyvern-decorated spherical head and a swelling shaft, and similar examples have been recovered from Hamwic from contexts dating to the 7th and 8th centuries (Hinton 1996, 16-17)

Brooches and rings

- 7.6.3 Three simple rings (which have diameters of 11mm, 15mm and 16mm) and a possible brooch were recovered from the excavation. The rings are interpreted as shroud buttons. There is some thread remaining on the metal rings, which was wound round to create the appearance of a button to go on the shroud. The possible annular brooch (SF 537) from context 1213 is incomplete; the upper surface is decorated with roughly incised crosses and is similar to examples recovered from London dating to between the 12th and the mid 13th centuries (Egan and Pritchard 1991, 248-255).

Coin

- 7.6.4 A single coin (SF 1), a farthing of George II dated to 1754, was recovered from context 1018.

Tack

- 7.6.5 A dome headed tack with a square sectioned shank was recovered from context 1018 commonly used in upholstery or in this case the decoration of a coffin.

Miscellaneous

- 7.6.6 The 5 miscellaneous fragments comprise a disc with no distinguishing features from context 1018 and 3 very corroded fragments from context 1105 (pit 1104) dated by the pottery to the 11th-12th centuries.

7.7 Ironwork

by Sharon Clough

- 7.7.1 A total of 1519 iron objects were recovered. They mainly consisted of coffin fittings and coffin nails. As most of the nails from Alton were hand-forged nails they were undatable. However, the iron screws found in two graves (groups 1203, 1316) date from the late 18th century when screws with blunt ends were made by machine.
- 7.7.2 The majority of coffin fittings were in poor preservation, though in two cases it was possible to discern the pattern on the grip plate. In both these cases these are new designs found neither at Spitalfields (Reeve and Adams 1993) nor Bloomsbury (Boyle *et al.* 2005). The plates were made of punched iron painted black. All the grips

were of Spitalfields type 2a, made of iron painted black. These date from 1763-1837. There were residues of possible chest plates, but they were far too corroded to be certain. The upholstery studs were made of iron and painted black, 825 in all, mostly from coffin 1220. The pattern could not be determined.

- 7.7.3 Finds from non-grave features mainly consisted of coffin nails and fittings. As these features disturbed earlier graves these finds are considered residual.

7.8 Worked stone

by Ruth Shaffrey

Summary

- 7.8.1 Seven pieces of worked stone were retrieved during the excavations. These include six marbles and a single spindle whorl.

Description

- 7.8.2 The spindle whorl (SF 681) was recovered from context 1170 (grave group 1168) and is of a simple undecorated plano-convex variety, made from a very hard chalk or fine grained limestone (Fig. 19.3). It is of average weight (28g) making it suitable for general spinning. Although it is difficult to date spindle whorls precisely, stone spindle whorls of this shape tends to be earlier (medieval or possibly Saxon) rather than later in date (see Woodland 1990 for examples). Similar examples from Winchester are of an 11th- to 13th-century date (Shaffrey in prep).
- 7.8.3 The six marbles (SF 390) were found together in context 1217 (Plate 1). They are all of a uniform size (14.5-16 mm diameter) and appear to be made of flint. The earliest toy marbles were made of flint and stone and baked clay. The oldest have been found to date to 3000 BC. For centuries marbles were made of common stone; china or crockery marbles were introduced around 1800 AD. Glass marbles were not produced in bulk until after the World War I. Flint marbles are carved and ground into shape and are inexpensive.

7.9 Environmental and economic evidence

by Seren Griffiths

- 7.9.1 Eighty-five samples were taken from key areas of the inhumations, both to maximise the recovery of small skeletal elements and artefacts, and to assess the preservation of mineralised remains associated with diet. Samples targeted the hands, feet and skull areas to recover bones and artefacts, and the stomach/pelvis area to test for the preservation of mineralised dietary evidence.

Results

Charred Plant Remains

- 7.9.2 Charred plant remains were recovered from a number of residues. Sample 75 (context 1332) contained frequent elements of charcoal, and grain and two fragments of *Corylus avellana* (hazel nutshell) were also recovered from the residue. The spot dating from the site recognised the presence of three sherds of grog tempered early Bronze Age material from this context. These were regarded as residual because of their presence in a grave fill; however this particular grave was not excavated in its entirety since it was cut by the trench edge. The presence of nutshell in the same fill

suggests that as this burial is post-medieval, then re-deposition of the pottery may also be accompanied by re-deposited ecofactual evidence. While *C. avellana* was by no means exclusively consumed in the Bronze Age it played an important, if uncertain, role in Bronze Age economies.

Mineralised remains

7.9.3 No evidence of mineralised remains were detected from the samples taken at Alton.

8 DISCUSSION

8.1 *Development of the churchyard*

The burials

- 8.1.1 During the excavation no direct evidence was found for the minster church, though it is possible that the area of the graveyard around the church is representative of the earlier Saxon minster church enclosure. The decorative Saxon pin found, though residual, supports activity of this date in this area.
- 8.1.2 In the part of the cemetery excavated, the majority of the burials date to the 12th and 13th centuries. There was a low level of intercutting, which indicates a level of planning and graveyard management. The spacing of the graves suggests the use of markers on graves and/or less dense occupation on the periphery of the graveyard due to its location. There also appears to be some kind of organisation into rows, though later features disrupt this.
- 8.1.3 The early medieval (Phase 1) graves were all roughly W-E aligned and contained supine extended individuals. The slight variation in alignment of the graves suggests no visible boundary on which to orientate the burials. The individuals were either interred in a simple wooden coffin held together with iron nails or in an earth cut grave. The single spindle whorl from this period indicates that grave goods were the exception rather than the rule. The osteological information determined these individuals to be from all age groups and both genders. There was therefore no discrimination by age or sex at this time for burial in this part of the cemetery.
- 8.1.4 The north side of the church has traditionally been seen as the undesirable area to be buried. "To the unconsecrated north side of the churchyard were committed the mortal remains of transgressors: usually those who had taken their own lives or the lives of others" (Friar 2003). It would be difficult to prove archaeologically if the human remains recovered from Alton were indeed of 'transgressors' because of their location on the north side of the church. It would also be difficult to prove whether this side of the church was less desirable, indicated by fewer burials, as the entire graveyard was not excavated.
- 8.1.5 Further burial did not take place until the 18th century. There may be many reasons why there was a gap in the use of this area of the cemetery. It is possible that areas of the cemetery were filled on a rotation basis, allowing many centuries before graves were disturbed. It may also be that this area north of the church had become undesirable either due to social/religious reasons or because of the proximity to the agricultural activity in the north west corner. Population decrease and consequently a lower mortality rate, may also be a factor.
- 8.1.6 No evidence was found for significant activity until the 18th century. There is reliable documentary evidence for a military action taking place within the churchyard in 1643, during the Civil War (Couper 2002, 15-17), along with the construction of defensive earthworks. It must be concluded that these events took place elsewhere in the churchyard.
- 8.1.7 The resumption of burial activity in the area of excavation was initially signalled by the separation of the north-west part of the churchyard. The earliest map of the area, dating to 1666 (Fig. 18), does not show a divided churchyard, but does show what could be construed as areas of cultivation or orchard in the north-west part of the churchyard. Therefore the boundary, represented archaeologically by ditch 1003 and associated features, must have been established no earlier than the late 17th century.

The close alignment of the Phase 3 graves with the line of the new boundary suggests that the dating of the graves (by the coffin furniture) can be seen as a reasonably good indicator of the date of defined boundary.

- 8.1.8 In 1841 the land thus separated was granted for the construction of a school. This is shown on a Tithe map dated to the following year (Fig. 18). A boundary separating the school from the churchyard is depicted, running from the north-east corner of the churchyard to just south of the schoolhouse. However this boundary is too far south to be the ditch and wall seen in the excavation. It is therefore suggested that, initially a new boundary was created in the 18th century, (ditch 1003 and associated features) to enclose the agricultural activity on the north side of the church. Then later with the establishment of the school, this boundary was moved to the line suggested on the 1842 map, presumably to increase the school space.
- 8.1.9 This interpretation of the cartographic and archaeological evidence then provides a *terminus ante quem* for the Phase 3 burials, and this is supported by the dating of the coffin fittings.
- 8.1.10 In 1856 a new municipal cemetery was created on Old Odiham Road. The majority of further burials would have taken place there. The burials register for St Lawrence Church, Alton records burials in the church graveyard until 1975, although given the fact the churchyard was levelled and the gravestones rearranged after the Second World War, these later burials are likely to be very few in number as the new municipal cemetery would have taken the bulk of the interments.

9 CONCLUSIONS

- 9.1.1 The burials recovered from the graveyard of St Lawrence's Church, Alton are comparable to other local parish church cemetery populations.
- 9.1.2 As graveyards are often used over a very long period of time, early interments become heavily truncated. Unusually the Phase 1 group of burials represent a fairly undisturbed group of 12th- and 13th-century graves. Most sites from this period are religious houses or hospital graveyards. However, a cemetery investigated at St Botolph's Haverhill, Suffolk revealed 355 graves dating from the 11th to the 14th centuries (Martin *et al.* 1998). These were associated with a parish church that became redundant in the 16th century. Amongst the burials were those with 'pillow stones' and coffins. Churchyard boundary ditches were also identified. This group of burials is directly comparable to those at Alton. They share the late use of 'pillow stones' and the early use of coffins. The populations of both consisted of men, women and children representing all sections of society.
- 9.1.3 The Phase 3 group of burials can be compared with those excavated from St Nicholas' Church, in the village of Forest Hill, Oxfordshire (Mumford and Boyle 2004). In this case there were 23 graves from the 18th and 19th centuries recovered from the north side of the church. They contained a mix of men, women and children in wooden coffins. The preservation of these individuals was generally, as at Alton, excellent. The population suffered from similar pathologies, though curiously had two cases of sinusitis which was common in cities at this time due to an increase in air pollution associated with industrialisation. The individuals examined from Alton did not suffer from this condition, which is more typical of a population of a rural environment. The coffins in which the St Nicholas' individuals were interred were similar to those found at Alton. They were wooden constructions with grips and grip plates held together with iron nails, and some had upholstery studs. The principle difference between the two burial groups was that more of the coffins at Forest Hill had evidence for breast plates and lid motifs than at Alton, possibly suggesting a wealthier population.

10 APPENDIX 1 BIBLIOGRAPHY

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11 APPENDIX 2 THE HUMAN BONE

Skeleton catalogue

Key to dental abbreviations -

/ - lost PM	NP- Not present	E - Erupting
R- Root only	U - Unerupted	PE - Partial eruption
X - Lost AM	B - Broken	C - caries
A - Abscess	PU - Pulp exposed	-- Jaw not present
H - Hypoplasia	Ca - Calculus	P - Periodontal disease

Site Name	ALSLS05		
Skeleton Number	1035		
Age	Mature adult	L	R
Sex	?Male		
Preservation	Poor		
Dentition		Mandible and maxilla absent	
Stature	-		
Pathology summary	Tibia periostitis		

Site Name	ALSLS05		
Skeleton Number	1039		
Age	6 years	L	R
Sex	-		
Preservation	Excellent		
Dentition		e d c b a a b c d e e d c b a a b c d e	
Stature	-		
Pathology summary	Large ossicle at lambda		

Site Name	ALSLS05		
Skeleton Number	1044		
Age	40+		
Sex	Female	L	R
Preservation	Good	c c c c c c hc c c c c c c	
Dentition		8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 Maxilla absent 7 8 h	
Stature	1.6m		
Pathology summary	Calculus on teeth		

Site Name	ALSLS05
Skeleton Number	1048

Age Middle Adult L R
 Sex Male
 Preservation Poor / / / / / C /
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 X II

Stature -
 Pathology summary Healed infection right femur

Site Name ALS.LPS05
 Skeleton Number 1052
 Age 40+
 Sex female Mandible and maxilla absent
 Preservation good
 Dentition None present
 Stature 1.52m
 Pathology summary Osteophytes on the lumbar vertebrae

Site Name ALS.LPS05
 Skeleton Number 1063
 Age 12 L R
 Sex -
 Preservation Good
 Dentition mandible and maxilla absent
 Stature -
 Pathology summary -

Site Name ALS.LPS05
 Skeleton Number 1068
 Age 5 L R
 Sex - U U
 Preservation destroyed 6 e d c b a a b e d e 6
 Dentition 6 e d c b a a b e d e 6
 U U
 Stature -
 Pathology summary slight wear on deciduous molars

Site Name ALS.LPS05
 Skeleton Number 1072
 Age 12 L R
 Sex -
 Preservation Excellent
 Dentition 6 5 4 3 2 1 1 2 3 4 5 6
 6 5 4 3 2 1 1 2 3 4 5 6
 /
 Stature -
 Pathology summary

very small lesion left knee. Green stain on left metacarpal underside.

Site Name	ALSLPS05	
Skeleton Number	1077	
Age	30	L R
Sex	Male	
Preservation	Good	C
Dentition	8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8	
Stature	-	Calculus on all teeth Periodontal disease

Pathology summary
Anaemia. Retention of metopic suture

Site Name	ALSLPS05	
Skeleton Number	1092	
Age	5	L R
Sex	-	U / / / U
Preservation	Good	6 e d c b a a b e d e 6
Dentition	6 e d c b a a b e d e 6 U U	
Stature		

Pathology summary
Slight wear on deciduous teeth.

Site Name	ALSLPS05	
Skeleton Number	1096	
Age	5	L R
Sex	-	C C C C
Preservation	Good	e d e b a a b e d e
Dentition	e d e b a a b e d e	
Stature		

Pathology summary
Enamel hypoplasia on unerupted teeth, 1st incisors. Wear on all deciduous teeth.

Site Name	ALSLPS05	
Skeleton Number	1103	
Age	Prime Adult	L R
Sex	Male	
Preservation	Poor	
Dentition	8 maxilla absent 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 NP C / C /	
Stature		

Pathology summary
2 Caries. Congenital absence of 3rd molar

Site Name	ALSLPS05
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Skeleton Number 1106
 Age Adult Maxilla and mandible absent
 Sex ??Female
 Preservation poor
 Dentition none present
 Stature -
 Pathology summary
 None

Site Name ALSLPS05
 Skeleton Number 1107
 Age 40+
 Sex Female L R
 Preservation Good c hc
 Dentition Absent maxilla 7 8
 np 7 am 5 4 3 2 1 1 2 3 4 5 am am np
 Ca
 Stature 1.54-1.56
 Pathology summary
 General degeneration of joints, seen as osteophytes on spine and feet.
 Osteomyelitis on left and right tibia and fibula
 1 caries and some antemortem loss

Site Name ALSLPS05
 Skeleton Number 1115
 Age 25-30 L R
 Sex Female
 Preservation Good - - - - - C C
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 Mandible absent
 Stature -
 Pathology summary
 Hip injury. Lumbar vertebrae osteophyte. Caries

Site Name ALSLPS05
 Skeleton Number 1119
 Age 30s L R
 Sex Male
 Preservation Good
 Dentition mandible and maxilla absent
 Stature -
 Pathology summary
 1 osteophytic thoracic vertebrae

Site Name ALSLPS05
 Skeleton Number 1126
 Age 26-35 L R
 Sex ?Male
 Preservation poor
 Dentition Mandible and maxilla absent

Stature -

Pathology summary

Site Name ALS.LPS05
 Skeleton Number 1129
 Age 50-60 L R
 Sex Female
 Preservation Good Maxilla absent
 Dentition
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 / / / R R / / / C / X X X /

Stature -

Pathology summary

2 ivory osteomas on skull. Joint lesion 1st metatarsal.

Site Name ALS.LPS05
 Skeleton Number 1139
 Age 8 L R
 Sex -
 Preservation Excellent C C
 Dentition 6 e d c 2 1 1 2 e d e 6
 6 e d c 2 1 1 2 e d e 6
 C C Fused C

Stature -

Pathology summary

5 caries. Dental anomaly, fused tooth.

Site Name ALS.LPS05
 Skeleton Number 1146
 Age Adult L R
 Sex ?Female
 Preservation Poor
 Dentition Maxilla and Mandible absent

Stature -

Pathology summary

Schmorl's nodes

Site Name ALS.LPS05
 Skeleton Number 1150
 Age Prime Adult L R
 Sex Female
 Preservation Poor H /
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 C Ca H X

Stature -

Pathology summary

Cribrra orbitalia. Fracture right humerus. Schmorl's nodes. Caries.

Site Name	ALSLPS05	
Skeleton Number	1158	
Age	40-50	L. R
Sex	? Female	
Preservation	Poor	
Dentition	No dentition present	
Stature	-	
Pathology summary	-	

Site Name	ALSLPS05	
Skeleton Number	1162	
Age	30s	L. R
Sex	Male	R R R R X
Preservation	Excellent	X A PU PU PU PU X C PU PU A
Dentition	8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 PU PU / PU PU C	
Stature	1.83m	R R R A

Pathology summary

Possible porotic hyperostosis on the cranium. Internal osteoma on Left parietal.
Small osteophytes on sternum. Left tibia periostitis. Very strong muscle attachments
in general with thick bone. Vertebral osteophytes, C5&6 fused. Sacral cleft S4&5.

Site Name	ALSLPS05	
Skeleton Number	1171	
Age	60+	L. R
Sex	Female	
Preservation	Good	X C X R / / X / R R X ? X X X
Dentition	8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 X X X X X / / / / X X X X X	
Stature	1.57-8m	

Pathology summary

Lumbar vertebrae osteophytes, 1 schmorl's node.

Site Name	ALSLPS05	
Skeleton Number	1175	
Age	Mature adult	L. R
Sex	Male	
Preservation	Good - skull only	
Dentition	1 loose incisor only - Mandible and maxilla absent	
Stature	-	

Pathology summary

Healed trauma to parietal

Site Name	ALSLPS05
Skeleton Number	1178

Age	18-19 years	L																	R
Sex	Male		C				Ca	Ca											
Preservation	Good	/	/	/			H	/	H	H	/	H							PE
Dentition		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8		
		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8		
							H	H	H										H H H
										Ca	Ca	Ca	Ca	Ca					

Stature -

Pathology summary

Schmorl's nodes lumbar vertebrae. Knee injury

Site Name	ALSLPS05																		
Skeleton Number	1187																		
Age	1+	L																	R
Sex	-																		
Preservation	Excellent						U	U	U					U	U	U			
Dentition							e	d	e	b	a	a	b	c	d	e			
							e	d	e	b	a	a	b	c	d	e			
							U	U	U					U	U	U			

Stature -

Pathology summary

Congenital syphilis

Site Name	ALSLPS05																		
Skeleton Number	1192																		
Age	25-35	L																	R
Sex	Female																		
Preservation	Good																		
Dentition																			maxilla and mandible absent

Stature 1.61m

Pathology summary

Site Name	ALSLPS05																		
Skeleton Number	1195																		
Age	7 years																		
Sex		L																	R
Preservation	poor																		
Dentition							6	e	d	e	2	1	1	2	e	d	e	6	
							6	e	d	e	2	1	1	2	e	d	e	6	

Stature

Pathology summary

2 caries on deciduous teeth

Site Name	ALSLPS05																		
Skeleton Number	1205																		
Age	60+	L																	R
Sex	Male																		Ca
Preservation	Excellent						X	X	X	X	C	R			R	R	X	X	C
Dentition							8	7	6	5	4	3	2	1	1	2	3	4	5
																			6
																			7
																			8

		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
		X	X				R							X	X	X	
Stature	1.72m					Ca	Ca	Ca	Ca	Ca	Ca	Ca					

Pathology summary
Spina bifida occulta S1. Os cuneiform 1 bipartum, bilateral. Right tibial groove distal for tendon. Vertebrae osteophytes and crush fracture. Periodontal disease throughout dentition.

Site Name	ALSLPS05																
Skeleton Number	1214																
Age	50-60		L.														R
Sex	Female																
Preservation	Good	NP	X	X	C	C	C	C					X	X	X	X	
Dentition		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
				C	X	X		X	C	C	X		X				NP
									A	A							
Stature	1.57-1.58																

Pathology summary
Osteoporosis throughout skeleton. Much dental pathology, Considerable periodontal disease, maxilla and mandible.

Site Name	ALSLPS05																	
Skeleton Number	1218																	
Age	5-6		L.														PE	R
Sex	-				6	e	d	c	b	a	a	b	c	d	e	6		
Preservation	Excellent				6	e	d	c	b	a	a	b	c	d	e	6		
Dentition					PE		C										PE	

Stature -

Pathology summary
1 caries

Site Name	ALSLPS05																
Skeleton Number	1227																
Age	Adult		L.														R
Sex	Unidentified																
Preservation	Poor																
Dentition																	

Stature -

Pathology summary
Possible lesion on right talus.

Site Name	ALSLPS05																
Skeleton Number	1231																
Age	Adult		L.														R
Sex	unidentified																
Preservation	poor																
Dentition																	

Stature -

Pathology summary

Right tibia small fossa distal articulating surface

Site Name ALSLPS05
 Skeleton Number 1238
 Age 15 years L R
 Sex -
 Preservation Good - - - - - - - NP U
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 - - - - - - - NP U

Stature -

Pathology summary

Slight wear on m1

Site Name ALSLPS05
 Skeleton Number 1244
 Age 50+ L R
 Sex ?Female Ca Ca Ca Ca Ca Ca Ca Ca
 Preservation Good X X X X H H H H H H H X X X
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 X X Ca Ca Ca Ca Ca Ca Ca Ca Ca X X X

Stature 1.65m

A
R

Pathology summary

Much degenerative joint disease on spine, quite severe osteophytes. Teeth very worn.
 Ulna head new bone formation. Right tibia, periostitis.

Site Name ALSLPS05
 Skeleton Number 1250
 Age 40? L R
 Sex Female
 Preservation Poor
 Dentition mandible and maxilla absent
 Stature -
 Pathology summary -

Site Name ALSLPS05
 Skeleton Number 1253
 Age 50+ L R
 Sex Male
 Preservation Good
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Stature 1.67m

Pathology summary

Strong muscle attachments, especially on the right.

Site Name ALSLS05
 Skeleton Number 1259
 Age 30-40 L R
 Sex Female
 Preservation Good
 Dentition Maxilla absent
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca / Ca Ca Ca Ca Ca
 Stature 1.44-1.5m
 Pathology summary Osteophytes on spine.

Site Name ALSLS05
 Skeleton Number 1269
 Age 15-16 L R
 Sex Unidentified
 Preservation Good U C U
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 U / / / / / / U
 Stature -
 Pathology summary Retention of metopic suture

Site Name ALSLS05
 Skeleton Number 1275
 Age Older adult L R
 Sex Male A C C
 Preservation Poor / R R Pu Pu Pu Pu Pu Pu Pu Pu Pu Pu Pu Pu Pu /
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 C Pu Pu Pu / Pu Pu / / / Pu Pu Pu Pu Pu
 Stature - C C C
 Pathology summary Teeth very worn. 6 caries, 1 abcess. Skull sutura mendosa.

Site Name ALSLS05
 Skeleton Number 1279
 Age 5 years L R
 Sex - / / / / / / / /
 Preservation Good e d e b a a b c d e
 Dentition e d e b a a b c d e
 Stature -
 Pathology summary heavy attrition on deciduous teeth

Site Name ALSLS05
 Skeleton Number 1286
 Age 18-19 L R

Sex Female
 Preservation Excellent / Ca Ca Ca Ca Ca / Ca NP
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 R H H Ca Ca H H
 Stature 1.77m Ca Ca

Pathology summary
 Schmorl's nodes. 1 tooth missing

Site Name ALSLPS05
 Skeleton Number 1298
 Age 40 L R
 Sex Male
 Preservation Good
 Dentition Mandible and Maxilla absent
 Stature 1.69m

Pathology summary
 Right finger fracture. Right toe fracture. General strong muscle attachments.

Site Name ALSLPS05
 Skeleton Number 1303
 Age Adult
 Sex Unidentified maxilla and mandible absent
 Preservation good
 Dentition None present
 Stature
 Pathology summary
 None present

Site Name ALSLPS05
 Skeleton Number 1308
 Age 60+ L R
 Sex ?Male
 Preservation Poor / / / / / / / / / / /
 Dentition 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
 Ca Ca / P
 Stature - C C

Pathology summary
 Osteophytes on spine. Schmorl's nodes. Very heavily worn teeth

Site Name ALSLPS05
 Skeleton Number 1313
 Age 60+
 Sex Female L R
 Preservation good
 Dentition maxilla absent
 mandible - complete tooth loss and alveolar resorption
 Stature 1.61

		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Stature	168-169	P							-			Jaw absent					-

Pathology summary

Massive osteophytes on spine. Sacral cleft S1. Left elbow arthritis. Left knee exotosis torn ligament.

Site Name	ALS LPS05																
Skeleton Number	1353																
Age	Mature Adult								L								R
Sex	?Male																
Preservation	Good											Maxilla absent					
Dentition		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
		-	/	X	X	X	X	X	/	/	X	-	-	-	-	-	-
Stature	1.73-1.74m																

Pathology summary

Trauma. Kyphosis of the spine, 5 thoracic vertebrae cojoined, with related injury on ribs. Loss of teeth. Strong muscle attachments, large robust bones.

12 APPENDIX 3 SUMMARY OF SITE DETAILS

Site name: St Lawrence's Primary School, Alton

Site code: ALS LPS05

NGR SU 71765 39650

Type of fieldwork: Excavation and Watching Briefs

Date and duration of project: Excavation: August and September 2005; Watching Briefs: October 2005 and July 2006

Area of site: 0.3 ha

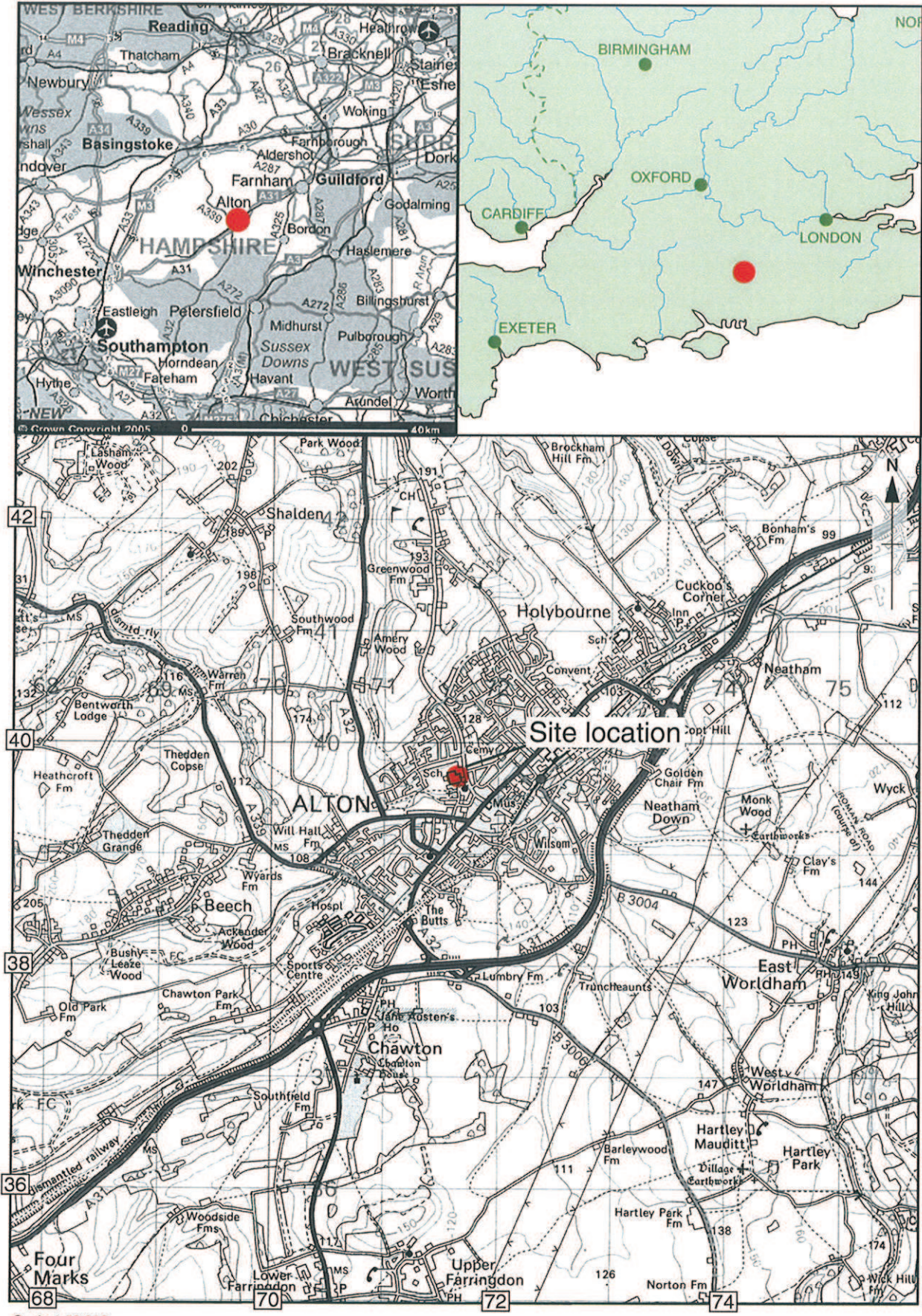
Summary of results:

Archaeological excavation was carried out by Oxford Archaeology at St Lawrence Primary School Alton, on behalf of Gifford and Partners for Hampshire County Council. The excavation, in advance of building extension, revealed 56 inter-cutting graves representing two distinct phases of burials. These burials formed part of the much larger cemetery of St Lawrence Church which served as the burial ground for Alton between the 12th century AD and 19th century AD.

All the skeletons were analysed to assess bone preservation and completeness. Whilst there was some fragmentation, the overall bone preservation was found to be good. Many skeletons were incomplete, having been truncated by later graves and by the edge of excavation. Low levels of skeletal and dental pathology were present. One case of congenital syphilis was identified, displayed in severe dental malformation.

Evidence for coffins from both the 12-13th centuries and the post-medieval period was found. Other characteristics include 'ear muffs' or 'pillow stones', found in the earlier graves, and grave goods of marbles and a spindle whorl. One boundary ditch and gully/wall foundation of post-medieval date for the cemetery was discovered. Parallel to this was a series of post-medieval postholes.

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES. The human bone was reburied 15th June 2006, in Alton cemetery on Old Odiham Road behind Plot T56. The archive will be deposited with Hampshire Museum, under the following accession number: A2005.37. A publication of findings will be made in the Proceedings of the Hampshire Field Club and Archaeological Society, Hampshire Studies.



Scale 1:50,000

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Figure 1: Site location

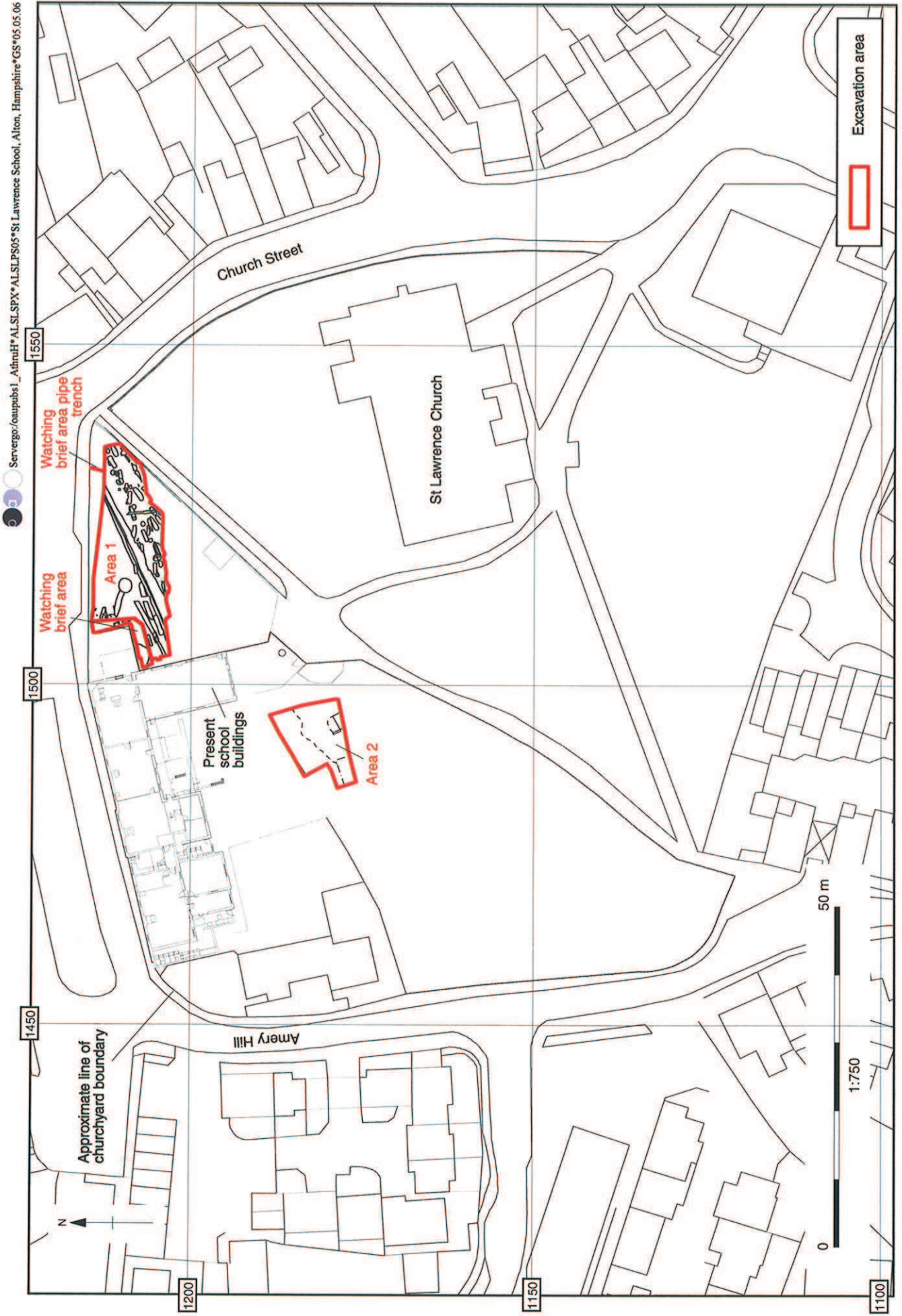


Figure 2: Areas of excavation and watching brief

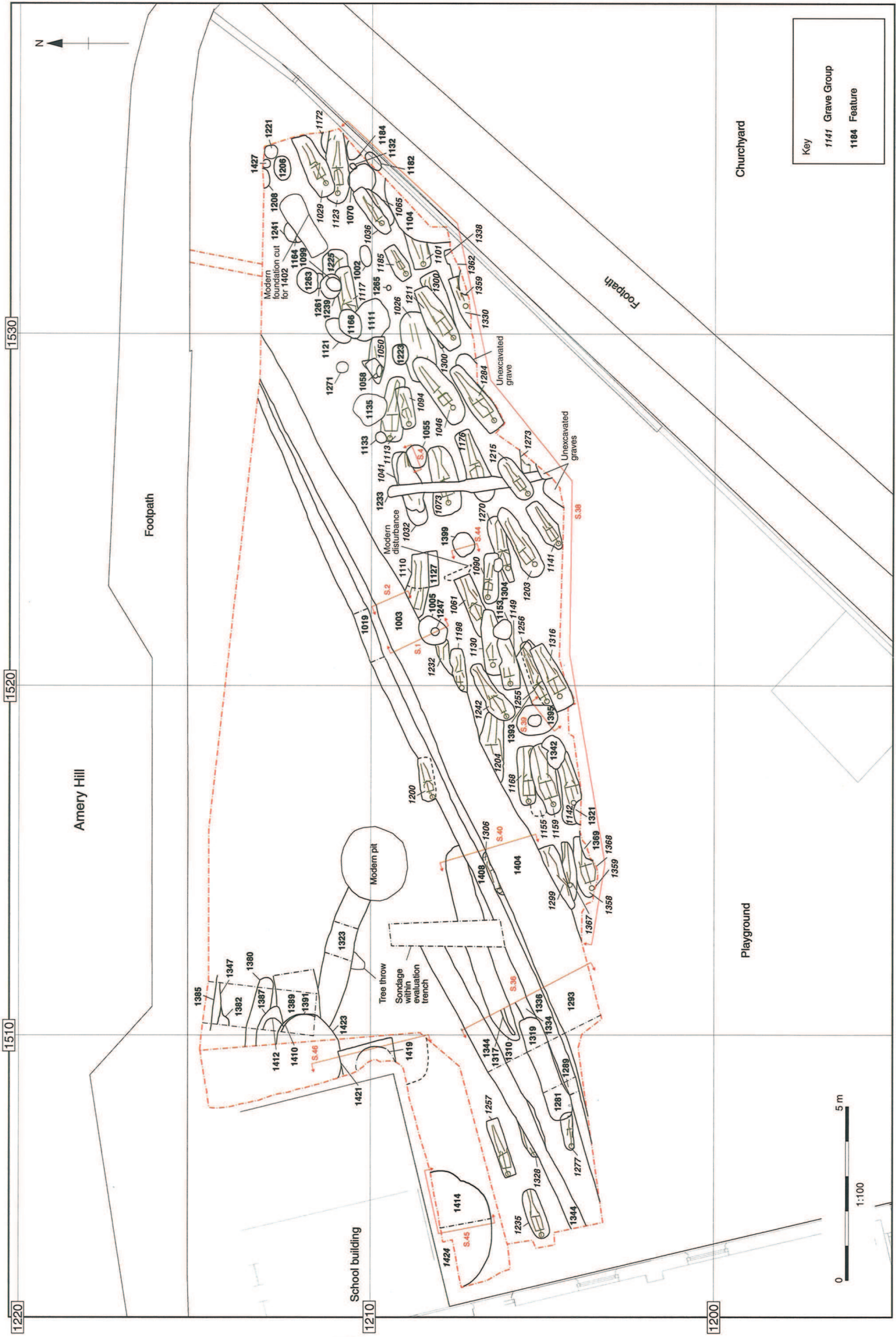


Figure 3: Plan of Area 1: Excavated features with schematic representation of skeletons showing body positions within the grave by group number

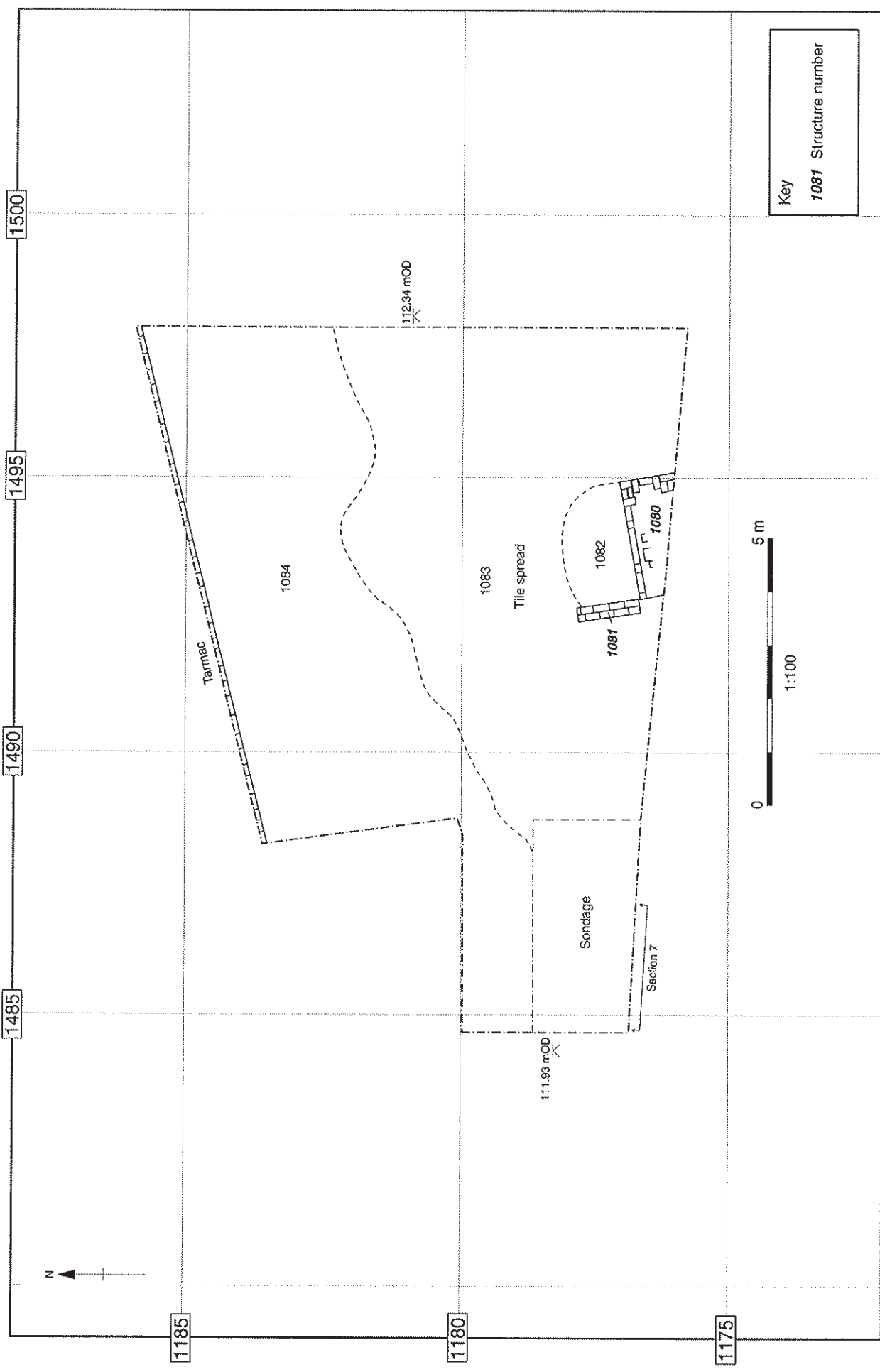


Figure 4: Plan of Area 2

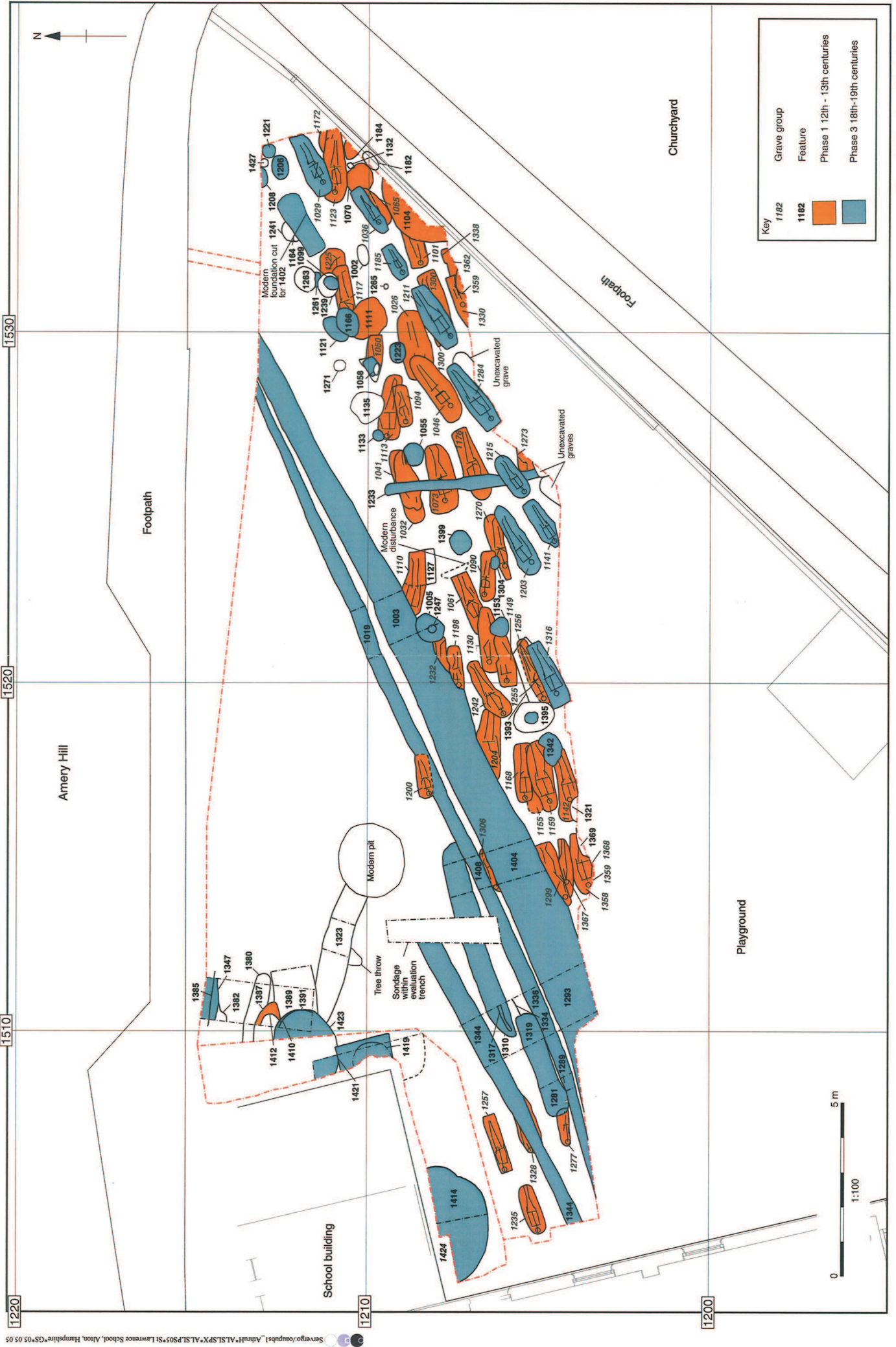


Figure 5: Phasing of burials: Area 1

Figure 6: Grave Group 1073

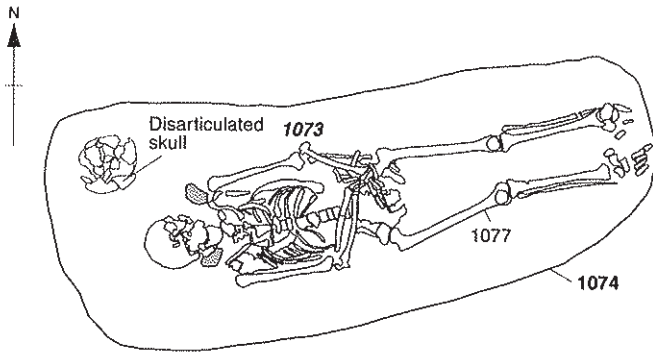


Figure 7: Grave Group 1090

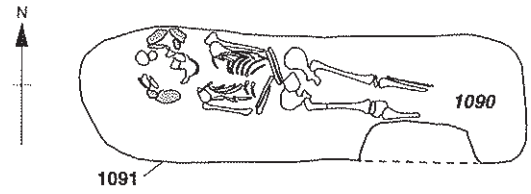


Figure 8: Grave Group 1149

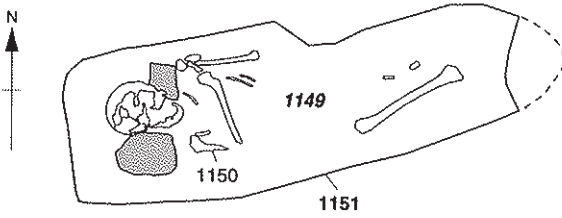


Figure 9: Grave Group 1094 + 1113

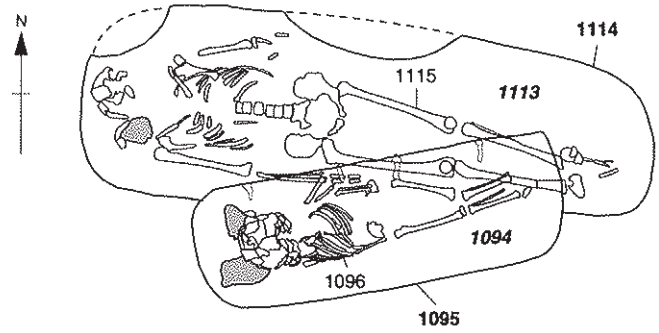


Figure 10: Grave Group 1215, child with six marbles at the feet

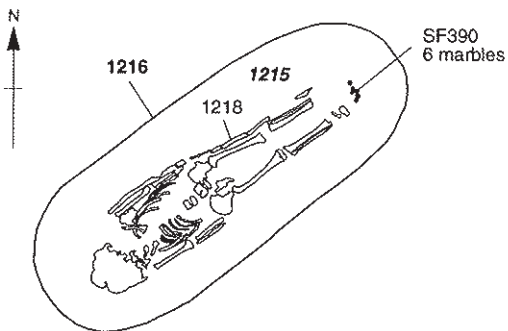
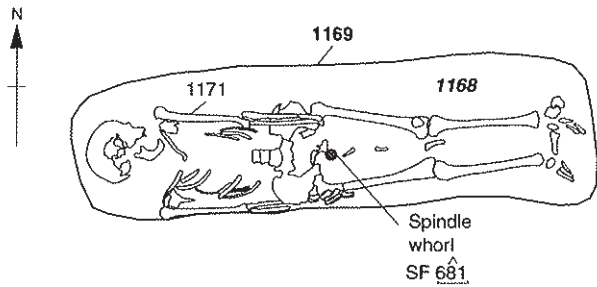


Figure 11: Grave Group 1168, female with spindle whorl



Ear muff stones

0 1 m
1:25

Figure 12: Plan of 8th-19th century single-break coffin 1220

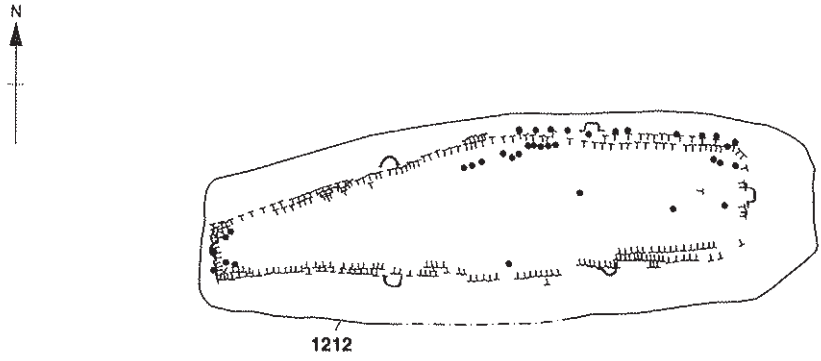


Figure 13: Plan of Trapezoid 17th-18th century coffin 1314

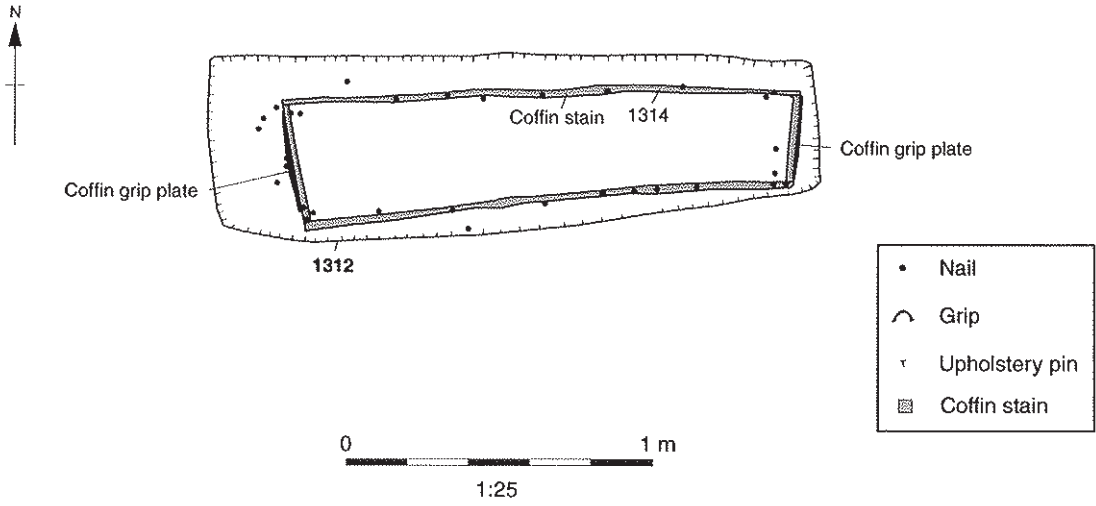


Figure 15: Sections of postholes

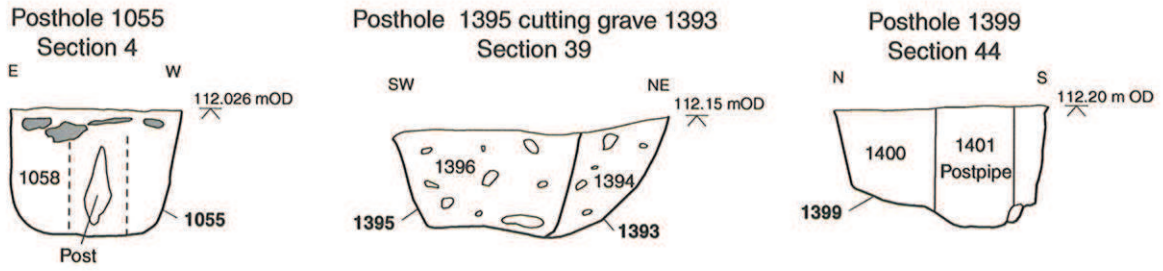


Figure 16: Sections of ditch 1003

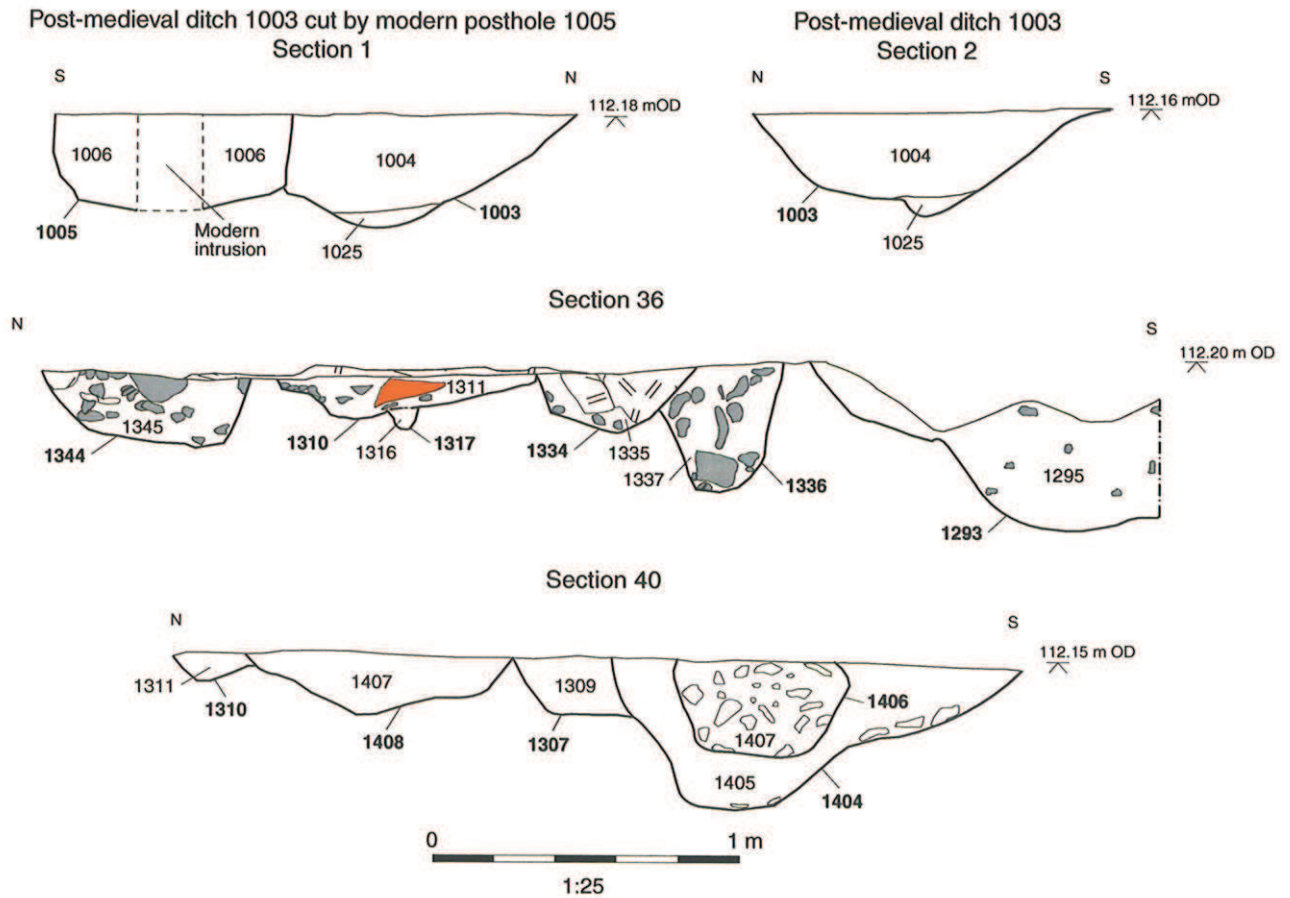
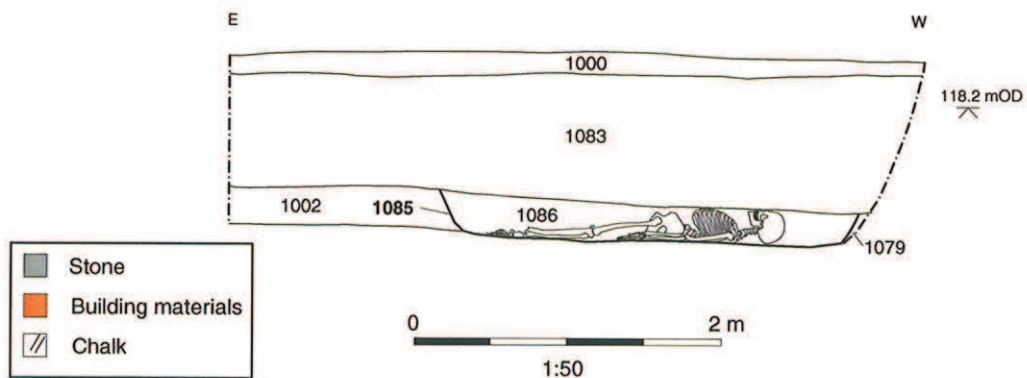
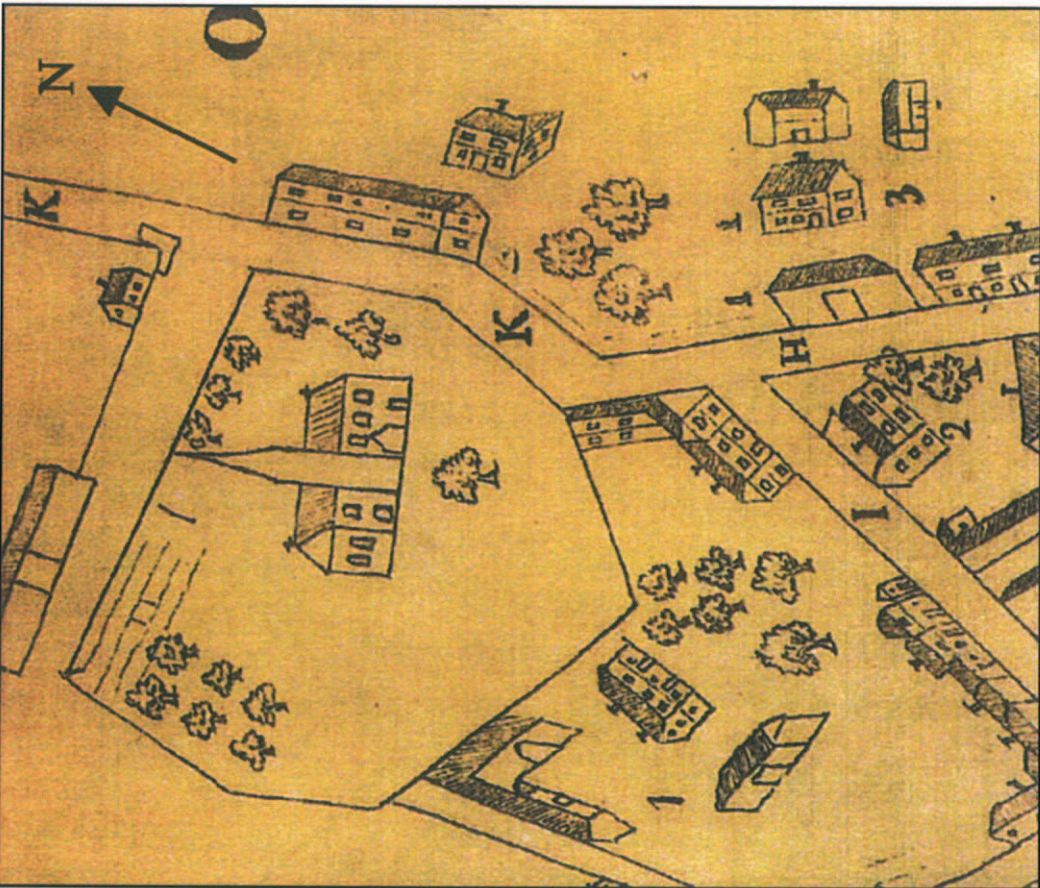


Figure 17: Skeleton 1079 in section 7 Area 2



Figures 15 - 17: Sections



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1842 Tithe Appointment Map HRO 21M65/F7/3/2 © HRO

Figure 18: Historic maps of the area around the Church of St Lawrence

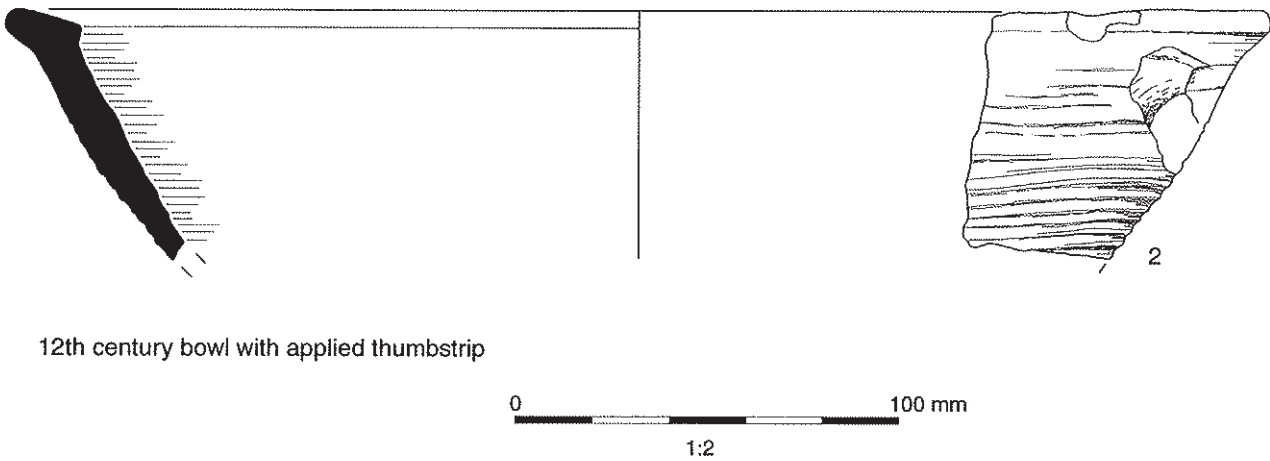
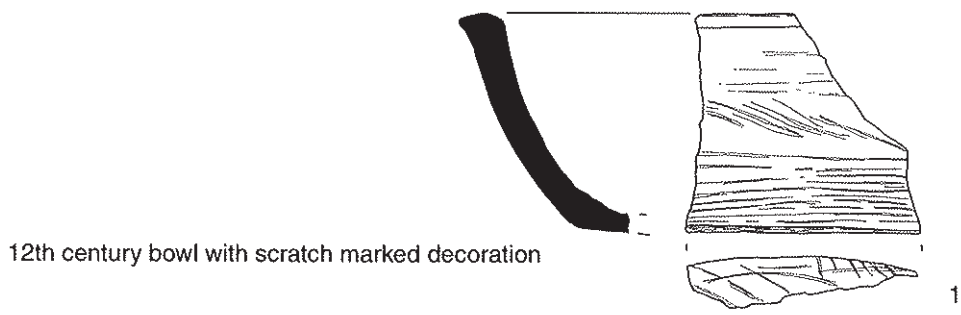
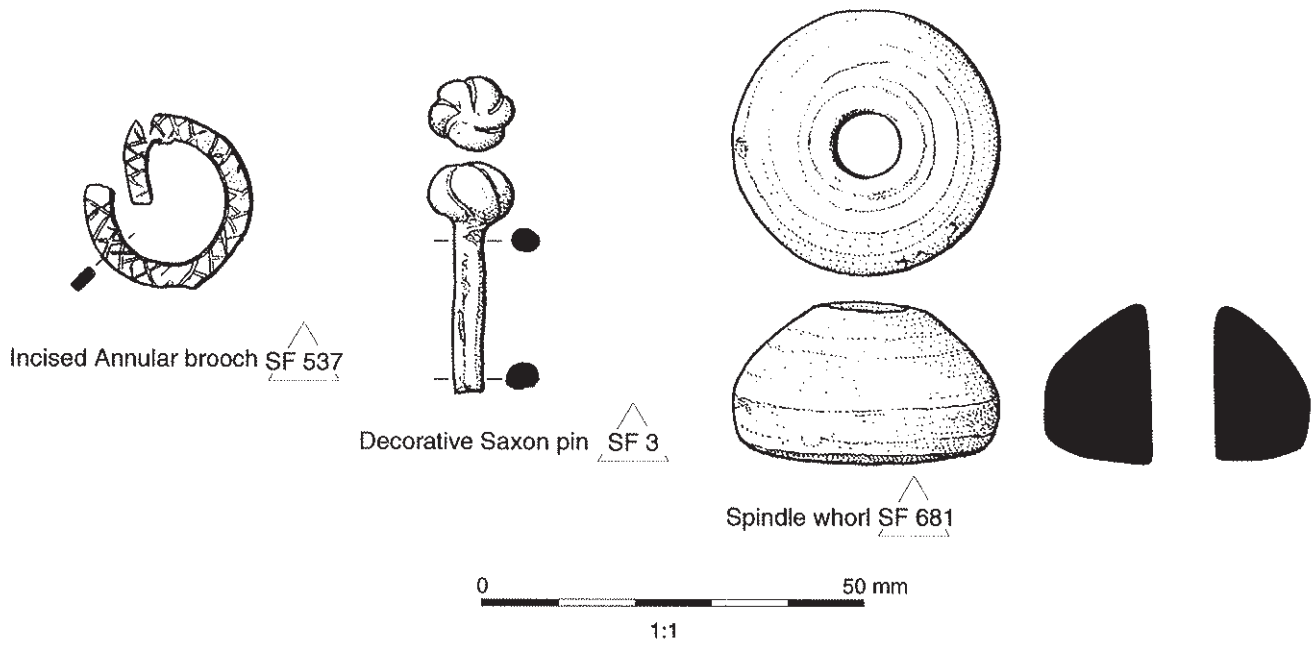


Figure 19: Finds



Plate 1: Skeleton 1218 (grave group 1215) with marbles



Close-up of feet of skeleton 1218



Close-up of marbles found with skeleton 1218



Plate 2 Skeleton 1171 (grave group 1168)

Close-up of spindle whorl



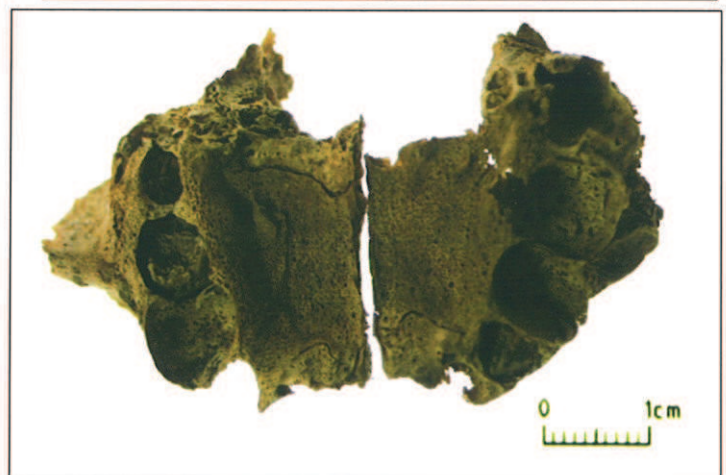
Plate 3 Skeleton 1096 (grave group 1094) with ear muff stones



Plate 4 Post-medieval skeleton 1286 within coffin



Plate 5: Skeleton 1187 with congenital syphilis within post-medieval coffin, and close-ups showing the condition of the mandible, teeth and maxilla





Oxford Archaeology

Janus House
Osney Mead
Oxford OX2 0ES

t: (0044) 01865 263800
f: (0044) 01865 793496
e: info@oxfordarch.co.uk
w: www.oxfordarch.co.uk



Oxford Archaeology North

Storey Institute
Meeting House Lane
Lancaster LA1 1TF

t: (0044) 01524 541000
f: (0044) 01524 848606
e: lancinfo@oxfordarch.co.uk
w: www.oxfordarch.co.uk



Director: David Jennings, BA MIFA FSA

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Oxford Archaeological Unit
Janus House, Osney Mead, Oxford OX2 0ES