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AN ANGLO-SAXON CEMETERY AT TWYFORD, NEAR WINCHESTER

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ABSTRACT

In 2007, part of a previously unknown Anglo-Saxon cemetery was uncovered during the construction of new classrooms at Twyford School, Twyford, near Winchester. It contained 18 graves of late 5th/6th to early 8th century date. Ten of the graves contained identifiable grave goods, with a beaded necklace found at the neck of a female, shield bosses in male graves, and knives and buckles found in both male and female graves.

The osteological evidence points to a local, rural population, enjoying a fair standard of living, reasonably good health and little competition for resources. In addition to the graves, a penannular ditch and three post-built structures were uncovered, possibly associated with the cemetery. The proximity of the cemetery to a Roman villa occupied into the 5th century may indicate some degree of continuity of settlement, or of land boundaries, into the Anglo-Saxon period, while its location close to a crossing point of the River Itchen may have been a factor in the subsequent development of the medieval village of Twyford.

INTRODUCTION

In the autumn of 2007, the western part of a previously unknown Anglo-Saxon inhumation cemetery was exposed during groundworks undertaken for the construction of new classrooms at Twyford School, Twyford, near Winchester. Following consultation with Winchester City Council, Hampshire County Council and English Heritage, a *c.* 0.1 hectare site centred on NGR 448380 125016 was excavated by Wessex Archaeology (Wessex Archaeology 2009a).

The site lies to the southeast of the junction of Searles Hill (the B3335 Twyford–Winchester Road) and Bourne Lane (Fig. 1). It was generally flat at *c.* 46m above Ordnance Datum (aOD), although sloping down slightly from north to south towards a dry valley after which Bourne Lane is probably named. The site lies on Chalk (Geological Survey of Great Britain, Sheet 299 Winchester, 1966), and locally the chalk downland ascends gently to the north and east, and falls away towards the River Itchen *c.* 500m to the west.

Evidence for long-term prehistoric occupation has been found widely within the surrounding landscape, including a number of Bronze Age round barrows close to the site (possibly of significance in relation to the location of the cemetery), and culminating in the Iron Age with the hillfort on St Catherine's Hill and the enclosure of Oram's Arbour in Winchester. The Roman town of Winchester (*Venta Belgarum*), which became a regional capital, lies *c.* 5 km to the north of the site, and the Roman road running southeast from it (now followed by Morestead Road) passed *c.* 2.5 km to the east of the site. A Romano-British courtyard villa and bath house, *c.* 500m south of the site (Fig. 1), was built in the Flavian period and continued to be occupied into the 5th century (Whinney 1999), possibly into the post-Roman period.

Winchester had a Christian church by the middle of the 7th century, by which time the Twyford School site lay within the Hundred Hides of Chilcomb, a large tract of countryside around Winchester granted to the church by Cynegils, king of Wessex (*c.* 611 to *c.* 643). Winchester became increasingly important during the 8th century, and was eventually made King Alfred's capital in 871. Twyford itself, however, was not referred to by name (*TUIFYRDE* – 'two

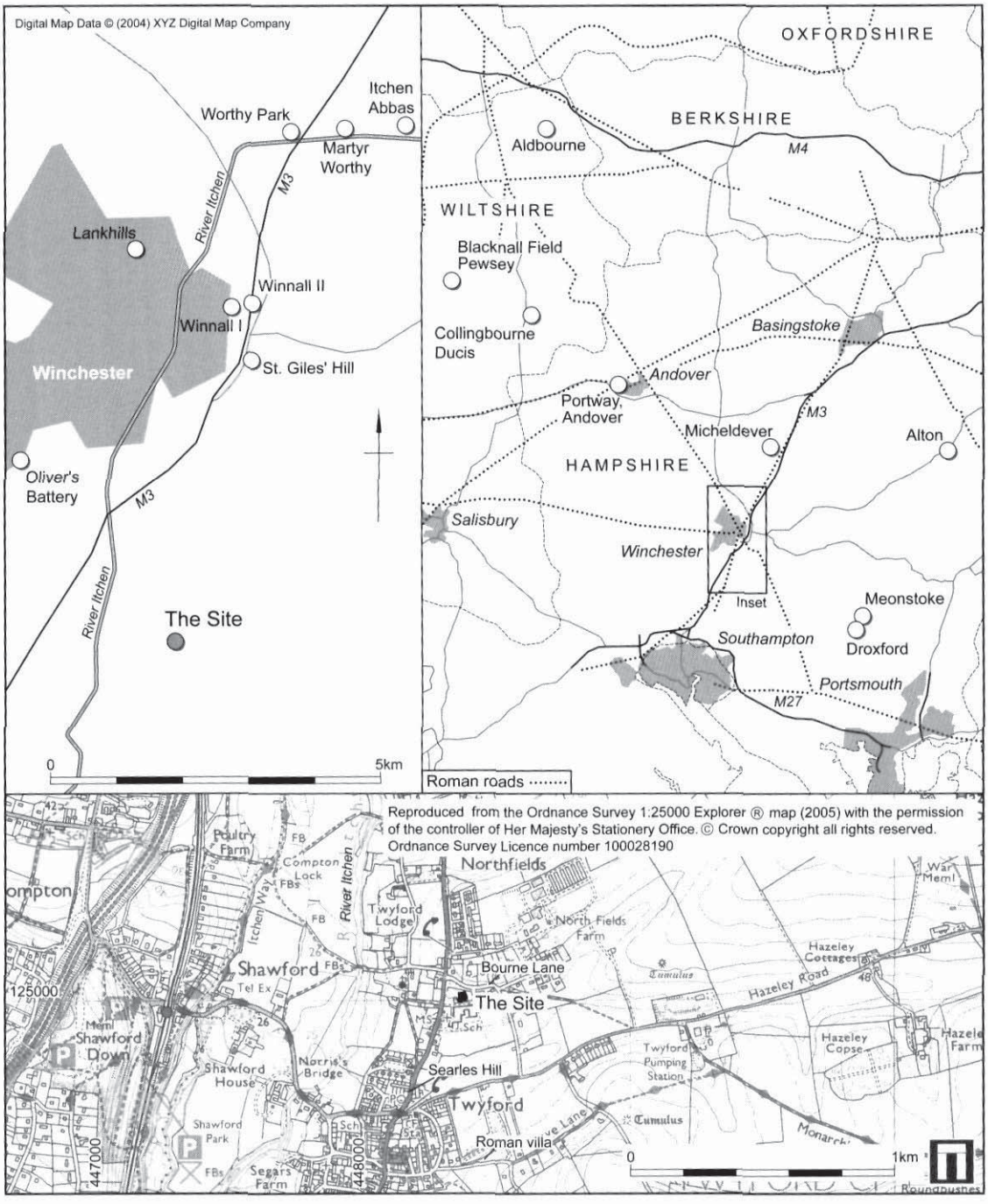

Fig 1 Site location, with other sites mentioned in the text

fords' or 'double ford') until 964 when King Edgar granted land there to the cathedral. The manor was still held by the bishop at the time of the Domesday survey in 1086.

Although few other archaeological remains of the Anglo-Saxon period have been recorded in the vicinity of the site, metal-detected finds were found at Shawford *c.* 1 km to the northwest (Stedman 2003). The Itchen Valley, especially in the area around Winchester, was home to a number of Anglo-Saxon cemeteries, such as the paired burial grounds at Winnall (I and II) (Meaney & Hawkes 1970), Worthy Park (Hawkes & Grainger 2003), Itchen Abbas (McCulloch 1995), St Giles' Hill (Meaney 1964, 101–102), and the isolated high status weapon burial at Oliver's Battery (Bruce-Mitford 2005). Outside the Winchester area, examples can be cited from Shavards Farm, Meonstoke (Stoodley & Stedman 2001), Droxford, Soberton (Aldsworth 1979), Portway, Andover (Cook & Dacre 1985; Stoodley 2006), and Alton (Evison 1988); while in Wiltshire, Collingbourne Ducis (Egging Dinwiddy & Stoodley in prep.), Blacknall Field, Pewsey (Annable & Eagles 2010) and Aldbourne, near Marlborough (Fitzpatrick *et al.* in prep.) (Fig. 1), also provide valuable comparative information.

RESULTS

Substantial levelling and landscaping of the site in the recent past had truncated many of the archaeological features, and disturbed and contaminated some of their uppermost fills; a number of graves were further disturbed during topsoil stripping. The features were clearly visible cutting the degraded natural chalk, which lay directly below modern surfaces (including an access road) covering the southern part of the site, and a dark brown loam topsoil, *c.* 0.3m thick, covering the northern part. The topsoil contained abundant artefacts, including redeposited human bone from truncated or possibly destroyed Anglo-Saxon graves, as well as animal bone, prehistoric pottery, worked flint and post-medieval ceramic building material (CBM).

The range of feature types was limited, and few of them intercut (Fig. 2). They included 18 Anglo-Saxon graves, ten of which were dated by their grave goods. The remaining graves are assumed to be broadly contemporary, the earlier and/or later artefacts from them being either residual, or the result of subsequent disturbance and contamination. Less securely dated features included a penannular ditch open towards the southeast and three post-built structures, all to the west of the graves. There were also a number of undated small pits and postholes, as well as 13 tree-throw holes, distributed across the site.

Pre-Anglo-Saxon

Pre-Anglo-Saxon activity on the site is indicated by small numbers of late prehistoric and Romano-British finds, including worked flint, burnt flint and pottery. Six of the 12 sherds of prehistoric pottery came from two of the timber structures, with five flint-tempered Late Bronze Age sherds from posthole 1015 in structure 1017, and one sherd in a sandy fabric, possibly Iron Age, from posthole 1025 in structure 1149 (Fig. 2). The remaining prehistoric sherds were residual in the graves or recovered from the topsoil.

Of the timber structures, structure 1017, in particular, is similar to four-post 'granaries' found on many late prehistoric settlements. Similarly, the penannular ditch (1002), although relatively small (*c.* 6m internal diameter), has similarities with late prehistoric roundhouse gullies which frequently have entrances at the southeast. However, both comparable timber structures and penannular ditches are also known to be associated with Anglo-Saxon cemeteries (see below), and while the dating of these features on this site has not been established (being shown on Fig. 2 as *Undated*), they are considered within the description of the cemetery simply because they are potential components of what is the main feature of the site.

Of the seven Romano-British sherds, one came from posthole 1119 in structure 1149, five were residual in graves, and one residual in medieval/post-medieval pit 1033. The tree-throw holes are also undated, although one was cut by the penannular enclosure and another

pre-dated one of the post-built structures; a third was cut by pit 1033.

The Anglo-Saxon cemetery

The 18 inhumation graves uncovered on the site appear to represent the western side of what had undoubtedly been a larger cemetery extending to the north, east and south, although recent investigations (Wessex Archaeology 2009b) have shown that the area to the immediate east had been subject to recent heavy landscaping which would have removed any archaeological remains in that area. In the 1970s, however, a burial was found in a service trench *c.* 75m to the north of the site, while a further grave was recently exposed 230m to the northeast (Wessex Archaeology 2010). Although presently undated, it is possible that these were either related to the cemetery, or were discrete burials within a dispersed funerary landscape, as at Winnall (Meaney & Hawkes 1970).

The graves occupied an area of *c.* 28m by 8m in the eastern half of the site, and although their distribution could indicate a formal separation from the penannular ditch and timber structures immediately to their west, there was little evident organisation in the positioning of the graves. While there were two instances of intercutting graves – grave 1106 cut grave 1130, and grave 1070 cut grave 1049 – the relative lack of intercutting suggests that graves were marked in some way, although any evidence would have been lost during the landscaping and levelling of the site. A small number of graves appear to have been positioned with respect to others, such as adjacent and parallel graves 1080 and 1083, and even closer graves 1062 and 1070, with grave 1003 on the same line as 1062, but to its immediate east.

Grave goods found in ten of the graves indicate that the cemetery was in use from the 6th century to the 7th/8th century. Modern landscaping had removed parts of the burials in six graves (1075, 1080, 1083, 1095, 1123 and 1143), and modern utility trenches had cut through and disturbed a further two (1126 and 1086).

Details of the graves and their contents are listed in the grave catalogue (below), and a selection is illustrated showing details of the burials and the grave goods (Figs 4–11).

The burials

Nineteen burials were recovered from the 18 graves, with grave 1143 containing two burials – an older adult male (1144) and an adult female burial (1146). In addition, a quantity of redeposited bone was recovered, mainly unstratified in the topsoil, or from modern service trench fills, much of it probably disturbed during recent landscaping. While several pieces could be confidently reunited with the burials that they originated from, others appear to have derived from otherwise unidentified burials, and a further four individuals are represented giving a minimum of 23 individuals overall. A small quantity of redeposited bone in the fill of grave 1070 was most likely incorporated at the time of the burial, although it is not clear if this was deliberate or accidental.

Eleven of the graves (61.1%) were orientated approximately west–east (head to foot), six (33.3%) approximately south–north, and one (5.6%) east-northeast–west-southwest. Such variation contrasts with the increasingly standardised orientation typically found in 7th- and 8th- century cemeteries, such as at Winnall II, although a small number of contemporary burial grounds, for example Bargates, Christchurch (Jarvis 1983), also contained graves on two main alignments.

Fifteen graves were subrectangular or rectangular (83.3%), of which four (26.7%) were rounded at one end (two graves) or both ends (two graves). The remaining three (16.7%) were so truncated that they could only be described as irregular or incomplete. The graves were predominantly steep- and straight-sided, with flat bases. Regularity in grave shape may reflect status (Tainter 1975), particularly where, as at this cemetery and Winnall II, digging regular-shaped graves into chalk may have required extra effort.

Complete adult graves were *c.* 1.6–2.15m long (average 2m), 0.5–1.2m wide (average 0.8m), and 0.13–0.4m deep below the surface of the chalk (average 0.28m). The shortest grave contained a moderately flexed burial, while the

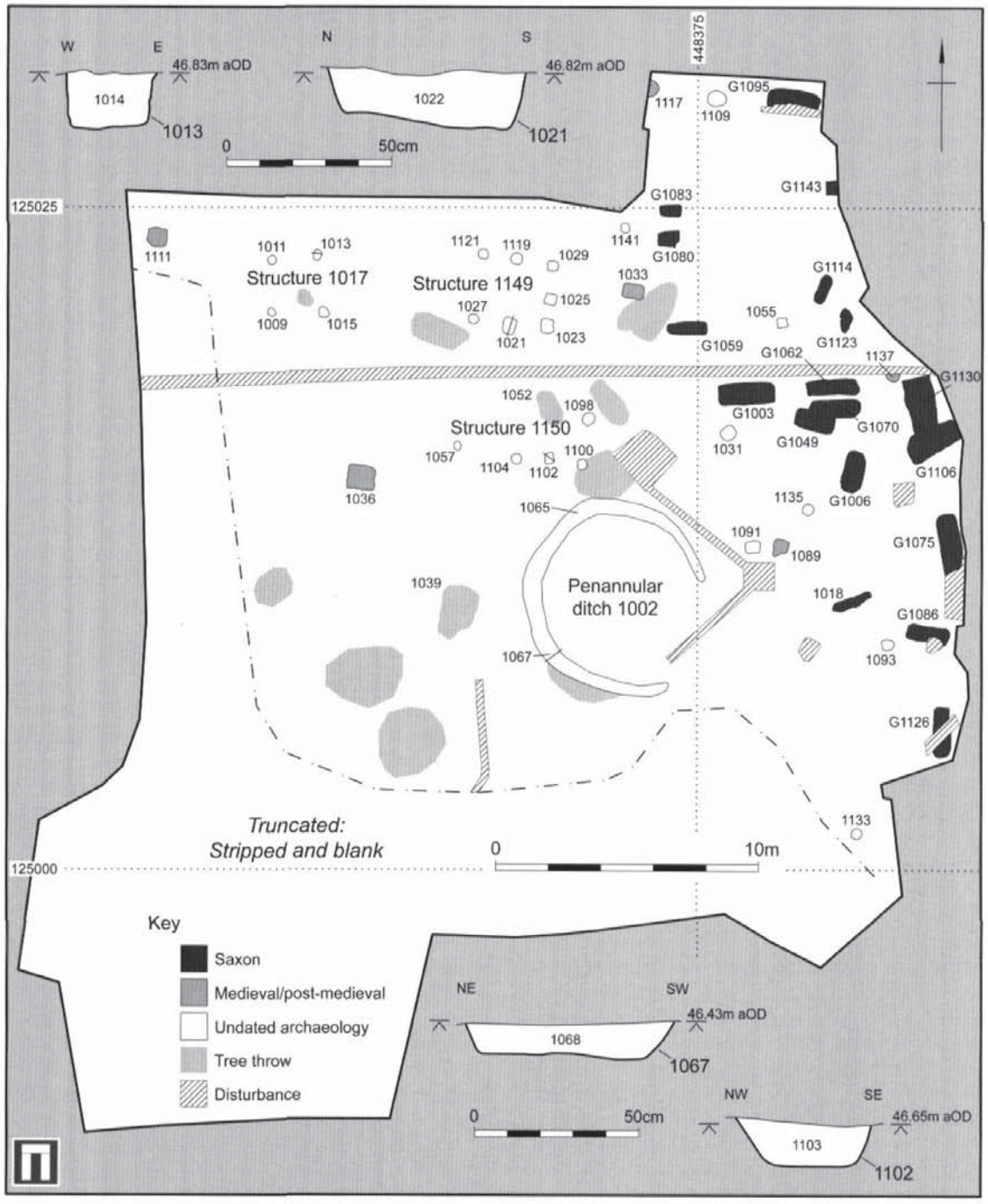

Fig 2 Plan of the site

rest were less flexed, or extended. The widest graves contained slightly flexed burials. The deepest graves were located towards the east and south of the site. Complete graves containing the remains of immature individuals were *c.* 1.1–1.6m long (average 1.5m), 0.4–0.7m wide (average 0.54m) and 0.08–0.26m deep. While there was a general correlation between the grave length, size and position of the body, the graves are generally wider than the average of *c.* 0.4m at Winnall II; they are comparable in width, however, with the graves at Aldbourne (Stoodley in Fitzpatrick *et al.* in prep.). One infant burial was in an adult-sized grave (1086), but this was highly truncated and could have originally contained an adult.

There was a distinct lack of evidence for the use of coffins, with only seven nails being recovered (from five graves), although carpentry joints may have been used instead of iron fittings. It is possible that the nails had some other function or significance (see below).

Burial position was observable in all but one case – the infant burial in grave 1086 which could be described only as possibly supine. Twelve burials (63.2%) were supine, of which eight were extended and supine, the other four having variations in their upper limb positions. Six burials (31.6%) were flexed (with the legs bent), with four laid on the right side (some closer to supine) and two on the left. While extended supine burial is the predominant body position throughout the Anglo-Saxon period, many other cemeteries display similar degrees of variation, the significance of which is uncertain.

The most highly flexed burial was of an older adult female (grave 1006), accompanied, unusually, by two knives, whose knees were bent to *c.* 45 degrees, and the femora at *c.* 70 degrees, to the body. The burial of another older adult female, in grave 1130, was probably laid on the left side, as indicated by the location of the skull and left limbs. The torso and right limbs appeared to have slumped to the right giving the impression of a supine burial. The movement would suggest space around the corpse, and the disarticulation implies that the body was at least partially decomposed when this movement occurred.

The truncated remains of the juvenile in grave 1083 had slumped forward from its placement on the left side, so as to appear prone.

Penannular ditch

To the southwest of the graves was a penannular ditch (1002), 6.8–7.8m across externally, with a 4m wide opening at the southeast. Internally, it was approximately circular although its southern terminal splayed noticeably outwards by *c.* 0.5m. Externally, the regular slight flattening of its outer edge gives it a rounded polygonal appearance.

The ditch was most substantial (up to 0.7m wide and 0.11m deep) at the north and west, but it narrowed significantly (to *c.* 0.3m wide) towards the southeast, possibly due to truncation by modern landscaping; in fact it is possible that the opening is due to the complete truncation of the ditch at the southeast (Fig. 2). There was no internal grave or any other feature, although it is possible that these too could have been completely truncated.

The ditch was filled with a greyish brown loam which contained a small quantity of redeposited human bone (from an individual aged over 18 years, context 1068), worked flint, burnt flint, animal bone, iron nails and clinker or fuel ash slag. Much of this material, however, appeared to have become incorporated intrusively into the fill, possibly during the modern landscaping.

Penannular ditches, barrows or ring-ditches of a similar size have been recorded in several other Anglo-Saxon cemeteries including, in Hampshire, Southampton (Morton 1992, 176); in Kent, Finglesham (Hawkes & Grainger 2006), Chartham Down, and St Peter's, Broadstairs (Wilson 1992, 61); and in East Anglia, Orsett, Sutton Hoo and Cotes Common. These features were generally of late 7th-century date and, as here, tended to be found in small numbers at the edges of the cemeteries (Hedges & Buckley 1985, 21; Wilson 1992, 61). In common with the Twyford example, some were also of a slightly irregular polygonal shape.

Smaller ring and penannular ditches have also been noted in Anglo-Saxon cemeteries such as, in Hampshire, at Portway, Andover (Cook & Dacre 1985); in Wiltshire, at Collingbourne Ducis (Egging Dinwiddy & Stoodley in

prep.); and in the large cemeteries at Spong Hill, North Elham and Morningthorpe in East Anglia (Hedges & Buckley 1985, 21), and at St Peter's, Broadstairs, in Kent. These, however, tended to encircle single graves and lie among the rest of the graves. At Spong Hill they were associated with inhumation burials in what was predominantly a cremation cemetery.

Post-built structures

Three post-built structures (1017, 1149 and 1150) lay to the west of the graves, and to the northwest of the penannular ditch. None had any associated internal features.

The smallest and most westerly structure (1017) was represented by four truncated circular postholes arranged in a *c.* 2m square, with one axis aligned east–west. There was a small tree-throw hole within the arrangement of posts.

Just over 5m to the east, and on the same alignment, there was a rectangular structure (1149) measuring *c.* 3m by 2.8m, with three posts along each side and one centrally in the eastern end. The postholes were larger than those of structure 1017, with four tending towards square in shape rather than circular.

An arrangement of at least four postholes, approximately 3m to the south of structure 1149, appears to represent the remains of a third structure (1150), *c.* 2.5m long (east–west) by 2m wide. This has similarities in form to structure 1149 but lacks two of the postholes on its north side. It is unclear whether or not a fifth posthole (1057), a little way to the west, was also part of this structure. One of the postholes cut a large tree-throw hole.

A small number of the structures' postholes contained finds, but these ranged in date from late prehistoric to post-medieval, and clearly do not provide secure dating, being possibly either residual or intrusive. Instead, the structures' apparent spatial association with the cemetery, and their similarity to features noted in contemporary cemeteries, suggest that they may be of Anglo-Saxon date. The cemetery at Apple Down, West Sussex, for example, had over 30 post-built structures, although some of these were associated with cremation burials and related deposits (Down & Welch 1990). Similar examples were seen at Alton (Evison 1988, 35) and Collingbourne Ducis (Egging Dinwiddy & Stoodley in prep.), some again associated with cremation related deposits. Evison (1988, 36) also mentions examples from Germany and Holland, and while some of the continental examples may have acted as pyre supports, the function of others remains elusive. Alternative explanations include above-ground storage of remains, as suggested for Collingbourne Ducis (McKinley in Egging Dinwiddy & Stoodley in prep.), or perhaps *tabernacula.*

The evidence suggests that small structures of this type were built in association with ritual (funerary) sites during the Conversion period (AD 600–850), although the practice may have been adapted from non-Christian ritual structures (Spiegel 2007).

Medieval/post-medieval (1066–1799) and undated

Several probable refuse pits (e.g. 1033, 1036, 1089, 1111, 1117 and 1137), distributed apparently randomly across the site, contained a range of medieval or post-medieval materials, including large pieces of animal bone (some sawn), and sherds of local pottery wares (Fig. 2). They were subcircular and subsquare in shape, between *c.* 0.3–0.7m wide and 0.06–0.4m deep, with steep sides and flat bases.

Quantities of clinker, brick and tile were also found in a number of the pits, as well as intrusively in the upper fills of earlier features. The relatively large quantity of clinkered material and metallic waste recovered from the site was probably derived from a single, possibly industrial or semi-industrial, process.

A few pits and postholes remain undated. While some may have been related to the cemetery, for example as grave markers, there is no clear evidence to support this.

Grave catalogue by Kirsten Egging Dinwiddy and Jörn Schuster (and see Fig. 3)

Key: s. – skull, a. – axial skeleton, u. – upper limb, l. – lower limb (skeletal area represented where all are not present); L: length; W: width; D: diameter; Th: thickness

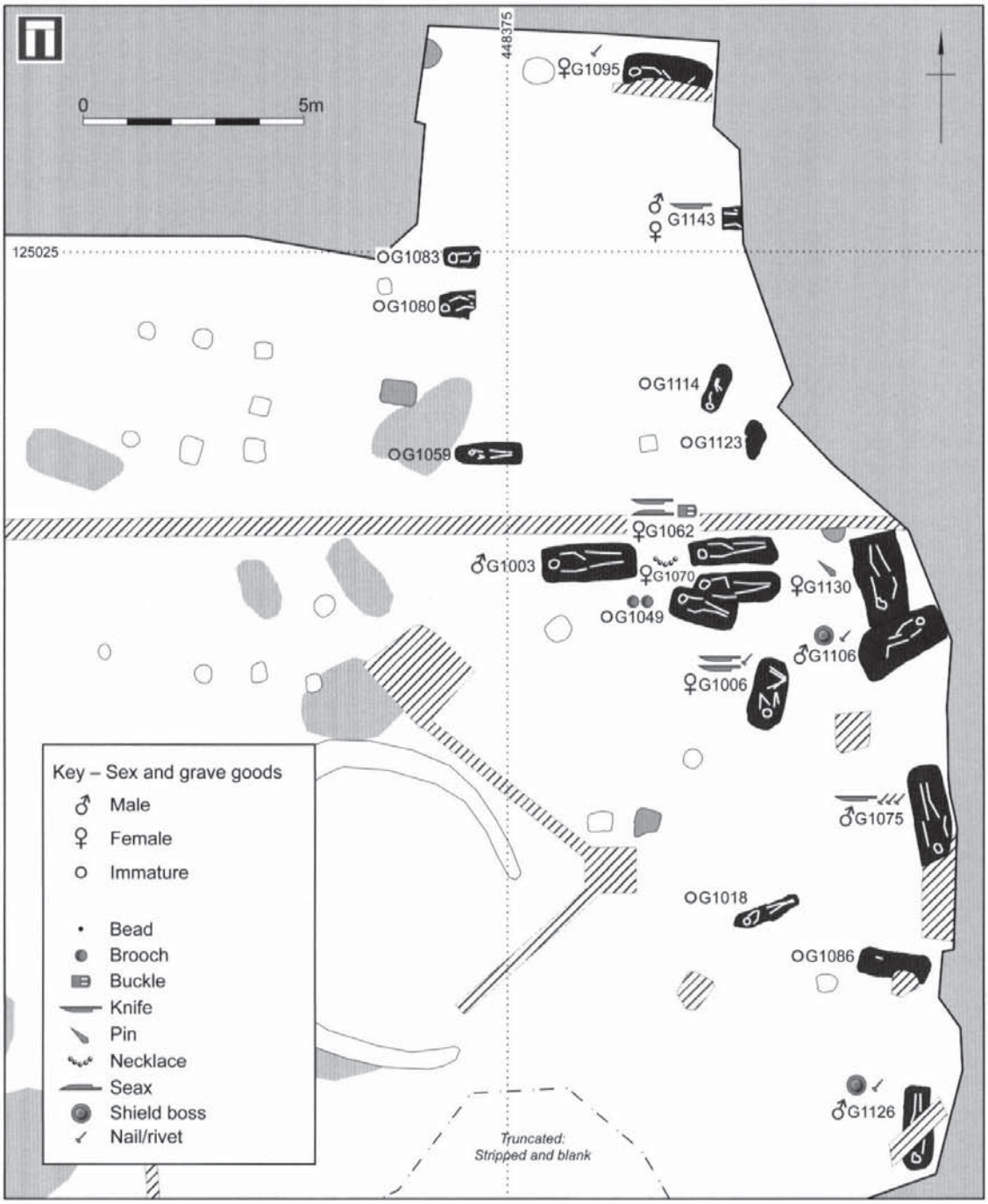

Fig 3 Plan of graves showing sex of burial and grave goods

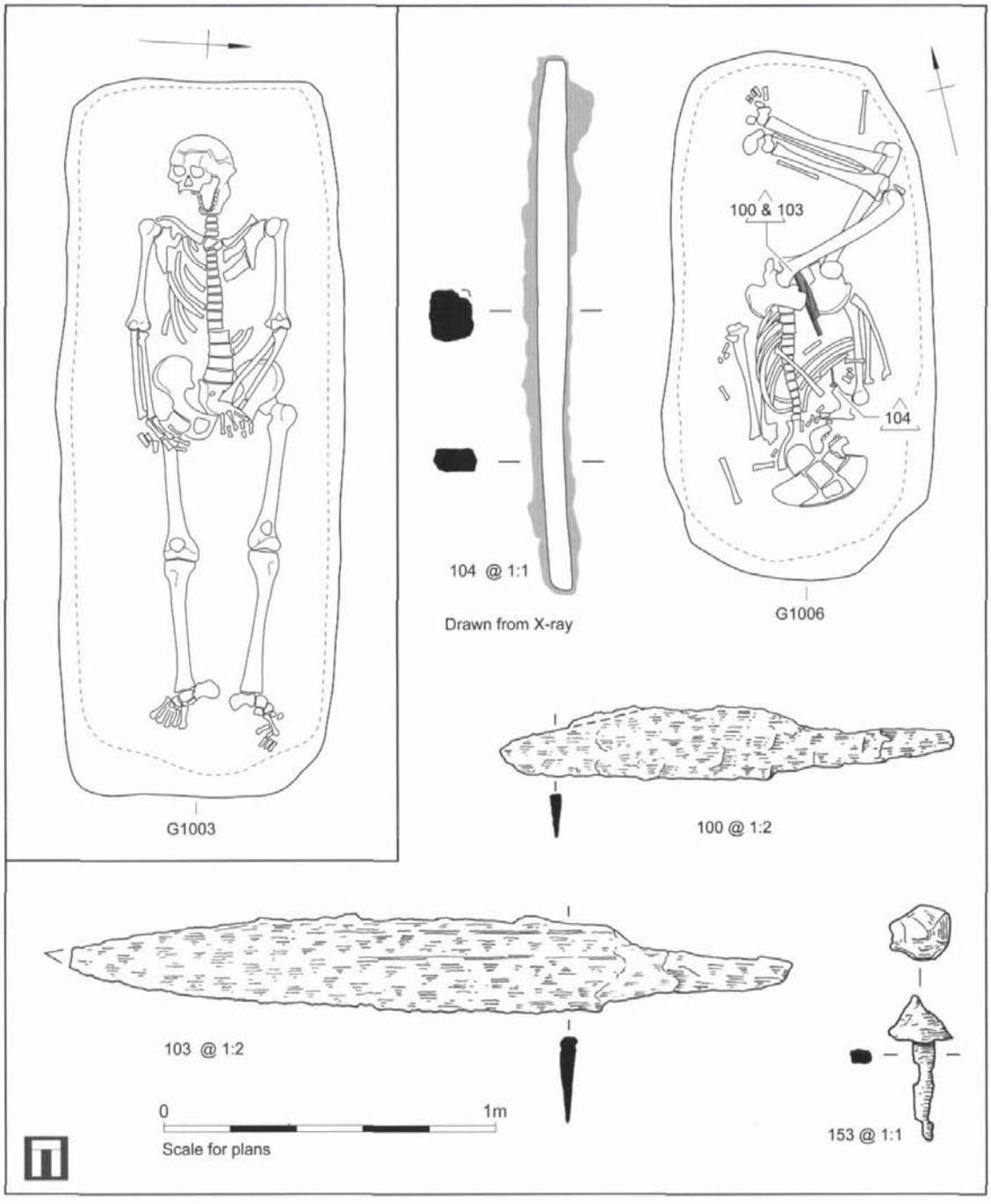

Fig 4 Grave 1003, burial 1004
Grave 1006, burial 1007 with grave goods

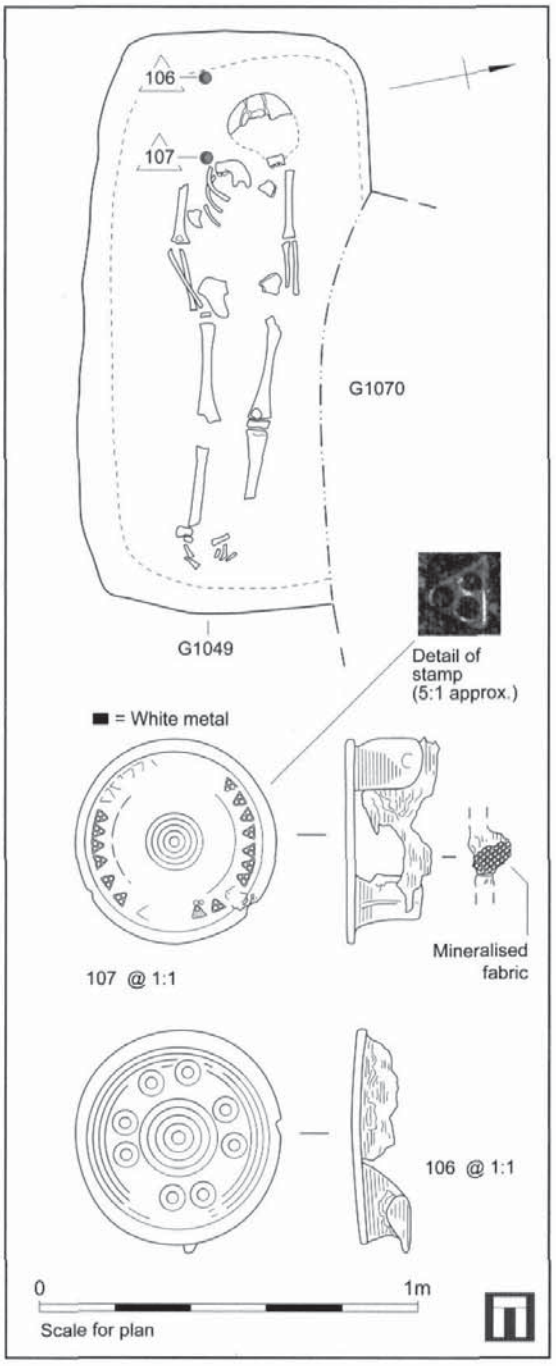

Fig 5 Grave 1049, burial 1050 with grave goods

Grave 1003 (burial 1004) *Fig. 4*
Rectangular cut, steep straight sides & flat base; 2.15m × 0.87m, 0.23m deep (base at 46.75m aOD). W–E burial extended, supine, hands on pelvis. Single fill: 1005.
Human bone: c. 95%. adult *c.* 40–50 yr. male
Other finds: residual – 4 sherds Late Bronze Age pottery

Grave 1006 (burial 1007) *Fig. 4*
Subrectangular cut, steep straight sides & uneven base; 1.59m × 0.78m, 0.13m deep (base at 46.83m aOD). S–N burial flexed on right side, arms flexed, hands by right shoulder. Single fill: 1008. Truncated by landscaping, slight animal disturbance.
Human bone: c. 90%. adult *c.* 35–45 yr. female
Grave goods:
ON 100: Iron knife (Böhner type C; Evison type 5; Blakelock type A) blade with curved back, obtuse angle near tip & straight edge, tip missing, triangular whittle tang with mineralised ?wooden remains, joins blade in convex-curved shoulder & angular choil. L 136mm, W 20mm.
ON 103: Iron knife (Böhner type C; Evison type 1/3; Blakelock type A/B) curved or very slightly angled back, cutting edge curving up in last third to tip, 2 grooves along blade (below back & near mid-line); tang curves up to back but separated from cutting edge by small angular choil. L 217mm (blade 160 mm), W 27mm.
ON 153: Iron hobnail with pyramidal head & short square-sectioned shaft (unknown location). L 21mm.
Other finds:
ON 104: Iron implement (?nail); bar with mineralised organic remains at rectangular section end, thinning towards the other, rounded end. L. 81mm, W 6mm.
Residual/intrusive – Anglo-Saxon & medieval pottery.

Grave 1018 (burial 1019) *not illus.*
Irregular cut, steep irregular sides & uneven base; 1.58m × 0.42m, 0.19m deep (base at 46.52m aOD). WSW–ENE burial, extended, supine; right ankle over left, left hand near right shoulder. Single fill: 1020. Truncated by ?landscaping.
Human bone: c. 80%. juvenile *c.* 9–11 yr.

Grave 1049 (burial 1050) *Fig. 5*
Subrectangular cut, steep-moderate straight sides &

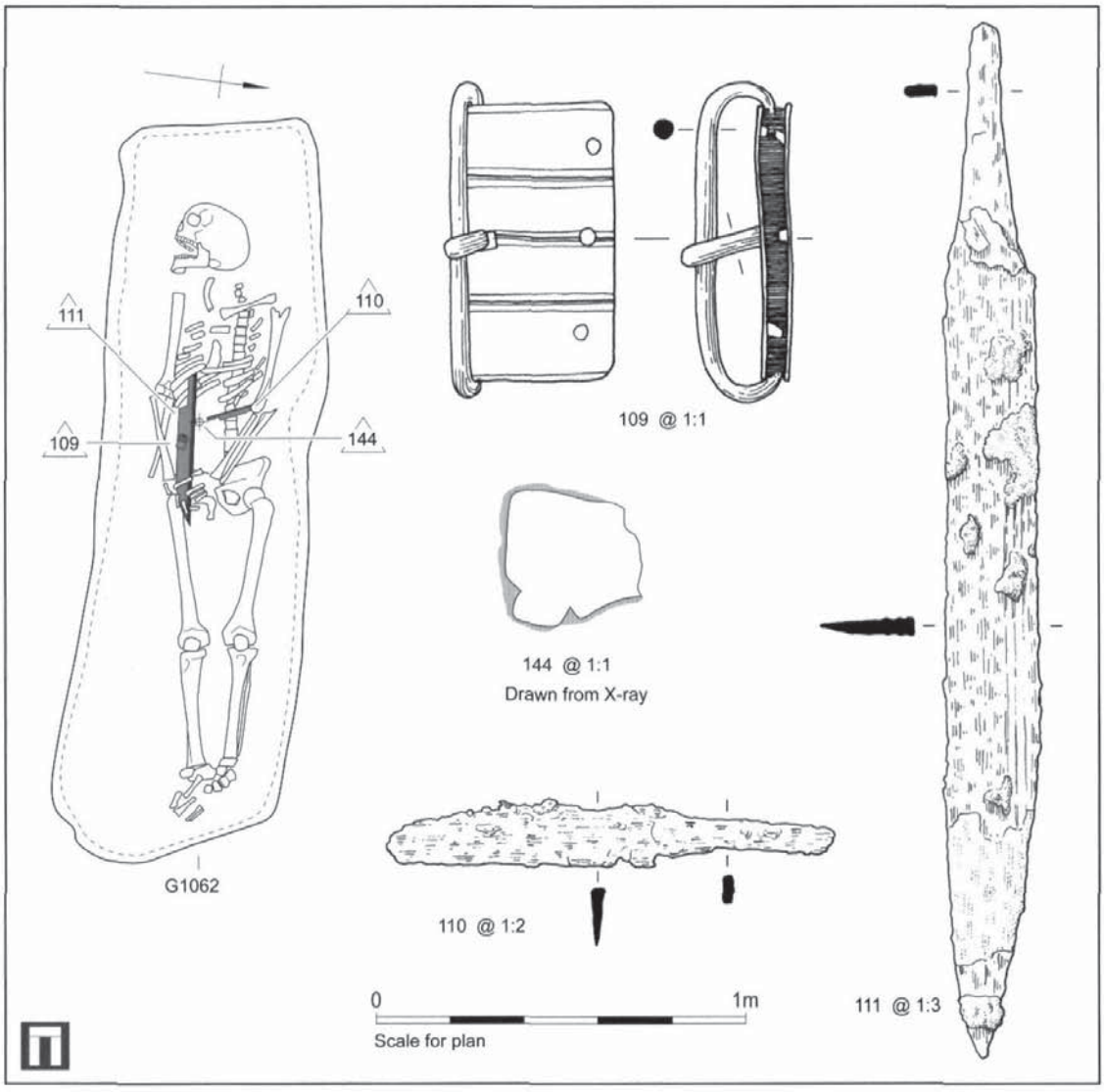

Fig 6 Grave 1062, burial 1063 with grave goods

flat base; 1.54m × 0.74m, 0.23m deep (base at 46.74m aOD). W–E burial, extended, supine, hands at hips. Single fill: 1051. Cut by grave 1070 (burial remains undisturbed).

Human bone: c. 65%. juvenile *c.* 7–9 yr.

Grave goods:

ON 106: Copper alloy disc brooch; central round hole surrounded by 4 concentric lines, a field with 4 groups of 2 drilled ring-and-dot patterns followed by 4 concentric lines. Reverse with remains of lug for iron spring & pin, catchplate & pin rest very worn; mineralised textile remains on lug & catchplate. D 27.0–28.5mm, H 7.5mm, weight 8g.

ON 107: Copper alloy disc brooch; central round

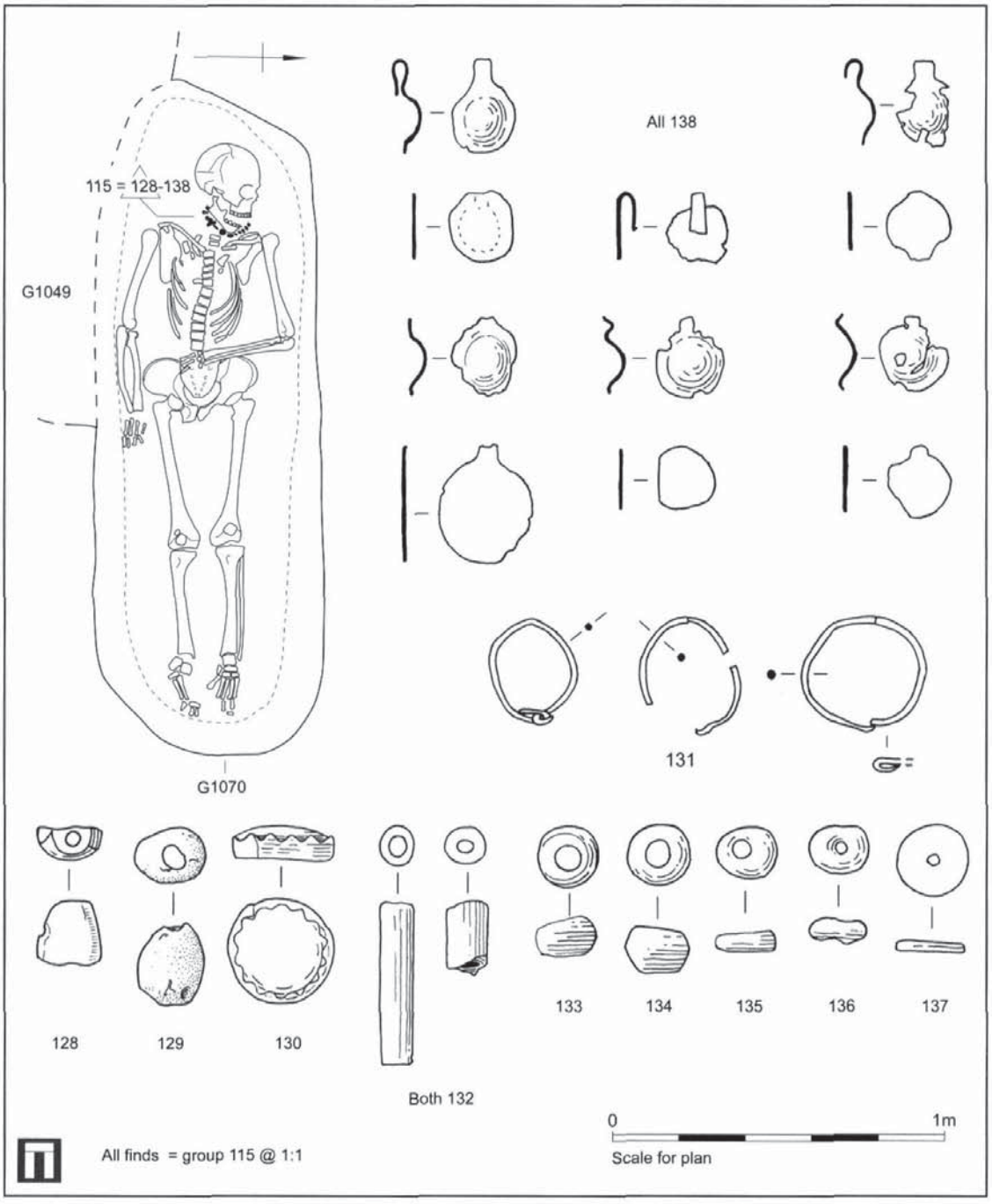

Fig 7 Grave 1070, burial 1071 with grave goods

hole surrounded by 4 concentric lines, void field, 1 concentric lines, field with punched triple-dot-in-triangles, apices inward, & line around rim; white metal coating preserved in punched triangles, worn away on remainder of brooch, decoration worn away above catchplate. Reverse with lug for iron spring & pin & catchplate with very worn pin rest & inner edge. D 26.3–26.6mm, H 11.7 mm, weight 8g.

Grave 1059 (burial 1060) *not illus.*
Subrectangular cut, shallow sides & uneven base; 1.53m × 0.5m, 0.08m deep (base at 46.94m aOD). W–E burial, extended, supine. Single fill: 1061. Truncated by landscaping
Human bone: c. 50%. juvenile *c.* 6–7 yr.
Finds: residual – 1 sherd Late Bronze Age pottery

Grave 1062 (burial 1063) *Fig. 6*
Subrectangular cut, rounded east end, vertical straight sides & flat base; 1.98m × 0.59m, 0.3m deep (base at 46.78m aOD). W–E burial, extended, supine; hands over *seax* point (right pelvis). Single fill: 1064.
Human bone: c. 87%. adult *c.* 30–40 yr. female
Grave goods:
ON 109: Copper alloy buckle (overlay *seax*), (Marzinzik type II.24a) thin (Th 2.5mm) plain high-oval loop with plain tongue, both circular-sectioned, rectangular plate with 3 shallow transverse groves & lateral lines either side, 3 small, dome-headed rivets near outer edge. Loop L 12mm, W 42mm, Plate L 21mm, W 37mm.
ON 110: Iron knife (Böhner type C; Evison type 4, Blakelock type B); back of blade curving down towards rounded (?damaged) tip, straight cutting edge, rectangular tang set off from blade by angled shoulder & choil. L 120mm; blade L >72mm, W 17mm.
ON 111: Iron *seax*; on either side of blade 2 lines set in a wide groove near the back; back tapering towards tip in slight convex curve over 1/3 of blade length; mineral-preserved organic remains of ?sheath adhere to blade; mineral-preserved remains of single-piece horn hilt adhere to tang. L 415mm; blade L 314mm, W 39mm.
ON 144: Iron sheet frag. L 20mm, W 18mm.
Other finds: 4 unidentifiable small iron frags; 19 animal bones frags.

Grave 1070 (burial 1071) *Fig. 7*
Subrectangular cut, rounded ends, moderate concave sides & flat to concave base; 2.02m × 0.68m, 0.31m deep (base at 46.80m aOD); cuts grave 1049. W–E burial, extended, supine; right hand by right leg, left hand over abdomen. Single fill: 1072.
Human bone: c. 98%. adult *c.* 23–29 yr. female; redeposited bone: 7 frags adult *c.* 30–40 yr.
Grave goods:
ON 115 Necklace group (around neck) containing ONs 128–138: 14 beads (11 glass, 2 stone, 1 amber), 6 *bullae* pendants & at least 3 silver wire rings.
ON 128: Amber bead; medium.
ON 129: Flint, roughly ovoid natural nodule with perforation; probably utilised as bead.
ON 130: Glass (degraded, original colour uncertain) cabochon pendant with beaded copper alloy trim, suspension loop missing.
ON 131: 1 silver wire ring with ends twisted around each other once, D 15mm × 13mm, Th 0.6–0.9mm; 5 frags. from at least 2 further rings, Th 0.6–1 mm.
ON 132: 2 glass beads (one broken), medium, drawn cylinder, blue.
ON 133: glass bead, medium, barrel, opaque yellow.
ON 134: 2 glass beads (one illustrated), medium, biconical, semi-opaque green blue.
ON 135: 5 glass beads (one illustrated), medium, irregular disc, transparent pale blue.
ON 136: Glass bead, medium, irregular disc, clear.
ON 137: Stone bead, disc, medium, opaque white (?apatite/gypsum).
ON 138: 12 copper alloy pendant frags. belonging to 1 back plate & 5 complete *bullae* pendants, consisting of a flat back plate joined to the front with central dome & flange by a thin strip functioning as suspension loop, traces of soldering around the edges of the backplates & the inside of the flanges on 4 of the 5 pendants, 2 domes have folds where sheet of dome & flange overlap. 1 dome slit near its apex in antiquity. 5 pendants with average D 10mm (excluding loop), 1 with D 15mm, average sheet Th 0.4–0.5mm.

Grave 1075 (burial 1076) *Fig. 8*
Subrectangular cut, steep straight sides & flat base; 2.15m × 0.8m, 0.32m deep (base at 46.56m aOD). *c.* S–N burial, extended, supine; arms straight along sides. Single fill: 1077. Cut at S end by modern disturbance (burial damaged).

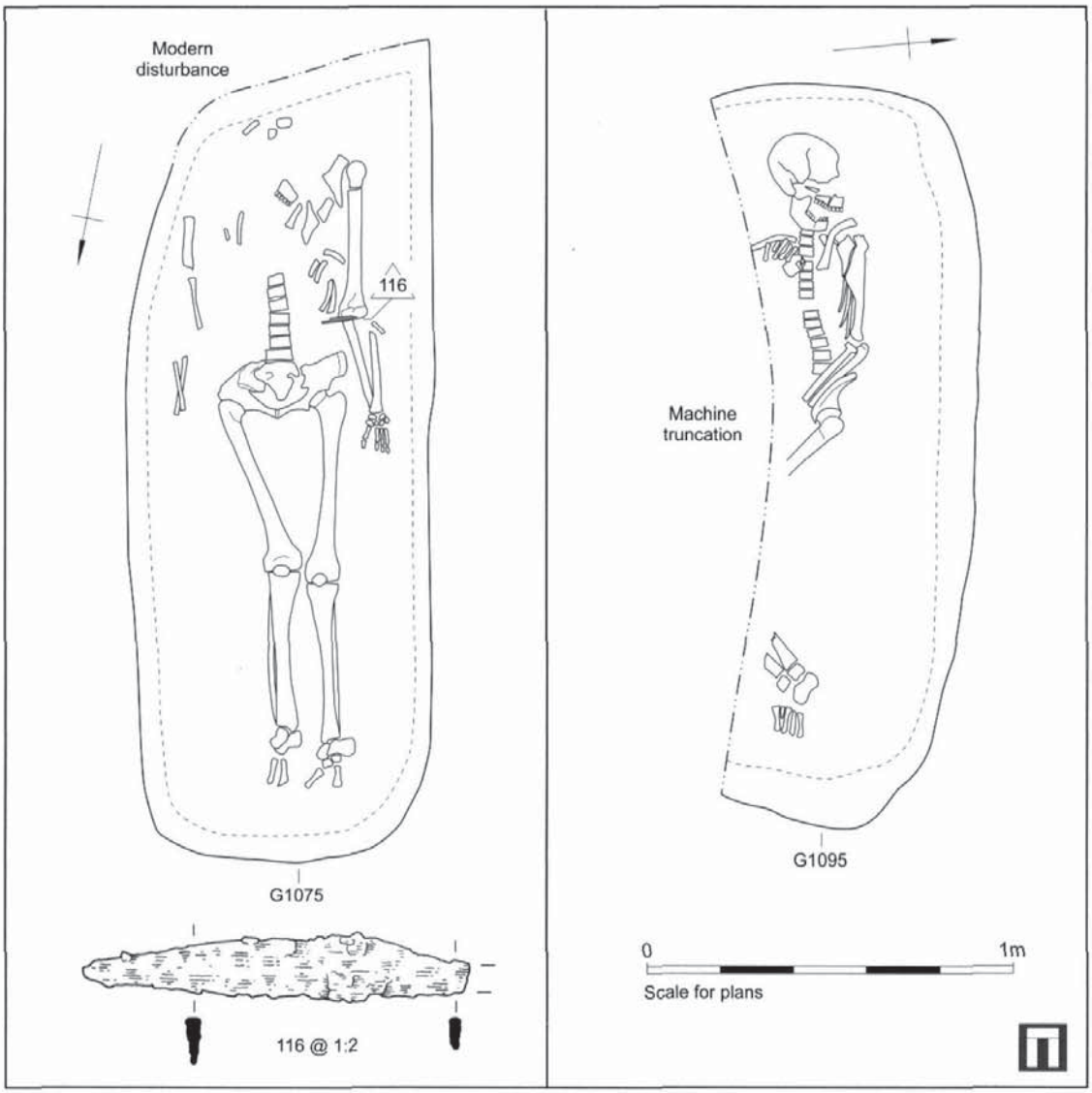

Fig 8 Grave 1075, burial 1076 with grave good
Grave 1095, burial 1097

Human bone: c. 60%. adult >45 yr. male
Grave goods:
ON 116: Iron knife (across left elbow); (Böhner type C, Evison type 4, Blakelock type B) blade with curved back & straight edge, tip & half of triangular whittle tang missing, no pronounced shoulder or choil. L 105mm, W 17mm.

Other finds:
ON 151: 3 iron ?nail fragments (unknown location); shaft fragments from at least 2 different nails; one with bent tip.1 residual flint.

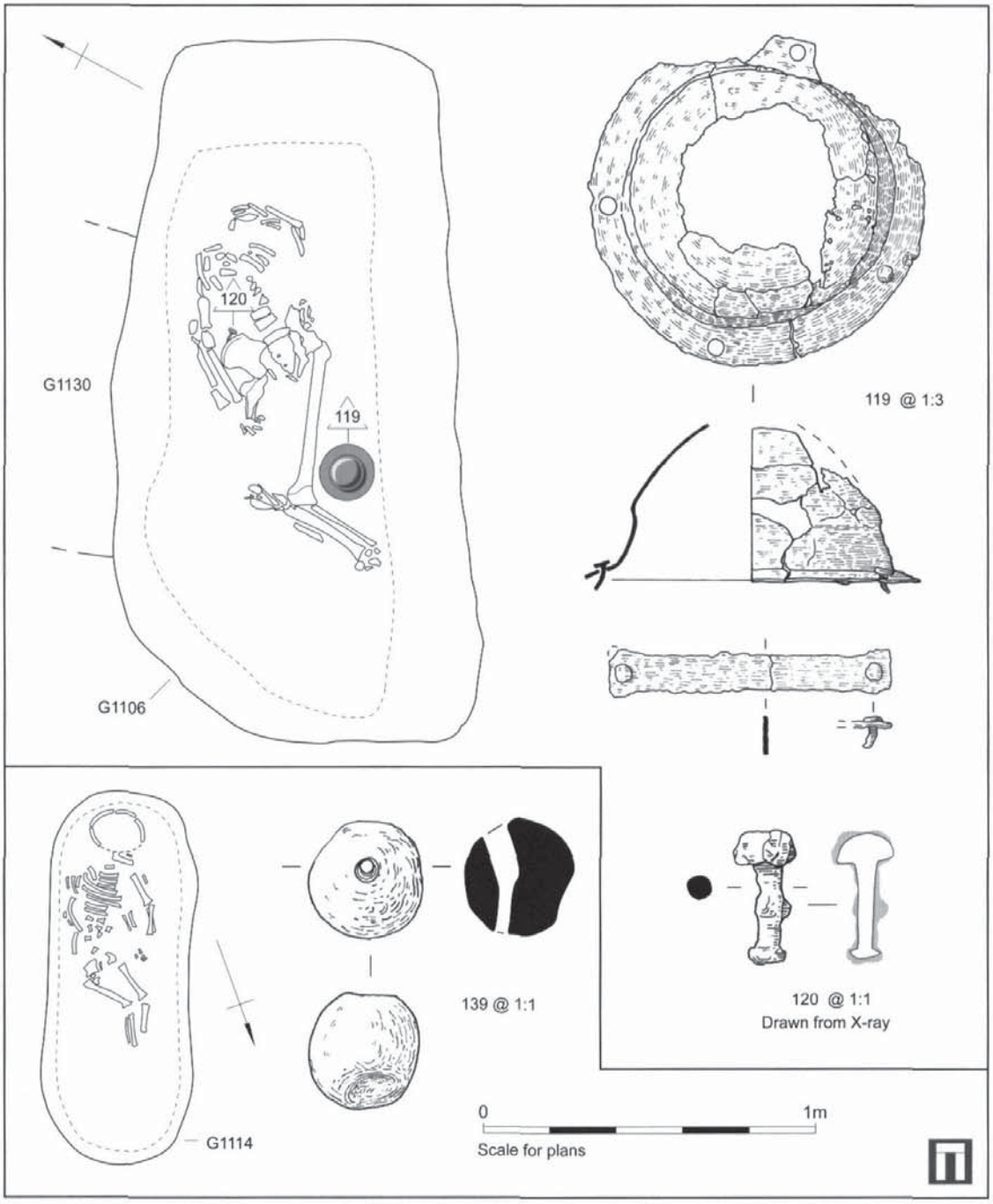

Fig 9 Grave 1106, burial 1107 with grave goods
Grave 1114, burial 1115 with grave good

ON 152: 4 sheet frags. (metal?) (unknown location).

Grave 1080 (burial 1081) *not illus.*
Subrectangular cut (incomplete), steep straight sides & flat base; 0.8m × 0.65m, 0.26m deep (base at 47.01m aOD). W–E burial, supine, possibly flexed on right side; right arm by side, left hand in pelvis. Single fill: 1082. Cut by modern disturbance (machine) from *c.* pelvis down.
Human bone: c. 58%. subadult *c.* 12–15 yr. ??female
Finds: residual – 1 flint

Grave 1083 (burial 1084) backfill 1085 *not illus.*
Subrectangular cut (incomplete), with steep straight sides & flat base; 0.85m × 0.47m, 0.17m deep (base at 47.09m aOD). W–E burial, slumped forward on left side; left hand under right pelvis, right hand by right shoulder; left leg apparently extended. Single fill: 1085. Cut to E by modern disturbance (machine).
Human bone: c. 50%. juvenile *c.* 9–11 yr.

Grave 1086 (burial 1087), backfill 1088 *not illus.*
Subrectangular cut, vertical straight sides & flat base; 1.6m × 0.6m, 0.1m deep (base at 46.56m aOD). ?W–E burial, ?supine. Single fill: 1088, Cut by modern disturbance to S, truncated by landscaping.
Human bone: 1 bone, 2 frags. s.u. infant *c.* 6–12 months
Finds:
ON 117: Iron bar (E end of grave), ?modern rectangular fitting with round holes either end. L 72mm, W 27mm.

Grave 1095 (burial 1096), backfill 1097 *Fig. 8*
Subrectangular cut (incomplete), moderate straight sides & flat base; 2.03m × 0.75m, 0.19m deep (base at 47.33m aOD). W–E burial flexed, on right side with skull turned to left; left hand over pelvis. Single fill: 1097. Cut along S by modern disturbance (machine), burial disturbed along right side.
Human bone: c. 50%. adult >45 yr. ?female
Finds:
ON 143: Iron nail (unknown location), flat head, square-sectioned shaft, bent tip. L 40 mm.
Residual – 1 flint

Grave 1106 (burial 1107) *Fig. 9*
Subrectangular cut, shallow irregular sides & undulating base; 2.1m × 1.02m, 0.22m deep (base at 46.98m aOD); cuts grave 1130. ENE–WSW burial, flexed, on right side; right hand on right leg. Single fill: 1108. Disturbed by modern landscaping.
Human bone: c. 45% a.u.l. adult *c.* 40–45 yr. male
Grave goods:
ON 119: Iron shield boss (behind left knee); (Dickinson & Härke group 3/6) flange with 3 small flat-headed rivets *in situ*, probably originally 5 (1 preserved in unattached fragment); straight wall meets convex cone in an overhanging carination, top of cone & apex missing; D 150mm. Shield grip (Dickinson & Härke type Ia1) flat with expanded terminals each still holding a flat-headed rivet; L 127mm.
ON 120: Iron rivet (right pelvis/elbow), domed head, rounded shank ends in narrow rove. L 20mm.
Other finds: residual – 1 sherd Anglo-Saxon pottery; 1 flint

Grave 1114 (burial 1115) *Fig. 9*
Subrectangular cut, rounded ends, steep straight sides & flat base; 1.13m × 0.42m, 0.13m deep (base at 47.11m aOD). *c.* SSW–NNE burial, flexed, on left side; almost supine; arms by sides. Single fill: 1116. Truncated by landscaping.
Human bone: c. 70%. infant *c.* 1.5–2 yr.
Grave goods:
ON 139: Flint, natural spheroid with perforation, possibly utilised as bead (unknown location).
Other finds:
ON 149: Iron nail (unknown location), flat head, rectangular-sectioned slightly bent shaft. L 63mm.
ON 150: Iron fragment (unknown location) subtriangular shape, thicker towards narrow end. L 25mm, W 13mm.
Residual – 1 flint

Grave 1123 (burial 1124) *not illus.*
Irregular cut, sides too shallow to determine & base flat; 0.82m × 0.55m, 0.08m deep (base at 47.17m aOD). *c.* S–N burial, flexed on right side. Single fill: 1125. Disturbed by landscaping.
Human bone: c. 15%. infant *c.* 1–1.5 yr.
Finds:
ON 122: 2 joining metal frags (W side of grave, left of burial), ?modern staple with 2 short pricks on narrow side. L 14mm.
Residual – 1 piece animal bone

Grave 1126 (burial 1128) *Fig. 10*
Subrectangular cut, rounded S end, vertical straight sides & flat base; 2.02m × 0.57m, 0.4m deep (base at

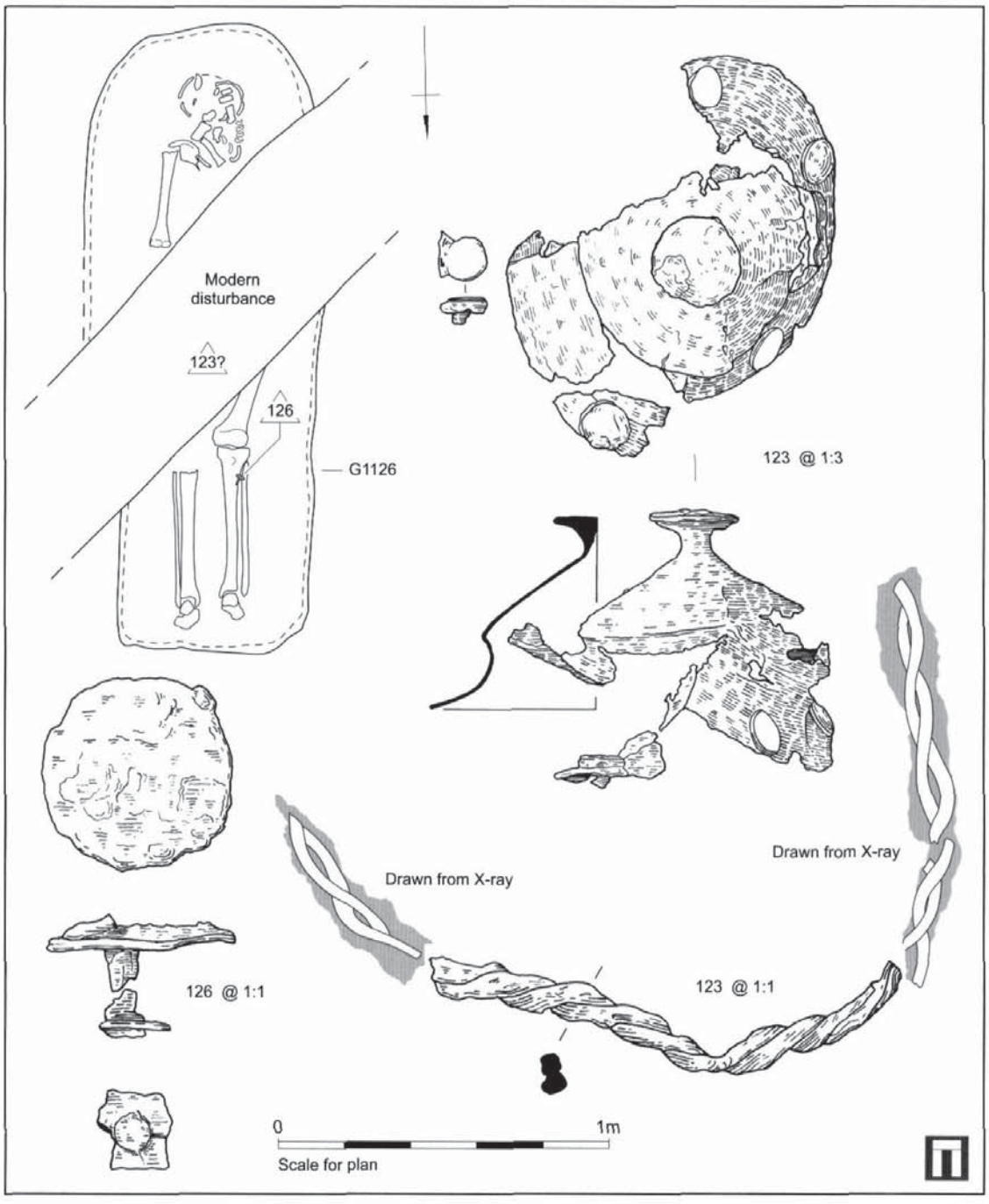

Fig 10 Grave 1126, burial 1128 with grave goods

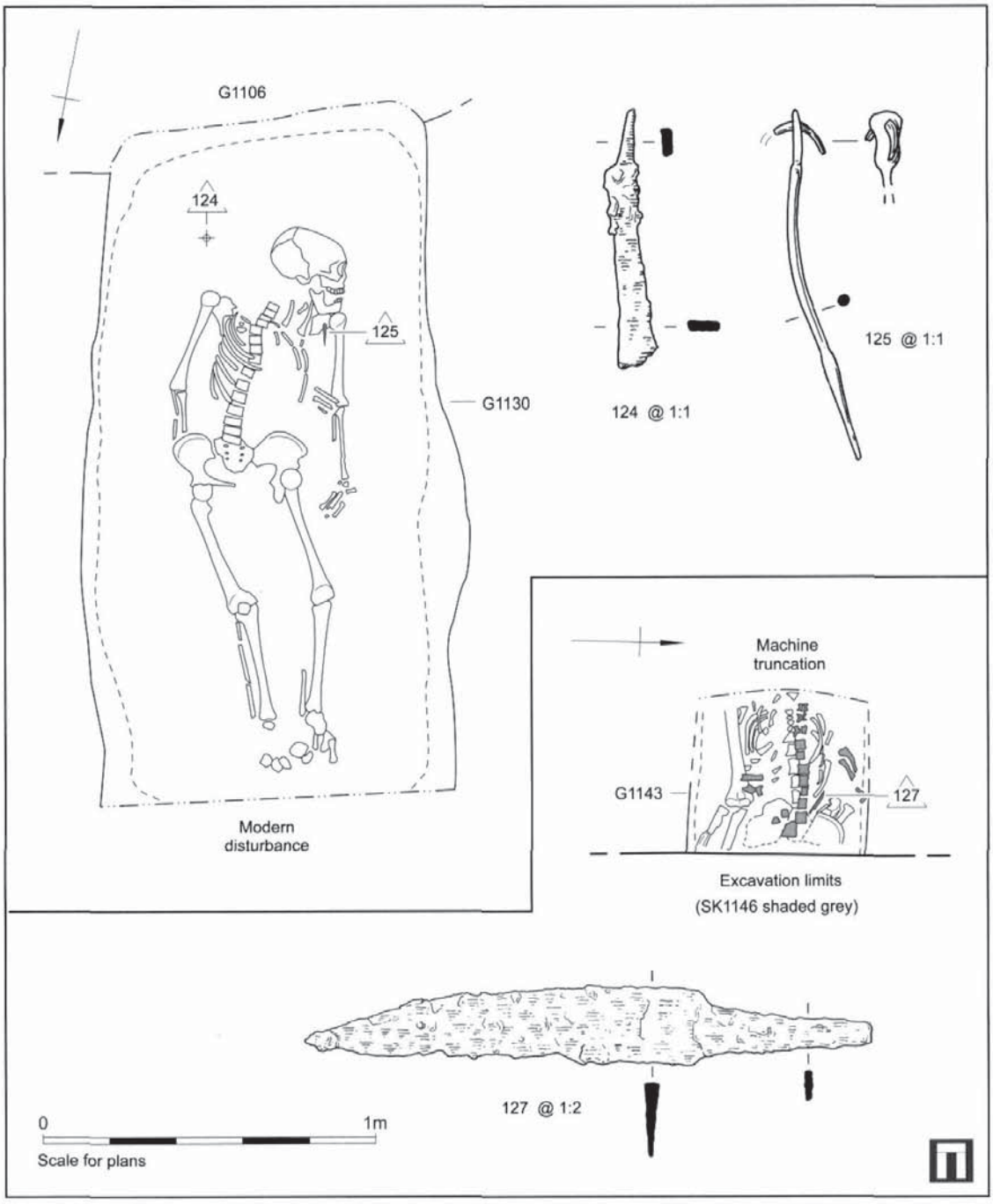

Fig 11 Grave 1130, burial 1131 with grave goods
Grave 1143, burial 1144 (unshaded) and 1146 (shaded) with grave good

46.26m aOD). S–N burial, extended, supine. Single fill: 1127. Cut by service trench from left shoulder to right knee.
Human bone: c. 70%. adult *c.* 35–45 yr. male
Grave goods:
ON 123: Iron shield boss (*ex situ*); (Dickinson & Härke group 1.1?) distorted & broken, probably during pipe trench construction in 1980s (R. De'Athe pers. comm.), but most fragments present; flange *c.* 28 mm wide with 3 large flat-headed iron rivets still *in situ* (D 19–22mm), but all 5 preserved, 4 still retaining white-metal plating, length between underside of flange & surviving rivet roves indicate shield-board thickness of *c.* 4.5 mm, mineral preserved wood remains on flange near one rivet, mineral preserved leather preserved on flange between other 2 rivets; wall shape distorted but probably concave, meets straight cone in an overhanging carination. Integral apex ends in large disc (D 41mm). Shield grip missing. D 164mm. Weight 317g. Three fragments (2 joining) of two-strand twisted wire recorded with boss; reconstructed at least L 75mm.
ON 126: Iron stud (left leg); slightly domed large disc head (D 30mm), subsquare rove at end of shaft; H 13mm, distance between disc & rove 7mm.
Other finds:
ON 147: Iron nail (unknown location), narrow flat head, subrectangular section. L 31mm.
Intrusive – 2 sherds medieval pottery; lead waste.

Grave 1130 (burial 1131) *Fig. 11*
Subrectangular, with steep, straight sides & concave base; 2.04m × 1.17m, 0.32m deep (base at 46.82m aOD). *c.* S–N burial, slightly flexed on left side, torso & right limbs slumped back. Single fill 1132. Cut by grave 1106 (burial undisturbed) & service trench (feet disturbed/partially removed).
Human bone: c. 90%. adult *c.* 45–60 yr. female
Grave goods:
ON 124: Unidentified iron implement (level with top of skull & right shoulder); slightly curved strip, narrowing to mid point, then widening again in vertical plain; L 38mm.
ON 125: Copper alloy pin (left shoulder), violin-shaped head with perforation in wider top holding remains of copper alloy ring; bent, round-sectioned shaft with slight swelling 15mm from tip. L 52mm.
Other finds: iron implement (?nail), thin tapering strip, broken at wider end. L 38mm.
Residual – 6 sherds Romano-British & Anglo-Saxon pottery, 3 flints.

Grave 1143 (burials 1144 and 1146) *Fig. 11*
Incomplete, unidentifiable cut, flat base; 0.45m × 0.49m, *c.* 0.05m deep (base at 47.37m aOD). W–E burials, both supine; vertebral columns overlying closely, probably placed in same grave at the same time, 1146 over 1144. Single fill: 1145. Cut by modern disturbance, projects beyond limit of excavation; very truncated & disturbed.
Human bone: 1144 – c. 20% a.u. adult *c.* 45–60 yr. male; *1146/1144b – c.* 60 frags. a.u. adult >25 yr. ?female
Grave goods:
ON 127: Iron knife (over left pelvis of 1144), (Böhner type C, Evison type 4, Blakelock type B) blade with curved back & straight edge, triangular whittle tang joins blade in angled shoulder & choil, mineralised wooden remains on tang. L 169mm, blade L 118mm, W23mm.
Other finds: residual – 1 sherd Romano-British pottery

FINDS

Finds recovered from the excavation come largely from the graves; these include human remains (inhumed) and a relatively restricted range of grave goods. There are also 'incidental' finds from graves, of prehistoric, Romano-British and Anglo-Saxon date, which probably represent redeposited material. Of the 18 graves excavated, ten produced grave goods of some sort, and one other contained just a nail. Of the remaining graves, three contained redeposited material (pottery and worked flint).

A second group of finds came from non-grave and unstratified contexts (topsoil and a few cut features), and are of prehistoric, Romano-British, Anglo-Saxon, medieval and post-medieval date. It is possible that some of the Anglo-Saxon pottery sherds derive from disturbed graves; this is almost certainly the case for the human bone recovered from the topsoil and penannular ditch fill 1068.

All grave goods, and other metal objects, have been allocated unique Object Numbers (ONs)

Table 1 Finds totals by material type

	Grave finds		*Non-grave finds*		*Total*	
Material	*No.*	*Wt. (g)*	*No.*	*Wt. (g)*	*No.*	*Wt. (g)*
Human bone						
in situ	19 indiv.	–			19 indiv.	–
redeposited			36 redep.	–	36 redep.	–
Animal bone	20	85	107	706	127	791
Metalwork	51	–	34	–	85	–
Silver	6	–	–	–	6	–
Copper alloy	16	–	1	–	17	–
Iron	28	–	33	–	61	–
Lead	1	–	–	–	1	–
Glass	12	–	5	–	17	–
Objects	12	–	–	–	12	–
Other	–	–	5	–	5	–
Amber	1	–	–	–	1	–
Stone	3	–	–	–	3	–
Pottery	19	90	29	140	48	230
Prehistoric	5	21	7	29	12	50
Roman	5	17	2	6	7	23
Anglo-Saxon	6	42	–	–	6	42
Medieval	3	10	5	27	8	37
Post-medieval	–	–	15	78	15	78
CBM	–	–	26	1021	26	1021
Clay pipe	–	–	–	–	6	21
Worked flint	8	119	54	544	62	663
Burnt flint	–	–	–	–	57	361
Slag	–	–	–	–	–	272

within a continuous sequence from 100. All finds, both Objects and bulk finds, have been quantified by material type within each context, and a summary of the total quantification is presented in Table 1.

UNBURNT HUMAN BONE

Unburnt human bone was recovered from 22 contexts including the remains of 19 Early to Middle Anglo-Saxon inhumation burials made in 18 graves. Redeposited bone was retrieved from four contexts. Small quantities were found in the fills of a grave and the penannular ditch, with more recovered from the topsoil and spoil derived from the machine stripping of the cemetery area.

Methods

The degree of erosion to the bone was recorded using McKinley's system of grading (2004, figs. 7.1–7). Age was assessed from the stage of tooth

and skeletal development (Beek 1983; Scheuer & Black 2000), and the patterns and degree of age-related changes (Buikstra & Ubelaker 1994). Sex was ascertained from the sexually dimorphic traits of the skeleton (Bass 1987, Buikstra & Ubelaker 1994); where the quantity and quality of the sexing criteria were compromised, the sex indicated may be qualified (probable/possible). Measurements were taken and calculated where possible (Brothwell & Zakrzewski 2004; Trotter & Gleser 1952, 1958; Bass 1987). Non-metric traits were recorded in accordance with Berry & Berry (1967) and Finnegan (1978). A summary of the results is presented in Table 2. Full details are held in the archive.

Disturbance and condition

Most graves had survived to a relatively substantial depth; those containing the remains of adults had a range of 0.13–0.4m with an average of 0.28m, while those containing the remains of immature individuals were generally shallower at 0.08–0.26m with an average of 0.16m. Intercutting between graves was limited implying that the graves were either marked or their whereabouts known of, thereby avoiding accidental disturbance. In the two cases of intercutting, the burial remains were undisturbed (graves 1130 and 1049; Fig. 3). Some bone was, however, lost from eight graves as a result of modern disturbance, either by the insertion of service trenches (graves 1126 and 1086) or landscaping of the site (graves 1075, 1080, 1083, 1095, 1123 and 1143). The largest proportion of redeposited bone was recovered unstratified from the topsoil (1000) and from the spoil heaps created by the modern groundworks undertaken prior to archaeological monitoring. It was possible to attribute conclusively several bones to the disturbed *in situ* burials, based on joining fragments and similarities in size, morphology and condition. The remainder derived from a number of recently disturbed burials which may include burials other than those found *in situ* (see below). It is believed that the redeposited bone from the penannular ditch was probably incorporated during the landscaping process. There was also some disturbance due to bioturbation. The level of disturbance is reflected in the rates of skeletal recovery, with less than 50% of the skeleton being recovered from *c.* 26% of the graves, and only 21% of graves containing over 90% of the skeleton.

The bone is generally in fairly good condition, with bone from most graves scoring between grades 1 and 3 (good–moderate), although considerable variation across the skeleton was commonly observed (36.8% graves); the redeposited bone was in a similar condition. Bone in poorer condition (grade 4) was observed in localised areas of the more variably preserved skeletons, probably due to root disturbance. Many factors may affect bone preservation, the burial micro-environment (geology, soil pH, water permeability) comprising the major influence, further affected by extrinsic factors such as the presence/absence and type of grave goods, as well as unobservable aspects of the burial rite (McKinley 2009, 12). All the graves were cut into the natural chalk geology and the backfills comprised chalky mid-brown, silty clay or loam. The major cause of bone deterioration in this case was substantial disturbance and/or reduction in grave depth as a result of the landscaping, and subsequent root action.

Staining (mineral and fungal) was noted on a number of bones, most comprising dark grey, linear stains, related to root action. The few iron and copper alloy stains correspond with metal objects contained within the graves.

Demography

A minimum of 23 individuals (MNI) is represented within the assemblage (Table 3), including one from each of the 18 excavated graves (with the exception of grave 1143 in which two individuals appear to have been buried contemporaneously), and at least a further four individuals identified in the redeposited bone. The latter material includes the remains of an unsexed adult in the fill of grave 1070, and three adults unstratified from the topsoil (one unsexed, one male, and one female).

The assemblage comprises the remains of 14 adults (60.9%), including six males (42.9%) and seven females (50%), and nine immature

Table 2 Summary of results from human bone analysis

Cut	*Context*	*Deposit type*	*Quantification*	*Age/sex*	*Pathology*
-	1000	R (topsoil)	1 frag. l. 1 frag. u. 7 frags. s.l. 1 tooth	a) juvenile *c.* 5–12 yr. b) adult >18 yr. male c) adult >18 yr. d) juvenile/subadult c. 12–15 yr.	cortical defect – ulna
1003	1004	*in situ*	*c.* 95%	adult *c.* 40–50 yr./male	caries; calculus; cystic gramuloma, pd; hypoplasia; fracture: T10, 2 ribs; spondylolysis: L5, ?L4; ?ankylosis: L5–S1; Schmorl's node: T2–L4; ddd: T5–S1; oa: T4–6, T8–10; op: C1, T1–2, T4, T6–12, L5–S1 bsm, ribs, left glenoid, r. radius, 1st & 2nd MtCP, 1st & 5th prox IP (hands), ankles, left tarsal; pitting: prox. IP (foot); destructive lesion: left calcaneum; ?cyst: palate; enth: innominates, humeral shafts, r. radius, femora, patellae, r. fibula, calcanea, tali; exo: femoral shafts, l. 2nd MtTP; cortical defects: acetabulum, clavicles, left 1st MtTP; calcified rib cartilage
1006	1007	*in situ*	*c.* 90%	adult *c.* 35–45 yr./female	abscess; amtl; caries; calculus; pd; hypoplasia; *cribra orbitalia;* pnb: maxilla, palate; fracture: T12; ddd: C3–7; ?destructive lesion: 4th prox. IP (r. foot); oa: C2–4; op: C1–7, T2–9, T11, L3 & L5, S1 bsm, r. radius, ulnae, 4th distal IP (r. foot); pitting: T2, T12; enth: prox. femora, patellae, calcanea; mv: wormian bones
1018	1019	*in situ*	*c.* 80%	juvenile *c.* 9–11 yr.	–
1049	1050	*in situ*	*c.* 65%	juvenile *c.* 7–9 yr.	mv: malformed ribs
1059	1060	*in situ*	*c.* 50%	juvenile *c.* 6–7 yr.	hypoplasia
1062	1063	*in situ*	*c.* 87%	adult *c.* 30–40 yr./female	caries; calculus; pd; hypoplasia; ?tumour/cyst: L3; solitary bone cysts: carpals; op: L5 bsm, 8 left ribs; enth: humeri, patellae; cortical defect: l. clavicle, middle phalanx (hand); mv: tooth crowding & impaction, wormian bones, lumbarised T13
1067	1068	R (ditch)	7 frags. a.u.l.	adult >18 yr./male	pitting: clavicle; mv: occasional facets in tarsals
1070	1071A	*in situ*	*c.* 98%	adult *c.* 23–29 yr./female	caries; calculus; pd; spondylolysis: L5; ?cyst: palate; solitary bone cyst: l. carpal; Schmorl's node: L2–6; op: L4–6; cortical defects: r. clavicle; mv: cervical ribs; sacralised L6, occasional facets in tarsals
1070	1071B	R (grave fill)	3 bones, 1 tooth. s.a.	adult *c.* 30–40 yr.	calculus; op: C1–2
1075	1076	*in situ*	*c.* 60%	adult >45 yr./male	?abscess; amtl; calculus; pd; osteoporosis; ankylosis: L2–3; ddd: L3–5; oa: left shoulder, hips, knees; op: L1–S1 bsm; enth: innominates, patellae, r. tibia, calcanea

Table 2 (cont.) Summary of results from human bone analysis

Cut	*Context*	*Deposit type*	*Quantification*	*Age/sex*	*Pathology*
1080	1081	*in situ*	*c.* 58%	juvenile/subadult *c.* 12–15 yr./??female	calculus; pd; hypoplasia; *cribra orbitalia*; mv: tooth crowding & rotation
1083	1084	*in situ*	*c.* 50%	juvenile *c.* 9–11 yr.	caries; calculus; hypoplasia
1086	1087	*in situ*	1 bone, 2 frags. s.u.	infant *c.* 6–12 mth.	
1095	1096	*in situ*	*c.* 50%	adult >45 yr./?female	caries; calculus; pd; hypoplasia; ?ankylosing spondylitis: T10–S1; pnb: frontal; destructive lesion: frontal; fracture: l. humerus; Schmorl's node: L3–4, 1L; oa: C1–2; op: C2, C4–T3, 1T, L5, 1L bsm & apj, ribs, r. clavicle, left glenoid,. left femur; pitting: T1, femur; enth: innominates, left femur, calcanea; cortical defects: left glenoid, clavicles; calcified cartilage: ribs; *hyperostosis frontalis*; mv: accessory cusps, tooth crowding & rotation, bifurcation maxillary I1s, non-masticatory tooth wear, twisted dens, occasional facets in tarsals
1106	1107	*in situ*	*c.* 45% a.u.l.	adult *c.* 40–45 yr./male	calculus; op: r. carpal, acetabulae; pitting: r. ulna; enth: calcanea; mv: lumbarised T10–11, occasional facets in tarsals
1114	1115	*in situ*	*c.* 70%	infant *c.* 1.5–2 yr.	new bone (?scurvy)
1123	1124	*in situ*	*c.* 15%	infant *c.* 1–1.5 yr	—
1126	1128	*in situ*	*c.* 70%	adult *c.* 35–45 yr./male	amtl; calculus; hypoplasia; spondylolysis: L5; trauma– 1T; Schmorl's node: 2L; op: C1–2 apj, 4T bsm; pitting: T; enth: patellae; cortical defects: left clavicle; mv: congenital absence M3s, tarsal coalition
1130	1131	*in situ*	*c.* 90%	adult >45 yr./female	amtl; caries; calculus; cystic granuloma, pd; hypoplasia; thickened cranial diploe (?Paget's); Schmorl's node: T6–L3; ddd: C7–T1, T4, T12–S1; oa: C1–2, 2C, T4, T10–12, L2–3, costo-vertebral, left clavicle, IPs (hands);op: C7–T1, T4–S1 bsm, left sacro-iliac, costo-evertal, shoulders, elbows, carpals, MtCPs, prox. IPs (hands), hips, knees, r. patella; pitting: T4, T7–8, T10, r. sacro-iliac, r. temporo-mandibular, hips, r. patella, left knee; solitary bone cyst: 1st MtTP; enth: r. scapula, prox. humeri, r. patella, calcanea; mv: mandibular tori, I2 accessory tubercle , left capitate/3rd MtC coalition
1143	1144	*in situ*	*c.* 20% a.u.	adult >45 yr./male	calculus; hypoplasia; spondylolysis: ?L5; ddd: S1; op: 2T (?ankylosing), S1 bsm; pitting: S1; cortical defects: radial tuberosities
1143	1146 (inc. 1444b)	*in situ*	*c.* 15% a.u.	adult >25 yr./?female	op: prox. left femur; enth: prox. left femur

Table 2 (cont.) Summary of results from human bone analysis

Cut	*Context*	*Deposit type*	*Quantification*	*Age/sex*	*Pathology*
-	u/s	R (unstrat.)	4 frags. u.l.	a) juvenile/subadult *c.* 12–15 yr./??female	b) caries; calculus; pd; hypoplasia; cranial thickening; mv: congenital absence M3s; non-masticatory wear
			c. 12% s.	b) adult *c.* 30–40 yr./?female	c) op: L5 bsm; l. ribs; mv: odd tubercle: rib
			4 frags.. s.	c) adult >18 yr.	d) op: r. glenoid; cortical defect: humerus shaft
			c. 22% a.u.l.	d) adult *c.* 30–40 yr./??female	
			c. 15% a.u.	e) adult >35 yr./ male	
			c. 10% l.	f) adult <18 yr./?male	
			4 frags. u.l.	g) adult >18 yr./??female	
			2 frags. l.	h) adult >18 yr./??female	

KEY: s. – skull, a. – axial skeleton, u. – upper limb, l. – lower limb (skeletal area represented where not all are present); pd – periodontal disease; pnb – periosteal new bone; ddd – degenerative disc disease; oa – osteoarthritis; op – osteophytes; enth – enthesophytes; exo – exostoses; mv – morphological variation; C – cervical, T. thoracic. L – lumbar; S – sacral; MtC/T– metacarpal/tarsal; MtC-P – metacarpo-phalangeal joint; IP – interphalangeal joint; apj – apophyseal joint; bsm – body surface margins

Table 3 Minimum number of individuals (MNI)

Age	*MNI*	*(sex)*
Immature		
Infant *c.* 0.5–5 yr.	3	(U)
Juvenile *c.* 5–12 yr.	5	(U)
Juvenile/subadult *c.* 12–15yr.	1	(??F)
subtotal	*9*	*(1F, 8U)*
Adult		
>18 yr.	1	(M)
>25 yr.	1	(?F)
c. 20–30 yr.	1	(F)
c. 30–40 yr.	3	(1??F; 1F; 1U)
c. 35–45 yr.	2	(1F; 1M)
c. 40–50 yr.	2	(M)
> 45 yr.	4	(1?F; 1F; 2M)
subtotal	*14*	*(7F; 6M; 1U)*
Total	23	(8F; 6M; 9U)

Key: U – unsexed; F – female; M – male

individuals (39.1% – three infant, five juvenile and one juvenile/subadult). The adults age ranges covered *c.* 20–50 years, with a median in the 30–40 year range for the females and 40–50 years for the males. The individuals from graves 1075, 1095 and 1130 were probably substantially older than 45 years.

Some contemporaneous Hampshire cemeteries show comparable proportions of immature individuals, as at Andover and Alton (36.2% and 35.7% respectively; Cook & Dacre 1985, 67; Evison 1988, 59–62), while lower proportions were observed elsewhere e.g. Worthy Park (30.8%) and Winnall II, (20%; Meaney & Hawkes 1970, 20; Wells *et al.* 2003, 159, table 3.6). As at Twyford, roughly equal proportions of male and female adults were recorded at Winnall II and Worthy Park, (*ibid*, 153; Meaney & Hawkes 1970, 20; Wells *et al.* 2003, 153). Less equality between the sexes was observed in other Hampshire cemeteries, with more females (63.6%) than males (36.4%) at Droxford (Aldsworth 1979, 102–34) and Portway, Andover (61.4% : 36.4%; Cook & Dacre 1985, 67) and more males (58%) than females (42%) at Alton (Evison 1988, 59–62). Although caution must be applied given the small size of the sample and the possibility that this part of the cemetery may not be representative of the population as a whole, the Twyford assemblage suggests that the cemetery was used by a 'normal' community, while imbalances elsewhere may be the result of migration of one sex to another area, for example for work or 'marriage' opportunities. The albeit apparently small number of (predominantly male) immigrants from the continent may also have affected some community populations (Arnold 1984, 133–40).

Heavily truncated grave 1143 contained the remains of a dual burial, comprising the sparse remains of an adult (over 25 years) female and a male over 45 years. Both bodies were laid supine, the female overlying the male and carefully matching its position as far as could be determined. Such dual burials are quite rare (Stoodley 2002), and the fact that one overlay the other makes this example even more unusual. It is impossible to say whether these individuals were in any way related, although their burial rite suggests there was some form of relationship or commonality.

Skeletal indices

It was possible to estimate the stature of seven individuals – four females (range 1.62–1.65, mean 1.63m = *c.* 5′ 4¼″) and three males (range 1.65–1.82m, mean 1.73m = *c.* 5′ 8″). These averages are comparable to those calculated for the assemblages from two Wiltshire cemeteries, at Blacknall Field, Pewsey (Stuckert 2010, 115) and Aldbourne (Boylston in Fitzpatrick *et al.* in prep.), and also the males from Portway and Worthy Park (Cook & Dacre 1985, 67; Wells *et al.* 2003, 159). The male average stature is close to that of 1.72m, as calculated for the period by Roberts & Cox (2003, 220), while the females

were fairly tall compared to the calculated average of 1.61m; they were also tall compared to the females at Portway and Worthy Park (Cook & Dacre 1985, 67; Wells *et al.* 2003, 159). At Blacknall Field the average female height was 1.62m, but this included a notably tall woman at 1.86m (6′ 1½″) (Stuckert 2010, 115). The females at Twyford, therefore, appear to be achieving a greater stature than many of their contemporaries. It may be that the rural environment (as opposed to the settlements closer to urban Winchester, for example) allowed better nutrition/health for the female members of the population, or perhaps they descended from taller stock. Overall the population appears to have been well-nourished with most adults achieving an average or greater stature.

The cranial index could be calculated for two adult females, both of which fell within the dolichocranic range (narrow and long; 68.8–72.2) following the general trend toward long-headedness in the Anglo-Saxon period (Marlow 1992, 114).

The platymeric index (reflecting the anterior/posterior flattening of the proximal femur, and relating to the biomechanics of the leg whether through heredity, nutrition, lifestyle and/or environment) was calculated for seven adults: five females (range 75.0–85.3) and three males (range 77.1–88.1). The average score for both sexes fell within the platymeric (flattened) range (females 84.0, males 79.7). Where both sides were measurable most differed by less than 3 points; the left was flatter in four of the five cases. The platycnemic index (illustrating the meso-lateral flattening of the tibiae) was calculated for eight individuals: four females (range 65.3–74.4) and four males (range 70.7–86.1). The average score for both sexes fell within the eurycnemic (broad, 'normal') range (females 70.8, males 78.3), although the male tibiae were generally broader than those of the females. Where both tibiae could be measured (seven cases) there was a divergence of 2.77–9.94 although with neither side favoured overall. With two exceptions, these lower limb indices imply that most individuals had been involved in activities that put equal strain on both legs. The right femur of one female (grave 1070) is 11.05 points broader than the left, while the left tibia is notably (6.6 points) broader. Heavy labour-induced injuries to the lumbar spine (see below) may be related to this observed imbalance, leading to an altered gait and perhaps differential stresses in the legs (possibly affecting the nerves of the legs – although there were no notable variations in the neural foramen). The left femur of the male from grave 1127 is very flat while the left tibia is markedly broader than the right. Again, spinal pathological changes may be implicated, with lesions indicative of heavy physical stress in the lower thoracic region.

The femoral robusticity index was calculated for five individuals, four females (range 118.22–129.29) and one male (122.75), and where both femora were observable there was little difference between the sides. A lack of sexual dimorphism in femoral robusticity was also noted at Aldbourne, while at Collingbourne Ducis the male range and average were only slightly greater than the female, although substantially larger than that calculated for the small Twyford sample reported here, perhaps indicating a greater diversity in the Collingbourne Ducis population, or in their activities.

Non-metric traits

Some variations in skeletal morphology may indicate genetic relationships within a 'population' while others may be the result of certain activities involving repeated movements and/or stresses. However, the aetiology and hereditability of many traits remain unclear, and credible interpretations regarding particular traits, especially from a fairly small sample, can be problematic and potentially misleading (McKinley 2009, 18). Some traits are listed in Table 2; others are recorded in the archive. No potential links between individuals were indicated on the basis of shared traits.

Squatting facets in the distal tibia are created by repeated hyperdorsiflexion of the ankle joint, the result being extension of the articular surface anteriorly (Boulle 2001, abstract). Lateral facets were observed in 80% of the tibiae, affecting both sexes fairly equally. A similar rate (75.9%) was recorded at Collingbourne Ducis,

while at Aldbourne a much lower rate of 42.3% was observed. There is no evidence to support a link between squatting facets and platycnemia, as has been suggested elsewhere Brothwell (1972, 91).

Overall the evidence is suggestive of a degree of homogeneity in the Twyford assemblage, particularly when compared with, for example, Worthy Park (Wells *et al.* 2003, 11–5).

Pathological lesions

Pathological lesions were present in the remains of 17 individuals (74%). A summary of the observed lesions is presented in Table 2.

Dental disease

All or parts of 16 erupted permanent dentitions were recovered from four males, seven females, and four unsexed individuals (three of which were immature) (Table 4).

Dental calculus (calcified plaque/tartar) was observed in 14 of the erupted permanent dentitions (87.5%). Most deposits (50%) are mild–moderate (Brothwell 1972, fig. 58b), and distribution is fairly consistent with a slightly heavier build-up on the mandibular teeth and a few instances of a thin occlusal covering. There is little difference between the sexes but there is an age-related correlation in severity. The percentage of adult teeth affected is substantially higher than the suggested average of 39.2% for the period (Roberts & Cox 2003, 193–4). The latter figure should, however, be treated with caution since recorded calculus distribution and severity can be misleading, the brittleness which predisposes calculus deposits to flake-off being a particular problem. Calculus build-up has been linked to a diet rich in soft, carbohydrate rich foods such as porridge or gruel (Hillson 1986, 278).

Periodontal disease (gingivitis) can lead to bone resorption, root exposure and eventual tooth loss and has been linked to calculus build-up; both are purported to increase in severity with age (Ogden 2005; 2007; Wells *et al.* 2003, 162–3). Mild–moderate lesions (score 2–3) were observed in 25 sockets in nine adult dentitions (56.3%); distal sockets and those of the mandible were most commonly affected. Individuals across the age range were affected with a slight predominance in the older adults. Roberts & Cox list highly variable rates for the period (2003, 194, table 4.18), but lesions were observed in most of the adult dentitions at Collingbourne Ducis, and in 52.7% of those from Aldbourne.

Between one and four teeth were subject to *ante mortem* tooth loss in four dentitions (two male, two female). Molars (62.5%) and maxillary teeth were preferentially affected, and there was a clear age-related correlation. The rate (2.9%, Table 4) appears low in comparisons with the average of 8% for the period (Roberts & Cox 2003, 191; table 4.16), and 18.5% from Aldbourne. Figures from contemporaneous sites in the region include 6.2% from Worthy Park (Wells *et al.* 2003, 161), 4.2% from Collingbourne Ducis and 4% from Blacknall Field (Stuckert 2010, 122; table 43).

Lesions indicative of dental caries (destruction of the tooth by acids produced by oral bacteria

Table 4 Summary of dental lesions (erupted permanent dentition)

	Teeth	*Socket positions*	*Calculus*	*Ante mortem tooth loss*	*Caries*	*Abscesses*	*Enamel hypoplasia*
Male	42	48	28 *(66.7%)*	2 *(4.2%)*	2 *(4.8%)*	1 *(2.1%)*	19 *(45.2%)*
Female	165	196	124 *(75.2%)*	6 *(3.1%)*	12 *(7.3%)*	3 *(1.5%)*	43 *(26.1%)*
Unsexed	17	33	5 *(29.4%)*	–	–	–	6 *(35.2%)*
Total	224	277	157 *(70.1%)*	8 *(2.9%)*	14 *(6.3%)*	4 *(1.4%)*	68 *(30.4%)*

present in dental plaque) were recorded in between one and six teeth in six permanent dentitions (one male, five female). Mandibular molars were preferentially affected and there was, again, a clear age-related correlation in occurrence. The majority of lesions were cervical and interdental in origin, and had led to abscess formation in one dentition. A carious lesion was also observed in one deciduous second molar. The male rate is notably lower than that of the females, something discussed by Hillson (1986) and potentially a result of the changes in oral chemistry during pregnancy. The overall rate (6.3%) is a little higher than the average of 4.2% for the period (Roberts & Cox 2003, 190, table 4.14), the 4% from Blacknall Field (Stuckert 2010, 120; table 41) and the 3.3% from Worthy Park (Wells *et al.* 2003, 161; tables 3.10).

Most periapical voids in the maxilla and mandible are related to chronic inflammation and death of the tooth pulp where it has been exposed to micro-organisms (e.g via caries, fracturing or wear). Permanent bone loss occurs with the formation of granulation material – a response to the inflammation. Characteristically the remodelled bone forms a smooth walled cavity up to 3 mm in diameter. Larger voids result from the granulomata becoming a fluid filled cyst, although other cysts may be responsible (Soames & Southam 2005, 65–84). If infected, pus accumulation can often lead to an abscess. Secondary infection of the surrounding tissues and structures can occur when the pus exits via a sinus (Katzenberg & Saunders 2008, 322–3; Dias & Tayles 1997, 548; Soames & Saunders 2005, 45–63; Ogden 2007, 283–308). Periapical voids were recorded in three dentitions (one male, two female), affecting between one and seven sockets. In two dentitions the cavities were indicative of cystic granuloma, while in one dentition three sockets were affected by abscesses. A fourth dentition (male) had changes that suggest an infection. Mandibular molar sockets were preferentially affected and there was a clear age-related link, most being over *c.* 40 years of age. In one dentition infection from abscesses had tracked into the maxillary sinus, and buccally from the mandible. In another, slight lamellar new bone on the anterior maxilla (close to the resorbed edge of an enlarged socket), and a smooth, thickened palate indicated moderate healing following a long-standing infection. Carious lesions were present in five teeth with periapical voids suggesting a link between the conditions; most affected individuals also had moderate–severe periodontal disease. The rate of abscesses (1.4%) is lower than the average for the period of 2.7% (Roberts & Cox 2003, 191–2; table 4.15) and more comparable to the 1.7% from Worthy Park (Wells *et al.* 1983).

Dental enamel hypoplasia occurs when nutritional or disease-related stresses disrupt the formation of dental enamel, resulting most commonly in linear or pitting defects in the tooth crown (Hillson 1986, 376; Lewis & Roberts 1997, 581). Mild–moderate defects were observed in between one and 18 teeth (average seven) within ten permanent dentitions – seven adult (four female, two male, one unsexed) and three immature. The most commonly affected teeth are canines, followed by the mandibular first premolars and maxillary incisors. The majority of individuals had suffered repeated but mild periods of 'stress' during childhood, most occurring around *c.* 2–4 yrs, although the range was between *c.* 1.5 and 6 years, a period when the immune system is not fully developed and childhood diseases are rife. The rate (30.4%; Table 4) is much higher than the 7.4% average from contemporaneous sites (Roberts & Cox 2003, 188, table 4.12), and is also higher than the rates of 1.3% from Aldbourne and 18.9% from Collingbourne Ducis. However, at Blacknall Field the rate was substantially higher at 57.4%, (Stuckert 2010, 123: table 46), while at Worthy Park 89.8% of dentitions were affected (Wells *et al.* 2003, 163). Such diverse results, however, may be the result of differences in analysts' observations, making direct comparisons somewhat impractical and potentially misleading.

The overall oral health at Twyford was generally comparable to contemporaneous populations, with high rates of dental calculus and periodontal disease, and fairly low rates of caries and abcesses. The levels of calculus and other dental diseases imply that the diet may have been dependant on carbohydrates in the form

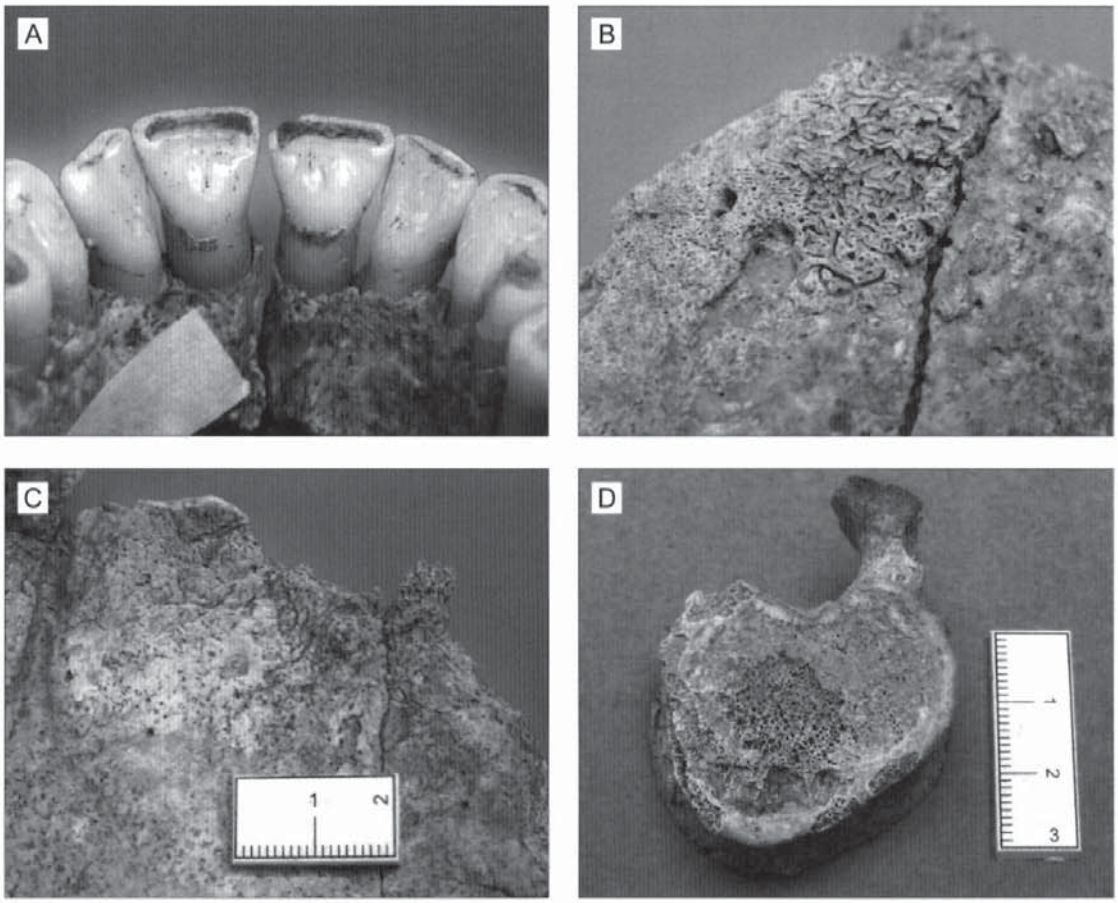

Fig 12 A. Skeleton 1096 – non-masticatory wear on maxillary incisors
B. Skeleton 1096 – frontal bone lesion (exocranial)
C. Skeleton 1096 – frontal bone lesion (endocranial)
D. Skeleton 1128 – vertebral end-plate trauma, thoracic vertebra

of cereal gruel or pottages, but it also appears to have been moderately abrasive with a sufficient protein intake. Trapped food and irritation of the gums caused by calculus build-up, contributing to the rate of periodontal disease, suggest quite a poor level of dental hygiene.

The fairly high rate of dental enamel hypoplasia in the Twyford assemblage implies that children were subjected to greater stresses than some of their contemporaries in the wider region, although survival led to a relatively healthy and apparently well-nourished later life. Alternatively, it could indicate that more immature individuals were surviving the stresses that were otherwise fatal to their counterparts. However, due to the highly subjective scoring of dental enamel hypoplasias, comparisons may be misleading.

Non-masticatory tooth wear

Most of the adults (71.4%) had wear and/or damage to the teeth that had most likely been caused by activity or activities other than mastication. The nature of the wear and/or damage could be categorised as: (A) polishing or slight non-occlusal wear only; (B) notches and

grooves; (C) extreme wear and/or heavy *ante mortem* damage.

Three dentitions (females 1063, 1071 and male 1107) have type A wear, In all cases one or more maxillary incisors has a highly polished palatine aspect, as does a left canine. Three female dentitions have type B wear (1096, 1131, and unstratified). In one, a U-shaped groove extends across the palatine surface of the maxillary first incisors, and onto the occlusal and labial surfaces of the 2nd incisors, forming distinct notches. The right canines and one or more of the mandibular incisors are similarly notched in the two other individuals, of which one also has highly polished palatal first incisors (Fig. 12 A). All four dentitions with type C wear are from males (1003, 1076, 1128 and 1144). Two had extreme attrition, one with flat wear of the anterior teeth and oblique wear of the molars, while the other has more localised extreme wear on the mandibular canines and first molars. Both have numerous, mostly severe *ante mortem* damage to the occlusal edges. The two remaining dentitions are less worn but have comparable heavy damage.

Of those with non-masticatory tooth wear, two had periapical voids consistent with cystic granuloma, and one a probable abscess. These comprise three of the four individuals with such lesions, which is understandable considering their aetiology (see above). Enlarged palatal foramen were noted in two individuals, both of which have some form of non-masticatory tooth wear. A possible cause may be a cyst that can form as a result of several factors including trauma (see below). Mandibular tori (bony projections on the lingual surface of the mandible) are thought to be related to sustained or repeated firm, localised pressure, and are clinically linked to bruxism (Neville *et al.* 2002, 21). Small or incipient tori were observed in three of the four observable mandibles of those with non-masticatory tooth wear.

It would appear that activity which included clasping and dragging material (e.g. fabric and/or threads) was a common cause of the non-masticatory tooth wear (types A and B). Both sexes were involved in this activity, although most were female. The third pattern of wear (C) appears to have a different origin, and was found exclusively in male dentitions. Heavy chipping or splintering may well have been caused by forceful sudden closing or protracted clenching of the jaws. The extremely heavy wear may also have contributed to the weakening of the occlusal edges making them more prone to damage. This heavy attrition may also have derived from holding something between the teeth. The author suggests that a more solid, hard or abrasive material was responsible for type C wear. The evidence, albeit from a small sample, points to some variation in activity leading to unusual tooth wear that is determined, to some extent, by biological sex.

Within contemporaneous assemblages from the region, various non-masticatory tooth wear patterns have been noted, some of which are comparable to those found in the Twyford assemblage. Unusual wear was recognised by Stuckert (2010, 135) at Blacknall Field, where the attrition of anterior teeth exceeded that of the molars in 27% of adults and in a number of subadults. Stuckert (2010, 135) describes the wear as being the result of the (repeated) dragging of something through the teeth. She also noted that there was a strong association between tooth wear, females, children and a few males buried without weapons. At Collingbourne Ducis a substantial number of dentitions had non-masticatory wear patterns, including a variety of notches, scratches, vertical cracks, and polished facets or grooves predominantly on anterior teeth; several dentitions were also extremely worn, either as a whole or in localised positions. These affected both male and female dentitions, although no patterns had been identified at the time of writing.

Metabolic disease

Cribra orbitalia (evident as pitting of the orbital roof)

This has been linked to iron deficiency anaemia resulting from malnutrition, chronic blood loss, parasitic infestation or high pathogen load (Molleson 1993; Roberts & Manchester 1997, 166–9; Lewis & Roberts 1997, 583). Cribotic lesions were observed in two individuals (25% of orbits); both also had dental enamel

hypoplasia. This rate is similar to those from Worthy Park (27.9%; Wells *et al.* 2003, 164) and Blacknall Field (27%; Stuckert 2010, 132), each contrasting with the much higher rate (40.2%, including 80% of immature orbits) at Collingbourne Ducis.

Idiopathic skull thickening was observed in two individuals. One older female (1131) had noticeably expanded diploe (marrow cavity of the skull), while an unstratified adult skull fragment showed substantially thickened endo- and exocranial cortical bone. There are many differential diagnoses for skull thickening, of which severe anaemia and Padgets Disease of the bones are the more common. Others include hyperparathyroidism, acromegaly and osteopetrosis (Salter 1999, 31, 194–6, 199). Thickened diploe can be indicative of expansion of the marrow cavities in order to produce more red blood cells as a result of anaemia. It can also occur with hyperparathyroidism, where the cortical bone thins and the diploe expands, with bone gradually becoming replaced by fibrous material. Padget's Disease, a fairly common condition in adults over 55 years of age, possibly caused by a virus that affects bone production and resorption (Salter 1999, 199), could be responsible for either of the cases as in early stages the bone becomes more vascular and less compact, with disorganised remodelling. In later stages the bone becomes sclerotic and thickened. Padget's Disease of the bones, or anaemia, appear to be reasonable diagnoses for the thickening of the skull in female 1131. As only a fragment of skull was found in the other case, the cause must remain undiagnosed.

The endocranial surfaces of the parietal bones of the infant from grave 1114 has patches of abundant vascular impressions, possibly the result of the advanced assimilation of haemorrhagic tissue, or of new bone deposited as a result in inflammation of the membranes. Causes of endocranial lesions include infections such as syphilis, tuberculosis and meningitis; epidural haematomas and trauma (including birth), and various vitamin/mineral deficiencies, e.g. Vitamin A, C, D and iron (Lewis & Roberts 1997, 584). Roberts & Cox (2003, 189) report low rates of scurvy for the period but highlight problems in the recording of the deficiency in past analyses. Lewis & Roberts (1997, 584) also point out the lack of examples of lesions in infant skeletons with clinical histories, making identification and interpretation difficult.

Infections

Periosteal new bone is typically deposited where the membrane covering the bone becomes infected, irritated and/or inflamed, stimulating bone formation. Lesions were observed in the skulls of three individuals, one case (from grave 1006) associated with a dental abscess (discussed above). The left side of the frontal bone of the adult female from grave 1095 has a large patch of irregular lamellar new bone on the endo- and exocranial surfaces, extending from *c.* 20mm above the glabella up to the coronal suture (*c.* 50 × 27mm; Fig. 12 B, C). The new bone has a proliferative, porotic focus, radiating posteriorly, reducing in density towards the edges, with some slight sclerosis and resorption observable endocranially. Differential diagnoses include localised, non-specific infection, or a partially healed and remodelling callous from trauma. A similar but less pronounced lesion was identified on the right frontal of a male from Worthy Park, where alternative suggestions included an infected wen or sebaceous cyst (Wells *et al.* 2003, 173).

Destructive lesions may also be associated with infection, the causes of which are often undetermined. Two individuals had non-specific destructive lesions. The left calcaneum of an older adult male (grave 1003) has a sclerotic lesion on the medial edge of the dorsal surface. A possible localised infection of the fourth proximal interphalangeal joint (right foot) of an adult female from grave 1006 was possibly the result of a crush injury. At the time of death the bones involved were moderately well healed and remodelled.

Trauma

Eleven healed fractures were observed in the remains of six individuals (26.1%), most lesions being in the spine. Two individuals had multiple fracture sites (1096 from grave 1095, and 1004 from grave 1003).

Table 5 Summary of number and rates of spinal lesions by sex

	Total no. vertebrae	*Schmorl's nodes*	*Degenerative disc disease*	*Osteo-arthritis*	*Lone osteophytes*	*Lone pitting*
Female	148	19 *(12.8%)*	15 *(10.1%)*	14 *(9.5%)*	56 *(37.8%)*	7*(4.7%)*
Male	68	16 *(23.5%)*	18 *(26.5%)*	6 *(8.8%)*	32 *(47.1%)*	5 *(7.4%)*
Unsexed	4	–	–	–	2 *(50%)*	–
Total	228	35 *(15.4%)*	33 *(14.5%)*	20 *(8.8%)*	90 *(39.5%)*	12 *(5.3%)*

Spondylolysis results from a fracture of the neural arch, usually of the fifth lumbar (L5), between the superior and inferior articular processes; it generally occurs in young adulthood and has been associated with heavy lifting and hyperflexation of the lumbar region (Ehara *et al.* 1988, 857; Salter 1999, 372–3). More recently repeated hyperextension was found to be more causative, and Ward *et al.* (2010) concluded that certain aspects of vertebral morphology (i.e. mediolateral facet joint spacing) appear to predispose individuals to spondylolysis. Four individuals (three male, one female) were affected; in all cases healing occurred without the fractures uniting. One L4 was also fractured, the break having successfully united. All those affected also had several Schmorl's nodes (see below).

Two individuals have spinal lesions indicative of fracture due to vertical force; the female (grave 1006) T12 is slightly crushed in one small portion of body, and the male (grave 1003) T10 has cracks radiating from a Schmorl's node. The latter also has healed oblique fractures on the sternal ends of two left ribs; such an injury might occur with a fall onto, or a blow to the chest. The fourth proximal interphalangeal joint of the right foot of this individual was deformed, the bone sclerotic and the proximal end of the intermediate phalanx flattened and enlarged. It is likely to have been crushed, and perhaps infected as a result.

A sclerotic lesion (*c.* 22 × 8 × 3mm) observed on the anterior, superior body surface of a lower thoracic vertebra of the adult male from grave 1126 (Fig. 12 D) appears to be the result of a traumatic injury, such as an end-plate avulsion. The anterior right section of the superior surface appears slightly displaced anteriorly. The lesion is reminiscent of a large healing Schmorl's node (see below) extending around the anterior of the body surface, posterior to the (displaced) margin. Other skeletal evidence suggests that this individual had most likely participated in strenuous activity involving the shoulders, and heavy loading of the spine. Vertebral end-plates can be damaged when the spine is placed under sudden axial load, and/or anterior–posterior shear stress. Such forces can cause the herniation of one or more intervertebral discs (most common in the lumbar spine (Salter 1999, 276–7)), with avulsion of vertebral end-plates. Bone damage can further compromise the blood supply to the intervertebral disc and disrupt spinal function (Maat & Mastwijk 2000; Herkowitz & Ball 2004, 182). This individual also had spondylolysis (see above).

Older adult female 1096 (grave 1095) has a well-healed spiral fracture of the left humerus shaft; the ends were slightly misaligned, causing shortening and lateral bowing in the deltoid region. Such an injury is likely to be the result of an indirect twisting force (Adams 1987, 136). The same individual also has skull lesions indicative of a localised infection or injury (see above). Both injuries may have resulted from a fall.

Exostoses (bony protrusions) can result from stress or injury to the bone, although they may also be age-related or associated with specific diseases (Rogers & Waldron 1995, 24–5). The older adult male from grave 1003 has exostoses on both femora and a foot/toe joint which appear to be the result of injury. The large femoral exostoses (*c.* 30–40mm long) were

potentially the result of repeated strain on the *vastus medialis* and/or *adductor magnus* muscles (related to the medial movement of the patella and adduction of the thigh). Such an injury might occur when straightening the legs from a squatting position, lifting a particularly heavy weight.

The trauma rate is fairly low but not unusual for the period. Roberts & Cox (2003, 203–8) suggest most injuries in rural communities at this time were related to farming and other accidents, which would seem to fit for Twyford. The traumatic injuries identified in the Worthy Park, Blacknall Field and Collingbourne Ducis assemblages indicate that falls and accidents contributed to a fair proportion, however, unlike here, interpersonal violence was apparent (Wells *et al.* 2003, 170; Stuckert 2010, 107; Egging Dinwiddy in Egging Dinwiddy & Stoodley in prep.).

Joint disease

Joint diseases represent the most commonly recorded conditions in archaeological bone assemblages. Osteophytes (new bone on joint surface margins) and pitting may occur as lone lesions, reflecting age-related wear-and-tear, or form in response to various disease processes such as osteoarthritis. Many conditions increase in frequency and severity with age, but other factors are often involved and the aetiology of some conditions is not fully understood.

Spinal joint disease

All or parts of 13 adult spines (five male, seven female, one unsexed) were analysed (Table 5).

Schmorl's nodes result from intervertebral disc rupture (forming a pressure defect in vertebral body surface) and commonly affect the spines of young adults (Rogers & Waldron 1995, 27; Roberts & Manchester 1997, 107). Lesions affected up to 14 vertebra in five spines (three female, two male). Vertebrae between T3 and L5 were affected, the most common location being in the lumbar region (predominantly L3) but there is some variation between the sexes (males T3–L4; females T6–L5). Most lesions are mild with the exception of the mild–severe lesions in the individuals from graves 1003 and 1130 (Table 2). The rate (Table 5) is slightly lower than the 16.6% calculated for the period (Roberts & Cox; 2003, 197–8, table 4.21) and notably greater than the 2.2% from Worthy Park (Wells *et al.* 2003, 165; table 3.15).

Degenerative disc disease results from the breakdown of the intervertebral disc, reflecting age-related wear-and-tear (Rogers & Waldron 1995, 27). Lesions were observed between the 3rd cervical (C3) and 1st sacral (S1) in five spines (three male, two female), affecting up to 14 vertebrae in a single spine. The upper and lower spine was affected in the females and the mid–lower spine in the males. The changes were generally mild–moderate, females having slightly more advanced changes. However, most lesions occurred in two individuals (1004 and 1131).

Lesions indicative of osteoarthritis (Rogers & Waldron 1995, 43–4) were recorded in up to seven vertebrae in four spines (one male, three female) and a clear age-related link was observed. There is some variation in location and severity between the sexes, the cervical region being most commonly affected in females (mild–severe) and the mid-thoracic in the males (mild). The rates from Worthy Park were again comparatively quite low at 4.0% (Wells *et al.* 2003 165; table 3.15), a higher rate of 11.2% being recorded at Collingbourne Ducis.

Lone osteophytes on body surface margins were evident in between one and 17 vertebrae in seven spines (three male, four female), with a fairly even distribution for both sexes. The L5 is most commonly involved, although the mostly mild–moderate lesions were observed between C3 and S1. Fusion of the vertebral bodies due to osteophyte growth was observed in three individuals, while a fourth had ankylosing spondylitis (see below). Lone pitting was observed in five spines (three female, two male) affecting the articular processes of between one and four vertebrae, mostly thoracic.

Extra-spinal joint disease

A total of 785 adult extra-spinal joints (276 male, 504 female) were recorded. Lesions indicative of osteoarthritis were recorded in between three and five extra-spinal joints from two individu-

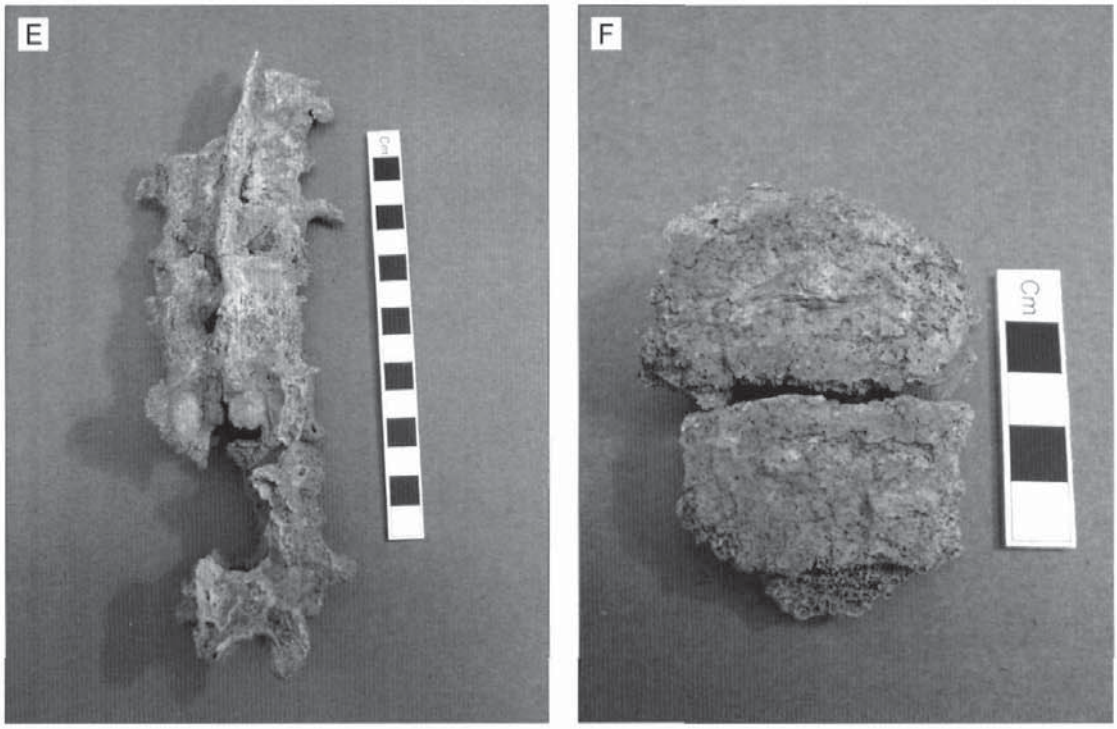

Fig 13 E. Skeleton 1096 – possible ankylosing spondylitis of lower thoracic and lumbar region.
F. Skeleton 1096 – possible ankylosing spondylitis: fifth lumbar and first sacral vertebral body surfaces

als over the age of 45 years (one male and one female). The male (grave 1075) has moderate lesions in the left shoulder (TRP – true prevalence rate: 11.1%) and slightly more severe lesions in the hip joints (11.1%). Mild changes were noted in the left acromio-clavicular joint (20%) of the female from grave 1130, while more severe changes, including eburnation, were evident in two interphalangeal joints of the right hand (3%), right knee (6.7%) and a right rib (2.1%). The CPR (crude prevalence rate) of 14.3% is higher than the average for the period (8.3% of sexed adults; Roberts & Cox 2003, 195), although the crude prevalence rate should be treated with caution since it can be unrepresentative of the true prevalence rate.

Lone osteophytes were recorded in between one and 44 joints in the remains of ten adults (four male, six female), all over *c.* 35 years of age. Lesions were fairly evenly distributed in the males with a slight predominance in the shoulders, and although most female lesions were seen in one individual, the costo-vertebral and hip joints appear to have been preferentially affected. Slight pitting was observed on the articular surfaces of 12 joints, comprising one to three joints in three males and five joints in a single female.

Those buried in the cemetery were most likely engaged in agricultural activities, and the condition of the bones of several individuals demonstrates that they were involved in the lifting of heavy loads (often from a young age). A similar situation was indicated at Worthy Park (Wells *et al.* 2003, 188). At Blacknall Field, two young adults had spinal osteoarthritis, and Stuckert (2010, 114) suggests that individuals were given 'adult' responsibilities and roles from a relatively young age (teenage/subadult) and so were subjected to adult stresses.

Probable ankylosing spondylitis

The lower spine of an older adult female (1096) was a solid mass of fused bone from T10 to S1. Unfortunately, due to the circumstances of recovery the skeleton is incomplete and it was not possible to observe the bodies of some of the affected vertebrae, nor T5 to T9, nor the sacroiliac joints. It was ascertained, however, that the vertebrae above T5 were unaffected. There has been no reduction in the original height of the affected portion of the spine, although the natural curvature has been replaced with a much straighter alignment. Fusion occurred through the ossification of the posterior ligaments, the apophyseal joint capsules and via the calcification of the intevertebral discs (Fig. 13 E, F). Despite this it is still possible to determine some of the general morphology as there are no exuberant osteophytes, 'dripped' or 'flowing wax' syndesmophytes, nor pathological destruction of the bony structures.

The most likely cause of this condition is ankylosing spondylitis which is a relatively rare (modern mid-European prevalence has been estimated to between 0.3 and 0.5%; Braun & Sieper 2007), inflammatory and genetically linked seronegative condition that causes connective tissues to calcify predominantly in the spinal apophyseal and sacroiliac joints. The condition, which predominantly affects males, although not exclusively so (Kornstrad & Kornstrad 1960), commences in early adulthood at the sacroiliac joints and progresses up the spine, with extreme cases resulting in complete fusion of all or part of the spine (Salter 1999, 242–5). Contemporaneous examples are rare; Roberts & Cox list three cases from Kent and Suffolk (2003, 195).

It may be more conservative to diagnose undifferentiated spondylitis/arthritis. Further differential diagnoses include other seronegative spondyloarthropathies (eg reactive, psoriatic and enterpathic spondylitis/arthritis) and DISH (Diffuse Idiopathic Skeletal Hyperostosis). The latter is the least likely, as major characteristics are absent from the Twyford example, while most of the others are difficult to diagnose using bone evidence alone.

Neoplasms and cysts

Neoplasms (new growths) represent the uncontrolled growth in soft and hard tissue cells. Benign neoplasms are localised and their clinical significance is limited to the size and location of the growth and its impact on the surrounding structure of the body (Roberts & Manchester 1997, 186–7). A soft tissue tumour of the nervous system may have been responsible for the enlarged foramen of the L3 of female 1063. Located on the right side inferior to the superior articular process, the abnormal cavity (*c.* 2.5mm diameter, maximum 4 mm deep) has smooth walls and sharp margins; there is no indication of infection. Alternative diagnoses include a soft tissue cyst or granuloma, or a morphological variation.

Solitary bone cysts or 'pseudo-erosions' are believed to be asymptomatic and not the result of a specific disease process (Rodgers & Waldron 1995, 61–3). Clinical studies have shown that most carpal cysts were found in the scaphoid and lunate, and were probably the result of vascular disturbance, localised bone erosion and subsequent fibroplastic proliferation (Eiken & Jonsson 1980, 285). Such lesions were seen in the carpals of two individuals within the assemblage and first metacarpo-phalangeal joint of a third.

Two individuals had notably enlarged incisive foramen/canals (palate) with slight sclerosis. A possible diagnosis is a cyst commonly found in the nasopalatine duct which may result from infection, mucus/skin cell retention, or trauma; there may also be a genetic and developmental link (Kurnatowski *et al.* 2008).

Miscellaneous lesions

Pathological changes to the bone at insertion sites of tendons, ligaments and joint capsules include bony growths (enthesophytes) and cortical defects (lacunae). The causative factors include advancing age, traumatic or repeated activity-related stress and various diseases, and it is not always possible to determine the aetiology of specific lesions (Rodgers & Waldron 1995, 24–5; Havelková & Villotte 2007, 51). Nine individuals (four male, five female) had enthesophytes on between one and 14 bones, with a clear correla-

tions between frequency and age. Lesions were predominantly located on the lower limbs, the most common sites – as is frequently observed – comprising the posterior surface of the calcanea (Achilles tendon), the anterior patellae and iliac crests. Cortical defects were observed in the upper limbs of eight adults, the medial clavicle being the most common site.

The production of new bone and the calcification of cartilaginous tissue may be triggered by a variety of processes including specific diseases or a predisposition to hyperostosis; in most cases ageing is the major factor. Calcified rib cartilage were observed in two older adults, 1004 and 1096, and the latter also had *hyperostosis frontalis interna*, an often age-related accumulation of smooth bone on the endocranial surface of the frontal bone.

Plastic changes and/or morphological abnormalities

The juvenile from grave 1049 has a noticeable but slight inferior twist to the sternal end of a right mid-range rib. The C2 odontoid process (from grave 1095) deviates from the midline. The right radius shaft from grave 1062 is bowed, probably due to plastic changes related to a particular activity. The right upper limb from grave 1006 is noticeably more robust than the left, implying that the individual participated in an activity that strengthened the right arm.

CREMATED HUMAN BONE
by Jacqueline I. McKinley

Small quantities of redeposited cremated human bone (0.2–1.8g, total 2.5g) were recovered from the base of three of the inhumation graves ranged along the eastern margins of the site. A single bone fragment (12–24mm long) was recovered from each grave: 1018: femur shaft; 1126: ulna shaft; and 1130: skull vault. All are well oxidised, although the inner surface of the femur shaft is slightly grey, indicative of incomplete oxidation. A minimum of one subadult/adult individual (>15 yr.) is indicated.

The quantity of bone is very small and other redeposited materials from the same graves are of limited assistance in interpretation of the types of deposits from which the bone derived. The lack of fuel ash may indicate it did not originate from redeposited pyre debris or uncleared pyre sites, but neither is there much residual pottery to suggest redeposited urned burials (two Anglo-Saxon sherds from grave 1130 are undiagnostic). All that may be deduced is that the wider cemetery, known to extend to the east, was multi-rite, in keeping with the majority of Early Anglo-Saxon cemeteries from southern England although the proportion of cremation graves is likely to have been relatively low (see also Stoodley 2005, table 9). At Worthy Park, for example, the proportion of inhumation to cremation burials was about 2:1 (Hawkes & Grainger 2003); at St. Mary's Stadium, Southampton, the 7th century graves comprised 35 inhumation and 18 cremation graves (Birbeck *et al.* 2005); Droxford (Aldsworth 1979) and Winnall (Meaney & Hawkes 1970) were both single-rite inhumation cemeteries, although by the time of Final Phase cemeteries such as Winnall II cremation was a minority rite. At Alton (Evison 1988) and Portway, Andover (Cook & Dacre 1985), the proportions were more equal, although the interpretation of some of the cremation 'graves' is questionable given the very small quantities, or absence of bone from many deposits.

The inhumation graves containing the cremated bone covered potentially the 5th–early 7th centuries (see Schuster, below) which gives little indication of the potential date of the cremations. Although cremation is generally viewed as a 5th–6th century rite (Lucy 2000, 119–200), 7th century examples have occasionally been recovered from a few cemeteries in southern England including Apple Down, Sussex (Down & Welch 1990, 108), and St Mary's Stadium, Southampton (Allen 2005).

GRAVE GOODS by Jörn Schuster

Of the 18 graves excavated, 17 contained artefacts, but in seven of these the objects were residual, intrusive or unidentified – including iron nails and iron fragments. Ten graves contained iden-

tifiable grave goods, including weapons, knives and items of personal adornment and jewellery.

Weapons

Two shield bosses (graves 1106 and 1126) and a *seax* (grave 1062) are the only weapons recorded from the cemetery.

Shields

Shield boss ON 119 from grave 1106 (Fig. 9) probably had five flange rivets, although now only three small flat-headed rivets remain *in situ*. The centre of the convex cone and part of the flange are missing, but its general shape and dimensions find good comparisons in shield bosses from grave 110 at Berinsfield, Oxfordshire (Boyle *et al.* 1995, fig. 77) or Buckland, Dover, graves 27, 39, 71 and 90 (Evison 1987, figs 15, 23, 38 and 40). They belong to Evison's bosses with 'low curved cones' for which she mentions examples from Perham Down and Ebbesbourne Wake, both Wiltshire, and the important high status early 7th-century grave at Taplow in Buckinghamshire (Evison 1963, 40–1, 68 fig. 12, b, f, d).

The Berinsfield boss has been suggested by Dickinson & Härke to present an intermediary stage between their groups 3 and 6, a development which is likely to have occurred during the late 6th and early 7th centuries, while the Taplow boss belongs to group 6 proper (Dickinson & Härke 1992, 15, 20, 24). This date range is also supported by the recent analysis of four East Anglian cemeteries where bosses with 'tall' cones (especially type CAS) occur in graves of Phase MB (*c.* AD 560/70 to early/middle 7th century) at Morning Thorpe, Norfolk (Penn *et al.* 2007, 23, especially grave 215; Green *et al.* 1987, 268 fig. 365). A more local example of the type is known, for instance, from grave 5 at Bargates, Christchurch, historically in Hampshire (Jarvis 1983, 114 fig. 63).

The shield grip with expanded terminals (Dickinson & Härke type Ia1) found with boss ON 119 is a subtype of the most common, strap-like type, which is common in all Anglo-Saxon regions throughout the 5th to 7th centuries with all types of shield bosses, although the association with boss groups 3 and 6 appears particularly strong (Dickinson & Härke 1992, 24–6 tab. 6).

While the distortion of shield boss ON 123 from grave 1126 (Fig. 10) makes it difficult to compare, it was probably not dissimilar to the boss in grave 33 at Worthy Park (Hawkes & Grainger 2003, 98 fig. 2.27), or grave 65 at Lechlade, Gloucestershire (Boyle *et al.* 1998, 217 fig. 5.64 grave 65.4). The latter had plated copper alloy rivets while those at Twyford were made of iron with white metal or, more likely, silver plating. The straight cone, concave wall with overhanging carination, wide flange and overall dimensions suggest ON 123 belongs to Dickinson & Härke's group 1.1, although these bosses tend to have four rather than five flange rivets (but see e.g. Worthy Park, above). They are the most common form of Early Anglo-Saxon shield boss, and the Upper Thames region and Wessex show a particularly strong preference for it (Dickinson & Härke 1992, 12). Group 1 bosses have a broad date range including the late 5th and 6th centuries. However, in a recent study of four East Anglian cemeteries, shield bosses with straight cones and concave walls have been attributed to phase MA1 with a date range of *c.* AD 450–510 (Penn *et al.* 2007, 22, 71).

A slightly domed disc-headed stud (ON 126) was recovered near the left leg of the skeleton and may have been a decorative shield fitting; studs and discs are the most common form of shield board decoration (Dickinson & Härke 1992, 27–9 tab. 7). Mineral preserved leather remains found on the flange suggest that the front of the shield board was covered in leather. From the distance between the flange and one of the rivet roves the board appears to have been rather thin, measuring only 4.5mm. In Härke's sample 75% of boards have a thickness 6–8mm, although a board thickness of 5mm is attested for the shields in graves 6 and 33 at Andover. While there may have been local preferences, board thickness also increases from an average of 6.5mm in the 5th century to 8.5mm in the late 6th to 7th centuries (Dickinson & Härke 1992, 47–8, appendix 5). Three fragments of a two-strand twisted wire were recorded with the shield boss, but it remains unclear whether the

wire had any functional or decorative purpose in connection with the shield.

Both shield bosses were found in graves of individuals osteologically sexed as males; apart from a dome-headed rivet in grave 1106 and a nail in grave 1126, these were the only grave goods recorded. Both graves were more or less heavily disturbed by landscaping and modern construction work: the burial in grave 1106 was missing the skull and elements of the upper torso, that in grave 1126 had a pipe trench running from the left shoulder to the right knee. Therefore it has to remain uncertain whether these graves contained shield-only depositions or whether they originally included combinations with other weapons. Shield-only burials are by no means rare throughout England in the Early Anglo-Saxon period. Examples are known, for instance, from Worthy Park (Hawkes & Grainger 2003, fig. 2.7, grave 36) and Bargates (Jarvis 1983, 126 fig. 69, grave 29), and in Wiltshire from Collingbourne Ducis, Harnham Hill and Pewsey (Stoodley & Schuster 2009, 490 tab. 1), or, slightly further afield, from Park Lane, Croydon, Surrey, where five out of 14 weapon graves only contained a shield boss (Hill & Thompson 2003, 64 tab. 3). However, such graves are most frequent in Anglian regions, and compared with other shield burials they display a below average wealth (Dickinson & Härke 1992, 67–8). The location behind the left knee of the shield boss in grave 1106 contrasts with the preferred location of the shield in Saxon areas: found over the stomach and upper legs in 61% of Härke's sample (*ibid.* 65).

Seax

A single-edged *seax* (ON 111, Fig. 6) was found to the right of the female burial in grave 1062, the tang near the ribs and the tip near the hip. It lay below a copper alloy buckle possibly indicating that it had been tucked under the belt. The division between large knives and *seaxes* is somewhat arbitrary, but *seaxes* are generally considered to have an overall length greater than 250mm, and a blade length of at least 180mm (Härke 1992, 90; Geake 1997, 14). ON 111 has a blade just slightly longer (314mm) and wider (39mm) than the 220–310mm blade length and 24–34mm width defined for narrow *seaxes* by Böhner for the Trier region and dated to the later 5th and 6th centuries (Böhner 1958; Down & Welch 1990, 93). The *seax* was introduced to Anglo-Saxon England from the Merovingian Frankish Empire during the 6th century, and one of the earliest known *seax*-graves in England, dated to the late 5th or more likely early 6th century, is grave 49 at Worthy Park, *c.* 8km north of Twyford (Hawkes 1973, 189; Hawkes & Grainger 2003, 102 fig. 2.31, 4). While broad *seaxes* and long *seaxes* are seen as definitive proof of a date after AD 600 in Anglo-Saxon England, the narrow *seax* (or at least the short-handled variety, as is this example) is seen as giving 'a very strong hint of this date' (Geake 1997, 14–5), and the large dimension of the Twyford *seax* is indicative of a 7th-century date.

Although weapons have a very strong correlation with male burials, there is nevertheless a small number of burials osteologically sexed as female with weapons as grave goods (Stoodley 1999, 29–30). In her discussion of the evidence from Park Lane, Croydon, grave 347, which contained a probable female with spear and shield combination, McKinley (2003, 108) lists five other Early Anglo-Saxon cemeteries, among them West Heslerton, where the sexing of the relevant individual was confirmed by DNA analysis. However, there is so far only one other incidence of an individual osteologically sexed as certainly female with a *seax* – at Buckland, Dover, grave 93, which in addition to the *seax* included a full set of weapons comprising sword, spear and shield (Evison 1987, 124, 314 fig. 43; Stoodley 1999, 29–30, 76). More locally, St Mary's Stadium, Southampton, grave 5488, contained an individual osteologically sexed as a possible female, buried with *seax*, spear, knife and belt (Loader 2005, 42 fig. 25). According to Härke (1990), weapons in burials are symbolic of the social status of the deceased's family rather than marking out the individual as a warrior. This may well be an adequate explanation for the Twyford burial too, although it might perhaps fit better with burials including more definitively offensive weapon combinations such as swords or spears plus shields, as for instance at Buckland, Dover, grave 93, or Park

Lane, Croydon grave 347 (see above). However, the inclusion of a *seax*, essentially a large knife, in the Twyford grave may arguably have served a less bellicose and rather more practical, domestic background, identifying the deceased as a huntswoman (cf. Gale 1989, 80) or a person skilled in butchery and the dressing of animal carcasses.

Knives

Five knives were recovered from four graves (1006, 1062, 1075, 1143). All belong to Böhner's type C which is one of the main types of the 7th century in the region around Trier, Germany (Böhner 1958 Bd. 2, Taf. 60). For her analysis of the knives from the Buckland, Dover, cemetery Evison distinguished six types based on the shapes of blade backs and cutting edges (Evison 1987, 113). Apart from the two knives in Twyford grave 1006, the three other Twyford knives belong to her type 4 which occurs at the beginning of the 7th century and continues into the 8th century. The angled back and straight edge of ON 100 from grave 1006 correspond to type 5, dating at Dover to the late 6th–8th centuries. The largest knife (ON 103) from Twyford has a very gentle kink in the way the back curves down towards the tip and would thus represent an intermediary stage between Evison types 1 and 3, so covering the late 5th–early 8th centuries; however, its long and broad blade are indicative of a late date within this broad range, with a floruit in the 7th century. The Twyford grave is unusual in that the large knife was found in the grave of an individual osteologically sexed as female. In his national sample of 47 cemeteries, Härke found that large knives with blade lengths above 130mm were only found in male graves, and that there is a clear relation between blade length and age group, with longer blades being deposited with older male individuals (Härke 1989, 1992, 90–1 tab. 5, 188–90 tab. 31).

Knife shape, especially that of the cutting edge, is affected by wear and sharpening, hence introducing an element of uncertainty. For this reason Blakelock has devised a simplified typology based only on the shape of the blade back; these types have been cited in the grave catalogue, as all five knives will be included in her metallographic study of Anglo-Saxon knives (Blakelock & McDonnell 2007, 41 fig 2). Preliminary results already show that knives from cemeteries have a greater variety in blade manufacturing types than those from settlements. It appears that the quality of the blades may be an indicator of status or perhaps differentiation between craft knives and domestic knives, the latter being selected preferentially for deposition in graves (*ibid.* 51–2).

At Twyford, knives were evenly distributed between male and female individuals, and all were found with adults older than 30 years. In his national sample, Stoodley (1999, 44) identified knives as having a bias for male burials, and on a regional level this is also true for Wessex. The even distribution at Twyford is therefore likely to be a result of the small sample size. The knives were mainly found in the left pelvis area, apart from the two knives interred with the woman in grave 1006 where they were placed in the lap, tip down. It is unusual to find more than one knife in a burial, although a Hampshire parallel comes from Droxford, where the child in grave 14 had a pair in the area of the left pelvis.

Personal adornment and jewellery

Brooches

The only brooches from the cemetery were two simple disc brooches recovered from the burial of a 7–9 year old child in grave 1049 (Fig. 5), where they were found to the right and above the skull (ON 106) and on the right shoulder (ON 107). Their location suggests that they were probably attached to an item of clothing placed by the head, rather than on the clothing on the corpse.

The most thorough study of the type to date, by Dickinson (1979), dates them to the middle 5th–middle 6th centuries, while examples of the later 6th century show signs of considerable wear (Stoodley 1999, 17). Simple disc brooches are mainly found in Saxon areas in the Upper Thames region, where they constitute the most common brooch type in the late 5th and 6th centuries, and the area to the south.

Although the individual elements of decora-

tion of the two brooches are well known from other disc brooches, the arrangement of the eight ring-and-dot motifs into four pairs (ON 106) and the inward-pointing orientation of the punched triple-dot-in-triangles (ON 107) are less common. However, a comparison for the latter comes from Orpington, Kent, grave 51, which Dickinson dated to the middle–late 5th century because of its combination with a Quoit-Brooch style buckle (Dickinson 1979, 46, fig. 3.2 d–e).

Both brooches show signs of heavy wear, which is unlikely to have been caused within the lifetime of the child buried in grave 1049. In a study of Roman Iron Age brooches from northern Germany, von Richthofen found that heavily worn brooches could have been in use for *c.* 50–60 years after production. As could be expected, such brooches were predominantly found in graves of individuals who died when they were 50 years or older, but a significant proportion of heavily worn brooches was also found with infant burials (von Richthofen 1998, 254–6 Abb. 33). For the Twyford burial this means that the two brooches placed in the grave are almost certainly heirlooms, and probably used to identify the child as a girl, the disc brooches being an appropriate, gender-identifying object for this age group (Stoodley 1999, 108).

Pin

A small violin-headed pin (ON 125, Fig. 11) was found tip down on the left shoulder of the *c.* 45–60 year old female buried in grave 1130. It had a swollen shaft near its tip and a small hole through the head still holding the remains of a ring, suggesting that the pin might originally have been part of a two-pin-and-chain set, although looped or perforated pins can also be worn singly and a regional example for the latter was found at Winnall II, grave 10 (Meaney & Hawkes 1970, fig. 9, grave 10,1). The swollen shaft and the small size of the pin suggest a date in the later 7th century (Walton Rogers 2007, 126–7 fig. 4.17c). Pins as dress fasteners have a Kentish and Saxon bias (Stoodley 1999, 48), while Geake claims that two-pin-and-chain sets are spread fairly evenly across England, although her distribution map appears to have a focus in the Upper Thames region and East Anglia (Geake 1997, 35–6, map 6).

Belt buckle

The buckle (ON 109, Fig. 6) found above the *seax* point end in grave 1062 belongs to Marzinzik's type II.24a which dates to the late 6th and 7th centuries, thus supporting the dating of the *seax* (Marzinzik 2003, 51; Scull 2009, 247). A plain oval but narrower buckle, found near the tip of the *seax* in grave 5488 at St Mary's Stadium, Southampton, is interpreted as probably being 'too narrow for a belt but suitable for a strap, for example to support a knife' (Loader 2005, fig. 25; 63). The broader buckle ON 109, however, is more likely to have been on a belt, that was part of the *seax* set.

Necklace by Jörn Schuster and Lorraine Mepham

The necklace (ON 115) worn by the woman buried in grave 1070 (Fig. 7) included six heavily corroded copper alloy *bulla* pendants (ON 138) and at least three silver rings (ON 131), as well as a cabochon glass pendant (ON 130) and 13 beads (ten glass, two stone and one amber (ON 128–9, 132–7).

The *bulla* pendants were made from single pieces of thin sheet metal which were folded front and back then soldered together. The shape ultimately derives from Roman *bullae* ('bubbles'), which have Etruscan archetypes. *Bullae* were originally worn by free-born boys until the end of adolescence, but their use was eventually adopted by girls and women during the later Roman period, while at the same time their amuletic character was emphasized (Goette 1986; Vida 1995, 268–70; 2009, 262–3). In Anglo-Saxon England, the use of *bullae* is traditionally dated to the 7th century, probably extending into the 8th, the 18 graves included in Geake's study being evenly distributed across England (Geake 1997, 36–7, map 7). Regional and local examples are known from necklaces from St Mary's Stadium, Southampton, grave 4202, with four silver and possibly two additional copper alloy *bullae*, and the even richer necklace from grave 23, Lower Brook Street,

Winchester, which includes a gold *bulla* and at least seven silver rings (Loader 2005, fig. 17; 64; Biddle 1975, 303–6, fig. 13). However, a single *bulla* recently found in grave 1013 at Winchester Hotel (Wessex Archaeology 2009c), part of the Lankhills cemetery, hints at the possibility that the use of *bullae* might have a local, late Roman precursor. Unfortunately, the Winchester Hotel *bulla* was the only grave good, and it therefore remains open to speculation whether it dates to the 4th century or later, in the late 6th or even 7th centuries. The latter date range could be deduced by comparison to two very similar silver *bullae* found in the grave of a high-ranking Germanic woman at Kölked-Feketekapu in Hungary, buried at the end of the 6th century (Vida 2009, 263–4 Abb. 2).

Silver wire rings are a common grave good, found evenly distributed in 7th–early 8th century Anglo-Saxon England and associated with children and women (Geake 1997, 48–50, map 18).

Cabochon pendants usually have a glass or garnet setting, at least partially convex, with a suspension loop and often a beaded surround. This example is of glass, with a beaded surround, but lacking a suspension ring. The colour of the glass, which is slightly degraded, is uncertain, but may originally have been translucent pale green. The dating of cabochon pendants spans the 7th century, and they tend to be found in relatively wealthy graves (Geake 1997, 39–40), although in this instance the necklace group constitutes the only grave good.

The necklace included a single amber bead. These had their greatest popularity in the 6th century, although their use extended at least into the first half of the 7th century. It is possible that it was an heirloom item.

The glass beads are all monochrome, and fall into three types, following Brugmann's classification (2004) – Roman Cane (two blue, one broken); Wound Spiral (one opaque yellow and two semi-opaque green/blue); Doughnut (five clear or very pale blue). The three types give somewhat conflicting dating evidence, the Wound Spiral and Doughnut being ascribed to Brugmann's group C (second half of the 7th century), while the Roman Cane (perhaps like the amber bead) suggest the reuse of heirloom beads; Guido, for example, states that the Roman Cane type remained in use on the Continent into the 7th century (Guido 1978, 94–55).

The two stone items comprise one flat disc bead of white stone, possibly gypsum, and one natural flint near-spheroid with a central perforation, which may also have been utilised as a bead. (A further possible utilised natural flint spheroid, with an irregular off-centre perforation, came from an unknown position in grave 1114.)

The combination of the *bullae* with the three silver wire rings suggest a 7th or early 8th century date for this necklace, and this is supported by the 7th century date for the cabochon pendant and the glass beads. Moreover, the small number of beads is typical of later necklace groups, unlike those of the 6th century.

Nails

One iron nail each was recovered from graves 1095, 1114, 1126 and three nails from grave 1075. Unfortunately, they were recovered from samples and their locations within the graves are not known. In grave 1006, however, a probable nail, or implement was found in the right chest area, and a well preserved iron hobnail was recovered from a sample taken in the area of the skull (Fig. 4). Other graves may also have contained nails, but in most cases the unrecognisable iron fragments appeared to be sheet- rather than rod-shaped. An unidentified iron implement (ON 124, Fig. 11) found level with the top of the skull and left shoulder of the skeleton in grave 1130 has a possible comparison in what was interpreted as an iron spike from building 6 at Puddlehill near Dunstable, Bedfordshire (Matthews & Hawkes 1985, 79 fig. 22, 3).

The small number of nails (no more than three) recovered from any one grave suggests that these are unlikely to have been used in the construction of coffins or boards, although one of the three nails from grave 1075 had a bent tip and was thus clearly used in some kind of construction. The small number of nails alone should not exclude the possibility of coffins

having been present at the time of burial as these could have been constructed without the use of nails, in keeping with the general picture of Anglo-Saxon carpentry and timber working (cf. Evison 1987, 100). However, a single nail was for instance found in the area of a coffin stain in grave 5129 at St Mary's Stadium, Southampton (Birbeck *et al.* 2005, 38 fig. 21; 41), and two nails, one with traces of wood on the shank and thus indicative of a structural use, were found below the skull of the female in grave 85 at Pewsey (Annable & Eagles 2010, 264 fig. 72; 266).

An alternative explanation for the presence of individual nails in a grave may be that they were employed in a ritual or magic way, e.g. as apotropaic amulets to ward of evil. A number of suggested early to late Roman examples can be found in England (e.g. Black 1986, 223; Dungworth 1998, 153; Seager Smith 2009, 37), which include infant burials at West Thurrock, Essex, burial 17062, and Springhead, Kent, grave 12222 (Schuster 2009; forthcoming). For the Anglo-Saxon period the possibility of deliberate deposition of single nails has been considered for graves 87 and 95 of the Boss Hall cemetery, Ipswich (Scull 2009, 111–2).

Chronology of the cemetery

The objects recovered from the nine graves containing identifiable grave goods in the Twyford cemetery can largely be paralleled in contemporary, late 5th/6th–early 8th century, cemeteries in Hampshire and Wiltshire. Although these graves represent only a sample of a larger cemetery, the objects provide hints at the Saxon identity of the community, most strongly perhaps in the two disc brooches accompanying the small girl in grave 1049. The brooches however appear not to have been worn, but may have been attached to a folded garment placed under or to the left of the head. A similar situation, perhaps signifying a 'rejection' of Saxon identity (Stoodley pers. comm.) has been observed at Droxford, grave 13, where two saucer brooches were found to the right of the skull and the right shoulder (Aldsworth 1979, fig, 10, 13). The disc brooches also identify the grave as one of the earliest of the excavated graves (see above). Grave 1049, which had been cut by the 7th century grave 1070, also appears to be among the oldest of the excavated graves, potentially dating as early as the end of the 5th or the early 6th century. The disturbed grave 1126 contained a shield boss which is potentially of equally early date. The remainder of the grave goods come from graves where the combinations of objects indicate burial in the later 6th–early 8th centuries. In Wessex this long use of the cemetery is replicated only once, locally, at Kings Worthy (Hawkes & Grainger 2003), while examples for the physical setting apart of the later burial sites from their predecessors exist locally at Winnall, where the two sites are more than 300m apart (Meaney & Hawkes 1970), and Portway, Andover (Stoodley 2006).

OTHER FINDS

Metalwork from non-grave contexts
by Lorraine Mepham

There are 33 iron objects from non-grave contexts (topsoil, various pits and postholes, and penannular ditch 1002). These consist largely of nails (26), with other structural items (2), knives (2), and unidentified fragments (3). The nails include one fiddle-headed and several T-headed examples, which are probably horseshoe nails of medieval or later date – the fiddle-headed nail and one T-headed nail came from penannular ditch 1002, but may be intrusive here.

One knife came from topsoil and one from pit 1121; the latter has a bolster (a thickening between tang and blade), a feature introduced around the middle of the 16th century.

Pottery by Lorraine Mepham

The small pottery assemblage includes sherds of prehistoric, Romano-British, Anglo-Saxon, medieval and post-medieval date. Nineteen sherds came from grave fills, but these are all, apparently, redeposited, even the six Anglo-Saxon sherds, although these could represent the fragmentary remains of grave goods

Table 6 Pottery totals by ware type

Date range	*Ware type*	*No. sherds*	*Weight (g)*
Prehistoric	Flint-tempered ware	11	48
	Sandy ware	1	2
	sub-total prehistoric	*12*	*50*
Romano-British	Grog-tempered ware	1	2
	Greyware	6	21
	sub-total Romano-British	*7*	*23*
Anglo-Saxon	Organic-tempered ware	6	42
Medieval	Miscellaneous medieval coarseware	6	34
	Laverstock-type fineware	1	2
	Laverstock-type coarseware	1	1
	sub-total medieval	*8*	*37*
Post-medieval	Verwood-type earthenware	2	20
	Redware	7	33
	Stoneware	4	23
	Refined whiteware	2	2
	sub-total post-medieval	*15*	*78*
	Total	48	230

disturbed from earlier burials. The three medieval sherds from Anglo-Saxon grave fills are presumably intrusive in these contexts (all are small sherds).

The condition of the assemblage is poor – all sherds are small, and many sherds are heavily abraded. Mean sherd weight overall is 4.8g. The whole assemblage has been quantified by broad ware type, and fabric totals are given in Table 6.

Prehistoric

Twelve sherds were identified as prehistoric, all plain body sherds. All but one of these are in coarse, flint-tempered fabrics. Although undiagnostic, these sherds can be dated on fabric grounds as Late Bronze Age. Five of these sherds came from Anglo-Saxon graves and one came from topsoil. The remaining five sherds came from posthole 1015.

One sherd (from pit 1025) is in a fine-grained sandy fabric which is not particularly distinctive but which may be Iron Age in date.

Romano-British

There are seven Romano-British sherds. All are coarsewares, comprising six greywares and one grog-tempered ware. These are all small body sherds and cannot be more closely dated within the Roman period. Five sherds came from Anglo-Saxon graves, one from pit 1033 and one from pit 1119.

Anglo-Saxon

All six sherds identified as Anglo-Saxon are in organic-tempered fabrics, and all came from grave contexts (1006, 1130) although, as noted above, these are unlikely to represent grave goods but rather redeposited sherds. None is

diagnostic. Organic-tempered fabrics have a currency in the 5th–8th centuries, but have their *floruit* in the 6th–7th centuries.

Medieval
Eight sherds are medieval. Seven are coarsewares, and include Laverstock-type wares from the Salisbury area as well as miscellaneous sandy and sandy-/flint-tempered wares from other (unknown) sources. Two of these sherds were intrusive within Anglo-Saxon grave 1126; the others came from pits 1021, 1033, 1111 and 1121. There is one fineware sherd, again a Laverstock type, intrusive within Anglo-Saxon grave 1006.

Post-medieval
Post-medieval/modern sherds came from topsoil as well as pits 1021, 1036 and 1111, and posthole 1137. They comprise coarse earthenwares (redwares and Verwood types), modern stonewares and refined whitewares.

Worked flint and burnt flint by Lorraine Mepham

The small quantity of worked flint consists almost entirely of waste flakes, with one scraper and one other possible retouched piece. The raw material is chalk flint; most pieces are patinated and most are edge-damaged, consistent with a residual provenance. Eight pieces came from Anglo-Saxon graves; other pieces came from topsoil (24 pieces), and from various pits and postholes, and from the penannular ditch.

The small quantity of burnt, unworked flint recovered (all from non-grave contexts) is also likely (although not proven) to be of prehistoric date. This material type is of uncertain origin.

Animal bone by Jessica M Grimm

The faunal assemblage consists of 37 hand collected and sampled mammal and bird bone fragments. Conjoining fragments that were demonstrably from the same bone were counted as one bone in order to minimise distortion, and therefore specimen counts (NISP) given here may differ from the absolute raw fragment counts. On the basis of associated pottery, the material is of mixed date. It is unlikely that any of the bones represent grave goods, although a small quantity came from the fills of grave 1062 and 1123. The overall condition of the bone is good.

The identified remains consists of cattle (n=3), sheep/goat (7) and bird (3). One of the bird bones belonged to a young chicken; the other two were possibly goose and duck.

A possible post-medieval date for some of the bones was indicated by the size of the bones, by their preservation compared to the redeposited bone scraps and by the clear butchery marks made by a saw. The sawing through of the bone shaft was seen for a subadult proximal cattle femur (pit 1033) and a subadult proximal cattle tibia (pit 1111). The latter also contained an adult sheep humerus of which the distal part was sawn off.

Miscellaneous finds by Lorraine Mepham

Two clay pipe stems were recovered, one from the penannular ditch. A small quantity of slag (probably fuel ash slag rather than metalworking debris) came from several contexts, including the topsoil; where associated dating is provided by pottery, these contexts are post-medieval. The CBM recovered includes fragments of brick and roof tile, most of which is of post-medieval date, with some possible medieval roof tile fragments from topsoil.

DISCUSSION by Kirsten Egging Dinwiddy, Andrew B Powell and Jörn Schuster

The 18 Anglo-Saxon graves excavated at the site clearly represent only a part of a larger cemetery, the full extent of which cannot be established because of heavy landscaping of the area to the immediate east. There is a distinct possibility that grave goods may have been disturbed and removed during construction work in the 1980s, as perhaps in the case of the male in grave 1106 with only a shield boss, or grave 1126 which was truncated by a service trench. Interpretations based on the currently known graves from the

cemetery should therefore be considered as preliminary until such time as more of the cemetery (if any more survives) becomes available for study. Equally, it cannot yet be determined whether the individual graves recorded some distance to the north and northeast are Anglo-Saxon in date, and if so whether they fall within the same cemetery or within separate burial grounds, perhaps as part of a 'two-cemetery' pattern as at Winnall (Meaney & Hawkes 1970), and Portway, Andover (Stoodley 2006, 63).

The nature of the burials and the presence of datable grave goods, which included a *seax*, knives, brooches, shield bosses, a pin and a necklace, suggest a date range from the late 5th/early 6th century until the 7th/8th centuries. Most of the datable graves fall within the Conversion Period or Final Phase, as defined by Leeds (1936), i.e. the end of the period in which burials were accompanied by grave goods. It has been noted that many Final Phase cemeteries were established at new locations, close to but separated from earlier Migration Period cemeteries, resulting in a 'two-cemetery' pattern, possibly resulting from the adoption of Christianity (Meaney & Hawkes 1970, 54), or perhaps more complex social, economic and landscape factors (Boddington 1990).

The two disc brooches that accompanied the child in grave 1049 are of a type dating potentially as early as the middle 5th century, i.e. from the preceding Migration Period, raising at least the possibility that this location may have been used as a burial ground over a more extended period. Both the brooches were, however, heavily worn suggesting that they were heirlooms that had been passed down through one or more generations. The grave could potentially be as early as the late 5th century; but if the brooches had been made in the first half of the 6th century, burial could have taken place in the middle or second half of the 6th century, thus placing the grave closer in date to the others in the cemetery.

Another potentially early date (late 5th/early 6th century) might apply to the distorted shield boss from grave 1126. This grave had been heavily disturbed and it is possible that other artefacts have been lost. Both these early graves were found amongst the later Final Phase graves – in fact, grave 1049 is cut by grave 1070, which is clearly of 7th-century date, indicating that the cemetery had been used over a relatively long time. Twyford therefore represents an example of a long-lasting site; and it is interesting that the closest comparable example also comes from the Itchen Valley: Worthy Park where both Migration and Final-Phase period graves were discovered.

Graves 1049, 1070 and 1062 form a conspicuous row of predominantly west–east aligned graves, all of which contained females interred with grave goods dating to the 7th or early 8th century, with two of the women buried with objects usually reserved for men: a large knife (grave 1006) and a *seax* (1062). Similar spatial patterns, possibly of significance in relation to group identity and status, have been found in both Migration and Final-Phase period cemeteries. For example, at Winnall II there was a cluster of adult women in the centre of the excavated area, all of whom had been buried with jewellery. And in common with Twyford, three of the graves (7, 8 and 10) formed part of a rough row.

Eight of the graves contained no surviving grave goods. Their positions among the other graves, and their comparable forms and orientations suggest broad contemporaneity, however. While it is possible that some could be earlier than the Final Phase burials, or alternatively later, dating to a time following the abandonment of grave goods altogether, the point has been made that the absence of grave goods cannot be interpreted simply in chronological terms (Scull & Bayliss 1999, 86): type and quantity of grave goods could have been determined by variations in social status, for example. And although the introduction of Christianity has been suggested as a reason for the decrease in grave goods, it is pertinent that such objects were never explicitly prohibited by the Church (Lucy 2000, 5).

In the post-Roman period there had been a shift from the late Romano-British practice of unfurnished burial, towards furnished burial in the Early Anglo-Saxon period, in particular, towards burials with weapons, a practice that

had been banned under Roman law. Strong links between Britain and the Continent in the late 6th century saw further changes in burial practice, such as changes to the types of weapons and jewellery interred with the dead. In particular, the large paired brooches and numerous bright beads of the early/middle 6th century were replaced by more subtle gold and garnet items, silver pendants and rings (Lucy 2000, 3). The necklace found in grave 1070, which consisted in part of silver rings and *bulla* pendants, the latter ultimately deriving from Etruscan and Roman predecessors, is a good example of this change. *Bulla* pendants retained their popularity into late Antiquity, when they started to occur not only in pagan but also Christian contexts in early Byzantine and Merovingian period cemeteries on the Continent, although their introduction to England appears to be a predominantly 7th-century phenomenon. Thus the community that interred their dead at Twyford seem to have been receptive to the latest fashions in jewellery.

Although Final Phase cemeteries occur with some frequency in the east of England, they are relatively rare in Wessex and therefore of importance. In addition to the changes to the types of grave goods already mentioned, these cemeteries are characterised by fewer grave goods, and those that were retained tend to be of an utilitarian nature, such as knives and belt accessories. They also display a greater standardisation of burial rites, with more consistency in grave and burial orientation, an absence of cremation burials, and the use of external features to mark graves (Hyslop 1963, 190–1). While burials tend to be supine and extended, as most at Twyford were, the fact that some were buried flexed and/or lying on one side, combined with a mixture of orientations, appears to be at odds with the traditional picture of Final Phase burial and there seems to have been considerably more variation in 7th and earlier 8th century burial than previously believed (Stoodley 2010).

Although, by the 7th century, the strict and widespread practice of associating grave goods with particular sexes had certainly weakened, some correlations persevered. This is the case at Twyford, where knives and buckles were found with either sex, jewellery with females and immature individuals, and weapons with males. Of particular interest was the female adult in grave 1062, who was accompanied by a *seax*, often regarded as a weapon and therefore considered a symbol of masculinity; yet, essentially a long knife, it may have on occasion served a more utilitarian purpose and consequently may not have been so constrained by gender. At both Aldbourne, Wiltshire (Fitzpatrick *et al.* in prep.) and St Mary's Stadium, Southampton (Birbeck 2005, 43-45), a *seax* was recovered from a burial of a possible female. At Twyford another female burial (grave 1006) was accompanied by two knives, the larger of the two also of dimensions normally only observed in male burials. Graves 1062 and 1006 mark the ends of a row of female burials (graves 1006, 1049, 1062 and 1070) which, compared to the remainder of the cemetery, displayed slightly richer grave goods. Other graves that had clustered around this group were less conspicuously furnished, although in the case of the man buried in grave 1106 with only a shield boss, there is a possibility that further grave goods may have been disturbed/removed during construction work in the 1980s. The more detailed analysis of the cemetery, however, is hampered by the relatively small number of graves. This provides too small a sample to indicate reliable correlations between age/sex and the provision of grave goods. Similarly, the sample is far too small to examine other aspects of the burial rite, such as orientation and body position, against the variables of sex and age.

Because of the heavy truncation to which the cemetery had been subject, the nature of some potentially significant features, i.e. the post-built structures and the penannular ditch, which lie right next to the burial area, remains unresolved. As discussed above, a reasonable case can be made for these non-grave features to be of prehistoric date, but if either had surrounded a grave they would be considered typical components of a Middle Anglo-Saxon cemetery. It is also notable that such features are often discovered on a cemetery's western limits, as is the case at Twyford (Morton 1992, 176). It is certainly possible that shallowly dug

cremation graves could have been lost through truncation, although the very small quantities of cremated human bone came from graves along the eastern edge of the site. The absence of a central grave within the penannular ditch (possibly a truncated ring ditch), however, is less easily explained given the survival, albeit truncated, of the other graves in the cemetery; without a central grave, such a feature sits less easily within the cemetery. A penannular ditch without a central grave was discovered at Portway West, Andover, but this may have been due to the partial excavation of the feature (Stoodley 2006, 66).

Although it is likely that the graves comprise only a sample of a larger cemetery, the buried individuals appear to represent a cross-section of the local population, with little evidence to suggest significant diversity in health, status or origins. The community appears to have been rural, largely participating in agricultural activities as evidenced by skeletal indicators of heavy labour. Some individuals were also probably engaged in craft activities, such as textile or leather working, as indicated by excessive and specific wear to the teeth.

Evidence for a contemporary settlement was found on the edge of the Anglo-Saxon cemetery at Market Lavington (Williams & Newman 2006), and it is possible that the small number of undated pits and postholes at Twyford are also indicative of an adjacent settlement. Incidentally, if this is the case then it would cast a different light on the interpretation of the timber posthole structures and possibly also the penannular ditch. Overall, in the absence of any clear evidence, it is hard to describe both the nature and structure of the settlement to which the cemetery belonged and the agrarian context in which it was sited. It is known that the cemetery was located *c.* 500m north of the Twyford Roman villa, which may have been occupied in some form into the early 5th century (Whinney 1999), yet a considerable period of time would have elapsed before the first grave was dug, and it is debatable whether the old Roman land unit could still have influenced settlement patterns in the 6th and 7th centuries.

Following its decline in the late 4th century, Winchester appears to have remained largely abandoned during the 5th and 6th centuries. Settlement in the Twyford area would have been heavily influenced by the arrival and/or emergence of a new political elite, which filled the vacuum left by the departure of the Roman authorities, and which by the 6th century had led to the widespread adoption of aspects of Anglo-Saxon material culture, including burial practices. During the 7th century the area came under pressure from neighbouring regions, which ultimately resulted in the establishment of West Saxon political and military supremacy throughout much of Wessex (Yorke 1995, 57–60). The rich 7th-century Anglo-Saxon burial at Oliver's Battery, accompanied by a dagger, spear and a bronze hanging bowl (Bruce-Mitford 2005), and broadly contemporary with the Twyford cemetery, may represent a member of such an elite. Its elevated location, overlooking the River Itchen and Twyford, contrasts with the position of the cemeteries of local communities spread along the valley below. Such separation may have been a way in which that elite distanced themselves from the wider population and conforms to a wider pattern of rich isolated single graves of the late 6th–7th centuries that often reused prehistoric burial mounds (Williams 1997).

Despite the rural setting of the Twyford cemetery, the lives of the local community are likely to have been significantly influenced by the re-emergence of Winchester as a regional centre of political power. The minster church at Winchester was founded in AD 634 by Cynegils, and in AD 676 it became the cathedral of a new diocese and the seat of Haedda, bishop of Wessex. Cynegils had endowed the church with lands that included the Hundred Hides of Chilcomb, a large tract of countryside around Winchester which included the modern parish of Twyford, and hence the community buried at Twyford. The development of rural communities along the River Itchen may also have been influenced by the establishment, at the mouth of the river, of *Hamwic* (Saxon Southampton) (Brisbane 1988), a large mercantile centre, which would have acted as a significant market for agricultural surpluses.

Although Twyford is not referred to by name until AD 964, the possibility cannot be ruled out that the medieval village had its origins in the settlement of a Middle Anglo-Saxon rural community whose identity was in part focussed on its burial ground, sited on the northern side of a dry valley running down to a possible crossing point of the River Itchen. It is also possible that the cemetery, in turn, might have been established within inherited estate boundaries associated with the Roman villa on the southern side of the dry valley. The cemetery at Twyford, therefore, has provided an opportunity to study a small and previously unknown Middle Anglo-Saxon cemetery in relation to some of the research issues for the Anglo-Saxon period in Hampshire and beyond (Crawford nd) and to make a significant contribution to an understanding of the settlement of the Itchen Valley in the early medieval period.

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The archive is currently stored at the offices of Wessex Archaeology but will, in due course, be deposited with Winchester Museums Service, under the accession code WINCH: A4340.

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