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(incorporating the Cambs and Hunts Archaeological Society)

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Summaries of papers presented at the Spring Conference

9 March 2001, Lady Mitchell Hall, Cambridge: *Ely – archaeology, architecture, and historical perspectives*

THE CONDUIT: *local history and archaeology organisations and events*

**Proceedings of the
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(incorporating the Cambs and Hunts Archaeological Society)

**Volume XCII
for 2003**

Editor Alison Taylor

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Editorial

These Proceedings have a more strongly archaeological bias than normal, though still reflecting only a minute portion of archaeological discoveries in Cambridgeshire, as the 'Fieldwork' section makes clear. This bias does mean we can afford a very substantial volume, because the reports attract grant-aid, but rest assured that there is no intention to ignore local history and architecture in the future. 'Fieldwork in Cambridgeshire 2002' was in itself rather problematic this year, as the County Council decided they could neither grant-aid it as in previous years nor supply data in a publishable format. With help from the excavating units and a County Council list we think we have constructed a reasonable record, but are aware there could be gaps.

Including *Conduit* as part of the *Proceedings* was well received last year, and was far cheaper than separate publications, so we have continued with this format, which was only possible thanks to considerable work by Sue Oosthuizen and Vicky Faupel. This catalogue of future events, accounts of our Annual Conference plus the huge amount of work in Fieldwork in Cambridgeshire give an impressive picture of lively and productive work routinely carried out in Cambridgeshire by amateurs and professionals alike.

Alison Taylor

Joyce Pullinger

Last year saw the sudden death of Joyce Pullinger, who will be long remembered in Cambridge Antiquarian Society. She was active in its affairs for 26 years and, almost single-handedly over that period maintained its reputation for carrying out and publishing field research in and around Cambridge. In the days before full-time archaeologists were employed in local units she saved and published much evidence that would otherwise have been destroyed. She may well prove to have been the last of those who, troubled by the wholesale destruction of archaeological sites equipped themselves to locate, excavate and publish unrestricted by governmental restrictions or the need for formal qualifications.

She was born at Middleton St. George Co. Durham, the youngest of the four children. At the outbreak of war she went first to relations in Kelso and then to the Hunmanby Hall School. Allergies forced her to abandon a proposed career in nursing, and in 1948 she married John Pullinger, withdrawing from a course of study at the Froebel College, in Bedford.

It was only after 1960 that the care of a large family (she had eight children) allowed her to develop a career in archaeology. The skills she developed and the results she obtained show it to have been much more than a hobby or part-time interest. Her achievements fall into two periods, between 1961 and '87 in and around Cambridge and 1987-2002 in Gwent. When living at Orwell and in Cambridge she was an active member of the Society, attending courses on Landscape Studies and showing, in the University's Field Archaeology Training Excavations, a marked aptitude for fieldwork. This was especially noted in the 1960-65 excavations between Castle Street and Shelly Row inside the walled Roman settlement. Here she made a major contribution by organising around her other members of the Society and excavating the 2nd - 3rd century shrine. She found herself especially attracted to ceramics and under the guidance of Rex Hull, Curator of Colchester Museum and a leading authority on Roman pottery, she became adept at its interpretation and dating. Her outstanding achievement however came when development east of Castle Street, still within the Roman walls, took place. Here only limited research had been possible before the destruction of the existing buildings and the construction of the new. Voluntarily for over two years Joyce carried out the essential daily watching brief and the negotiating with building contractors which enabled her to locate and test-evaluate, with the help of the Society's field group, evidence of Roman occupation. The results were published by the Society in 2000 in our joint volume on Roman Cambridge. In the years before 1987 she became increasingly involved in the affairs of the Society, serving on its council and as a vice-president. She also undertook various local projects, most notably at Teversham with Pat White, and on sites to be destroyed by the M11 motorway. Nationally she was elected to the Council for British Archaeology and was active in the Roman Pottery Research Group.

When she and her husband moved in 1987 to Stroath near Chepstow there was no diminution in her concern for archaeological rescue work. She and John, whose surveying and photographic skills had long supported her, were founder-members of the (Forest of) Dean Archaeological Group, and located, excavated and arranged the scheduling and preservation of a previously unknown megalithic tomb and other sites.

As one with whom she worked closely for many years I had many opportunities to observe her ability and dedication. She continued the tradition of those who, like Cyril Fox forty years earlier, demonstrated when they came to be field archaeologists in their thirties and forties that they could contribute as much if not more than those with longer service but less local knowledge. Her achievements should long be an inspiration to those, who like the present Cambridge Archaeological Field Group, wish to carry out field research in ways and in areas beyond the remit of professional units.

John Alexander

A Late Migration/Final Phase cemetery at Water Lane, Melbourn

Holly Duncan, Corinne Duhig and Mark Phillips

With contributions by Sarah Bates, John Hines, Matilda Holmes,
Ruth Pelling, and Anna Slowikowski

Between January and June 2000 part of an Anglo-Saxon cemetery at Water Lane, Melbourn was investigated in advance of housing development. The cemetery was in use for around 100 years between c. AD575 and c. AD675. It occupied an area of approximately 40m by 50m in the southern half of the site. Here, a total of 52 graves, containing the remains of 59 individuals, were excavated. One further isolated grave lay approximately 20m northwest of the main burial area.

The graves were not laid out in rows, nor did the Bronze Age barrow on the southern fringes of the cemetery influence their layout. Instead, they were organised around a number of focal points, including a richly furnished, female, 'founder' burial and a variety of distinctive cemetery structures.

The juxtaposition of graves and structures is only one of a number of attributes of the cemetery which have allowed a greater insight into its development. Three-quarters of the burials were accompanied by grave goods, a relatively high proportion for the period. The assemblage of human bone, while not of great size, is highly informative, due to its good preservation and recovery. In terms of demography and pathology, it provides significant contrasts with earlier Anglo-Saxon cemetery populations in the south Cambridgeshire area. There is a high degree of reuse of grave plots, possibly with gender-related restrictions on this reuse. One grave was re-opened at least four times to allow the insertion of another body on top of the earlier, undisturbed interments.

No physical remains of boundary markers were found. Further burials undoubtedly existed to the west, beneath what is now an industrial estate and was formerly a chalk pit. Earlier excavations in the vicinity, conducted by Wilson (1956), uncovered 28 graves containing 30 individuals. The exact location and plan of these earlier investigations are now lost and it is impossible to determine if the two sites represent parts of two cemeteries or one larger cemetery occupying the low chalk ridge on the southern outskirts of Melbourn.

In addition to the Anglo-Saxon cemetery, a number of earlier features were investigated. These dated principally to the late Neolithic/early Bronze Age and the late Bronze Age/early Iron Age

Introduction and Background

Background to the Excavation

Location and historical setting

The site is located on the southern outskirts of the village of Melbourn, some 8 miles south of Cambridge. Melbourn lies at the source of the river Mel, one of the many tributaries which constitute the upper Cam basin, part of the distinct geographical zone of south Cambridgeshire, sandwiched between East Anglia and the Midlands (Malim and Hines 1998, 3).

Melbourn lies on a slight rise (c.40m OD) of Lower Chalk, part of the eastern tail of the Chilterns. It is 4–5km due south of Barrington and the Anglo-Saxon cemetery sites of Edix Hill (Barrington A) and Barrington B. The village is situated on Ashwell Street, an east-west route running parallel to the Icknield Way. It has been argued that Ashwell Street, possibly prehistoric in origin, was an important route in Roman and Saxon times (Malim *et al* 1997, 116; Malim and Hines 1998, 3–5). A branch road, lying immediately to the west of the village, may have run northeast from Ashwell Street, to join the prehistoric and possibly Roman road, Mare Way (Fox 1923, 150–1; Malim and Hines 1998, 3). Main lines of communication have run through this drier chalkland since prehistoric times, and during the earlier Anglo-Saxon period a series of linear earthworks were constructed across it (Malim *et al*, 1997).

The village straddles the old highway between Royston and Cambridge. It is thought to have originally comprised four hamlets which transformed into a long linear village. This transformation may have resulted from the development of the road between Royston and Cambridge, after the town of Royston was founded in the 12th century (Taylor 1997, 88). In the late 11th century there were some 50–60 tenants (Salzman 1938, 67) and by 1377, 323 poll-tax payers (Taylor 1997, 88). In the 16th century 80 households were recorded and by the 17th century it was referred to as a 'great town' with 125 houses (Taylor 1997, 88). Of its extant remains, the church dates from the 13th century and various cottages and farm buildings date to the 14th century.

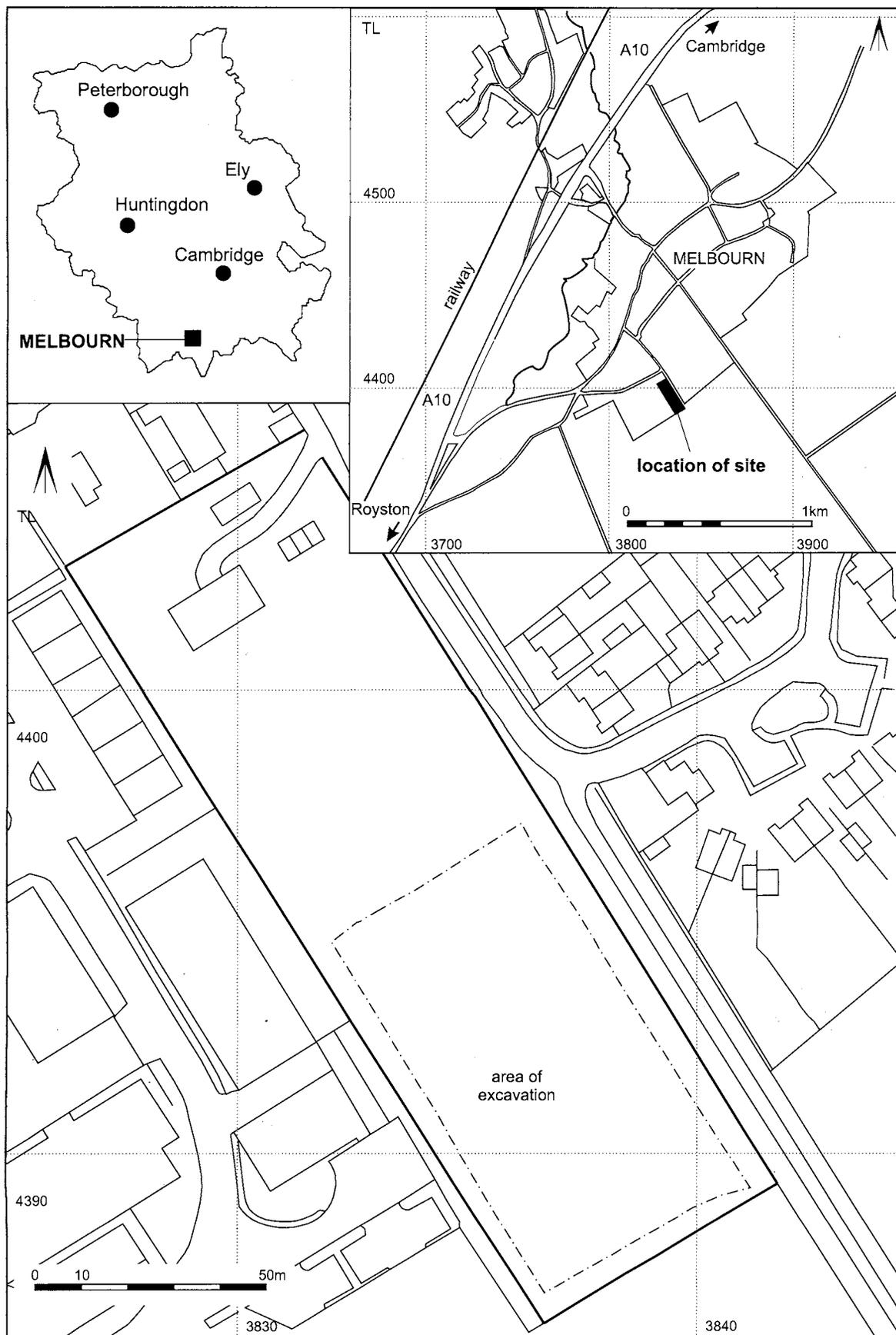


Figure 1. Location plan

Within the development area no structures were shown on the available historical maps, dating from 1839 to the early 20th century (CRO Q/RDc63). Prior to the Inclosure Award the site was located within Mill Field, one of the township's open fields. The perimeter of the development area does not appear to have altered since 1839 when the land comprised two allotments (CRO Q/RDz9 and CRO Q/RDc63). By 1885 these had been merged into a single plot as shown on the first edition OS 25 inch map. The orchard appears to have been planted after 1903. In the 19th century, a significant amount of quarrying work took place south of the village. However, this appears to have been restricted to the site of the modern-day industrial estate, immediately to the west of the development area (CRO Q/RDz9).

Topography and Geology of the Site

The development area was rectangular and approximately 1.2ha in extent. At the time of the investigations it was a disused orchard with a few barns and outbuildings at its northern end. The short northern boundary separates the site from a single residential plot. To the east the plot is bounded by Water Lane and to the west by the industrial estate. Arable fields lie to the south.

Within the development area the Lower Chalk was found at 0.3m to 0.5m below present ground level. Its upper surface was scarred by weathering and ploughing. Above the bedrock was a layer of relatively stone-free, mid grey, clay silt soil, which contained flecks of chalk throughout and moderate amounts of chalk pieces in the lower part of its profile. This layer was 0.15m to 0.3m thick over the majority of the site. It appeared to be a former ploughsoil that had remained relatively undisturbed since the planting of the orchard. The topsoil consisted of a dark brown silty loam containing occasional flecks of chalk and a dense mat of tree roots. This layer was 0.15m to 0.2m thick and represents the layer of turf and topsoil that developed during the use of the site as an orchard.

Archaeological Background

In 1951 the discovery of an Anglo-Saxon cemetery (SMR 03169) during quarry work, to the immediate west of the development area, led to a rescue excavation the following year (Wilson 1956, 29–44). The burials, thirty in total, were believed to date to the 7th century and thought to provide evidence for the transition from paganism to Christianity. The precise location of these graves remains uncertain. The SMR gives the location as TL3823/4386, some 110m west of the present site. It was emphasised at the end of the investigations that the cemetery was by no means completely excavated (Wilson 1956, 38) and that its full extent was unknown.

Other significant archaeological remains in the vicinity include: medieval field boundaries (SMR 09558 and 09540), two ploughed out early or middle Bronze Age barrows (SMR 03166, TL389/439) and scatters of Roman pottery (SMR 03116a TL389/439).

Circumstances of the present work

Cambridgeshire's County Archaeology Office advised the local planning authority that proposals to develop the site for housing could be archaeologically sensitive. Accordingly the local planning authority requested further information on the archaeological potential of the site. This was obtained through a desk-based assessment and archaeological field evaluation undertaken between December 1999 and January 2000, the results of which were sufficiently significant to require further archaeological investigation (Phillips and Wilson 2000 BCAS report no. 2000/08).

Open area excavation took place between 26th April and 9th June 2000. These excavations were permitted by Mrs S Gillings on behalf of the landowners, the Hagger family, who also generously donated the finds to Cambridgeshire County Council. The work was funded by Old Road Securities plc and Amber Developments (St Ives) Ltd.

The Excavations

Aims of the investigation

The overall aim of the project was to preserve any archaeological remains by record and to attempt a reconstruction of the history and use of the site. This specifically included identification of the main phases of activity and recovery of artefactual and ecofactual material to elucidate the types of activity on site, and its palaeoenvironment.

Excavation strategy and method

After clearance of the orchard, topsoil was removed by mechanical excavator under archaeological supervision. Machine stripped areas were cleaned by hand and pre-excavation plans compiled. Discrete features were half sectioned and at least 25% by length of linear features and posthole structures were examined. Inhumations were fully excavated and drawn at 1:10, while 1:1 plans were made of complex artefact groups. Photographs in monochrome, colour transparencies and digital format were taken. Specialist osteological advice was provided by Corinne Duhig who visited the site during excavation. Advice on Anglo-Saxon cemeteries was provided by many visiting specialists including Audrey Meaney, Alison Taylor, Tim Malim, Chris Scull and Martin Welch.

Format of publication and methodologies

'Prehistoric and pre-cemetery evidence' discusses the evidence for pre-cemetery activity at Melbourn. The contextual and finds evidence for prehistoric activity is presented in an integrated format (pp. 61–63). Features of indeterminate date are discussed on p. 6 and the ceramic evidence for late Iron Age and Roman activity follows.

'The cemetery' focuses on the Anglo-Saxon cemetery, including a catalogue of the individual graves and their contents. The structural features present within the cemetery and the morphology of the

graves are discussed on p. 92. The human skeletal evidence is examined in detail from p. 96, followed by the assemblage of finds accompanying the inhumations. Chronological and social aspects of the cemetery and its place within the regional context are explored in 'Development of the cemetery'.

The methodologies employed in analysing the contextual and material records are presented by dataset in Appendix 1. Appendix 2 comprises the ceramic fabric type descriptions encountered at the site.

Prehistoric and pre-cemetery evidence

Mark Phillips

Prehistoric activity

Introduction

Unlike some other Anglo-Saxon cemeteries in the region, eg Edix Hill (Malim 1998), the excavations at Melbourn did not produce a significant pre-6th century component. However, two phases of prehistoric activity were identified, together with undated features which may also be contemporary.

There is no firm evidence to suggest that the location of the Anglo-Saxon cemetery was influenced by previous use of the site. An early prehistoric barrow, itself perhaps part of a barrow cemetery (see SMR 03166; TL389/439 for two further round barrows), occupied the same ridgeline that attracted the founders of the Anglo-Saxon burial ground. Whether the barrow was still visible in the late 6th century (its remains were heavily truncated) or whether the juxtaposition of the cemetery is simply a topographic coincidence is uncertain.

Regardless of this issue, the prehistoric evidence is sufficiently interesting in its own right to merit discussion. The earliest phase of activity dates to the late Neolithic/early Bronze Age. In addition to the barrow, a number of small pits, yielding artefacts and faunal remains, were identified. These may be a late manifestation of the tradition, described by Thomas (1991, 59–78), whereby semi-nomadic people deliberately left 'structured deposits' on sites that were perhaps visited on a seasonal basis but were not permanently occupied (Thomas 1991, 75).

The second phase of prehistoric activity dates to the late Bronze Age/early Iron Age. It is characterised by post-built structures and pits, containing small quantities of pottery typical of the period. These may represent evidence for more permanent occupation but, if so, it is likely that the main focus of settlement lay beyond the limits of the excavated area.

Late Neolithic/Early Bronze Age

Evidence for late Neolithic/early Bronze Age activity was restricted to the western half of the excavated area. It comprised eight pits and part of the ditch (G49) of a heavily truncated round barrow. The ditch had a projected external diameter of 24m and, where best preserved, was 2.6m wide and 0.3m deep. The sides sloped at approximately 45° to a flat base. The primary fill (0.1m deep) contained frequent, medium

to large flint nodules, possibly derived from material used to face the mound. The main fill was a mid-brown silt, containing one fragment of a sheep/goat tibia and 27 pieces of struck flint (mostly flakes, spalls and shatter pieces). If a central burial survived, it lay to the west beyond the limit of excavation.

Four of the pits (G41), lying 18m to the northeast of the barrow, formed a rectangular array, oriented NNW-SSE and demarcating an area of about 1m by 2m. The northern pair were c.0.7m in diameter and 0.4m deep with vertical sides and flat bases. The southern pair were up to 0.96m in diameter and 0.5m deep with concave profiles. Each pit had two main fills each containing flint, animal bone, pottery and charred plant remains. The flint assemblage comprised mainly debitage, with a low percentage of blades (7%) in comparison to flakes (93%). Four scrapers, three utilised and retouched flakes, a utilised blade, and a serrated blade and flake represented the only tools. The animal bone assemblage (84 pieces) was fragmentary. The majority was from unidentified, small to medium mammals, although pig, cow, and to a lesser extent, horse and sheep/goat were represented. The ceramic assemblage was too fragmentary to identify forms (52 sherds, weighing 85g). Two of the vessels may be collared urns on the basis of their limestone-tempered fabric, which is the same as the definitely identified urns from pit G13. Sherds from one of these vessels were found in two different pits, one to the north and one to the south. A large number of hazelnut shells and a lesser quantity of cereal grain, including barley (*Hordeum vulgare*), were also recovered.

The remainder of the pits were more widely scattered. Pits G2, G12 and G13 lay 35m to 77m north of the barrow. They were broadly similar in appearance, circular to sub-circular in plan with steep sides and concave or flat bases. They were 0.7m–1m in diameter and 0.1m–0.32m deep.

G2 and G13 each had a single fill. G13 produced 898 fragments of animal bone. Although 94% of the assemblage was too fragmentary to identify, pig, cow, sheep/goat, horse and dog were present, with pig predominating. The flint assemblage (287 struck pieces) largely comprised debitage. Flakes and flake cores predominated, with single instances of a utilised blade, a backed knife, an end scraper and a *petit tranchet* arrowhead. This pit also produced sherds from four ceramic vessels: two collared urns (Figure 3 nos 1–2) and two bowls (Figure 3 nos 3–4). All four vessels were decorated, the collared urns with either incisions or twisted cord and the bowls with incised motifs. One collared urn (Figure 3 no 1) was made up of 31 sherds from G13 and 20 sherds from G2, none of them joining.

Overall, the fill of G2 was similar in composition to that of G13. However, it yielded smaller quantities of finds: 48 fragments of animal bone, flint debitage (17 flakes), 2 retouched flakes, 3 scrapers and 21 collared urn fragments, one of which was from a different vessel to that found in the fill of pit G13.

The primary fill of G12 contained no finds.

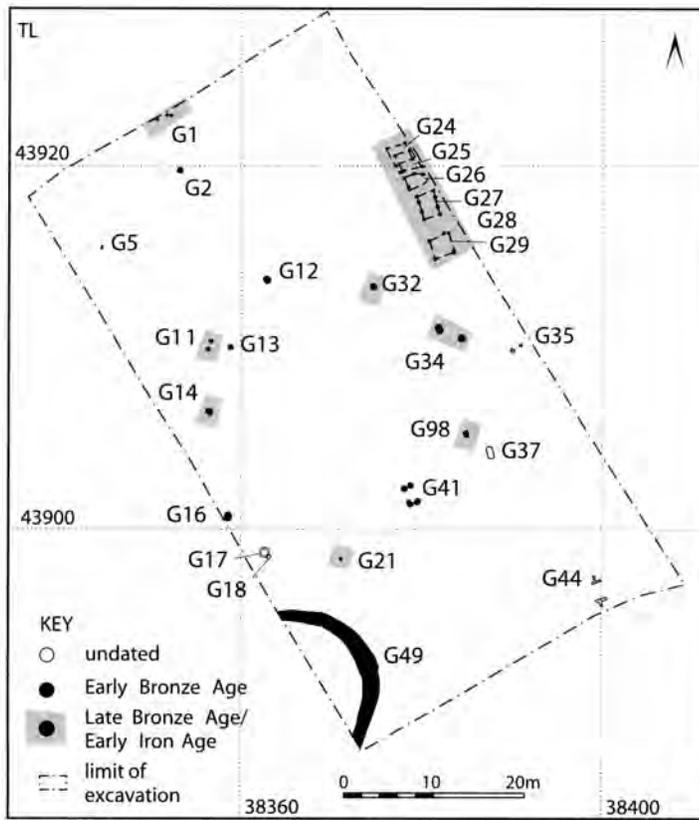


Figure 2. Prehistoric activity

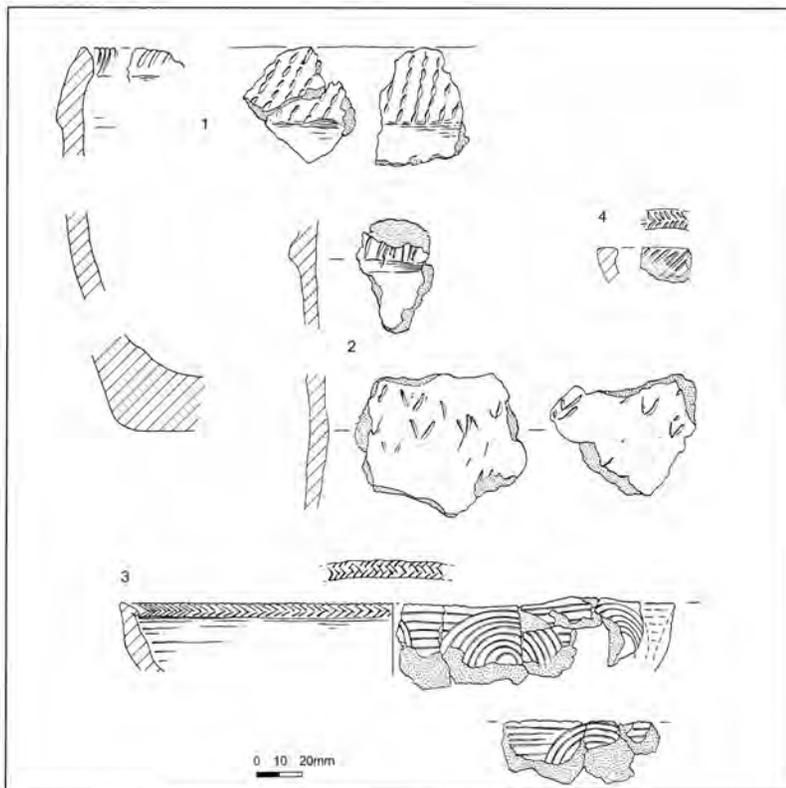


Figure 3. Early prehistoric pottery

However, its upper fill produced 337 fragments of animal bone. Within the 78 identifiable fragments, pig predominated (61.5%), with cow (32.1%), sheep/goat (5.1%) and dog (1.3%) less well represented. The flint assemblage (368 struck pieces) was dominated by debitage, with only 3 utilised flakes present. Fifty-one sherds of pottery were recovered, over 30% from soil samples. Three vessels were made up of relatively large numbers of fragments (4, 8 and 18 respectively), although they were still too fragmentary and abraded to identify forms. One of these vessels included a fragment of flat base.

Pit G16 lay c.14m NNW of the barrow. It was similar in form (sub-circular, steep sides, concave base) and size (1.1m in diameter, 0.47m deep) to the other isolated pits. Its single fill produced 61 pieces of struck flint, entirely debitage but for a utilised blade and a double-ended scraper. Of the 116 fragments of animal bone, the majority was unidentifiable, with pig (6%), cow (4.3%) and sheep/goat (2.6%) making up the remainder. Two sherds of pottery were found. One weighs only 1g but may be prehistoric in date. The other, weighing 3g is in late Bronze Age/early Iron Age fabric F01B and is likely to be intrusive.

Late Bronze Age/Early Iron Age activity

Evidence for late Bronze Age/early Iron Age activity comprised six pits (only two of which were close to one another) and a NNW-SSE alignment of five four-post structures (G24, G25, G27–G29) close to the northeast edge of the excavation. The structures ranged in size from 2.2m to 2.9m square. Their constituent postholes were 0.22m–0.32m in diameter and 0.08m–0.23m deep. Structures G24 and G27 appear to have been replaced by G25 and G28. An associated cluster of postholes G26 may represent evidence for further repair or replacement. As with all the features in this phase, finds were relatively sparse. A single F01B rim sherd was found in G24, while four F01B sherds and one F20 sherd were recovered from G27. All were small, with an average weight of 3g. The only other finds were a single flint flake spall and 8g of unmodified, burnt flint.

A cluster of three postholes G1 lay on the northern edge of the excavation, northwest of the row of four-post structures. The largest posthole, 0.25m in diameter and 0.19m deep, contained eight sherds of an F01B carinated jar and a single body sherd in fabric F16.

A two-post structure G11, comprising sub-rectangular postholes (0.47m by 0.3m and up to 0.04m deep) set 1m apart, was situated near the western edge of the excavation. Finds were limited to a single F01B sherd, weighing only 2g.

Of the six pits phased to this period only two, G34, were relatively close to one another. They were sited 3.3m apart, to the south of the row of four-post structures. One was circular (0.7m in diameter); the other oval (0.9m by 0.6m). They were 0.2m–0.4m deep. Both contained two fills, the lower one generally stonier. The only finds were one tiny sherd in fabric F20, one flint piercer and the fragmentary tooth of an unidentified mammal.

Pit G98, partly truncated by a later grave, had near vertical sides and a flat base. Its surviving dimensions suggest a diameter of up to 0.8m and a depth of 0.28m. The single, uncompacted fill contained five and eight sherds respectively from two vessels in fabric F16. In total, they weighed only 18g. Twelve fragments of unidentified mammal bone, a small assemblage of flint debitage (20 pieces) and 13g of unmodified, burnt flint were also found.

Pit G21 was sub-circular (0.5m by 0.4m) with a concave profile, 0.13m deep. Its sole fill contained sherds from 13 vessels, all in fabric F01B but for a single example in fabric F16. Only one vessel, a round-shouldered jar, was represented by a substantial number of sherds (16). Three pieces of flint debitage, 29g of unmodified, burnt flint and 26 fragments of mammal bone were also recovered.

Pit G14 measured 0.76m in diameter with a concave base, 0.28m deep. The single fill contained three sherds in fabric F01B and four sherds in fabric F01A from the same vessel. Four pieces of flint debitage, 16g of unmodified, burnt flint and a single fragment of bone from a large mammal were also recovered.

Pit G32, located 10m west of the row of four-post structures, was 0.78m in diameter and 0.07m deep. In common with most of the pits of this phase, the single fill produced a small assemblage of pottery, flint and animal bone. Three sherds of fabric F16 were recovered. The flint assemblage comprised 18 pieces of debitage and a single serrated blade. Much of the animal bone assemblage was fragmentary and unidentifiable. However, a near complete cow metatarsal and deer antler fragments were present. A water-worn quartzite pebble had a smoothed slightly dished edge suggesting use as a hone.

Features of indeterminate date

Twenty-two groups, comprising 36 contexts, could not be dated with certainty. Of these, fifteen groups yielded either no finds or, in one instance, charcoal and 2.9kg of burnt flint. A single pit (G33) contained the remains of two chicken legs, indicating that the fill is unlikely to pre-date the later Iron Age (Maltby 1996, 1997). These groups are not discussed further.

Six groups comprising four pits (G5, G17, G18 and G37), two postholes (G35) and two structural slots (G44) yielded small assemblages of finds, including one sherd each from G37 and G44. The pottery from both groups is in fabric F01B suggesting a possible late Bronze Age/early Iron Age date, but the size of the sherds, 3g and 2g respectively makes dating rather tentative. All this material suggests these features are prehistoric in date but greater precision is impossible.

Pit G5 was roughly rectangular in plan (0.47m by 0.25m), with near vertical sides and a rounded base, 0.22m deep. The fill contained three flint blades, one with denticulated edge, and two fragments of burnt flint (4g).

Pit G17 was circular, 1.45m in diameter, 0.58m deep, with vertical sides and a flat base. The configu-

ration of the fills suggested the pit was lined. A total of eight flint flakes, a tested core, a fragment of cow bone and one of unidentified mammal were found. Pit G18 adjoins G17 although their relationship was unclear. G18 was 0.5m in diameter and 0.36m deep and contained a single unurned cremation, weighing 648g.

Pit G37 was roughly rectangular in plan (1.6m by 0.9m). Its size and position within the bounds of the Anglo-Saxon cemetery initially suggested it was a grave. However, its irregular profile and very uneven, sloping base argue against this interpretation. The single sherd of Late Bronze Age/early Iron Age pottery came from the upper fill.

G35 comprised two postholes, one sub-rectangular (0.6m by 0.4m) with concave base (0.18m deep) and one circular (0.38m in diameter and 0.13m deep), set 1.4m apart. The sub-rectangular feature produced a flint flake, spall and a retouched blade.

On the southeast edge of the excavation two T-shaped slots, set 2.5m apart with the short stem of each 'T' facing outwards, were recorded (G44). The fills produced a flint piercer, a partial radius of a horse, five unidentified mammal bone fragments and a single sherd of late Bronze Age/early Iron Age pottery.

Evidence for late Iron Age and Roman activity

Evidence for activity in the late Iron Age and Roman periods is restricted to residual pottery sherds recovered from the Anglo-Saxon cemetery structures and grave fills. All the sherds are small and abraded and none had been reworked. The lack of consistency in colour or fabric type suggests that this material had not been deliberately collected. The paucity of this evidence, and the absence of any features of this date suggest that the excavated area was not occupied at this time. The fabric types present are listed in Appendix 2.

The Cemetery

Catalogue of graves

Introduction

During structural analysis, closely related contexts were assigned to a unique 'sub-group', representing a basic, indivisible unit of interpretation. In terms of the cemetery evidence, a sub-group may be defined as a 'burial event', typically comprising a grave cut, a skeleton, finds deposit(s) and fill(s). Sub-group numbers 55–110 were assigned to the graves and grave-like features. This numbering has been retained within the publication to facilitate retrieval of information from the site archive.

The catalogue is ordered by sub-group number (SG), with the grave cut and skeleton number indicated. The grave shape and dimensions (L = length; B = Breadth; D = depth cut into bedrock) are given as well as the orientation of the skeleton (head position indi-

cated as degrees from 0° north). The preservation of the skeletal remains (scale of 1–5: 5 = complete apart from a few small or fragile bones, down to 1 = only one or two bones present), sex (male = M; female = F; immature = IMM), age and stature are indicated. The position of the body torso and arms and legs are noted and a summary list of grave goods provided. Skeletal remains and registered artefacts found within the fill of a grave are listed within square brackets. The grave cut, skeleton and grave goods are illustrated in Figures 4–24. Individual finds illustrations are indicated by grave number and drawing number, eg 55.1.

The Graves

Sub-group no: 55 (Figure 4)

Grave no: 1013

Skeleton no: 1015

Grave shape: sub-rectangular

Grave dimensions; L. 1.13m; B. 0.77; D. 0.1m

Body orientation: 197° north

Skeleton condition: 1

Sex: IMM; Age: 3.7–6.3 ; Stature: n/a

Skeleton position: supine

Arm position: extended

Leg position: extended

Grave goods:

Knife 55.1 Type C size-group 1 (L.105.4mm)

Sub-group no: 56 (Figure 4)

Grave no: 1019

Skeleton no: 1021

Grave shape: pentagonal

Grave dimensions: L. 2.41m; B. 1.62m; D. 0.65m

Body orientation: 178° north

Skeleton condition: 5

Sex: F; Age: 21–30; Stature: 172.2cm

Skeleton position: supine

Arm position: right crooked

Leg position: extended

Grave goods:

Copper alloy vessel rim mounts 56.1–2 (L. 12.2mm)

Silver capsule bead 56.3 (L. 13.6mm)

Silver slip-knot ring 56.4 (Dia. 22mm)

[from grave fill: small-long brooch fragment RA16 and sherd of Roman window glass RA88, not illus.]

Sub-group no: 57 (Figure 4)

Grave no: 1399

Skeleton no: 1400

Grave shape: sub-oval

Grave dimensions: L. 1.3m; B. 0.74m; D. 0.27m

Body orientation: 180° north

Skeleton condition: 1

Sex: IMM; Age: 3.7–6.3; Stature: n/a

Skeleton position: n/a

Arm position: n/a

Leg position: n/a

Grave goods:

Knife 57.1 Type A size-group 2 (L. 140mm)

[from grave fill: human remains 1401, preservation 1, sex IMM]

Sub-group no: 58 (Figure 5)

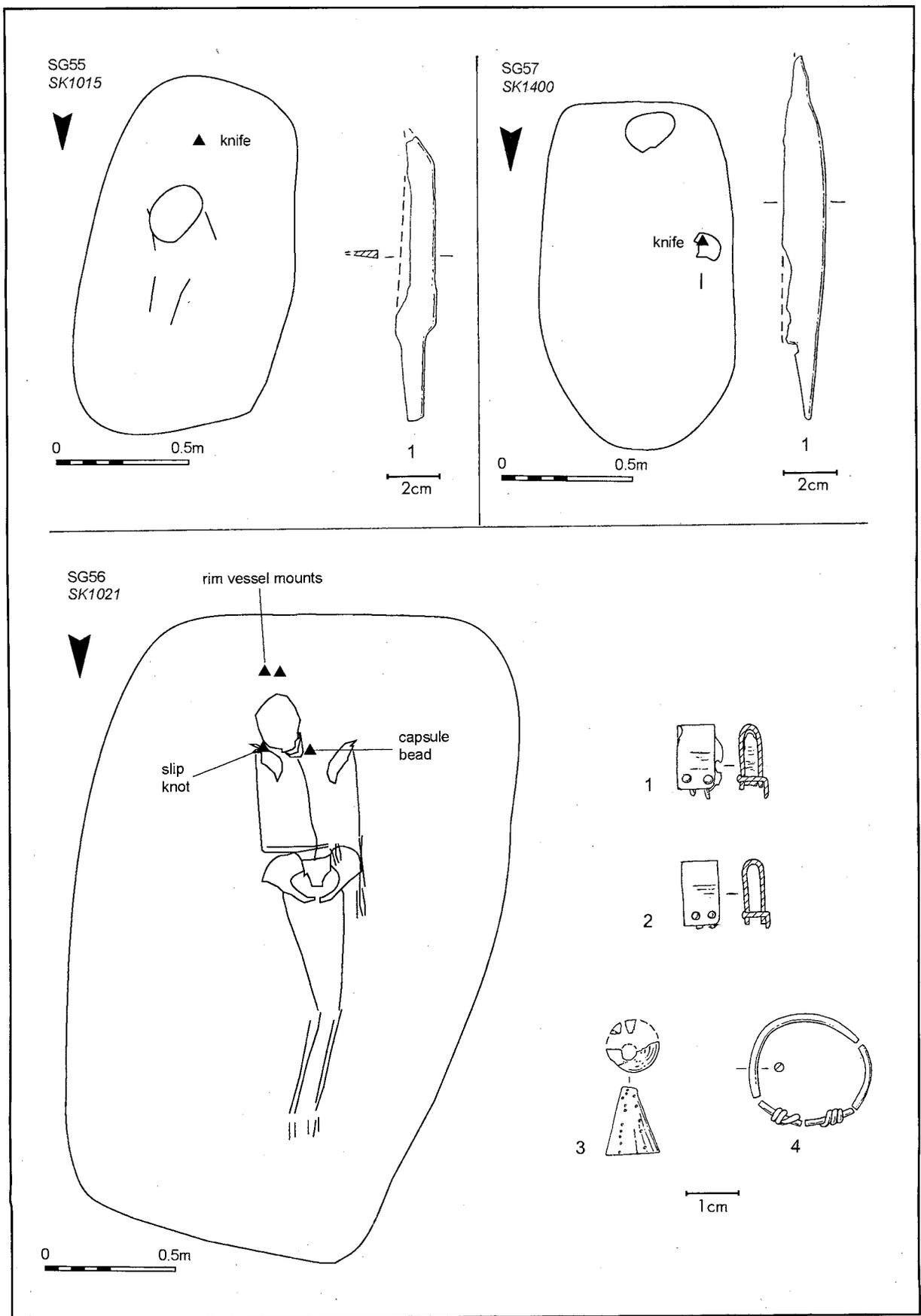


Figure 4. SG55-SG57

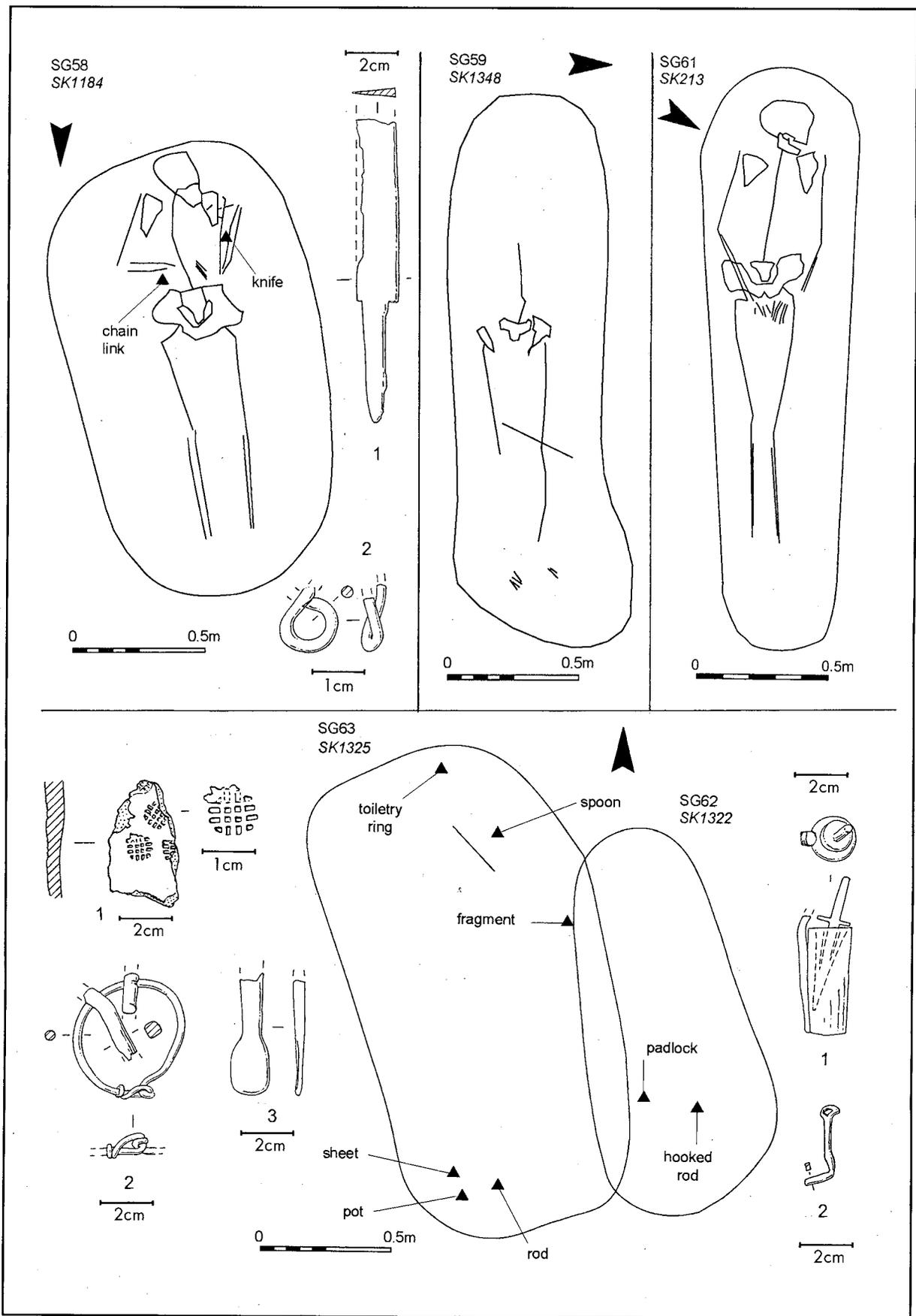


Figure 5. SG58-SG63

- Grave no: 1181
 Skeleton no: 1184
 Grave shape: sub-rectangular
 Grave dimensions: L.1.7m; B. 0.96m; D. 0.52m
 Body orientation: 170° north
 Skeleton condition: 4
 Sex: M; Age: 45–57; Stature: n/d
 Skeleton position: supine
 Arm position: crooked
 Leg position: extended
 Grave goods:
 Knife 58.1 incomplete (L. 112.7mm)
 Iron figure-eight chain link 58.2 (L. 15.1mm)
- Sub-group no: 59 (Figure 5)
 Grave no: 1194
 Skeleton no: 1348 (see also 1544, sub-group 60)
 Grave shape: sub-rectangular
 Grave dimensions: L. 2.03m; B.0.66m; D: not measurable
 Body orientation: 279° north
 Skeleton condition: 2
 Sex: M; Age: 23–57; Stature:170.9cm
 Skeleton position: supine
 Arm position: n/a
 Leg position: extended
 Grave goods: none
- Sub-group no: 60
 'Grave' no: 1412
 Skeleton no: 1544 (part of skeleton 1348 (SG59))
 'Grave' shape: sub-rectangular cut
 'Grave' dimensions: L. 1.7m; B. 0.62m; D: not measurable
 Interpretation: **robber cut** of grave 1194 (SG59)
- Sub-group no: 61 (Figure 5)
 Grave no: 214
 Skeleton no: 213
 Grave shape: Rectangular
 Grave dimensions: L. 2.19m; B. 0.6m; D. 0.38
 Body orientation: 243° north
 Skeleton condition: 4
 Sex: M; Age: 25–35; Stature: n/d
 Skeleton position: supine
 Arm position: extended
 Leg position: extended
 Grave goods: none
- Sub-group no: 62 (Figure 5)
 Grave no: 1310
 Skeleton no: 1322
 Grave shape: sub-oval
 Grave dimensions: L. 1.7m; B. 0.77m; D. 0.33m
 Body orientation: n/a
 Skeleton condition: 1
 Sex: ?M; Age: n/a; Stature: n/d
 Skeleton position: n/a
 Arm position: n/a
 Leg position: n/a
 Grave goods:
 Iron padlock 62.1 (L. 60.7mm)
 Iron hooked rod fragment 62.2 (L. 32.2mm)
 Iron fragment (chain fragment?) not illus.
- Sub-group no: 63 (Figure 5)
 Grave no: 1309
 Skeleton no: 1325
 Grave shape: sub-rectangular
 Grave dimensions: L. 2.09m; B. 1.1m; D:0.28m
 Body orientation: n/a
 Skeleton condition: 1
 Sex: ?; Age: adol/adult; Stature: n/d
 Skeleton position: n/a
 Arm position: n/a
 Leg position: n/a
 Grave goods:
 Ceramic body sherds (9) fabric type A19: 2 stamped (one illus.) 63.1
 Copper alloy toiletry ring & iron rods 63.2 (Dia. 44mm)
 Iron spoon 63.3 (L. 44.6mm)
 Iron sheet fragments not illus.
 Iron rod fragment not illus.
- Sub-group no: 64 (Figure 6)
 Grave no: 208
 Skeleton no: 205
 Grave shape: sub-oval
 Grave dimensions: L.1.78m; B. 0.89m; D. 0.42m
 Body orientation: 178° north
 Skeleton condition: 4
 Sex: IMM; Age: 13; Stature: n/a
 Skeleton position: supine
 Arm position: crooked
 Leg position: bent left
 Grave goods:
 Ceramic bowl fabric type A26 64.1
 Girdle group 64. 2, 64.5–64.6: Iron chatelaine chain links, rod (key stem?), fire steel (L. 94mm), copper alloy suspension loop (L. 17mm) and two slip-knot rings (Dia. 16mm)
 Shears 64.3 (L. 170mm)
 Antler comb 64.4 single-sided composite (L. 172mm)
 [from grave fill: copper alloy pin, head missing, not illus.]
- Sub-group no: 65 (Figure 7)
 Grave no: 1163
 Skeleton no: 1165
 Grave shape: sub-rectangular
 Grave dimensions: L. 1.85m; B. 0.88m; D. 0.44m
 Body orientation: 154° north
 Skeleton condition: 4
 Sex: F; Age: 25–35; Stature: 162.9cm
 Skeleton position: supine
 Arm position: extended
 Leg position: extended
 Grave goods:
 Glass beads (10) 65.1–3 monochrome (Dia. 6.9mm; 7.7mm; 8mm)
 Copper alloy riveted suspension loop 65.4 (L.17mm)
 Copper alloy split pin with applied head 65.5 (L. 11mm)
 Copper alloy pierced disc pin 65.6 (L. 56.3mm)
 Knife 65.7 type A size, group 1 (L. 123.5mm)
 Shears 65.8 (L. 213mm)
 Antler double-sided composite comb 65.9 (L. 138mm)
 Iron suspension ring 65.10 (Dia. 33.6mm)
 Antler spindle whorl 65.11 (Dia. 39.1mm)

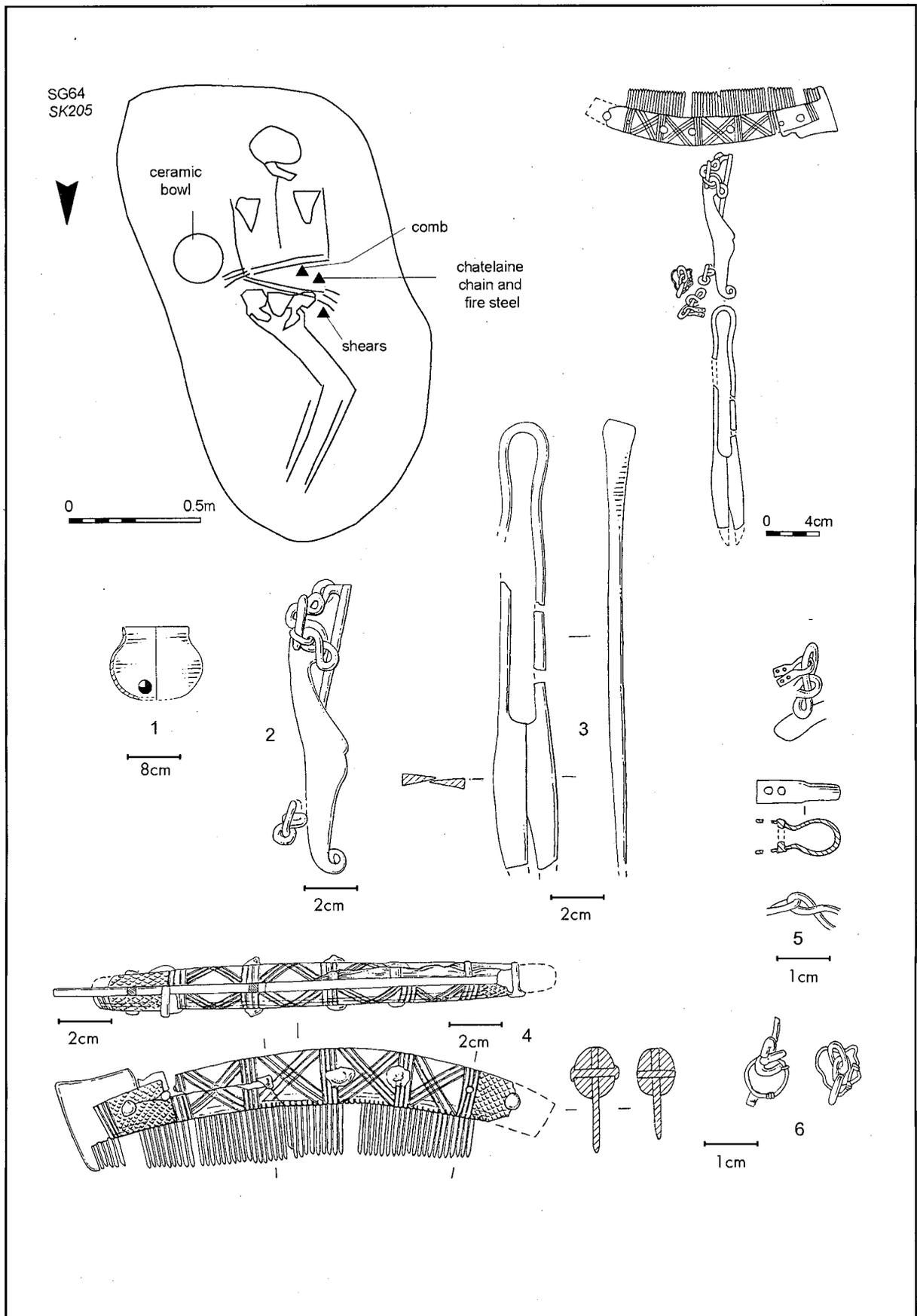


Figure 6. SG64

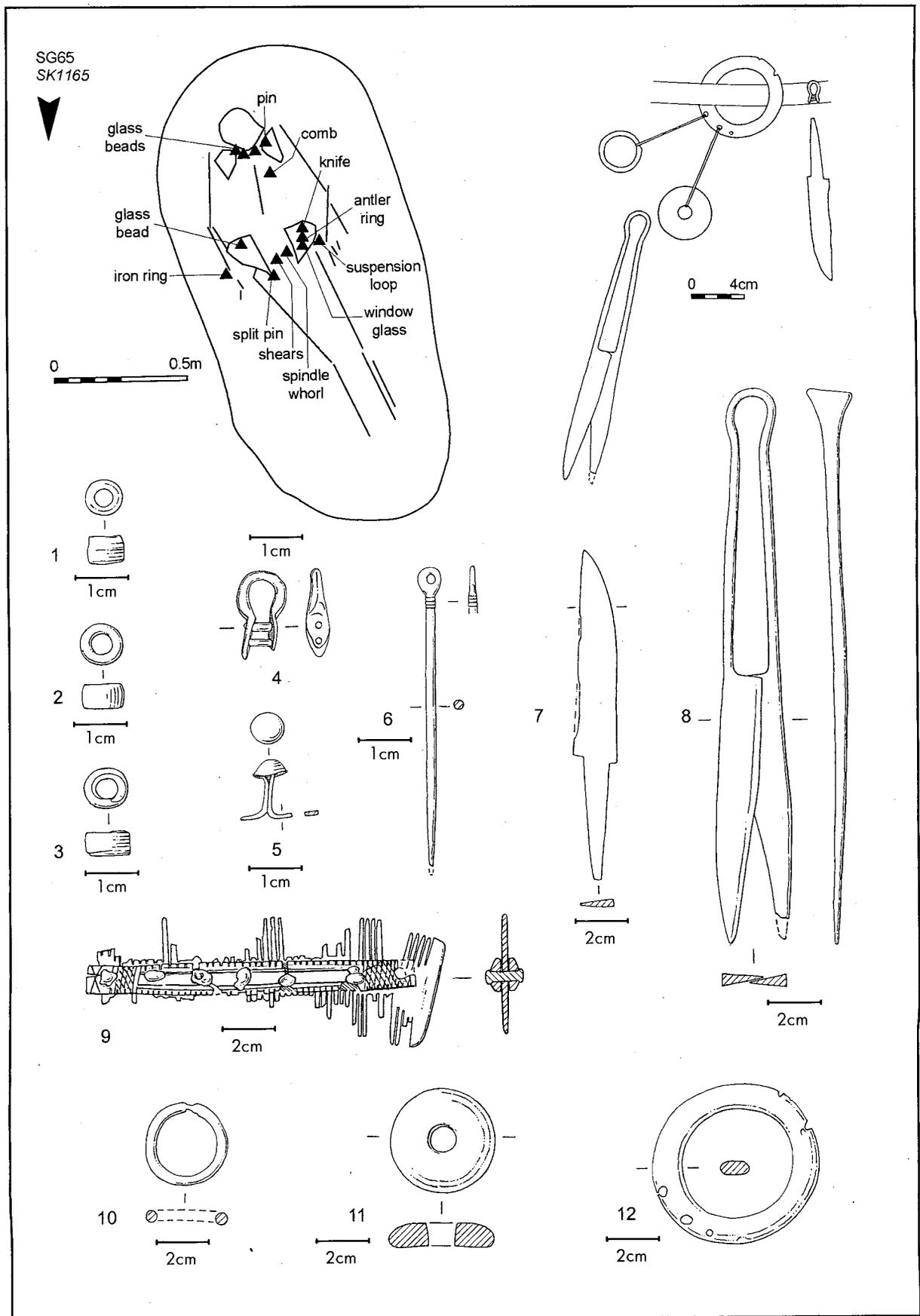


Figure 7. SG65. Monochrome bead colours 1-3 light green/turquoise

Antler suspension ring 65.12 (Dia. 63mm)
Window glass sherd not illus.
[from grave fill: human remains 1171, preservation 1,
sex ?F, and partially complete lamb skeleton]

Sub-group no: 66 (Figure 8)

Grave no: 1144
Skeleton no: 1145
Grave shape: sub-rectangular
Grave dimensions: L. 1.96m; B. 0.8m; D. 0.45m
Body orientation: 188° north
Skeleton condition: 5
Sex: M; Age: 23–57; Stature: 177.3cm
Skeleton position: side
Arm position: crooked
Leg position: bent right
Grave goods:
Knife 66.1 Type A size, group 2 (L. 152mm)
Knife 66.2 incomplete size group 2/3 (L. 204mm)
Copper alloy oval buckle 66.3 (L. buckle 9mm)

Sub-group no: 67 (Figure 9)

Grave no: 1369
Skeleton no: 1370
Grave shape: sub-rectangular
Grave dimensions: L. 1.93m; B. 0.8m; D. 0.36m
Body orientation: 201° north
Skeleton condition: 5
Sex: ?F; Age: 20–25; Stature: 176.9cm
Skeleton position: supine
Arm position: extended
Leg position: extended
Grave goods:
Girdle group 67.1–5: iron chatelaine: chain links, rods
(L. 90mm), fire steel (L. 89mm), T-shaped slide key (L.
156.1mm), L-shaped slide key (L. 120mm), copper
alloy Y-shaped suspension mounts (2) (L. 41.5mm)
Copper alloy oval buckle 67.6 (L. buckle 8mm)
Ceramic body sherds (26) fabric type A26, not illus.
[from grave fill: human remains 1372, preservation 1,
adol/adult]

Sub-group no: 68 (Figure 8)

Grave no: 1385
Skeleton no: 1386
Grave shape: sub-oval
Grave dimensions: L. 2.08m; B. 1.05m; D. 0.44m
Body orientation: 176° north
Skeleton condition: 5
Sex: M; Age: 35–57; Stature: 170.4cm
Skeleton position: supine
Arm position: left crooked
Leg position: extended
Grave goods:
Iron D-shaped buckle 68.1 (L. buckle 14mm)
Knife 68.2 Type A size, group 1 (L. 138mm)
[from grave fill: human remains 1388, condition 1, sex
M, age 25–35, stature 178.9cm]

Sub-group no: 69 (Figure 10)

Grave no: 1291
Skeleton no: 1293
Grave shape: sub-oval
Grave dimensions: L. 1.89m; B. 0.98m; D. 0.44m
Body orientation: 148° north

Skeleton condition: 4
Sex: ?; Age: 25–35; Stature: n/d
Skeleton position: supine
Arm position: right crooked
Leg position: bent left

Grave goods:

Glass beads 69.1–3 polychrome 1 (Dia. 17.8mm);
monochrome 2 (Dia. 10.6mm; 10.8mm)
Cowrie shell beads (6) 69.4–6 (L. 12.9mm; 11.1mm;
10.4mm)
Silver slip-knot rings (3) 69.7–8 (Dia. 21mm; 25.5mm;
double knot – not illus.)
Copper alloy pierced disc pin 69.9 (L. 45.1mm)
Knife 69.10 Type A size, group 2 (L. 159mm)

Sub-group no: 70 (Figure 10)

Grave no: 1303
Skeleton no: 1305
Grave shape: sub-rectangular
Grave dimensions: L. 1.49m; B. 0.52m; d. 0.47m
Body orientation: 257° north
Skeleton condition: 4
Sex: F; Age: 60–87; Stature: 156.6cm
Skeleton position: supine
Arm position: extended
Leg position: crossed at ankles
Grave goods: none

Sub-group no: 71 (Figure 10)

Grave no: 1050
Skeleton no: 1052
Grave shape: oval
Grave dimensions L. 2.22m; B. 1.04m; D. 0.65m:
Body orientation: 160° north
Skeleton condition: 2
Sex: M; Age: 35–40; Stature: 175.2cm
Skeleton position: supine
Arm position: extended
Leg position: extended
Grave goods:
Copper alloy sheet fragments, not illus.

Sub-group no: 72 (Figure 11)

Grave no: 1046
Skeleton no: 1045
Grave shape: oval
Grave dimensions: L. 2.22m B. 1.04m; D. 0.6m
Body orientation: 145° north
Skeleton condition: 5
Sex: M; Age: 35–39; Stature: 165.6cm
Skeleton position: supine
Arm position: right crooked
Leg position: bent left
Grave goods:

Copper alloy oval buckle 72.1 (L. buckle 12mm)
Copper alloy slip-knot ring 72.2 (Dia. 20.5mm)
Knife 72.3 Type C size, group 2 (L. 149mm)
Knife 72.4 Type A size, group 1 (L. 106.9mm)
Copper alloy sheet fragments not illus.
[from grave fill: human remains 1047 = part of skele-
ton 1052 (SG71)]

Sub-group no: 73 (Figure 11)

Grave no: 1029
Skeleton no: 1032

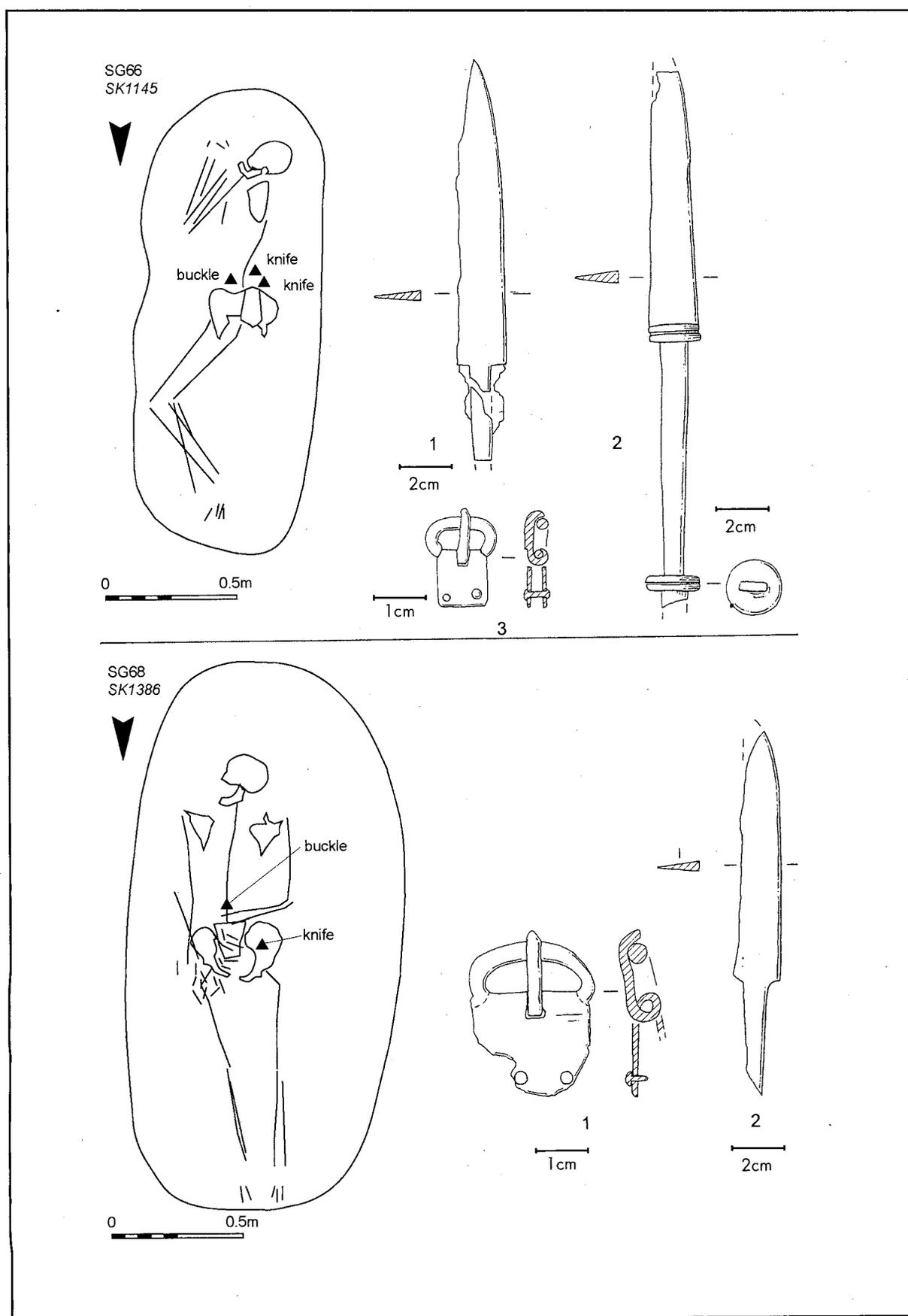


Figure 8. SG66 and SG68

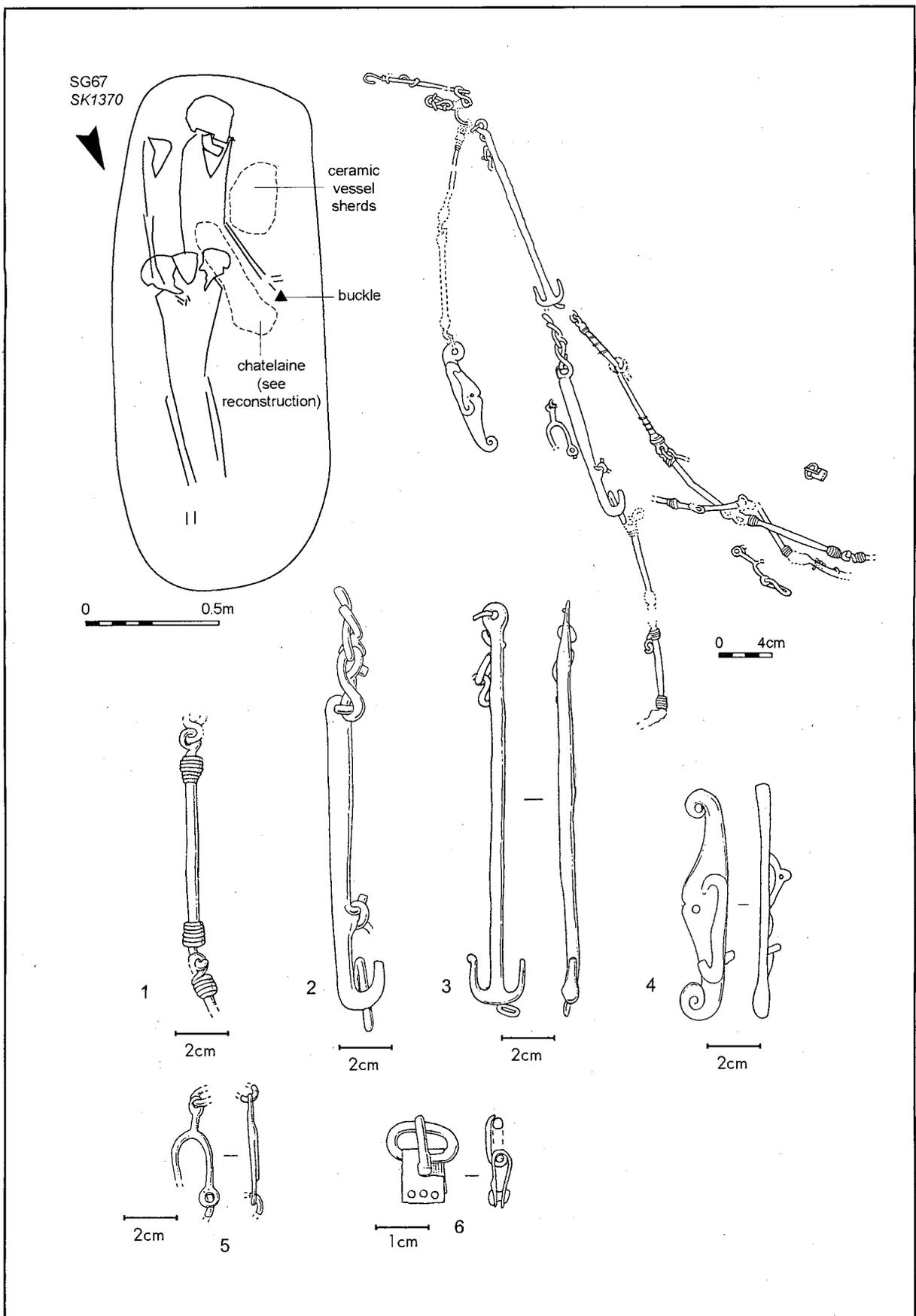


Figure 9. SG67

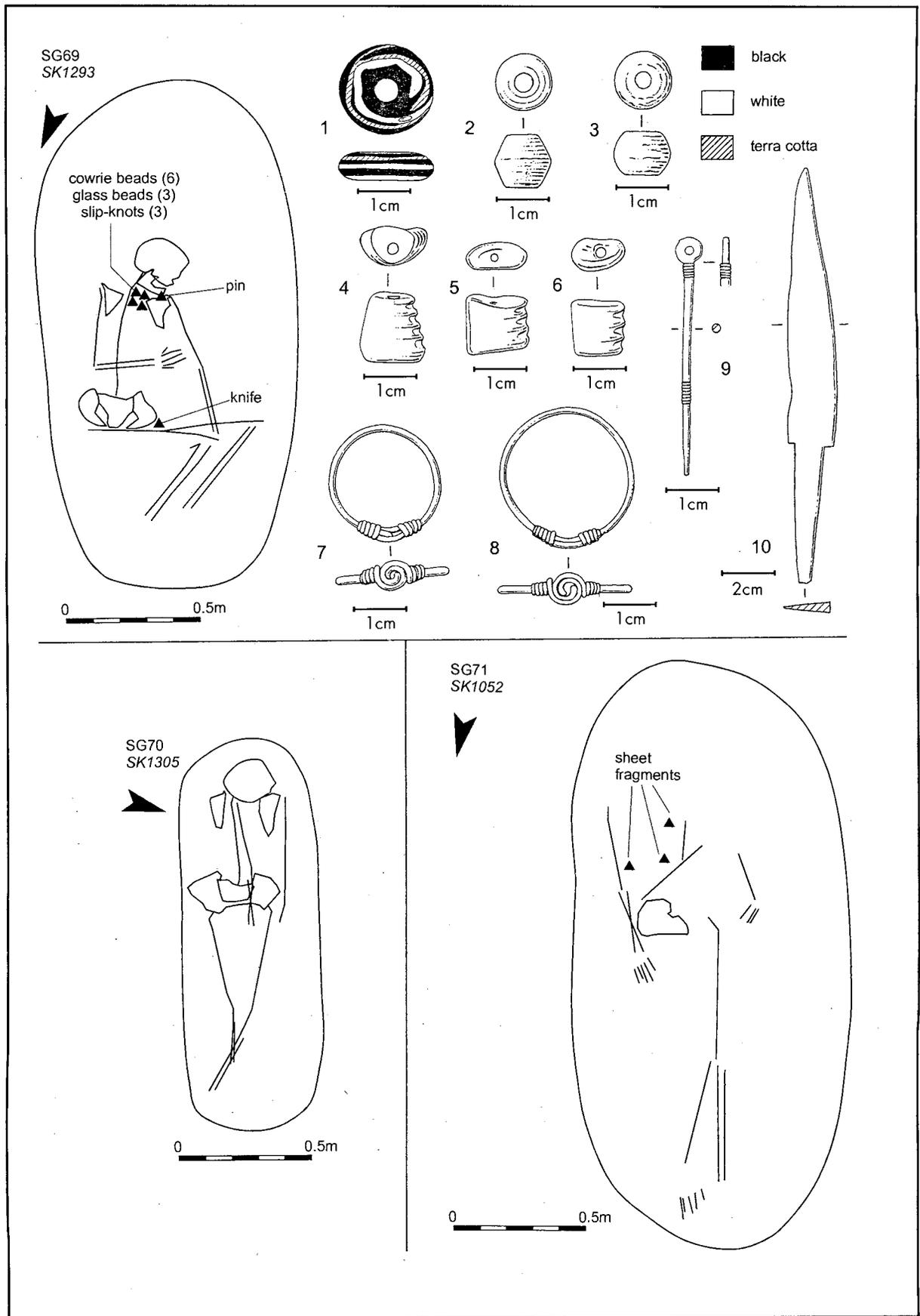


Figure 10. SG69-71. Monochrome bead colours SG69 2 opaque black; 3 opaque orange

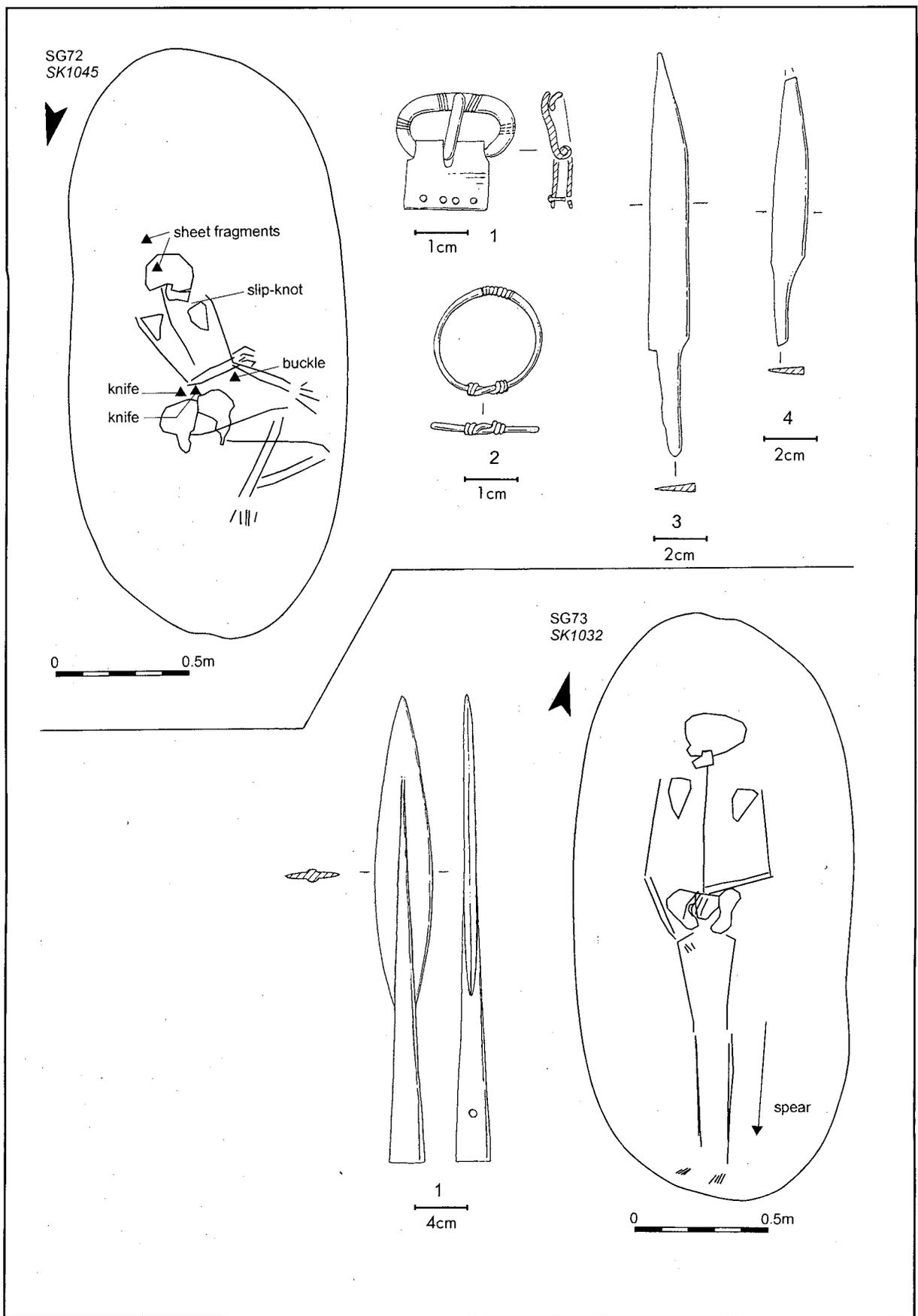


Figure 11. SG72 and SG73

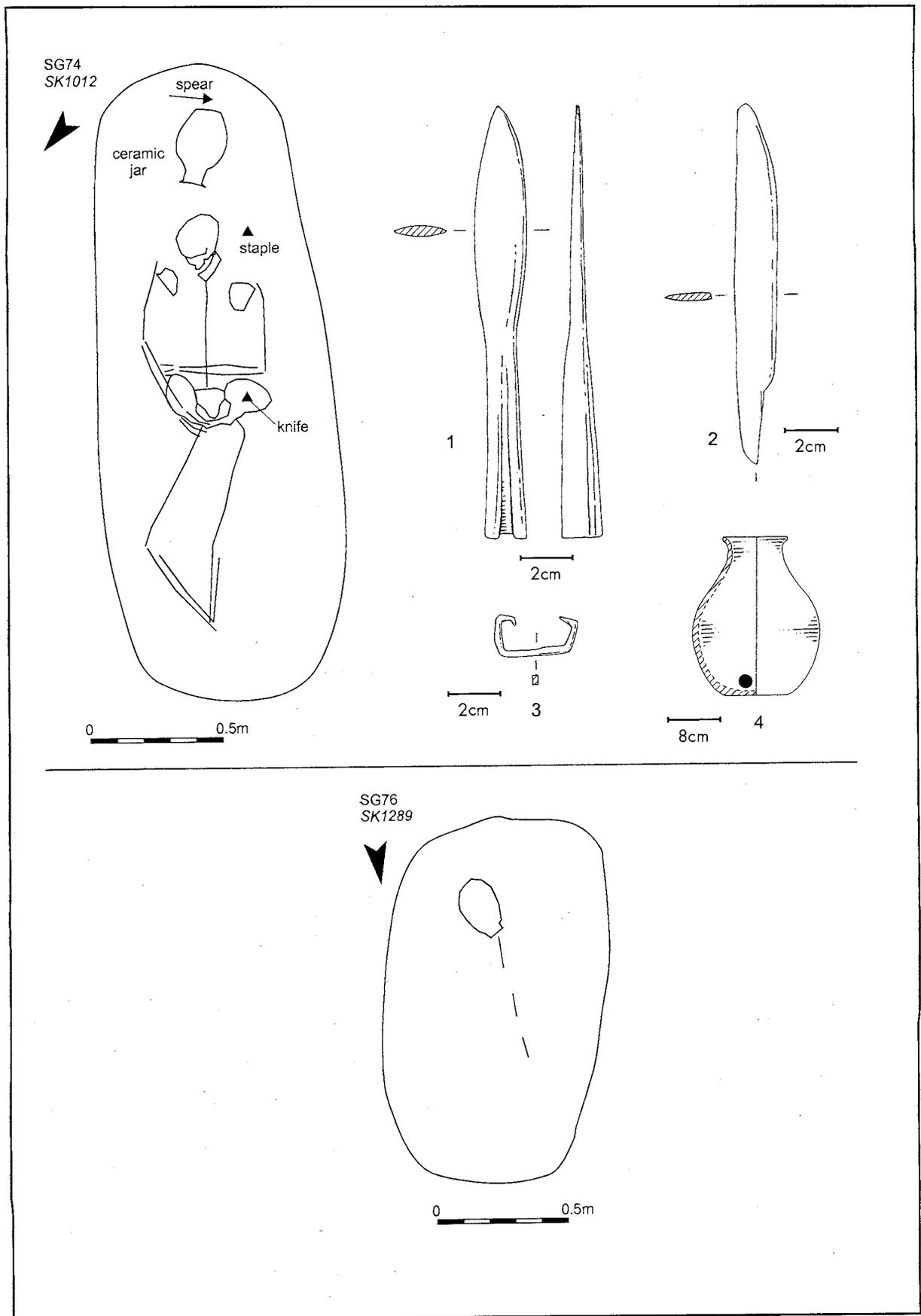


Figure 12. SG74 and SG76

- Grave shape: oval
Grave dimensions: L. 2.22m; B. 1.04m; D. 0.45m
Body orientation: 346° north
Skeleton condition: 3
Sex: M; Age: 35–45; Stature: 182.4cm
Skeleton position: supine
Arm position: left crooked
Leg position: extended
Grave goods:
Spear head 73.1 Swanton B2 (L. 355mm)
[from grave fill: human remains 1031 = part of skeleton 1052 (SG71)]
- Sub-group no: 74 (Figure 12)
Grave no: 1009
Skeleton no: 1012
Grave shape: sub-rectangular
Grave dimensions: L. 2.37m; B. 0.9m; D. 0.55m
Body orientation: 139° north
Skeleton condition: 4
Sex: M; Age: 25–46; Stature: 183.4cm
Skeleton position: supine
Arm position: left crooked
Leg position: crossed at ankles
Grave goods:
Spear head 74.1 Swanton C1 (L. 162mm)
Knife 74.2 Type A size, group 2 (L. 134.4mm)
Iron rectangular staple 74.3 (L. 33.9mm)
Ceramic jar fabric type A26 74.4
[from grave fill: human remains 1010, preservation 1]
- Sub-group no: 75 (Figures 13–14)
Grave no: 1306
Skeleton no: 1307
Grave shape: sub-oval
Grave dimensions: L. 1.48m; B. 0.72m; D. 0.32m
Body orientation: 56° north
Skeleton condition: 4
Sex: ?F; Age: 45+; Stature: n/d
Skeleton position: supine
Arm position: left crooked
Leg position: crossed at ankles
Grave goods:
Glass beads 75.1–24 monochrome 9 (Dia. 6.6mm; 7.6mm; 9mm; L. 9.8mm; Dia. 7.3mm; 11mm; 12mm), polychrome 48 (Dia. 16.9mm; 15.9mm; 16.3mm; 11.8mm; 10.2mm; 9.5mm; 9.8mm; 9.7mm; 15.5mm; 16.8mm; 15.3mm; 14.9mm; 14.2mm; 16mm; 8.2mm; 9.1mm; 16.1mm)
Amber beads (12) 75.25–29 (L. 8mm; 7.8mm; 8mm; 14.1mm; Dia. 18.8mm)
Gilded copper alloy great square-headed brooch 75.30 (L. 150mm)
Copper alloy radiate-headed brooch 75.31 (L. 88.3mm)
Gilded copper alloy saucer brooch 75.32 (Dia. 46.5mm)
Ceramic spindle whorl 75.33 (Dia. 36.3mm)
Copper alloy D-shaped buckle & shoe-shaped rivet 75.34 (L. buckle 22.3mm)
Knife 75.35 Type A size, group 1 (L. 132mm)
Mineralised textile remains, not illus.
- Sub-group no: 76 (Figure 12)
Grave no: 1288
Skeleton no: 1289
- Grave shape: sub-rectangular
Grave dimensions: L. 1.39m; B. 0.84m; D. 0.23m
Body orientation: 193° north
Skeleton condition: 2
Sex: IMM; Age: 2–4; Stature: n/a
Skeleton position: supine
Arm position: n/a
Leg position: n/a
Grave goods: None
- Sub-group no: 77 (Figure 14)
Grave no: 1205
Skeleton no: 1204
Grave shape: sub-oval
Grave dimensions: L. 2.2m; B. 1.33m; D. 0.85m
Body orientation: 191° north
Skeleton condition: 4
Sex: M; Age: 18.5–20; Stature: n/a
Skeleton position: supine
Arm position: extended
Leg position: extended
Grave goods:
Copper alloy oval buckle 77.1 (L. buckle 9mm)
Knife 77.2 Type C size, group 1 (L. 146mm)
Spear head 77.3 Swanton F2 (L. 260mm)
- Sub-group no: 78 (Figure 15)
Grave no: 1222
Skeleton no: 1189
Grave shape: sub-oval
Grave dimensions: L. 2.2m; B. 1.33m; D. 0.4m
Body orientation: 189° north
Skeleton condition: 3
Sex: F; Age: 33–46; Stature: 157.7
Skeleton position: side
Arm position: right crooked
Leg position: bent left
Grave goods:
Bone disc-headed pin 78.1 (L. 34.3mm)
Silver scutiform pendant 78.2 (Dia. 30.6mm)
Foetus (skeleton 1203) of less than 6 months gestation buried with Skeleton 1189
- Sub-group no: 79 (Figure 15)
Grave no: 1219
Skeleton no: 1188
Grave shape: sub-rectangular
Grave dimensions: L. 2.7m; B. 0.95m; D. 0.3m
Body orientation: 200° north
Skeleton condition: 4
Sex: M; Age: 60–70; Stature: 179.6cm
Skeleton position: supine
Arm position: crooked
Leg position: crossed at ankles
Grave goods:
Copper alloy oval buckle 79.1 (L. buckle 10mm)
Knife 79.2 Type C size, group 2 (L. 153.7mm)
- Sub-group no: 80 (Figure 15)
Grave no: 1172
Skeleton no: 1187
Grave shape: sub-oval
Grave dimensions: L. 2.2m; B. 1.33; D. 0.25m
Body orientation: 211° north
Skeleton condition: 4

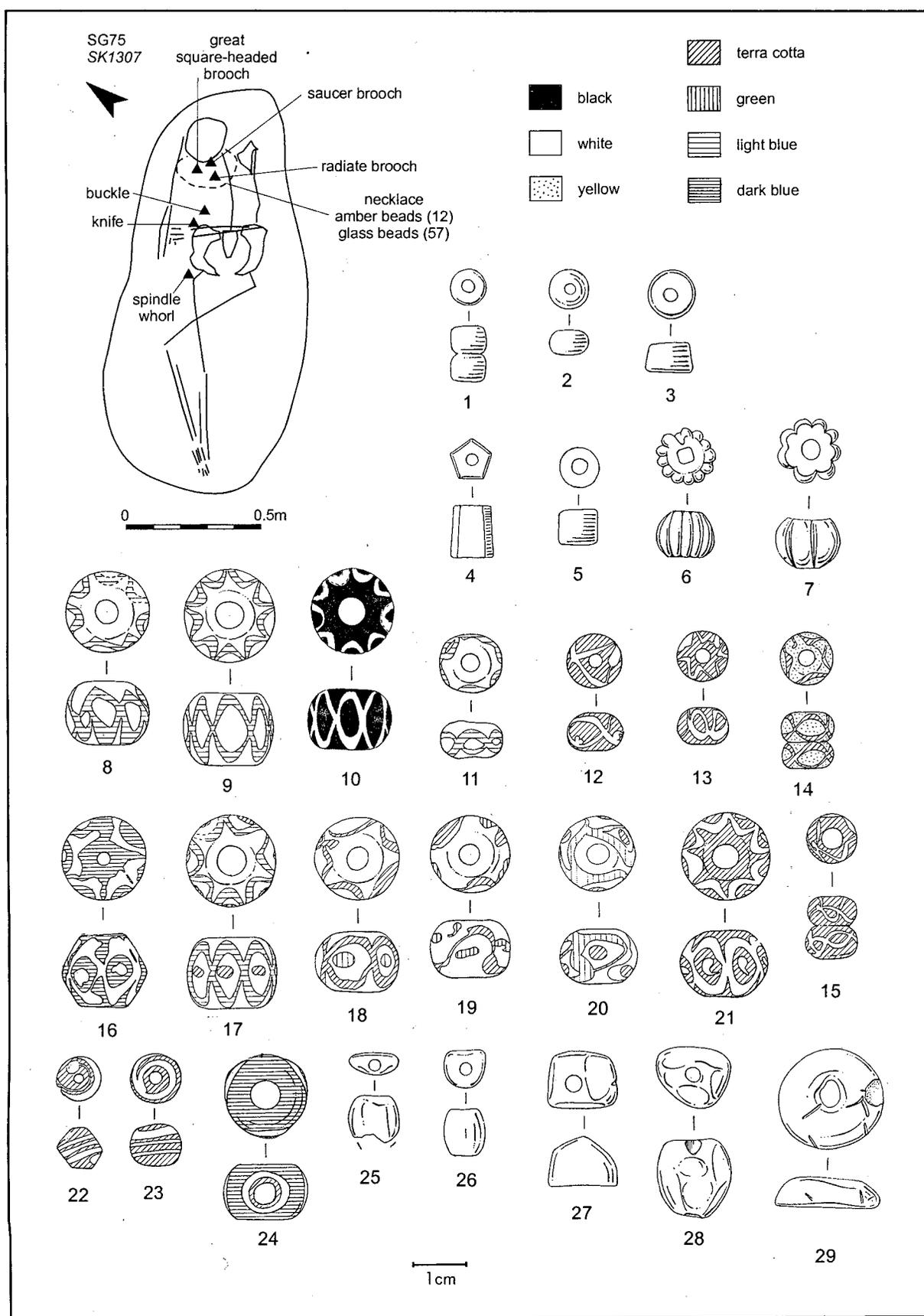


Figure 13. SG75. Monochrome bead colours 1-2 opaque white; 3 opaque yellow; 4-5 opaque terracotta; 6 translucent blue; 7 opaque black; 25-29 amber

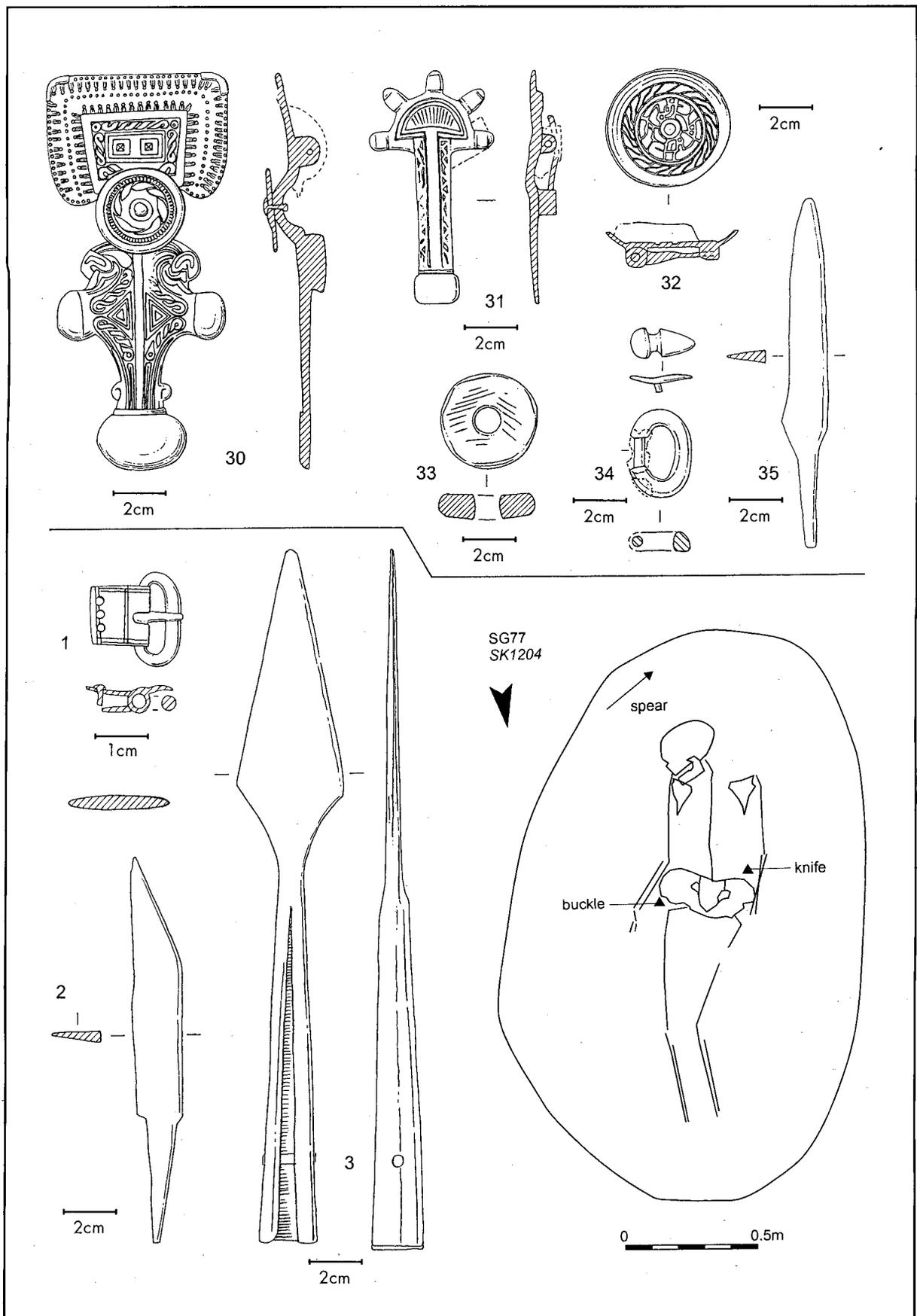


Figure 14. SSG75 (continued) and SG77

- Sex: M; Age: 60+; Stature: 175.8cm
 Skeleton position: supine
 Arm position: left crooked
 Leg position: extended
 Grave goods:
 Sharpening steel 80.1 (L. 130.1mm)
 Knife 80.2 Type C size, group 1 (L. 105.4mm)
 Copper alloy strap stiffener 80.3 (L. 21.9mm)
 Copper alloy oval buckle 80.4 (L. buckle 11mm)
 Iron (?knife tang) fragment, not illus.
 [from grave fill: human remains 1174, condition 1]
- Sub-group no: 81 (Figure 16)
 Grave no: 1226
 Skeleton no: 1224
 Grave shape: sub-oval
 Grave dimensions: L. 1.48m; B. 0.79m; D. 0.22m
 Body orientation: 317° north
 Skeleton condition: 3
 Sex: IMM; Age: 7.5–12.5; Stature: n/a
 Skeleton position: side
 Arm position: crooked
 Leg position: bent left
 Grave goods:
 Glass beads 81.1–2 monochrome 2 (Dia. 13.9mm; 5.5mm)
- Sub-group no: 82 (Figure 16)
 Grave no: 1227
 Skeleton no: 1229
 Grave shape: sub-rectangular
 Grave dimensions: L. 1.94m; B. 1.15m; D. 0.67m
 Body orientation: 232° north
 Skeleton condition: 4
 Sex: F; Age: 19–25; Stature: 159.4cm
 Skeleton position: supine
 Arm position: extended
 Leg position: extended
 Grave goods:
 Copper alloy disc headed pin with glass 82.1 (L. 45.8mm)
 Amber beads (2) 82.2 (Dia. 10.8mm)
 Shell pendant bead 82.3 (L. 13.4mm)
 Copper alloy & blue glass drop pendant 82.4 (L. 18mm)
 Copper alloy oval buckle 82.5 (L. buckle 11mm)
 Copper alloy toiletry ring & ear pick 82.6 (Dia. 24mm; L. ear pick 44.3mm)
 Copper alloy annular brooch 82.7 (Dia. 32.8mm)
 Knife 82.8 incomplete (L. c. 150mm)
 Girdle group 82.9: iron suspension ring & chain links and T-shaped slide key (L. key 166mm)
 Composite double-sided antler comb 82.10 (L. 130mm)
 Mineralised textile remains, not illus.
 Iron nail, not illus.
- Sub-group no: 83 (Figure 17)
 Grave no: 303
 Skeleton no: 305
 Grave shape: sub-rectangular
 Grave dimensions: L. 2.05m; B. 1.05m; D. 0.4m
 Body orientation: 190° north
 Skeleton condition: 5
 Sex: M; Age: 55–65; Stature: 185.3
- Skeleton position: supine
 Arm position: extended
 Leg position: crossed at ankles
 Grave goods:
 Knife 83.1 Type B size, group 3 (L. 192mm)
 Spearhead socket 83.2 (Dia. 24mm; L. 52mm)
 Copper alloy oval buckle 83.3 (L. buckle 10mm)
- Sub-group no: 84 (Figure 17)
 Grave no: 314
 Skeleton no: 316
 Grave shape: sub-rectangular
 Grave dimensions: L. 2.13m; B. 0.76m; D. 0.4m
 Body orientation: 240° north
 Skeleton condition: 3
 Sex: IMM; Age: 14–15; Stature: n/a
 Skeleton position: side
 Arm position: right crooked
 Leg position: bent left
 Grave goods: None
- Sub-group no: 85 (Figure 17)
 Grave no: 1122
 Skeleton no: 1124
 Grave shape: sub-rectangular
 Grave dimensions: L. 1.98m; B. 0.97m; D. 0.4m
 Body orientation: 166° north
 Skeleton condition: 4
 Sex: M; Age: 45–57; Stature: 186.9m
 Skeleton position: supine
 Arm position: extended
 Leg position: extended
 Grave goods:
 Copper alloy oval buckle 85.1 (L. buckle 10mm)
 Knife 85.2 Type C size, group 2/3 (L. 172mm)
- Sub-group no: 86 (Figure 18)
 Grave no: 1119
 Skeleton no: 1121
 Grave shape: oval
 Grave dimensions: L. 1.78m; B. 1.06m; D. 0.28m
 Body orientation: n/a
 Skeleton condition: 1
 Sex: ?; Age: 17–25; Stature: n/d
 Skeleton position: n/a
 Arm position: n/a
 Leg position: n/a
 Grave goods: None
 [from grave fill: human remains 1137, part of disturbed skeleton 1121]
- Sub-group no: 87 (Figure 18)
 Grave no: 1166
 Skeleton no: 1169
 Grave shape: sub-rectangular
 Grave dimensions: L. 2.24m; B. 1.33m; D. 0.35m
 Body orientation: 176° north
 Skeleton condition: 4
 Sex: ?F; Age: 17–25; Stature: n/d
 Skeleton position: supine
 Arm position: extended
 Leg position: extended
 Grave goods:
 Copper alloy tack & mineralised wood 87.1 (L. 10mm)
 Knife 87.2 Type C size, group 1 (L. 108.6mm)

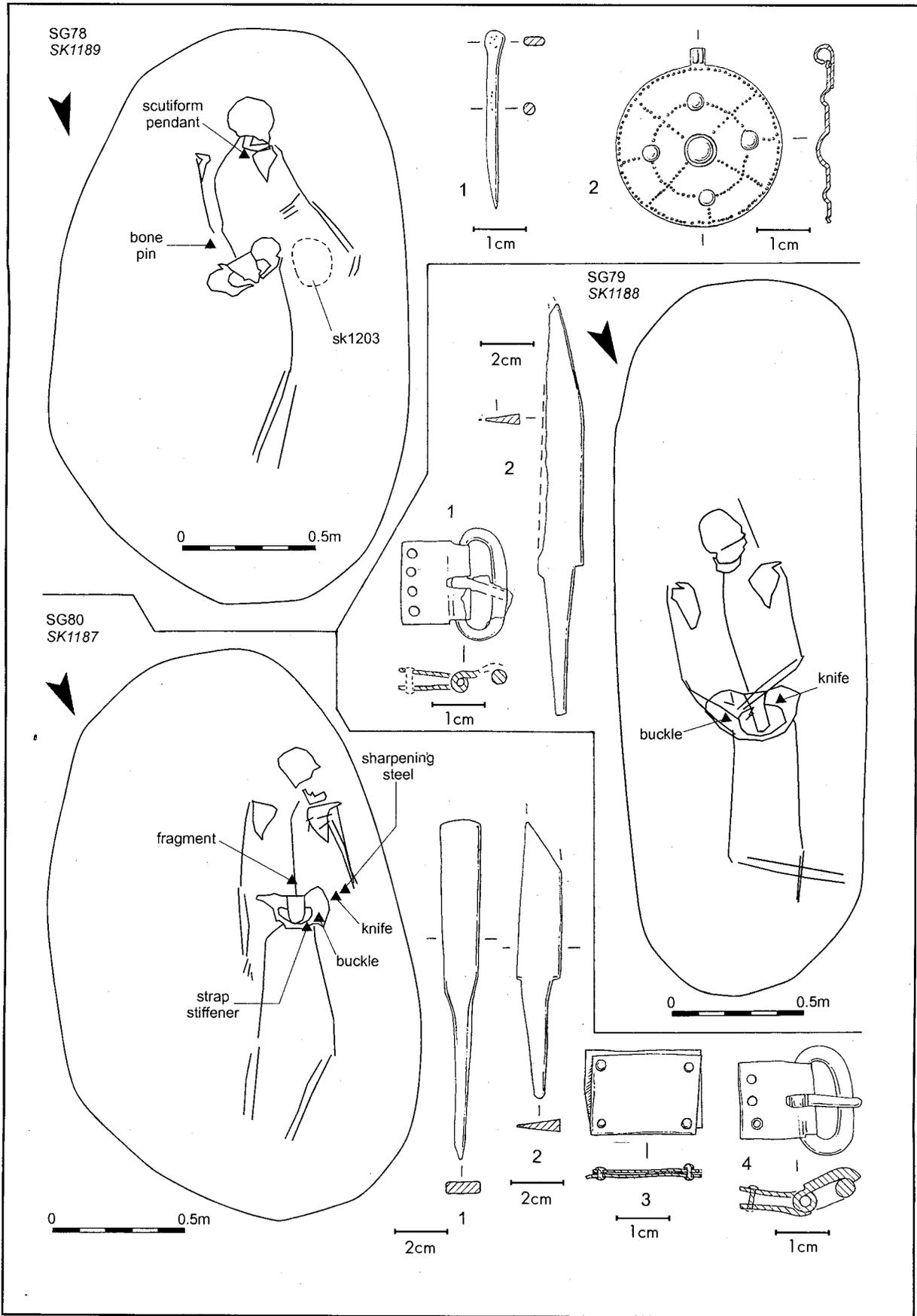


Figure 15. SG78-SG80

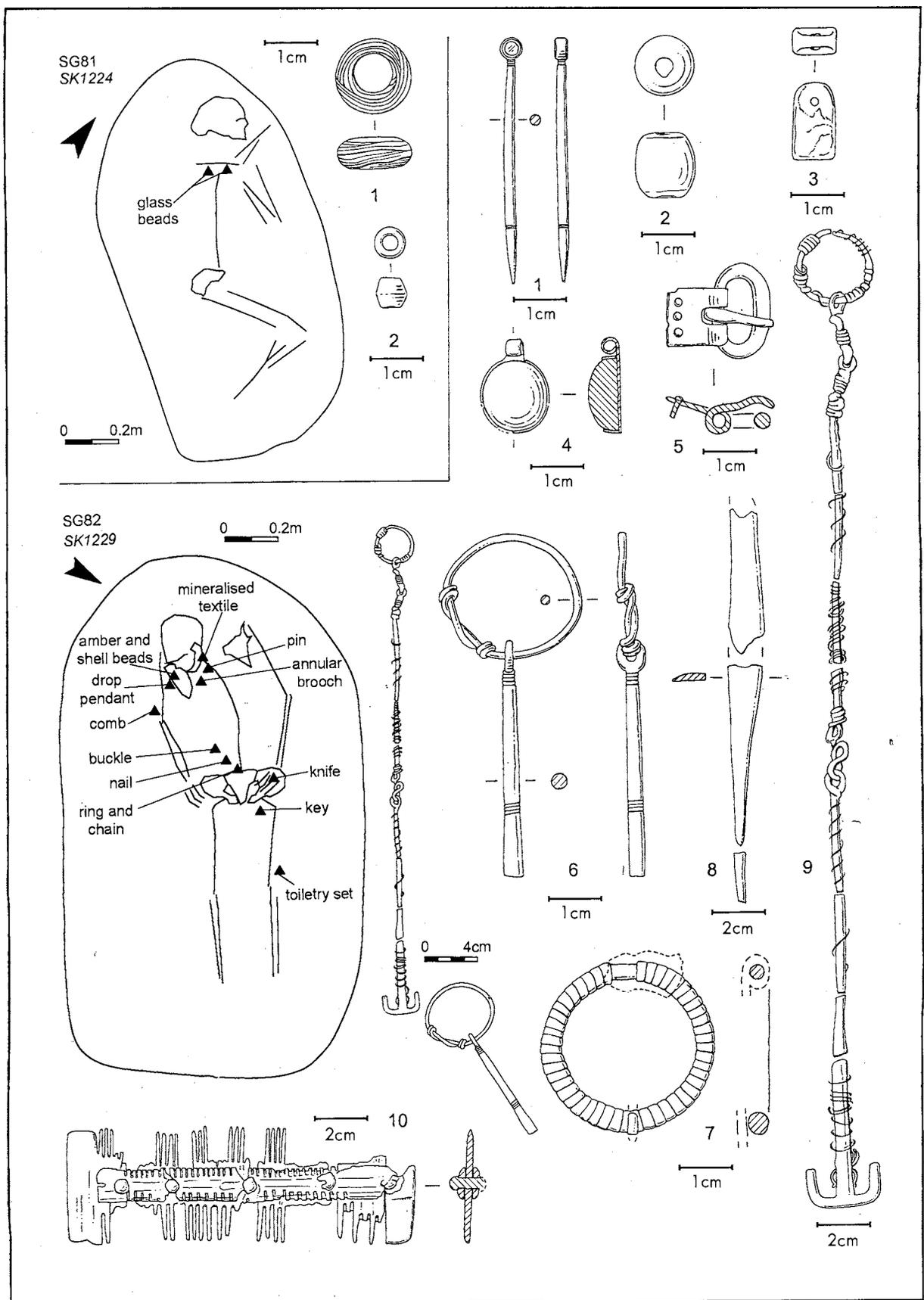


Figure 16. SG81 and SG82. Monochrome bead colours SG81 1 translucent pale blue; 2 opaque yellow; SG82 2 amber

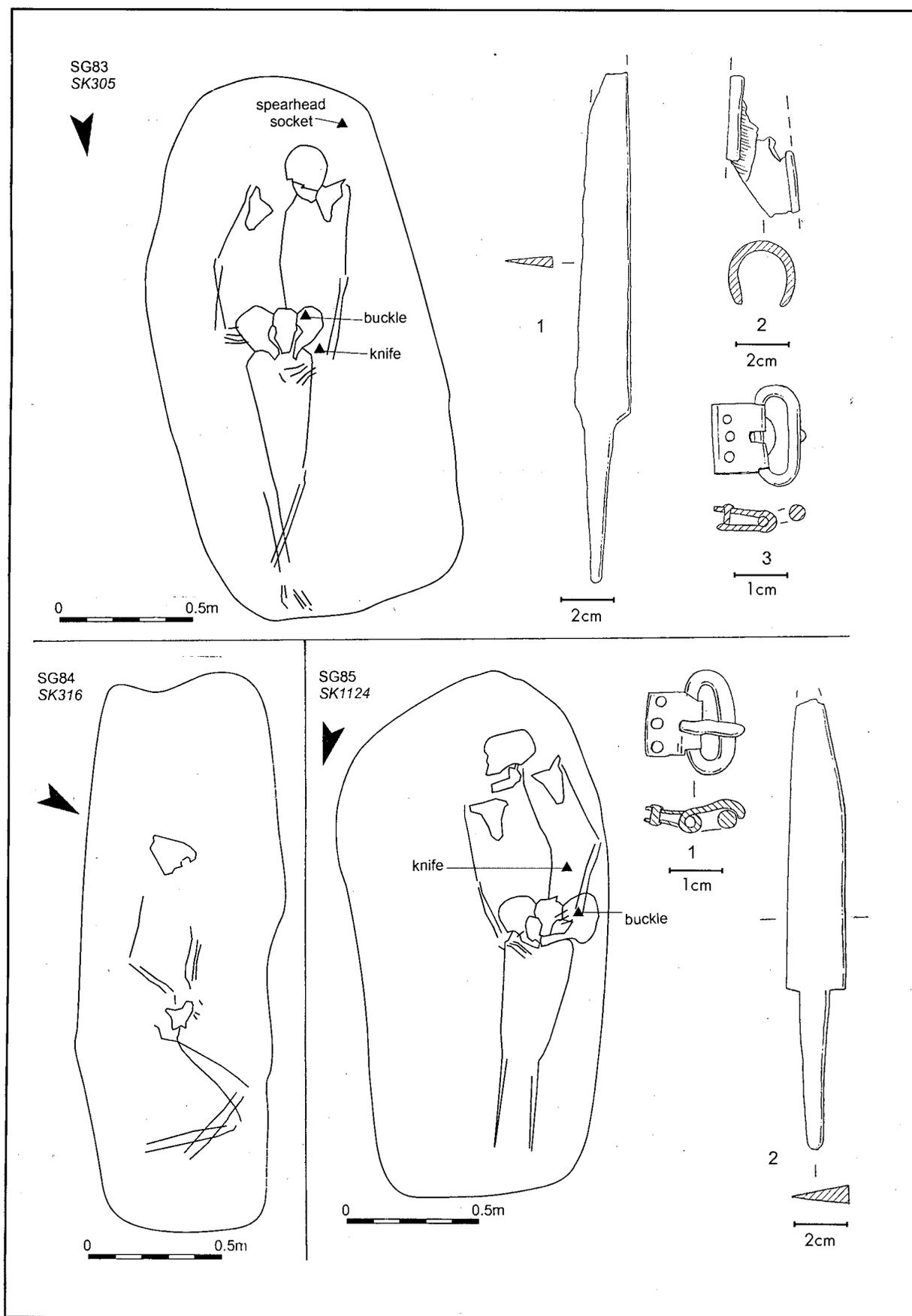


Figure 17. SG83-85

- Sub-group no: 88 (Figure 18)
 Grave no: 313
 Skeleton no: 312
 Grave shape: sub-rectangular
 Grave dimensions: L. 2m; B. 1.2m; D. 0.4m
 Body orientation: 173° north
 Skeleton condition: 4
 Sex: M; Age: 45+; Stature: 169.9cm
 Skeleton position: supine
 Arm position: crooked
 Leg position: bent right
 Grave goods:
 Knife 88.1 Type A size, group 1 (L. c. 154mm)
- Sub-group no: 89 (Figure 19)
 Grave no: 1269
 Skeleton no: 1271
 Grave shape: sub-rectangular
 Grave dimensions: L. 1.83m; B. 0.89m; D. 0.4m
 Body orientation: 195° north
 Skeleton condition: 1
 Sex: F; Age: 25–30; Stature: n/d
 Skeleton position: side?
 Arm position: crooked?
 Leg position: n/a
 Grave goods:
 Amber beads (6) 89.1–4 (Dia. 33.4mm; L. 14.4mm; 17.3mm; 8.6mm)
 Glass beads 89.5–11; 89.15; 89.18–27 monochrome 10 (Dia. 10mm; 10mm; 5mm; 6mm; 8.5mm) and polychrome 26 (Dia. 9.1mm; 9mm; 8.3mm; 13.2mm; 8.2mm; 9mm; 13.4mm; 8.1mm; 7.3mm; 8.8mm; 6.9mm; 8.8mm; 7mm)
 Silver capsule beads (2) 89.12 (Dia. 17.1mm)
 Copper alloy capsule bead 89.13 (Dia. 11.3mm)
 Silver slip-knot ring 89.14 (Dia. 16.2mm)
 Silver spangles & slip-knot rings (2) 89.16 (L. 17.7mm)
 Silver scutiform pendant 89.17 (Dia. 18.6mm)
 Knife 89.28 Type C size, group 1 (L. 101.9mm)
 Ceramic bowl fabric type A26 89.29
- Sub-group no: 90 (Figure 20)
 Grave no: 1006
 Skeleton no: 1008
 Grave shape: irregular
 Grave dimensions: L. 1.74m; B. 0.81m; D. 0.14
 Body orientation: 159° north
 Skeleton condition: 4
 Sex: M; Age: 23–30; Stature: 169.6cm
 Skeleton position: supine
 Arm position: extended
 Leg position: crossed at ankles
 Grave goods:
 Spearhead socket 90.1 (Dia. 18.1mm; L. 66.5mm)
 Iron oval buckle 90.2 (L. buckle 17mm)
 Knife 90.3 Type A size, group 1 (L. 142mm)
- Sub-group no: 91 (Figure 20)
 Grave no: 1299
 Skeleton no: 1301
 Grave shape: sub-rectangular
 Grave dimensions: L. 1.77m; B. 0.78m; D. 0.14m
 Body orientation: 67° north
 Skeleton condition: 3
 Sex: ?F; Age: 30–35; Stature: n/d
- Sub-group no: 92 (Figure 20)
 Grave no: 1319
 Skeleton no: 1321
 Grave shape: sub-rectangular
 Grave dimensions: L. 1.78m; B. 0.82m; D. 0.17m
 Body orientation: 262° north
 Skeleton condition: 3
 Sex: ?; Age: 17–25; Stature: n/d
 Skeleton position: side
 Arm position: crooked
 Leg position: bent left
 Grave goods:
 Iron tack, not illus.
 Copper alloy sheet fragments, not illus.
- Sub-group no: 93 (Figure 21)
 Grave no: 1131
 Skeleton no: 1132
 Grave shape: sub-rectangular
 Grave dimensions: L. 1.35m; B. 0.8m; D. 0.15
 Body orientation: 208° north
 Skeleton condition: 3
 Sex: ?; Age: 25–35; Stature: n/d
 Skeleton position: supine
 Arm position: extended
 Leg position: extended? [truncated by plough]
 Grave goods:
 Girdle group: purse or long belt – 93.1–5 copper alloy riveted suspension loop (L. 24mm), triangular slotted strap stiffener (L. 15.2mm), tacks (2) (L. 6.1mm; 8.6mm), bar-shaped strap stiffener (L. 22.8mm), iron tack (1) and sheet fragment, and copper alloy sheet fragments – last three not illus.)
 Copper alloy long disc-headed pin 93.6 (L. 74mm)
 Copper alloy oval buckle 93.7 (L. buckle 13mm)
 Knife 93.8 Type B size, group 3 (L. 200mm)
- Sub-group no: 94 (Figure 20)
 Grave no: 1039
 Skeleton no: 1041
 Grave shape: sub-rectangular
 Grave dimensions: L. 0.73m; B. 0.73m; D. 0.36m
 Body orientation: 180° north
 Skeleton condition: 3
 Sex: ?; Age: 60+; Stature: n/d
 Skeleton position: supine?
 Arm position: left crooked?
 Leg position: n/d [truncated by grave 1036]
 Grave goods: None
- Sub-group no: 95 (Figure 20)
 Grave no: 1036
 Skeleton no: 1038
 Grave shape: sub-rectangular
 Grave dimensions: L. 1.75m; B. 0.86m; D. 0.36m
 Body orientation: 180° north
 Skeleton condition: 2
 Sex: F; Age: 45+; Stature: n/d
 Skeleton position: supine?

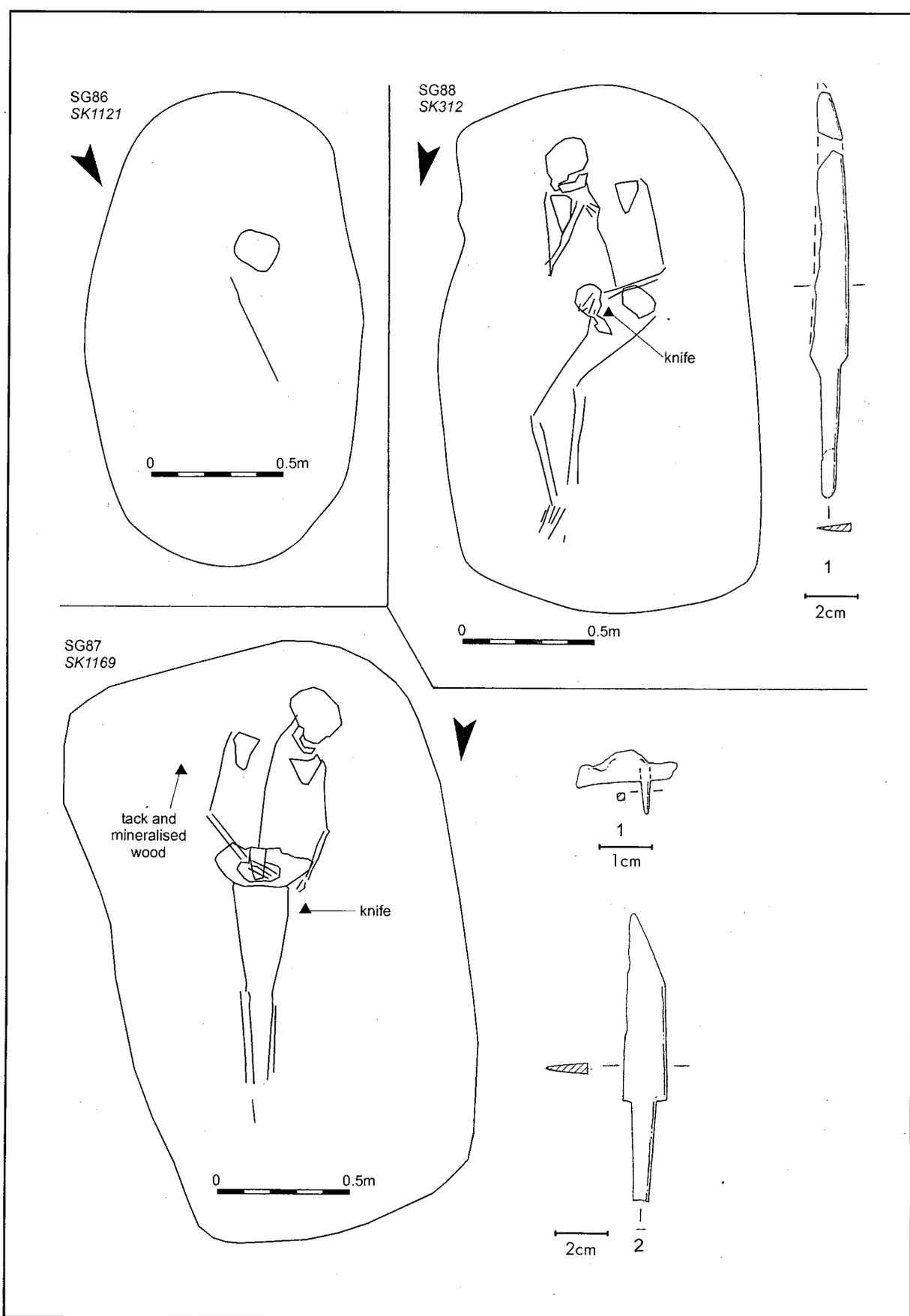


Figure 18. SG86-SG88

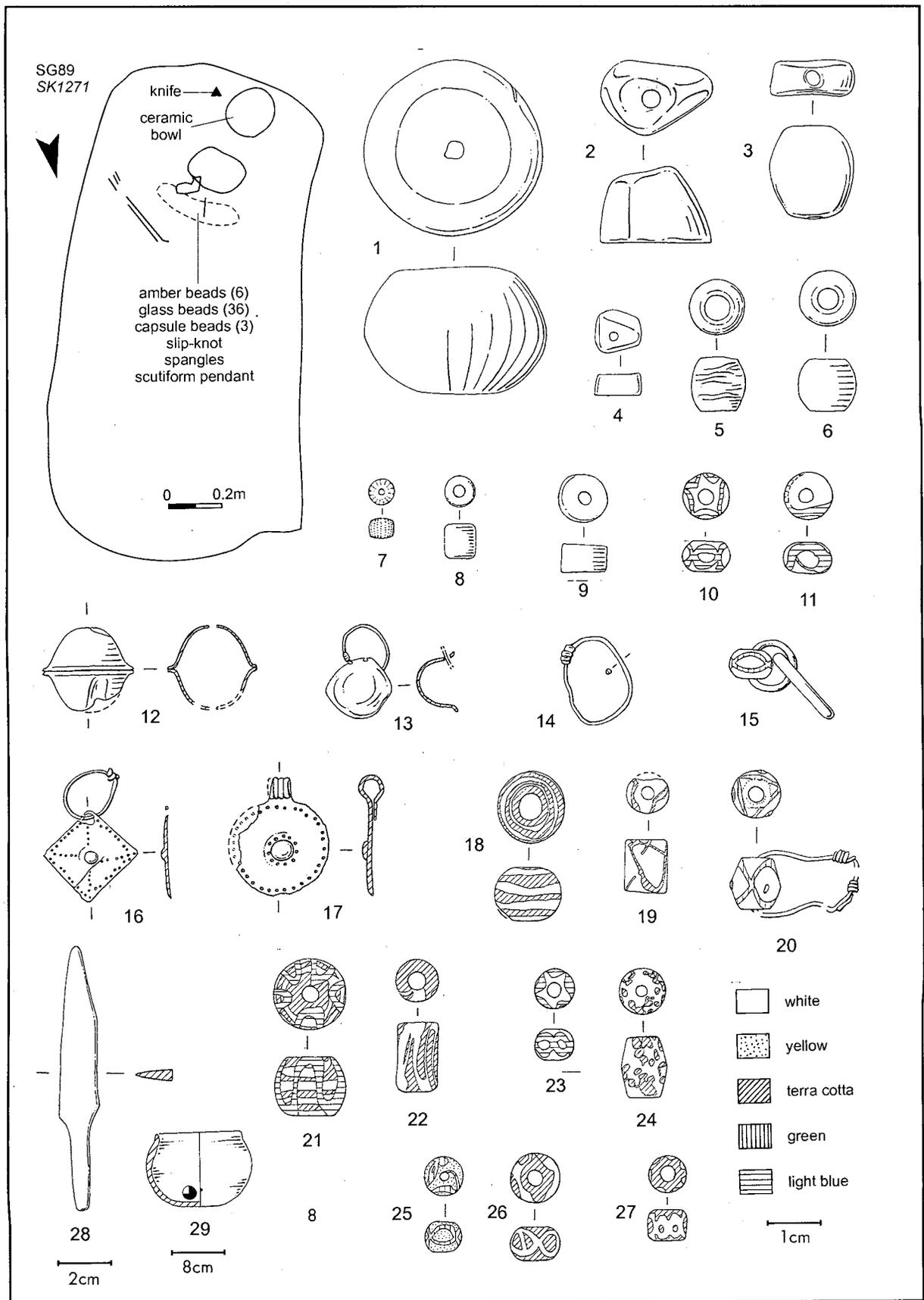


Figure 19. SG89. Monochrome bead colours 1-4 amber; 5 opaque orange; 6 opaque black; 7 colourless; 8 opaque yellow; 9 opaque dark blue.

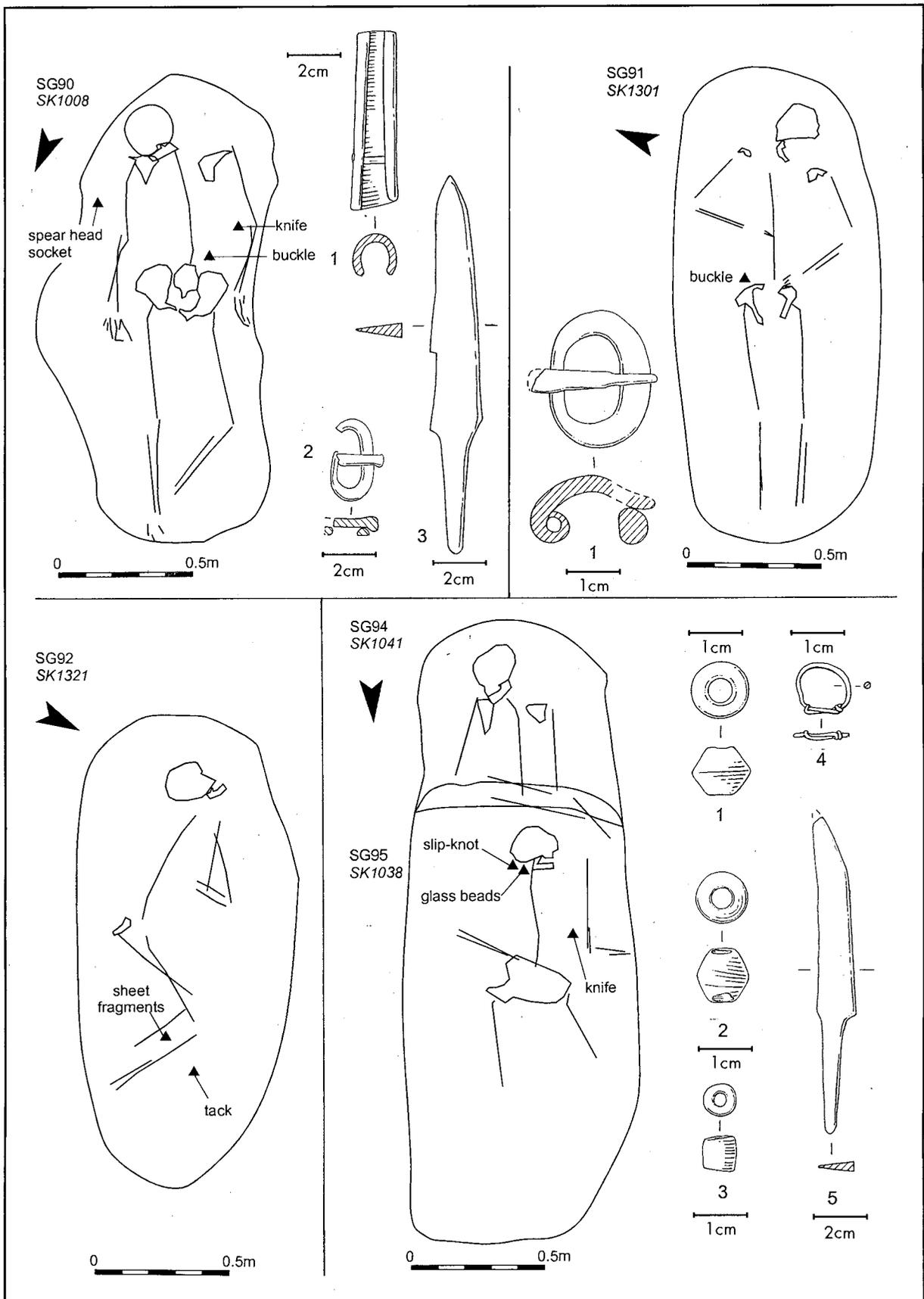


Figure 20. SG90-SG92 and SG94-SG95. Monochrome bead colours SG95 1-3 opaque orange

- Arm position: crooked
Leg position: n/d
Grave goods:
Glass beads 95.1-3 monochrome 3 (Dia. 10mm; 9.9mm; 6.1mm)
Silver slip-knot ring 95.4 (Dia. 10.3mm)
Knife 95.5 Type C size, group 1 (L. 122mm)
- Sub-group no: 96 (Figure 21)
Grave no: 1198
Skeleton no: 1199
Grave shape: sub-oval
Grave dimensions: L. 1.69m; B. 0.7m; D. 0.4m
Body orientation: 187° north
Skeleton condition: 1
Sex: F; Age: n/d; Stature: 162.4cm
Skeleton position: n/d
Arm position: n/d
Leg position: n/d
Grave goods:
Knife 96.1 Type A size, group 2 (L. 158.3mm)
- Sub-group no: 97 (Figure 21)
Grave no: 1175
Skeleton no: 1176
Grave shape: sub-oval
Grave dimensions: L. 1.87m; B. 0.85m; D. 0.26m
Body orientation: 188° north
Skeleton condition: 4
Sex: F; Age: 45+; Stature: n/d
Skeleton position: supine
Arm position: crooked
Leg position: extended
Grave goods:
Silver slip-knot ring 97.1 (Dia. 23mm)
[from grave fill: human remains 1177, part of skeleton 1199 (SG96)]
- Sub-group no: 98 (Figure 22)
Grave no: 1033
Skeleton no: 1034
Grave shape: sub-rectangular
Grave dimensions: L. 1.8m; B. 0.8m; D. 0.5m
Body orientation: 186° north
Skeleton condition: 4
Sex: ?M; Age: 35-39; Stature: n/d
Skeleton position: side
Arm position: right crooked
Leg position: bent left
Grave goods:
Knife 98.1 Type A size, group 2 (L. 163mm)
- Sub-group no: 99 (Figure 22)
Grave no: 1026
Skeleton no: 1028
Grave shape: sub-rectangular
Grave dimensions: L. 1.35m; B. 0.48m; D. 0.19m
Body orientation: 245° north
Skeleton condition: 1
Sex: IMM; Age: 2.5-4.5; Stature: n/a
Skeleton position: n/d
Arm position: n/d
Leg position: n/d
Grave goods: None
[from grave fill: human remains 1027, part of disturbed
- skeleton 1028]
- Sub-group no: 100
Grave no: 1407
Skeleton no: empty grave
Grave shape: sub-rectangular
Grave dimensions: L. 0.98m; B. 0.58m; D. 0.25m
[from grave fill: Knife Type A size, group 1, not illus.]
- Sub-group no: 101 (Figure 22)
Grave no: 1016
Skeleton no: 1017
Grave shape: sub-rectangular
Grave dimensions: L. 1.76m; B. 0.78m; D. 0.2m
Body orientation: 175° north
Skeleton condition: 5
Sex: IMM(M); Age: 15; Stature: n/a
Skeleton position: supine
Arm position: crooked
Leg position: extended
Grave goods: None
- Sub-group no: 102 (Figure 22)
Grave no: 1258
Skeleton no: 1259
Grave shape: sub-rectangular
Grave dimensions: L. 2.1m; B. 0.98m; D. 0.24m
Body orientation: 140° north
Skeleton condition: 1
Sex: F; Age: 21-25; Stature: n/d
Skeleton position: n/a
Arm position: n/a
Leg position: extended
Grave goods: None
- Sub-group no: 103 (Figure 22)
Grave no: 1261
Skeleton no: 1263
Grave shape: sub-rectangular
Grave dimensions: L. 2.1m; B. 0.96m; D. 0.4m
Body orientation: 171° north
Skeleton condition: 5
Sex: ?F; Age: 17-25; Stature: 155.9cm
Skeleton position: supine
Arm position: crooked
Leg position: bent left
Grave goods:
Ceramic bowl fabric type A26 103.1
Bone spherical headed pin 103.2 (L. 26.6mm)
[from grave fill: human remains 1268, part of skeleton 1259 (SG102)]
- Sub-group no: 104 (Figure 23)
Grave no: 1000
Skeleton no: 1002
Grave shape: sub-oval
Grave dimensions: L. 2.1m; B. 0.79m; D. 0.11m
Body orientation: 154° north
Skeleton condition: 4
Sex: M; Age: 45-66; Stature: 187.7cm
Skeleton position: supine
Arm position: left crooked
Leg position: extended
Grave goods:
Iron D-shaped buckle 104.1 (L. buckle 21mm)

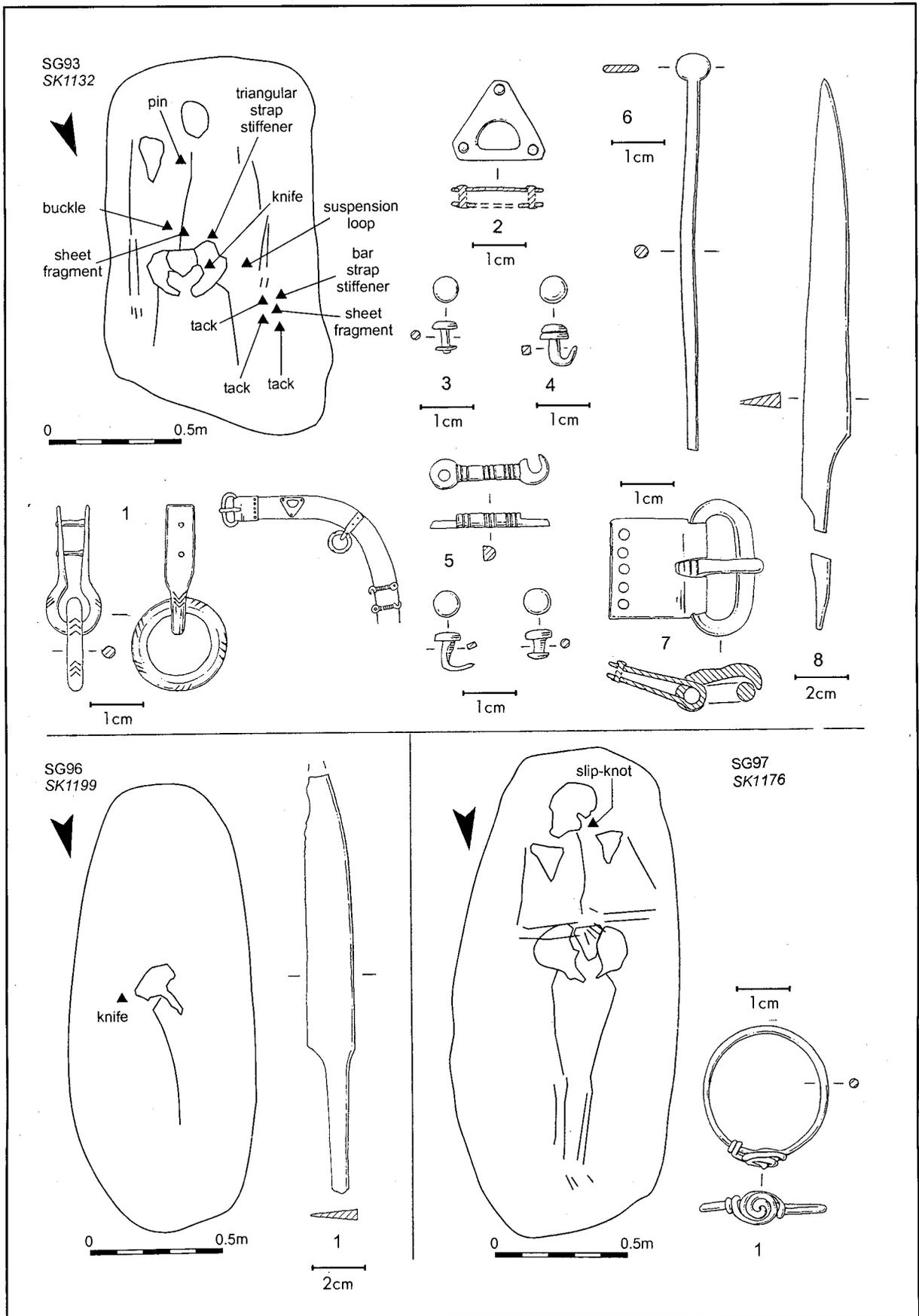


Figure 21. SG93 and SG96-SG97

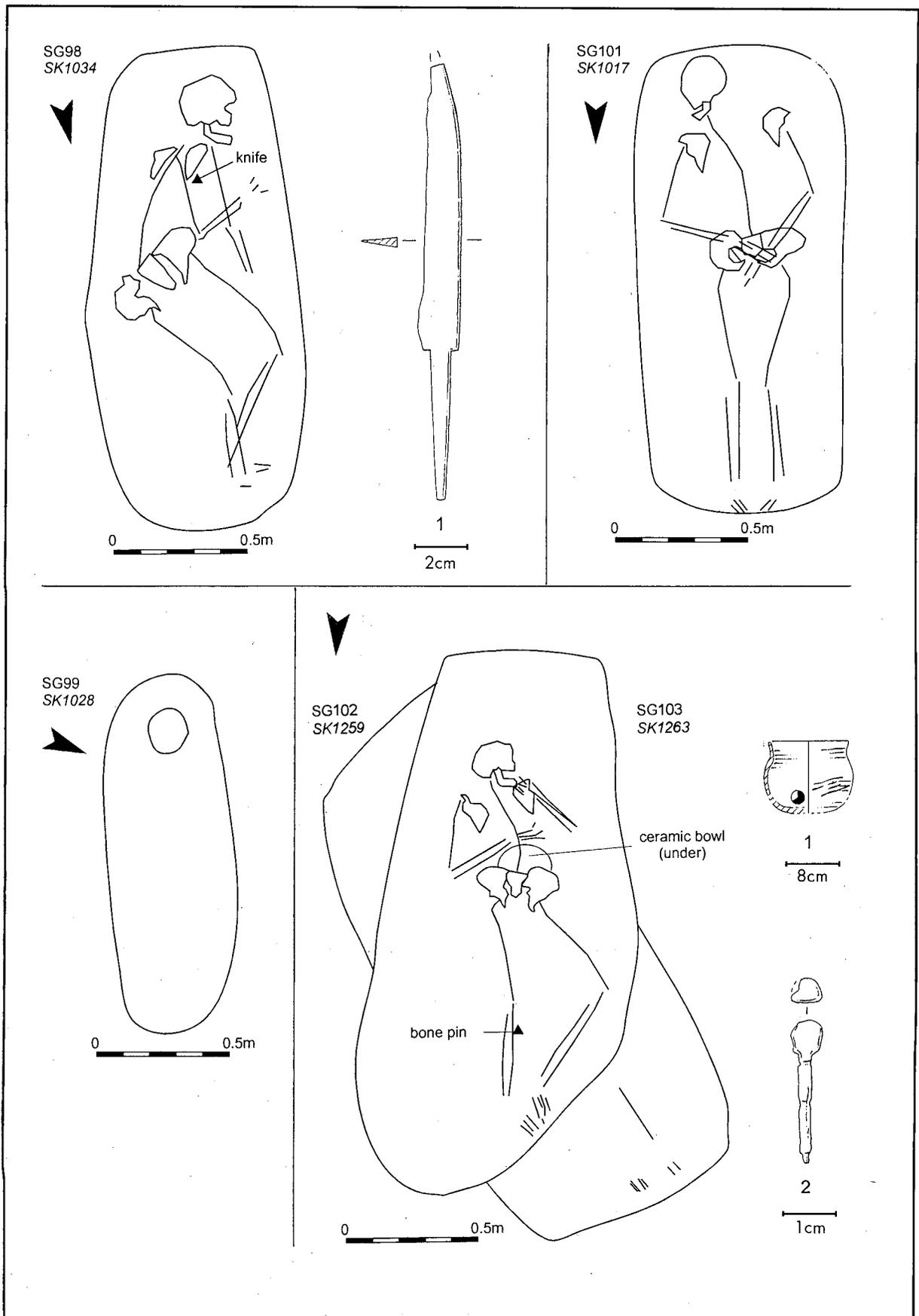


Figure 22. SG98-SG99 and SG101-SG103

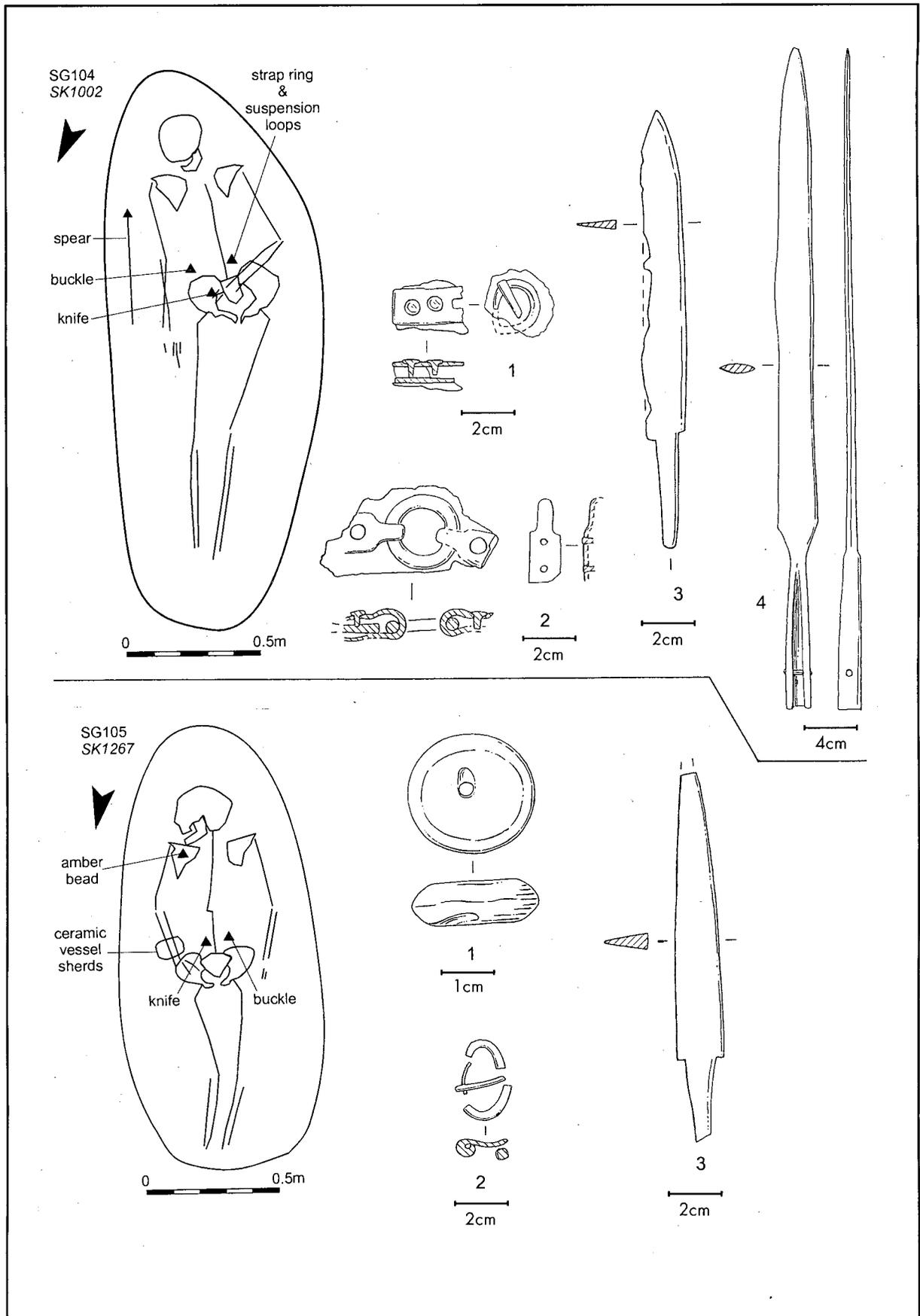


Figure 23. SG104-SG105

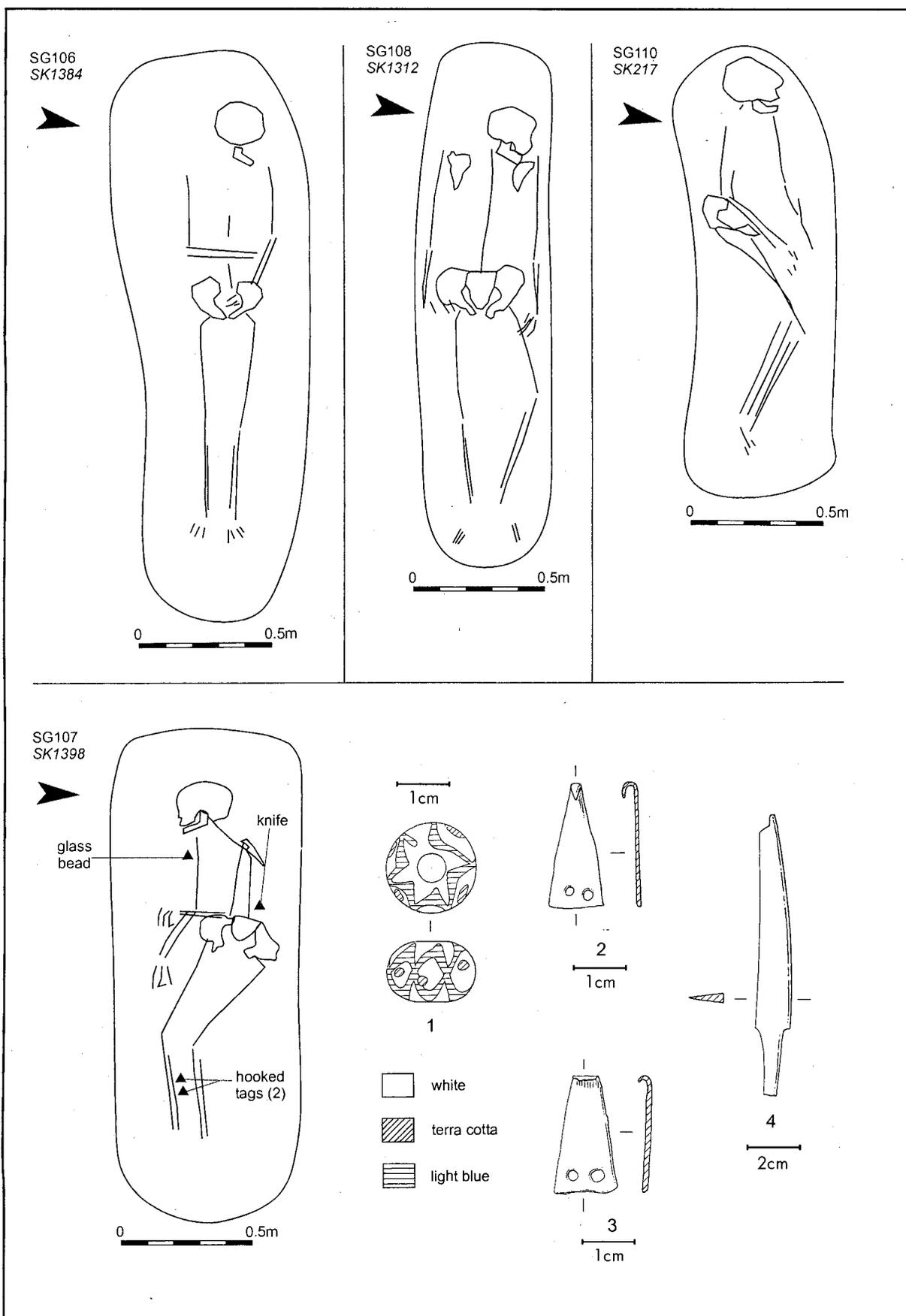


Figure 24. SG106-SG108 and SG110

Iron strap ring and riveted suspension loops (3) 104.2
(L. loop 32mm; Dia. Ring 28mm)
Knife 104.3 Type A size, group 2 (L. 164mm)
Spearhead 104.4 (Swanton E4) (L. 496mm)

Sub-group no: 105 (Figure 23)

Grave no: 1265
Skeleton no: 1267
Grave shape: oval
Grave dimensions: L. 1.67m; B. 0.75m; D. 0.38m
Body orientation: 169° north
Skeleton condition: 5
Sex: IMM(F); Age: 17; Stature: 168.4cm
Skeleton position: supine
Arm position: extended
Leg position: extended
Grave goods:
Amber bead 105.1 (Dia. 24.1mm)
Iron oval(?) buckle 105.2 fragmentary (L. c. 18mm)
Knife 105.3 Type B size, group 2 (L. 140mm)
Ceramic body sherds (9) fabric type A30, not illus.

Sub-group no: 106 (Figure 24)

Grave no: 1382
Skeleton no: 1384
Grave shape: sub-rectangular
Grave dimensions: L. 2.15m; B. 0.75m; D. 0.55m
Body orientation: 260° north
Skeleton condition: 3
Sex: M; Age: 30–44; Stature: 178.3
Skeleton position: supine
Arm position: right crooked
Leg position: extended
Grave goods: None

Sub-group no: 107 (Figure 24)

Grave no: 1396
Skeleton no: 1398
Grave shape: sub-rectangular
Grave dimensions: L. 1.86m; B. 0.71m; D. 0.75m
Body orientation: 273° north
Skeleton condition: 4
Sex: F; Age: 45–87; Stature: n/d
Skeleton position: side
Arm position: right crooked
Leg position: bent left
Grave goods:
Glass bead 107.1 polychrome (Dia. 16.1mm)
Copper alloy hooked tags 107.2–3 (L. 23.5mm;
22.4mm)
Knife 107.4 Type A size, group 1 (L. 108mm)

Sub-group no: 108 (Figure 24)

Grave no: 1311
Skeleton no: 1312
Grave shape: Rectangular
Grave dimensions: L. 1.98m; B. 0.52m; D. 0.6m
Body orientation: 259° north
Skeleton condition: 5
Sex: M; Age: 35–57; Stature: 185.9cm
Skeleton position: supine
Arm position: extended
Leg position: extended
Grave goods: None

Sub-group no: 109

Grave no: 1402
Skeleton no: empty grave
Grave shape: sub-rectangular
Grave dimensions: L. 1m; B. 0.5m; D. 0.33m

Sub-group no: 110 (Figure 24)

Grave no: 215
Skeleton no: 217
Grave shape: sub-rectangular
Grave dimensions: L. 1.69m; B. 0.54m; D. 0.35m
Body orientation: 259° north
Skeleton condition: 3
Sex: M; Age: 34–86; Stature: 175.5cm
Skeleton position: side
Arm position: right crooked
Leg position: bent left
Grave goods: None

Contextual evidence

Mark Phillips and Holly Duncan

Cemetery structures

Within the bounds of the main burial area, approximately 40m by 50m in extent, seven 'structures' were identified. Only two (G46 and G19) have firm dating and stratigraphic evidence for an association with the cemetery. The remainder are less certainly associated, although the spatial evidence for such a relationship is compelling (Figure 25).

G46 comprised a ditch delineating a lozenge-shaped area, 7.45m by 5.8m, oriented NNW-SSE (Figure 26). The ditch was 1.07m–1.37m wide and 0.54m–0.58m deep. Four postholes were positioned just inside its inner edge, one at each corner of the enclosure. The postholes, measuring 0.56m–0.7m in diameter and 0.24m–0.45m in depth, had flat bases and vertical sides. Traces of post pipes and packing survived in three of the postholes, and indicate that they held posts approximately 0.35m in diameter.

The primary fill of the enclosure ditch contained a small quantity of early Bronze Age pottery (3 sherds, weighing 11g), animal bone and flint, possibly derived from slumping. However, the presence of Roman and Anglo-Saxon pottery sherds, two iron rivets and a possible cosmetic brush handle within the main fills of the ditch and from post pipe deposits confirms that the structure is contemporary with the main period of use of the cemetery.

A cluster of three postholes (G19), forming an isosceles triangle in plan, lay immediately adjacent to the northwest side of the enclosure. These varied in size, two were up to 0.52m in diameter and 7.5mm deep, and one was 0.66m in diameter and 0.14m deep. Although no finds were recovered from this cluster, one posthole [1022] cut the fill of SG56, indicating it post-dates this grave or possibly that it served as some form of marker.

Five further groups of postholes or posthole structures (G15, G20 and G38–40) appear to belong to the cemetery. These structures had little or no dating

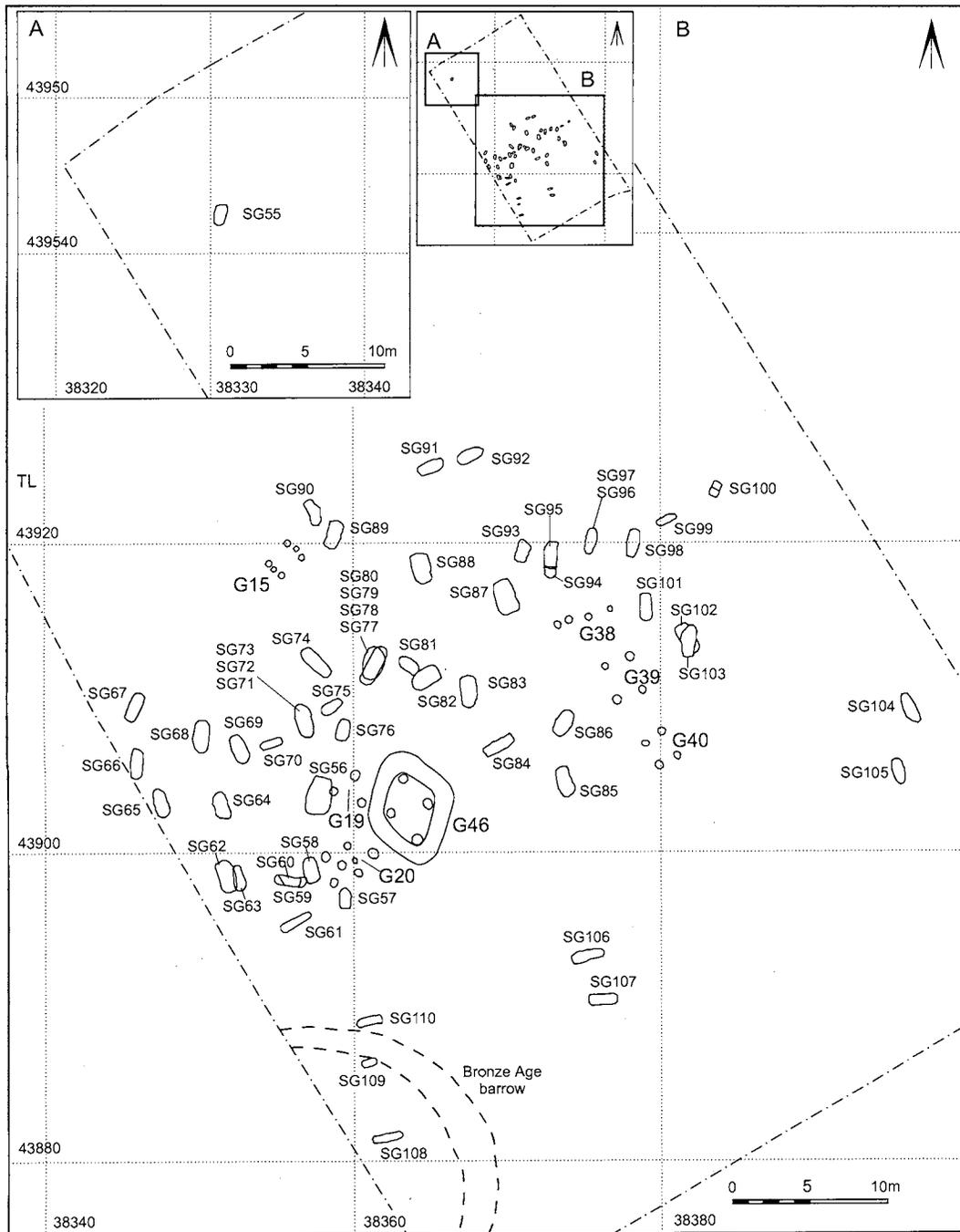


Figure 25. *The Cemetery*

evidence. However, the fact that they lay within the main burial area but were respected by the graves, suggests an association. In addition, morphological differences are apparent between these and earlier structures. The postholes making up the four-post structures of the late Bronze Age/early Iron Age (G24–29) were smaller in diameter, lacked evidence for packing and enclosed a larger area (see p 63).

A cluster of seven oval to sub-circular postholes (G20) was positioned on the southwest side of the lozenge-shaped enclosure G46. Two tiny sherds of pottery, one Roman and one of late Bronze Age/early

Iron Age date, represent the only dating evidence. G15 situated about 13m NNW of G46 comprised a grouping of three paired postholes in a rectangular setting oriented northeast-southwest.

G39 and G40, two four-post structures, both oriented northwest-southeast, lay approximately 13m to the northwest of the lozenge shaped enclosure (G46). G38, a line of four post-holes oriented ENE-WSW, lay 3m north of G39. This whole complex of structures formed a 'T-shape' in plan. Dating evidence was limited to a single sherd of late Bronze Age/early Iron Age pottery, weighing 4g, from a post pipe in G39.

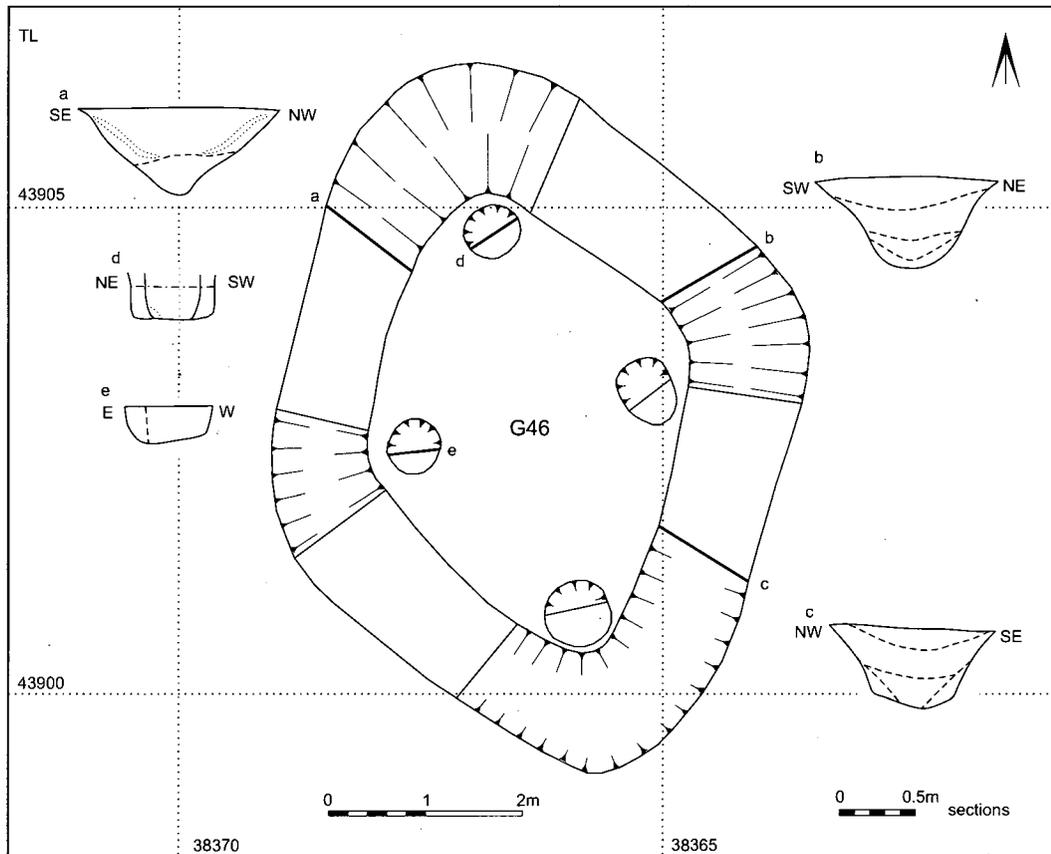


Figure 26. Lozenge shaped structure G46

Structural features, such as annular and penannular ditches sometimes with postholes, surrounding from one to three inhumations, have been noted from cemeteries in Kent, Norfolk, Sussex and Gloucestershire (Lucy 2000, 98–100). Similar features surrounding cremations have also been encountered in Essex and Sussex (Lucy 2000, 119). Four-post structures have been found over cremations at Apple Down, Sussex, Croydon, Surrey and Berinsfield, Oxfordshire. Those from Apple Down have been interpreted as mortuary houses (Down and Welch 1990, 25–33). Although similarities exist between these and some of the structures at Melbourn, in particular the four-post structures, none of the Melbourn examples overlie individual or groups of inhumations. Instead they appear to provide focal points for interment or designate burial areas. This is explored further in Chapter IV.

The Graves

Early Anglo-Saxon cemeteries typically provide only short and sporadic sequences of vertical stratigraphy between graves or other features. Despite its relatively short period of use, this site produced instances of stratigraphic relationships, including a few intercutting burials and some unique sequences of multiple, superimposed burials.

Fifty-five grave-like cuts were identified. Two (SG100 and SG109) did not contain inhumations, al-

though a knife was found within the fill of SG100. Analysis of the skeletal remains indicated the presence of 60 individuals.

Stratigraphic relationships – superimposed and intercutting graves

Just over half of the graves (27 in number) contained single inhumations with no stratigraphic relationships with other graves. No two inhumations were laid side-by-side in the same grave, although SG78 contained an adult female and a foetus. There were, however, a number of instances of reused grave 'plots'.

This is most clearly seen in three groups of superimposed graves (SG96–97, SG71–73 and SG77–80). Here, the primary grave cut was succeeded by one to four later graves, each shallower than the previous one. Normally the succeeding grave cuts followed a similar line to that of the primary cut and the preceding inhumation was left *in situ*. The most reused grave 'plot' SG77–80 contained four superimposed inhumations but a fifth burial event may be indicated by the presence of adult remains in the fill of the final grave (SG80). A second form of reuse is illustrated by SG94–95 and SG102–103. Here, the original inhumations were truncated by the insertion of the second inhumation.

There were also five instances where the incomplete remains of a second individual were present

within the fill of a grave (SG57, SG65, SG67–68, SG74). These incomplete remains may represent the original occupant of a grave, which was re-opened for a later interment.

There appears to be a degree of correlation between gender and/or age groups within the same burial 'plot' (see Section 8.2.2). Out of the ten instances of reused burial 'plots' noted above, the gender of all inhumations within each group could be determined in six cases. Of these, same gender burials occurred in five instances (SG65, SG68, SG71–73, SG96–97 and SG102–103). There was also one case where two immature skeletons occupied the same plot (SG57). The cemetery population, however, is small and this correlation may not be statistically significant.

Three graves appear to have been disturbed at some point in the past, with remains of the same individual being found in both the grave and grave fill. Two (SG86 and SG99) contained very few skeletal remains at all. In grave SG59 the upper portion of the still partially articulated skeleton had been removed and deliberately replaced in the fill of robber cut (SG60). It is possible that these graves had been investigated for potential secondary interments or robbed. In the case of SG59 the disturbed but partially articulated bone suggests that a relatively short period of time had elapsed between interment and disturbance.

Three examples of intercutting burials were recorded, although in these instances only one edge of the graves overlapped (SG81 cut SG82; SG59 cut SG58). Disturbance and tree root action masked the relationship between graves SG62 and SG63.

Alignment and orientation

Despite its proximity, the graves were not concentrated on, or aligned with, the Bronze Age barrow. Only two graves (and one empty grave-like feature) were close to the barrow. SG108 was within the ditch circuit; SG110 was immediately outside.

The main concentration of graves lay about 6m to the north of the barrow and covered an area of approximately 40m by 20m. Six graves, forming three groups of paired burials, lay to the south (SG108 and SG110; SG106 and SG107) and southeast (SG104 and SG105) of the main concentration, four graves, forming two groups of paired burials, lay to the north, and a single burial about 20m to the northwest (SG55).

The graves were not in rows but appeared to cluster around the cemetery 'structures'. There was a particularly dense concentration to the north, west and east of the lozenge-shaped enclosure (G46). The T-shaped arrangement of structures (G38–40) provided a similar focal point for the eastern edge of the cemetery; again graves were positioned on all sides but the south. Smaller grave groups were noted near structural features G15 and G20.

Orientation could be determined in the case of fifty of the inhumations. The majority (70%) lay with heads to the south within a broad compass arc of southeast-southwest. Two each lay with heads to the ENE and NNW. Eleven (22%) lay with heads to the west. This variation in orientation is in contrast to the 1952 exca-

vations at Melbourn where all 28 burials varied no more than ten degrees from the north-south line (Wilson 1956, 30).

No discernible gender-related pattern was apparent in the orientation of most of the graves. The two inhumations with heads laying to the ENE were female. Clearly, there are too few burials for this to be statistically significant. What is noteworthy, however, is that one of these graves (SG75) contained the earliest known (second half of the 6th century) assemblage of grave goods from the cemetery.

Within the groups of superimposed graves, the inhumations were normally oriented in a similar direction. One group (SG71–73), however, contained three inhumations, the two earliest lay with heads to the south while the uppermost body (Sk1032) lay with the head to the north. This inhumation was accompanied by a spear (resembling Swanton B2 form), and was the only example with the head of the spear pointing towards the foot of the grave.

Of the eleven inhumations with heads placed to the west only three had accompanying grave goods. Seven of these burials (SG59, SG61, SG84, SG106–108 and SG110) were further distinguished by their position on the southern edge of the cemetery. This group comprised five males, a female and one immature inhumation. Only the female was accompanied by grave goods: a knife, a bead and two hooked tags, the latter suggesting a date in the later 7th century (see p 116).

Grave shape and depth

Grave shape varied from rectangular to oval. The majority (58.5%) were sub-rectangular in form, having relatively straight sides and somewhat rounded ends. Two graves were of a noticeably narrow rectangular shape (SG61 and SG108), and these form part of a group of seven burials with heads placed to the west (see above). Oval and sub-oval shapes, with sides gently rounded, accounted for 18 graves. Single examples of five-sided and irregular outlines were also present. There was no discernible correlation between grave shape and depth.

The majority of the graves (37) were less than 0.5m deep. The eleven deeper graves were aligned either south-north (7) or west-east (4). Four of the deep inhumations with heads placed to the south were from groups of superimposed burials.

There was no discernible correlation between grave shape and burials with heads placed to the east, south or north. Burials with heads placed to the west, however, were exclusively interred in graves of rectangular to sub-rectangular shape. The seven burials with heads placed to the west, situated along the southern edge of the cemetery, formed a fairly cohesive group in size and shape. These graves were longer and narrower, lengths exceeding 1.65m and widths between 0.52m and 0.76m.

Arrangement of the body within the grave

In 41 instances the arrangement of the body (spine, legs and arms) within the grave could be determined.

Skeletons were supine with extended legs in 22 cases (53.7%), supine with legs crossed in 6 cases (14.6%), and supine with legs bent left (4 examples) or right (1 example) in 5 cases (12.2%). Only eight skeletons (19.5%) were positioned on their sides, with legs bent left (seven examples) or right (one example). No prone burials were identified.

A correlation between burials with crossed legs and 'rich individuals' was observed at Edix Hill (Malim and Hines 1998, 41). This pattern is not as definite at Melbourn. Of the six burials which exhibit this trait, three of the males were accompanied by either a complete spearhead or spearhead sockets (SG74, SG83 and SG90), while the fourth (SG79) had a buckle and a knife. Of the two females, SG75 was one of the 'richest' and earliest graves, whilst SG70 was unaccompanied by grave goods.

At Edix Hill the arms were used to enhance the display of certain types of artefacts accompanying the burials (Malim and Hines 1998, 34). A similar practice was noted at Melbourn amongst several of the female inhumations. Sk205 (SG64) had one of her crooked arms positioned as if holding the shears or the chatelaine chain. Sometimes extended arms bracketed a group of objects, for example the arms of Sk1165 (SG65) enclosed the girdle group. This was also particularly apparent with Sk1370 (SG67). Here the arms were extended and the hands were pointed to the left where a complex chatelaine extended down the side. Arms were not always used to display grave goods. In the case of Sk1189 (SG78) the arms were positioned as if protecting the accompanying foetus. More males had one or both arms crooked and these tended to be placed over the stomach.

The majority of inhumations were placed centrally within the grave. In a few instances the body was positioned to accommodate the accompanying grave goods, for example Sk1012 (SG74) was placed about a third of the way down the length of the grave with a ceramic vessel placed above the head. A few burials however were positioned off-centre and were not accompanied by surviving grave goods necessitating this placement. In two cases the inhumations were placed to the right of the grave (SG80 and SG85). Three inhumations (SG69, SG79 and SG84) were positioned closer to the foot than the head of the grave. It is possible that organic items may have originally accompanied these inhumations.

Human skeletal material

Corinne Duhig

Introduction

The cemetery is not of great size, containing in total the remains of 60 individuals, but is highly informative for its period due to good bone recovery and preservation. In general the bone is robust, with cortices undamaged by water- or root-erosion. Most long bones are broken and skulls are shattered, which has necessitated some reconstruction to facilitate examination of the skull and measurement of long bones.

Unfortunately, the pubic bone, the uppermost part of the pelvis in an extended supine inhumation, is crushed or lost in many specimens, making determination of their sex and age problematical.

In its demography and pathology, Melbourn provides significant contrasts with earlier Anglo-Saxon cemetery populations from this area. The skeletal information is catalogued in Section 6 and discussed in detail below. The methods employed in the identification and analysis of the skeletal material are presented in Appendix 1.

Demography

Introduction

Only four individuals (6.7%) can be neither aged nor sexed. Despite the loss of pubic bones, the basically sound condition of the bones has made other skeletal areas available for reconstruction and assessment in most cases. This improves the information availability from this site despite its relatively small size; compare for example, Morning Thorpe in Norfolk with 365 inhumations but 19% unaged/unsexed and Castledyke in Humberside with 209 inhumations and approximately 30% unaged/unsexed (McKinley 1987; Wiggins *et al.* 1999).

Sex

The female:male ratio at this cemetery is 1:1.4, very close to the expected 1:1 pattern and well within the range of variation of ancient cemeteries. Two of the late adolescents show adult sexual features. Sk1267 (SG105) is that of a person of approximately 17 years, whose long bones were fusing and who had therefore reached full adult height but who had clearly female characteristics of skull and pelvis. Sk1017 (SG101) is that of a 15-year-old, still growing but with strongly male features to the skull (the pelvis is too damaged to be of value). Both are counted with the immature individuals because the 'adult' boundary has been set at 18 years, but as discussed below, this is somewhat arbitrary given the age variation for both physiological and social adulthood.

There is one possible discrepancy between the sexes as determined from the skeletons and from the grave goods. Sk1045 (SG72) is clearly male but is accompanied by a slip-knot ring which is more commonly found as part of a woman's necklace.

No discernible age or gender related pattern of burial was apparent within the cemetery. The multiple, reused and overlapping graves, however, show some tendency for use by a single age or sex group: SG65, SG96–97, and SG102–103 containing two females each, SG68 and SG71–73 containing two and three males respectively, and SG57 two immature burials. The quintuple grave SG77–80 contains three males, one female and one undetermined group of bones. If these age/sex groupings are not merely coincidental, they are unique in Anglo-Saxon material. It is unfortunate that the other multiple or reused graves have one individual who cannot be sexed by skeletal traits: SG94–95 (female with unsexed adult having slight predominance of female traits), SG62–63 (male

with adolescent or adult), SG67 (female with adolescent or adult), SG74 (male with unsexed adult).

Age

Immature individuals

It is to be expected that the proportion of immature individuals dying, especially neonates and infants, will be higher in ancient societies than in the modern, developed world (eg Stockwell 1993). The mortality profile of an undeveloped country has a U-shape with childhood deaths predominating. Developing countries show either a change towards the 'developed' pattern because of improved nutrition, sanitation and medical care or, due to increasing population nucleation and industrialisation, an increase in the infant/child peak as found in 19th-century London (Table 2). It is thought that the likely paradigm for much of the ancient world is the former, due to a lack of density-dependent infections. Brothwell gives the percentage of immatures as just over 30% for Anglo-Saxons, a figure similar to that found in many modern developing countries (Brothwell 1981; Waldron 1994). In Cambridgeshire, Brothwell's Anglo-Saxon norm is equalled by the mainly 6th-century Edix Hill but greatly exceeded by Oakington at 46% (Taylor *et al.* 1998: although this cemetery is rather small and exceptional in several ways).

There are only 11 immature skeletons in the Melbourn assemblage, representing 18.3% of the population, or 21.7% if the two 'adolescent/adult' skeletons are included. This, therefore, is an improvement in child survival for the area. The contemporary cemetery of St Peter's, Broadstairs, Kent (Duhig in prep.) has 21% immatures while the earlier Castledyke (Humberside) has 20%. When we consider the foetuses/neonates/infants, however, their proportion is even lower than modern London, and this is commonly found in ancient cemeteries worldwide. When bone preservation and recovery techniques are good, as here, fragility of infant skeletons cannot be invoked as an explanation. Molleson, among others, suggests disposal of infants in the domestic sphere, in and around the settlement (Mays 1993; Molleson 1993).

In the case of Melbourn, there are no neonates or infants at all, the percentage representing only the single foetus. It was found near the pelvis of the mother, Sk1189 (SG78), and is of less than 6 months gestation. In terms of grave recording it is not a separate individual (the foetus is counted as 'a pathology of the mother'), but is treated as such here because foetuses can manifest pathological conditions in their own right. It was not found within the pelvis. This might be because the small body or bones were disturbed when the right femur and tibia of Sk1189 were removed, but it might be that the foetus was stillborn and buried beside its mother. The one neonate from Edix Hill was also buried with an adult woman, assumed to be its mother, so this might have been the norm when both died together, and it is certainly paralleled by later practice. Stillbirths, neonates and infants whose mother was alive could also be kept close to her by burial in the settlement, if there were no

other modes of disposal favoured at the time, and this is where we might expect our 'missing' children to be.

There are too few immatures to determine any mortality patterning. Table 1 shows that there are more child than adolescent burials, conforming to the expected U-shape mortality profile (but this is produced by the presence of only one more child). The 'age of majority' for Anglo-Saxons appears to be around 11 for girls and 13 for boys, based on legal codes and on the presence of sex-specific grave goods in child/adolescent burials (Crawford 1991; Duhig 1998; in prep.; Wiggins *et al.* 1999, quoting Clarke). The boundary appears to be flexible and could have been mediated by social status, physical maturity or practical constraints on the time of 'promotion'.

Adults

Female deaths predominate in the 'adult 1' group and decline through 'adult 2' and 'adult 3', then rise for the last group (Table 1 and Figure 27). The males, by contrast, have the number of deaths rising from 'adult 1' through to 'adult 4'. This is an unusual pattern in both the archaeological record and in most of the modern world. Males tend to have a greater death rate in all but the oldest age band and often peak in the earlier bands – when using a modification of the Brothwell system, we observe most male deaths before 35 years. Warfare is often suggested as the cause of this pattern, but even when formal warfare is absent males tend to be more vulnerable to constitutional and environmental/lifestyle hazards (WHO 2001). The Melbourn sample is not large, however, and these results might be merely an artefact of the small numbers of each sex in each age band.

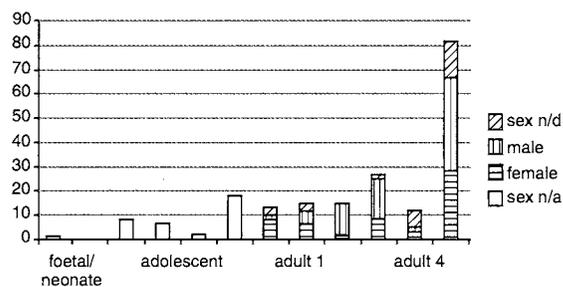


Figure 27. Age at death (percentage of population)

Stature

The statistics relating to the statures of the Melbourn population are shown in Table 3. The Melbourn people are tall for Anglo-Saxons, for example compare Edix Hill females at 151–171cm, males at 160–184cm. They appear to exceed all other reported Anglo-Saxon populations, even the average of the 7th-century cemetery of Headley Drive, Tadworth (171cm; although the Headley Drive minima are higher for both sexes at 158cm and 169cm and approach modern European norms). The means are not raised by exceptionally tall outliers; the spread of heights is regular.

Following Floud *et al.* (1990), we should expect that 95% of the heights would be within two standard de-

Table 1. *Ages at death for the whole cemetery population*

1. Two of the four individuals which are both 'unaged adult' and 'sex n/d' are adolescent or adult, due to their adult size but absence of epiphyseal ends of bones from which to determine skeletal maturity.

2. Each percentage is calculated separately, and because all are rounded to the nearest decimal place, they do not add up exactly to the totals.

age band	sex n/a	%	female	%	male	%	sex n/d	%	TOTAL	TOTAL %
foet/neo	1	1.7							1	1.7
infant	0	0.0							0	0.0
child	5	8.3							5	8.3
adolescent	4	6.6							4	6.6
unaged imm	1	1.7							1	1.7
all imm	11	18.3							11	18.3
adult 1			5	8.3	1	1.7	2	3.3	8	13.3
adult 2			4	6.6	3	5.0	2	3.3	9	15.0
adult 3			1	1.7	8	13.3	0	0.0	9	15.0
adult 4			5	8.3	10	16.7	1	1.7	16	26.7
unaged adult			2	3.3	1	1.7	4	6.6	7	11.7
all adult			17	28.3	23	38.3	9	15.0	49	81.6
TOTAL									60	100.0

Table 2. *Comparative figures of immature death*

	Melbourn	Edix Hill	19th C London	modern London	developing countries
neonates/infants	1.7	3.0	c. 50.0	2.5	–
all immatures	18.3 (21.7)	31.1	–	–	c. 30.0

Table 3. *Statistics on the statures of the population (cm unless otherwise stated)*

	minimum	maximum	spread	median	mean	mean (ft)	SD	two SDs
females	155.9	176.9	21.0	162.4	163.6	5' 4½"	7.0	14.0
males	165.6	186.9	21.3	177.8	177.7	5' 10"	6.5	13.0
all	155.9	186.9	31.0	171.4	173.0	5' 8"	9.4	18.8
average populations	–	–	–	–	–	–	6.35–7.11	12.7–14.22

viations (SDs) of the mean, that is, 154.2–191.8cm. All the heights fall within this range, but only 22 (81%) fall within two SDs of the average range. Two reasons most commonly invoked for such a spread are mixed population with the two source populations having different means or environmental stress causing greater variation, particularly in males. In our case, however, the SDs for males and females are close to the average and it is the small amount of overlap between the sexes which accounts for the large spread, and therefore large SD, for the population. This may suggest that the males and females come from populations with different norms.

Pathological conditions

Disease prevalence is extremely difficult to determine

in ancient skeletal material because bone itself has relatively few diseases and the predominant disorders, as in the modern world apart from the developed countries, would have been infections. These are often of short duration, sometimes rapidly fatal especially to the vulnerable young (worldwide, the commonest cause of death of infants is diarrhoeal disease) and consequently rarely affect the bones. Common, debilitating but non-fatal, skin infections of the 'tropical ulcer' variety only cause changes on bones where there is direct contact with the diseased soft tissue. Other disorders, however, are visible on skeletal material and can be examined easily, particularly the joint diseases grouped together as arthropathies, dental disease, fractures, and some congenital disorders and harmless developmental variants of the skeleton

('non-metric' or 'epigenetic' traits).

Diagnosis presents difficulties due to the limited range of responses of which bone is capable, exacerbated by taphonomic effects on the bones, so the tables accompanying each section describe the location, form, size and other features of each change and the potential differential diagnoses are discussed in the text. There are, however, very few contentious cases from Melbourn. Taphonomy, natural and due to human action, has caused loss of particular bones or skeletal areas. For this reason, the prevalence of a disorder is expressed as number of affected bones or areas/number of individuals with the relevant bones or areas present/the former as a percentage of the latter. For example, in a given assemblage, there might be 15 examples of trauma in 98 specimens with enough bone to be assessed for trauma; this is expressed as 15/98/15.3.

Arthropathies

Osteoarthritis, the joint degeneration of everyday wear and tear, is present at high levels in the whole population 29/59/49.2 of individuals (excluding the foetus) are affected by one or more changes and in adults 28/49/57.1. There are 18 males, including a teenager with clearly male skeletal characteristics, affected by at least one arthritic change, 10 females and one of undetermined sex. The distribution by sex and skeletal area is presented in Table 4, showing that the males again have twice as many arthritic changes as the women. 'Bilateral' indicates not merely instances both on left and right but bilateral joints in the same individual assumed to be affected by the same activity. A figure in parentheses in that column indicates an affected bone which could not be sided.

Rogers and colleagues (Rogers & Waldron 1995; Rogers *et al.* 1987) have established diagnostic criteria for joint change, and this has been followed in recording types of change: osteophytic (new bone nodule)

lapping around joints or on surfaces; cysts (pitted joint surface showing where new cartilage was proliferating in response to damage); eburnation (bone-to-bone polish due to loss of cartilage); ankylosis (fusion). They are not followed, however, in their diagnostic protocol, which requires a particular combination of changes for a clear diagnosis of osteoarthritis or other arthritic condition; any one of the changes given above is taken as indicative of the cartilage deterioration and associated responses of osteoarthritis.

Vertebral osteoarthritis

Prevalence of this ubiquitous disorder is 26/45/57.8 in all spines which can be assessed, all but one of which are adult. This is considerably lower than the prevalence at Edix Hill, 85%, but higher than that of the contemporary St Peter's Tip, 31%. Males are affected twice as much as females.

The one non-adult with arthritis, the 15-year-old male Sk1017 (SG101), has a few osteophytes on the body of the lowest lumbar vertebra and what might be a Schmorl's node (explained below; although this is a dubious case) on the same vertebra. Perhaps the node, if such it is, has been produced by the stresses of heavy work on the developing spine.

Non-vertebral osteoarthritis

The distribution of non-vertebral arthritis changes has been recorded by region: temporo-mandibular, sterno-clavicular, shoulder, elbow, wrist, hip, knee, ankle, foot, and not by individual joint surfaces. This is because several bones participate in one joint and an action putting stress on one surface is likely to affect some or all of the others in the same joint capsule or area. Overall the prevalence is 28/59/47.5 affected individuals, 32/59/54.2 cases in individuals and 32/425/7.5 in joint regions available. The joints of the upper limb dominate with shoulders, elbows and wrists all affected, but only six cases affecting the

Table 4. Sex- and joint-area distribution of osteoarthritis

	males			females			sex n/d		
	left	right	bilateral	left	right	bilateral	left	right	bilateral
TMJ ¹	0	1	1	0	0	0	0	0	0
SCJ ³	0	0	2	0	1	0	0	0	0
shoulder ²	1	0	2	1	1	0	0	0	0
elbow ²	0	1	2	0	2	0	0	0	0
wrist ¹	3	3	1	1	0	0	0	0	0
hand ³	0	0	(1)	0	2	0	0	0	0
hip ³	0	1	1	1	0	0	0	0	1
knee ⁴	1	0	0	0	0	0	0	0	0
ankle ³	0	0	0	0	0	0	0	0	0
foot ⁴	0	0	0	0	0	(1)	0	0	0
TOTAL N/S	5	6	10	3	6	1	0	0	1
spine			17			8			1
TOTAL	5	6	27	3	6	9	0	0	2
		38			18			2	

lower limb, of which four are in the hip. There is no significant difference between left and right.

The most severe cases are, unsurprisingly, all in mature and older persons. Sk1187 (SG80) and Sk1188 (SG79) are males from the same multiple burial, the former with four and the latter with eight areas of arthritis. The vertebral osteoarthritis is particularly severe in Sk1187, extending through the entire spine, in addition to a whole suite of arthritic change consequent to traumatic damage to the left shoulder and right wrist. Sk1188 has symmetrical changes in shoulders, elbows, wrists, and hips as well as in one knee and the spine. The woman from the same grave, Sk1189 (SG78), around 40 years of age, has such severe lipping of the left hip joint that the thigh would have been partly fixed in adduction with little or no rotation; otherwise, however, her skeleton is reasonably healthy.

The male Sk305 (SG83) is affected in spine, shoulders, wrist and on the temporo-mandibular joint, the latter joint also being arthritic on one side in another male skeleton, Sk312 (SG88), along with shoulder, hip and spine. The female Sk1305 (SG70) also has four areas of arthritic change, that in the spine being quite severe in the lower cervicals but otherwise average, and the extra-spinal changes mild. All other individuals have fewer than four areas of osteoarthritis, and no other forms of arthropathy were found (eg DISH, inflammatory arthritis, etc., as found at other sites).

Schmorl's nodes

Schmorl's nodes indicate weight-bearing damage to the intervertebral disc; the soft central material herniates through the fibrous outer covering and the pressure of this material creates an indentation in the adjoining vertebral body. Changes that are unequivocally Schmorl's nodes are not common in this assemblage, found in only five spines with the potential for assessment, that is, having at least one intact vertebral body: 5/44/11.4. All are adult, including two males (Sk1008 SG90, Sk1388 SG68), two females (Sk1229 SG82, Sk1189 SG78), one sex-not-determined (Sk1293 SG69). The possible, immature case is mentioned above.

Enthesopathies

Although conventionally grouped with the arthropathies, enthesopathies are not strictly joint disorders, although they can occur near joints. They are ossifications into tendons and ligaments, caused by one-off or habitual severe stresses on the tendon of a

particular muscle or by a 'bone-making' tendency in some physiologies. They are not listed in the section on habitual activity unless this cause is unequivocal, which is rare.

The three potential cases (Table 5) are all in the same individual, but at unrelated locations, the first two of which are areas of muscle attachment but the third of which is a bilateral affection of the ligament bridging the tibia and fibula. In view of the coincidence of these three cases, it is suggested that this individual was a 'bone maker'.

Dental disease

Descriptions of the aetiologies of the dental diseases follow mainly Hillson (1979), although for reasons of time and cost only macroscopic methods have been used, contrary to his practice.

Caries

Dental caries (decay) is caused by an acid pH in the mouth, usually produced by carbohydrate food and plaque, a mixture of bacteria, saliva proteins and bacterial and food debris. The acid condition demineralises the hard enamel and breaks through into the dentine. There is a direct relationship between the amount of sugar in the diet of a population and their amount of caries, which is the principal reason we have more caries than our distant ancestors. Tooth cleaning helps to remove plaque and contributes to caries resistance but individual variations in diet, saliva minerals, enamel formation and tooth placing (especially crowding) are very important in caries aetiology. In modern times it is the crevices of the molar crowns which are most affected. If there is periodontal disease (inflammation of the gums and supporting tissues of the tooth) tooth roots can become exposed and vulnerable to caries attack, a type of caries more common in ancient material than in modern.

Carious lesions are readily observable on the Melbourn material due to the good preservation and unstained condition of the teeth. Prevalence is calculated firstly as percentage of dentitions with at least one carious tooth, out of all dentitions with at least one tooth. In a few cases some teeth were recovered even though the jaws were smashed and unobservable, which is why the denominator is a larger number than for 'abscess cavities' and 'ante-mortem loss', below. Secondly, prevalence is determined as number of carious teeth out of all teeth recovered. The two figures are 20/54/37.0 and 38/1079/3.5. Hillson observes, and Brothwell illustrates, that Anglo-Saxons

Table 5. *Enthesopathies*

SG	Sk	Sex/Age	Description
77	1204	M 18.5-20	1. Occipital nuchal area: lipping and porosity 2. L clavicle two-thirds lateral: lip of coarse ECNB at medial edge of deltoid origin- ?episode(s) of trauma 3. L fibula interosseous line: small area of ECNB; R fibula interosseous line: large area of fine-grained ECNB 194cm long spalling away from cortex

are the exception to the trend of caries increase through British history, and the Melbourn population are certainly similar to some other Anglo-Saxon populations, for example 30.9% affected dentitions from Edix Hill and 30.8% from St Peter's Tip. Using the second method we can compare Brothwell's *c.* 6% for several Anglo-Saxon groups, Edix Hill 3.2%, Castledyke 5.1%, Addingham 5.4%, North Elmham 6.4% (Brothwell 1981; Duhig 1998; others listed in Wiggins *et al.* 1999).

Abscess cavities

It was mentioned above that bacteria contribute to acid conditions in the mouth, but these acid conditions also favour the growth of certain bacteria (eg *Streptococcus mutans*) and these can enter the tooth pulp through a severe carious lesion and cause inflammation and often an abscess cavity at the root. An abscess will eventually break through the bone and soft tissue to discharge pus, and it is the, usually, small pus-drainage holes (fistulae) which indicate the presence of the abscess cavity itself near a tooth root-tip, although sometimes the cavities are very large and occupy the whole socket.

Prevalence of abscess cavities in the Melbourn material is 13/49/26.5 in jaws and 34/1253/2.7 in individual alveoli. Compare 24.7% in jaws at Edix Hill and 0.8% in alveoli at Castledyke. Most instances are few per mouth and small. Exceptions include Sk1184 (SG58) with four small single cavities, Sk1124 (SG85) with one huge cavity above a maxillary molar which extends up into the antrum (the facial sinus) with a surrounding shell of bone, and Sk1312 (SG108) with three large cavities linking the alveoli of left and right maxillary and right mandibular molars.

Damage to enamel can be caused by coarse diets or abrasion by 'third hand' activity or tooth-grinding habits. To some extent secondary (reparative) dentine can protect against this but, if damage occurs too rapidly, the pulp is exposed and infections can enter and progress to abscesses. Modern populations in the developed world have fewer abscesses because of a non-abrasive diet, but severe attrition was a significant causative factor in the past. Attrition at Melbourn appears average for the Anglo-Saxon period, and where teeth are present above abscess cavities, they do not tend to be exceptionally worn.

Ante-mortem loss

Periodontal disease, inflammation in the supporting soft and hard tissues of the jaws, is caused by bacteria. If the tissues recede sufficiently, teeth can become loose and, ultimately, are shed. Abscesses also contribute to inflammation and damage to the supporting bone, as can irregular wear, which changes the stresses on the teeth during chewing, so contributing to loosening and loss.

Prevalences of ante-mortem loss are 23/49/46.9 in jaws and 140/1253/11.2 in alveoli in the Melbourn population. The prevalence at St Peter's Tip is 39.8% in jaws. Brothwell found *c.* 15% in the alveoli of several Anglo-Saxon groups, Edix Hill has 7.1%,

Castledyke 7.7%. The ante-mortem loss is, therefore, greater than from these three large cemeteries but within Brothwell's range.

Calculus

Dental plaque often mineralises to calculus (or tartar) which modern experience shows can be resistant to regular tooth-cleaning. Severe calculus is found in Sk1307 (SG75), a woman of over 45 years. It extends well below the cemento-enamel junction and shows the recession of the gum in life. In Sk1312 (SG108), a male of similar age, calculus covers the whole outer face and most of the occlusal surface of a maxillary molar crown, in addition to the abscess cavities mentioned above. Sk1348 (SG59) has slight calculus on the anterior maxillary dentition but a severe deposit covers the occlusal surfaces of the mandibular 5 to 8 (second premolar to last molar) on one side and extends outwards overhanging buccal and lingual surfaces. There is considerable alveolar recession in the same area and one mandibular molar lost, but no other dental disease.

Stress indicators

A small group of changes can demonstrate in the skeleton the effects of environmental stresses such as specific or general dietary deficiency. One of them, *Cribra orbitalia*, is present in most ancient populations but aids comparison between populations by its variable prevalence. The aetiology appears to be iron-deficiency anaemia which causes the haemopoietic (red-blood-cell producing) tissue to over-develop; some is contained in the bone marrow and so the marrow space widens. In the skull vault and upper orbit, the central marrow-containing layer breaks through the dense outer layer of bone and is seen as a sieve-like or spongy appearance within or on top of the bone (called *cribra orbitalia* when in the orbit). This remodels when the deficiency episode is over, leaving just a trace in a worm-like pattern over the affected area. It is seen more often in children, whose iron needs are greater than adults although some researchers believe it can only develop in children because of their distribution of bone marrow.

Contrary to expectations, iron deficiency anaemia is not usually the result of inadequate diet but of two other causes. The protective 'anaemia of infection' in which the body withholds iron from infectious organisms is a valuable part of the body's response to infectious disease. Infection by parasites and the resultant loss of bulk blood and nutrients is the other major cause. Both are exacerbated in crowded conditions, which favour the transmission of microscopic infectious organisms and parasites.

A survey of Anglo-Saxon cemeteries had *cribra* prevalences from 3% at Portway, through 13% at St Peter's Tip, Broadstairs, a site contemporary with Melbourn, to a maximum of 18–20% at Edix Hill and Castledyke (Duhig in prep.; Wells 1985; Wiggins *et al.* 1999). The prevalence in the Melbourn population is 16/46/34.8 (Table 6), nearly double the highest of these figures, exceeding that of Romano-British

Poundbury (28%: Molleson 1993) and falling within the range of American sites where the cause is malabsorption of inaccessible nutrients in maize (31–52%: Lallo *et al.* 1977). For Melbourn, crowded conditions are unlikely, as is a general dietary inadequacy on the American model given the probable similarity of diet between Anglo-Saxon sites, but episodes of severe food shortage are possible.

There is one mild instance (1/53/1.9) of another stress indicator, dental enamel hypoplasia, a disruption in the enamel formation during childhood caused by periods of severe dietary deficiency or feverish illness. This prevalence is extremely low, the lowest Anglo-Saxon sites surveyed having 5% and 5.4% (Spong Hill and St Peter's Tip: Duhig in prep.; Putnam 1984). It does not support the implication of food shortage given above.

Infection/inflammation

The problem of identifying infection in ancient remains has been mentioned above. That being said, low population densities probably prevented the maintenance in the population of many of the major infectious diseases, the main pathogens for our age and period probably being those of diarrhoeal disease and those transmitted by domestic animals: cowpox, anthrax and bovine tuberculosis. In the Melbourn assemblage there are no identifiable cases of specific (named and systemic) infections such as leprosy or tuberculosis and all the six cases listed (Table 7) appear to be non-specific. They can be attributed to the introduction of an infectious organism to the bone or its surrounding membrane, the periosteum, by local trauma, or the proximity of infected soft tissue producing inflammation which has instigated reactive

Table 6. Stress indicators

SG	Sk	Sex/Age	Description
64	205	13	<i>cribra</i> stage 4
61	213	M 25–35	<i>cribra</i> stage 1+
83	305	M 55–65	<i>cribra</i> stage 3 remodelling to 1
101	1017	(M) 15	<i>cribra</i> stage 2
86	1121	? 17–25	<i>cribra</i> stage 2 remodelling to 1
85	1124	M 45–57	<i>cribra</i> stage 1
87	1169	?F 17–25	<i>cribra</i> ?stage 3 (erosion obscures)
79	1188	M 60–70	<i>cribra</i> stage 1
78	1189	F 33–46	<i>cribra</i> stage 2
77	1204	M 18.5–20	<i>cribra</i> stage 3
105	1267	(F) 17	<i>cribra</i> stage 4
89	1271	F 25–30	<i>cribra</i> stage 3
76	1289	2–4	<i>cribra</i> stage 5
75	1307	?F 45+	<i>cribra</i> stage 4
67	1370	?F 20–25	<i>cribra</i> stage 4
106	1384	M 30–44	mand dentition: enamel hypoplasia (diffuse bands visible on 3s)
68	1386	M 35–57	<i>cribra</i> stage 2 remodelling to 1

Table 7. Infection/inflammation

SG	Sk	Sex/Age	Description
64	205	13	lumbar arch: R lamina, ECNB and ?erosion
88	312	M 45+	L triquetral medial side: erosion and cavities
74	1012	M 25–46	L humerus dist, immediately prox to capitulum on palmar surface: hole c irregular network of bone 0.9 wide x 0.6 high
101	1017	(M) 15	mandible midline to R 6: alveoli and bone of corpus resorbed to below foramen, fine-grained ECNB on irregular resorption surface, internally ECNB over cortex from midline to below 7 (central area broken) — o/myelitis from ?abscess/periodontal disease
66	1145	M 23–57	R tibia lateral edge from neck to c. 16 cm: remodelled ECNB, break in shaft reveals expansion of cortex by ECNB 'shell'; at distal extremity of lesion, lip appears to adjoin vascular channel; no cloacae — ?inflammation from soft tissue trauma
65	1165	F 25–35	L5 sup facets: appear to have been fused to inf facets of L4 (L3–4 missing and breakage obscures); some shapeless masses of ECNB ?represent arches of L3–4

new-bone growth. This is perhaps seen in Sk1145 (SG66).

The last case, Sk1165 (SG65), has affected the arches of at least three contiguous vertebrae. Skeletal tuberculosis cavitates and collapses the vertebral body but has little if any effect on the arch, so this is an improbable diagnosis.

Trauma

Twelve fractures are present in eight skeletons (12/58/20.7), the multiples causing the over-representation of trauma in this assemblage (Table 8). It is probable that the three fractures of Sk305 (SG83) represent two accidents, one to the left leg and the other to the collarbone. The three fractures with resultant osteoarthritis and ankylosis of Sk1187 (SG80) could be the results of one or two accidents; certainly the broken collarbone and crushed humeral head in this specimen are likely to have been produced at the same time, but a severe fall on, or a blow to, the left shoulder might have injured the right forearm at the same time, if this were drawn up for protection. This would make a more realistic estimate of the trauma experience of the community as 10/58/17.2 or 9/58/15.5.

None of these changes can be clearly attributed to inter-personal violence and they can all be interpreted as reasonable examples of accidental fracture due to tripping and twisting the foot (Sk305, 1 and 2 (SG83)), falling on an outstretched hand (clavicle fractures, Sk1305 (SG70)), or the collapse of vertebral bodies in

an older woman (Sk1398 (SG107)). The increased length of the affected tibia in Sk312 (SG88) is problematical, for a long bone fracture usually causes loss of length, or maintenance of normal length if well splinted. An osteomyelitic condition with local abscess (Brodie's or 'cold' abscess) can produce increased length in a diseased bone by affecting the growth plate; this could be demonstrated by x-ray but the absence of disorganised bone and/or a cloaca (escape hole for pus) near the fusiform swelling suggests osteomyelitis is unlikely (Ortner & Putschar 1985: 115, Figs. 146–8).

Changes due to habitual activity ('occupational changes')

It is probable that many small changes on bones and some of the major changes of, for example, osteoarthritis and dental disease, have been caused by the habitual activity of their owners. Given the poor correlation between known activities and patterns of skeletal damage, however, discussion of habitual activity or locomotion, so-called 'occupational change', can usually only be speculative (Stirland 1991; Waldron 1994: 98–9).

The over-development of muscle origins or insertions, such as found in Sk1312 (SG108) and Sk1386 (SG68), indicate considerable use of those muscles, but little more can be said (Table 9). The *os acromiale*, a separate bone formed by the non-fusion of the growing end of the acromion process of the scapula,

Table 8. Trauma

SG	Sk	Sex/Age	Description
83	305	M 55–65	1. L tibia dist third shaft: well-remodelled #, little loss of length, lateral shaft has deep indentation c perforation, ?cloaca or original wound 2. L fibula prox third shaft: well-remodelled # 3. L clavicle midshaft: well-remodelled spiral #, little loss of length
88	312	M 45+	L tibia dist third shaft: fusiform swelling medially; 1st groove & lip extending distally from cnemial crest, spiralling to medial side; 2nd groove & lip at post edge of swelling containing 3cm wide patch of raised bone (?ECNB); interosseous line at distal end extended laterally, widening shaft; NB this tib longer than R! — ?# or ??o/myelitis c epiphyseal plate involvement
73	1032	M 35–45	R ribs ?6, ?7, 12: irregularities — ?#s
98	1034	?M 35–39	L rib (6–10) prox third shaft: thickened c spur pointing medially on sup edge — ?well-remodelled #
80	1187	M 60+	1. L clavicle midshaft: angulation of distal half and loss of length (13.5cm cf. 15.1cm for R clavicle) — remodelled # 2. L humerus head: flattened (also arthritic changes on head and L scapular glenoid fossa) — remodelled # with resultant osteo-arthritis 3. R ulna distal shaft: thickened and misshapen c distal articulation angulated anteriorly and styloid process missing (also arthritic changes at distal radio-ulnar joint, fusion of ulna and ?lunate, fusion of carpal to mc3 or 4 and mc shafts x 3 misshapen c midshaft spurs) — remodelled #
70	1305	F 60–87	R ulna distal: small shapeless lump replaces articulation — trauma
68	1386	M 35–57	L clavicle distal shaft: loss of contour and cloacae — remodelled #
107	1398	F 45–87	T7, T10 bodies: wedged — compression #s

Table 9. 'occupational changes'

SG	Sk	Sex/Age	Description
73	1032	M 35-45	scapulae: ossa acromiale
66	1145	M 23-57	tibiae: lateral squatting facets
58	1184	M 45-57	tibiae: platycnemic (femora not measurable but appear platymeric)
77	1204	M 18.5-20	tibiae: lateral squatting facets
108	1312	M 35-57	humeri deltoid insertions: rugged; pps palmar aspects of shafts: lipped, habitual arm/hand activity
68	1386	M 35-57	mc1s palmar aspects of shafts: lipped, habitual hand activity
59	1348	M 23-57	tibiae: platycnemic

develops when there is severe stress on the shoulder joint before adulthood, and it is found in higher-than-normal percentages in archers (Stirland 1991). Sk1032 (SG73), therefore, might have been using the shoulder muscles to a great extent, although a wide range of shoulder movements involve the acromion process and archery is only one of them. Prevalence here is 1/45/2.1

Squatting facets are small flattened areas on the distal articulation of the tibia and the corresponding area of the talus, thought to be produced by extreme dorsiflexion of the foot in habitual squatting. Platycnemia is side-to-side flattening of the tibia, believed by some to be similarly caused. The aetiologies are still poorly understood, however, and the conditions can not yet be shown to present any significant cultural or sexual distinctions (Kennedy 1994). Prevalence of both conditions is 2/48/4.2.

In our society, caries, severe dental calculus and alveolar recession indicate poor dental hygiene and thus tell us about individual behaviour. In ancient populations, however, we do not know how far deliberate tooth cleaning was practised and we are obliged to attribute these conditions to individual physiological variations. Therefore, calculus and caries are dealt with above. Possible parafunctional wear in two dentitions is covered in 'Other conditions' below, because of its problematical diagnosis.

Epigenetic traits and congenital and developmental disorders

Epigenetic traits are minor skeletal variants of little or no clinical significance, which result from an interaction of genetic predisposition and the environment before and after birth. Their presence can assist determination of relatedness in a cemetery but interpretation must also include the effects of common environment, diet and life experiences in a community. Congenital and developmental disorders often have a simpler inheritance pattern but often only the degree of clinical severity distinguishes them from epigenetic traits, so they are grouped with them here.

Good preservation in the Melbourn cemetery has facilitated the recording of the non-dental traits, which can often be lost to erosion and damage to the fragile areas of the axial skeleton.

Dental Epigenetic traits

Dental epigenetic traits are more reliable as familial markers than skeletal traits, because tooth development is not particularly susceptible to environmental influences.

Several specimens have missing third molars (wisdom teeth) in at least one quadrant (Table 10). Up to 37% absence has been recorded for this tooth in modern populations, and 49% in ancient, and although inter-observer variation is likely in earlier studies, the percentage absence is still considerably greater than for the next teeth which tend to be congenitally absent: lateral incisors and lateral premolars at a maximum of 2% (Hillson 1990: 269). If there is no space for the alveolus, absence is likely to be congenital, but without x-ray this cannot be confirmed. Therefore, only one case has been listed here (Sk1263 SG103), where the breakage of the mandible demonstrates the absence of an alveolus for one of the third molars.

The commonest dental epigenetic trait in this assemblage is incisor shovelling, which is related to the presence of lingual tubercles and is combined with this trait in all three cases. When plotted on to the site plan, the three affected individuals are not buried close together. Similarly, there is no clustering of either the two skeletons with peg-shaped molars or the two with parallelogram-shaped molars, a condition which clusters at one contemporary cemetery (St Peter's Tip: Duhig in prep.). This does not mean, however, that the individuals are unrelated, for location in the cemetery might be organised by a system other than kinship groups, and exogamy would constantly separate related persons.

Non-dental Epigenetic traits

Numerical errors of segmentation (NES) and cranio-caudal border shifting (CCBS) are grouped together because they are paraxial mesoderm field defects, that is, they are caused by errors in the formation of the elements which make up the vertebral column at an early stage of foetal development (Barnes 1994: 58-9, 78-116). The first indicates additional or missing vertebrae, most commonly an additional lumbar. The second indicates vertebrae which have taken up the form of the vertebral type immediately above or below, such as the last thoracic vertebra being of lumbar form (ie without ribs and with curved facet joints).

Table 10. Dental epigenetic traits

SG	Sk	Sex/Age	Description
64	205	13	R max 8: peg-shaped
61	213	M 25–35	R max 8: parallelogram-shaped molar
84	316	14–15	L max 2: shovelled c lingual tubercle
98	1034	?M 35–39	L max 3: malformed (thick) root; root apex just lateral to nasal aperture, tooth lies at 45° with crown at midline behind alveolus of 1; no alveolus for 2
65	1165	F 25–35	L max 3 and R 8: rotated
87	1169	?F 17–25	1. L max 2 shovelled (folded): L max 3: lingual tubercle 2. R max 8: wrinkled enamel 3. L mand 8: deformed (triangular), wrinkled enamel, 8 ‘cusps’
79	1188	M 60–70	maxilla on palate at and adjacent to alveolus of 7: cyst-like hole (resembling tooth roots) beneath partly-closed alveolus; on palate small nodule resembling tooth enamel and another cyst-like hole extending to it from floor of nasal cavity
77	1204	M 18.5–20	L max 8: parallelogram-shaped molar
103	1263	?F 17–25	1. R max c: retained as worn stub, displacing 3 2. R max 8: peg-shaped 3. R mand 8: absent, no crypt — congenital absence
105	1267	(F) 17	max incisors: shovelling, lingual tubercles and folding

Table 11. Non-dental epigenetic traits: numerical errors of segmentation (NES)

SG	Sk	Sex/Age	Description
83	305	M 55–65	S1–5 and Co1: fused or S1–6 — ?NES
90	1008	M 23–30	T13 or L6: present — NES
87	1169	?F 17–25	L5 and five L arches present, plus one half arch w fits above L5 or one above; T1–12 and L1–6 or T1–11 and L1–7! — NES
80	1187	M 60+	L6: present — NES

Both types of condition are often found together and there is some familial tendency to have one or both of the changes, without specificity as to location or type of defect. A Native American site with 27% CCBS is considered to be indicative of inbreeding (Bennett 1972). In the Melbourn assemblage, Sk1008 (SG90) and Sk1169 (SG87) have both NES and CCBS (Tables 11 and 12). Grouping the conditions together, we have a prevalence of 7/47/14.9, the denominator in this case being the number of spines having sufficient preservation of the lower thoracic and lumbar vertebrae (because these conditions predilect the lower spine). Reporting of prevalences from other sites is uncommon but Edix Hill has 9.2% and St Peter’s Tip, contemporary with Melbourn, 8.5%, so the Melbourn findings are rather high.

Spondylolysis (Table 13) demonstrates the relationship between genetic factors and trauma: A congenital weakness of the attachment of the vertebral arch to the body can be turned to fracture by severe stress on the spine (eg Merbs 1983; Merbs 1994; Waldron 1991). The six cases noted here (6/47/12.8) give a similar prevalence to Castledyke (10.1%) but a markedly higher prevalence than modern populations (approximately 3–7%) and that found at other well-preserved

sites such as Waldron’s Anglo-Saxon, Roman and 18th-century cemeteries (3.74%, 4.55% and 1.42% respectively: Waldron, 1991, 501], Edix Hill, 4.1%, and St Peter’s Tip, 3.2–5.3% (Duhig 1998; in prep.).

The affected arch is normally held in place by fibrous tissue, but if the arch slips, spondylolysis follows: false-joint formation with its own or adjacent vertebrae, deterioration of the intervertebral disc and contiguous surfaces of the vertebral bodies, sometimes narrowing of the spinal-cord space and consequent neurological damage. In the one case, there appears to be only slight slippage with the development of new articulating facets, but damage prevents assessment of the degree of damage to the body surfaces.

There is only one case of cleft neural arch, which is a relatively common trait with a familial tendency (found in up to 25% of spines and particularly predilecting the lower lumbar area: Barnes 1994, 117–22, Figs. 3.440c, 3.42). It should not be confused with *spina bifida*, which in its more severe form is clinically significant. It results from a delay in fusion of the two sides of the vertebral arch at a relatively late stage of development and is often found with spondylolysis (Fredrickson *et al* 1984). There is also an

Table 12. *Non-dental epigenetic traits: cranio-caudal border shifting (CCBS)*

SG	Sk	Sex/Age	Description
90	1008	M 23–30	T13 or L1: transitional c facets like lumbar, tiny nodules like rib facets; partial CCBS
74	1012	M 25–46	T12 sup facets: transitional c facets like lumbar; partial CCBS
87	1169	?F 17–25	T & L arches (most bodies absent): only 11 Ts present, one c L-type facets; CCBS
108	1312	M 35–57	T12 facets: transitional c facets like lumbar, rib facets present; partial CCBS
59	1348	M 23–57	T12 facets: transitional c facets like lumbar, T11 has curved inf facets only; CCBS

Table 13. *Non-dental epigenetic traits: spondylolysis and neural arch deficit*

SG	Sk	Sex/Age	Description
83	305	M 55–65	L5: spondylolysis (arch missing)
88	312	M 45+	L5: fissure between upper and lower facets, partial spondylolysis
73	1032	M 35–45	L5: spondylolysis
95	1038	F 45+	Ts x 2 arches: lower arch appears separate from body and has facets for articulation with body (damage obscures); spines and R side of arches articulate together at horizontal facet — spondylolysis and ?spondylolysthesis
80	1187	M 60+	L6 R arch: separated — spondylolysis
69	1293	? 25–35	L5: spondylolysis
80	1187	M 60+	L6 arch midline: spine is long, thin spur, open but not gaping — cleft neural arch

Table 14. *Non-dental epigenetic traits: Wormian bones*

SG	Sk	Sex/Age	Description
74	1012	M 25–46	sagittal suture: Wormians x 2
77	1204	M 18.5–20	sagittal suture: Wormians x 3
106	1384	M 30–44	vault at L asterion: Wormians x 2

Table 15. *Non-dental epigenetic traits: Wormian bones*

SG	Sk	Sex/Age	Description
86	1121	? 17–25	frontal: metopic suture
67	1370	?F 20–25	frontal: metopic suture
68	1386	M 35–57	frontal: metopic suture

Table 16. *Non-dental epigenetic traits: sternal aperture*

SG	Sk	Sex/Age	Description
58	1184	M 45–57	sternum body/xiphoid junction: sternal aperture; prob cleft/notch of last segment
77	1204	M 18.5–20	sternum body: sternal aperture

occasional coincidence of these two conditions and NES/CCBS, as in Sk305 (SG83) (spondylolysis with NES) and Sk1187 (SG80) (both spondylolysis and cleft neural arch with NES).

All the above spinal conditions appear to cluster in a north-central band in the cemetery, but this might be no more than the effect of a relatively high prevalence of these conditions and the concentration of graves in this area in a rather small cemetery.

Small additional bones within the sutures of the skull are known as Wormian bones (Table 14). They are blastemal desmocranium field defects of the type 'failure to coalesce'; in the foetus or infant, the delay in the growth of one skull bone towards another will trigger the development of a new growth centre to fill the gap, so producing a separate bone. They are present in variable percentages in all populations, and although there is a heritable tendency towards certain types of Wormian formation in some groups, their development is also triggered by individual metabolic disturbances, or by trauma (eg cultural deformation of the skull). (Barnes 1994, 138–42; Hauser & Stefano 1989, 84–94). Prevalences of sagittal ossicle, as two of the cases are, tends to be in the single figures, and ossicle at asterion is not quantified.

Another 'failure to coalesce' trait is the retention of the metopic suture which divides the frontal bone and which usually fuses and disappears by the age of two years (Table 15). Again, there are both heritable and random elements in its development and it is found worldwide although at very different percentages, 8–10% being an approximate average for Europeans.

The prevalences are 3/53/5.7 for both conditions and figures from other ancient cemeteries are surveyed elsewhere (Duhig 1998, 189–90). It is clear that both are found at Melbourn at an expected level, although Wormian bones are likely to be somewhat under-represented due to the shattered nature of the skulls, from which the small Wormian bones would have fallen.

Incomplete fusion of sternal segments leaves an aperture in the adult sternum (Table 16). The trait appears to have markedly different frequencies in Caucasoid and Negroid populations (Barnes 1994) but a familial element has not been recognised.

It is unclear whether palatine tori, mounds of bone along the midline of the palate, have a significant heritable element (Hauser & Stefano 1989, 176–9), but in this cemetery there is only one example (Table 17). Septal apertures in the distal humeri are recorded as epigenetic traits but tend to be found in lightly-built individuals or populations where the bone, naturally thin at this point, becomes so thin as to be perforated.

Neoplasia

The case of Sk1041 (SG94) is a common non-malignant bone overgrowth, usually of the skull vault, referred to as an 'ivory' or 'button' osteoma because of its usual form and composition (Table 18). They develop in life and are present in at least 1% of all autopsies.

Sk1124 (SG85), on the other hand, shows a destruc-

tive condition of the arch of one neck vertebra, in which destruction of bone on the inner face of the arch was combined with repair on the outer face. It is restricted to this vertebra only and there is no other malignant change in the skeleton, so it has been suggested, with reason, that it has formed through contact with an expanding malignant condition of the spinal cord or one of its associated tissues (D Brothwell, pers comm).

Other conditions

The massive vesical calculus (bladder stone) which was found in the pelvis of Sk217 (SG110) is the subject of current research (Table 19). This excruciatingly painful and debilitating condition has exercised medical and surgical skill throughout history and was the subject of several superb medieval Arab surgical treatises (surveyed in eg Bitschai & Brodny 1956). The stone occasionally became so large that death could ensue from retention of urine, as is possible in this case. Calcification of soft tissue appears to be the explanation of the small tubular structures found with Sk1188 (SG79). They do not resemble ossified cartilage as sometimes found in the chest plate (these are the cartilages making a flexible joint between ribs and sternum), and perhaps they are calcified blood vessels, unsurprising in a man of the age of Sk1188.

The deviated nasal septum, apparently developmental in the absence of evidence of fracture, of Sk1312 (SG108) is not uncommon in ancient or modern populations, and correction of the deviation to enable breathing through the affected nostril is a frequent surgical procedure.

Sk1021 (SG56) and Sk1229 (SG82) have grooved enamel, and, in the first case, also dentine, in the front teeth. The grooves resemble those produced by the use of the teeth as a 'third hand' for holding objects or passing thread through (pipe wear is common, as is the holding of pins by dressmakers). They are thus listed as parafunctional wear, that is, wear produced otherwise than by biting or chewing. Skeletons 1187 (SG80), 1271 (SG89) and 1398 (SG107) have the condition this author describes as 'paint blobs': ovoid or streaked nodules of dense cortical bone clustering near the midline on the inner surface of the frontal bone. They resemble the earlier stages of the disorder called *hyperostosis frontalis interna*, but as this is a condition predilecting post-menopausal women, finding the condition in one male out of three affected individuals suggests that these cannot be HFI ('paint blobs' are also found in one male out of four individuals at Edix Hill: Duhig 1998).

Schmorl's nodes have been mentioned above. Sk1017 (SG101) and Sk1041 (SG94) might be such nodes, but their form, with somewhat sclerotic edges, is atypical. The remainder of these conditions (see Table 19) are inexplicable.

Table 17. Non-dental epigenetic traits: other traits

SG	Sk	Sex/Age	Description
61	213	M 25–35	maxilla: palatine torus
90	1008	M 23–30	T12 up L facet: double facet
55	1015	3.7–6.3	C3 central body on midline: perforation
56	1021	F 21–30	maxilla R palate post to alveolus of 8: bone nodule
66	1145	M 23–57	C1 R sup facet: bipartite facet
82	1229	F 19–25	humeri: septal apertures
75	1307	?F 45+	L humerus: septal aperture
106	1384	M 30–44	occipital: bunning
68	1386	M 35–57	L humerus: septal aperture

Table 18. Neoplasia

SG	Sk	Sex/Age	Description
94	1041	? 60+	occipital immediately below and to L of nuchal line: large pedunculate osteoma 1.9cm wide x 2.4cm long x 1.24cm high
85	1124	M 45–57	C5 arch on R, centre (incl spine) and half of L: rarefied and 'lacy' c mixed resorption and repair, more rapid destruction internally (sharp edges on some holes, external aspect all rounded edges) — contact effect from ca. spinal cord or associated tissues

Table 19. Other conditions

SG	Sk	Sex/Age	Description
110	217	M 34–86	large ovoid calcareous object found within pelvis — bladder stone
104	1002	M 45–66	T5–9 ant bodies: extended anteriorly to form ovoid bodies — ??
101	1017	(M) 15	L5 inf body: central: large defect — ?Sch node or ??
56	1021	F 21–30	max 1s central occlusal surfaces: narrow grooves extending a–p over enamel and exposed dentine (enamel chipped) — pf wear
94	1041	? 60+	T10 inf body central: narrow crack — ?Sch node or ??
80	1187	M 60+	frontal concentrated at midline: 'paint blobs' — ?HFI
79	1188	M 60–70	four lumps of ossified material, sub-tubular — ??calcified vessels
78	1189	F 33–46	L sca, lun, tri, cap, mc1, R sca, lun, tri, cap, ham: enlarged or new foramina — ??
82	1229	F 19–25	L max 1 central occlusal edge: crack in enamel, groove passing lingually — pf wear
89	1271	F 25–30	frontal concentrated at midline: 'paint blobs' — ?HFI
108	1312	M 35–57	ethmoid/vomer: deviated nasal septum
107	1398	F 45–87	frontal concentrated at midline: 'paint blobs' — ?HFI

Artefacts

Holly Duncan, with contributions by John Hines

Introduction

The following survey of the grave goods focuses on identification and classification of the finds. The grave catalogue (section 6) lists the artefact types in each grave. The grave goods and gender groups are discussed in Chapter IV.

No 'offerings' of complete animals or joints of meat were found in the graves. The animal bone recovered from grave fills was generally in a fragmentary condition. The single exception, a partial lamb skeleton in

the fill of SG65, was not articulated and did not display any butchery marks. It seems probable that this, like the other faunal material, was residual and incorporated into grave fills by chance. The complete faunal report, undertaken by M Holmes, forms part of the site archive.

The artefacts are grouped into four main categories: personal adornment and costume, tools and personal equipment, vessels, and weaponry. Each of these categories is internally subdivided. Where objects from specific graves are referred to the sub-group (SG) number is given. The methodologies used in the study of the finds are presented in Appendix 1. Fabric

descriptions of the ceramic vessels are given in Appendix 2.

Personal adornment and costume

Necklaces and festoons

A total of 144 beads of five different materials were recovered from ten individual burials. The numbers of beads per person differed, as well as the material range within each individual assemblage (Table 20).

Glass beads

The glass beads were catalogued following Guido's corpus (1999). This delayed and posthumous publication is soon to be superseded by a newly completed study by Birte Brugmann, the results of which were kindly made available for comparison (Brugmann forthcoming). For the limited range of beads represented here, there is no serious discrepancy between either classification. A short summary of the additional insights provided by Brugmann's work is given by John Hines in the concluding part of this sub-section 'Necklace Composition'.

Bead shape was also recorded but as Evison (1987, 61) states the level of precision in the manufacture of glass beads is not always high and, therefore, it is not useful to apply a rigid method of classification to such material. The distinction between many of the shape categories can become blurred at the extremes of each class. Descriptions of the bead shape classifications used form part of the site archive.

Monochrome Glass Beads

Monochrome beads represented about a third of the glass bead assemblage. Colours and quantities by grave are presented in Table 20.

The pale, translucent and colourless beads were represented by two forms. A single annular bead of pale blue/green glass (Fig. 16, SG81.1) may have been fashioned from recycled Roman bottle glass. The remaining three beads of this category, all from SG89, were of tiny globular form and may have originally formed part of small segmented or cylinder beads. Their small size, diameters of 5mm or less, distinguish them from the remainder of the glass beads and are more reminiscent of small segmented beads of the Roman period (Guido 1978, 91–3). Two were of a smoky yellow colour, while the third although heavily decayed, may have been colourless.

Of the black beads only the opaque melon or sub-melon example within SG75 is paralleled in Guido's corpus (Type 2 iii). This form of bead, with a distribution limited to southern England and the south Midlands, is unlikely to pre-date the 5th century and is on the whole found in later deposits, including 7th century graves (Guido 1999, 21). The four other black beads are all barrel shaped, lengths and diameters ranging between 9mm and 11mm. These beads have a matt, porous appearance resembling pottery. In three instances the outer black surface of the bead is damaged revealing an underlying creamy white, or in one case light coppery green, under-surface. The matt-like surface bears similarities to the opaque orange beads

(Guido's type 9) and similarities also exist in the shapes of these types (mainly globular, barrel or biconical). Type 9 beads are almost exclusively 7th century (Guido 1999, 68). It is possible the opaque black barrel beads had a black coating applied over an opaque white ground intended to imitate jet beads. Associated grave goods from the two graves producing these beads (SG69 and SG89) suggest a late 6th or 7th century date.

Monochrome opaque white beads (Guido type 3) are represented by three beads. A disc and double disc/cylinder bead occurred in SG75; the bead accompanying SG89 survived in a fragmented state. Type 3 beads are dated to between the 5th and 7th centuries. At Dover they were found within graves dated to between AD575–725 (Guido 1999, 32). Associated grave goods within Melbourn grave assemblages suggest a date range of the second half of the 6th century into the first half of the 7th century.

Opaque yellow beads are slightly better represented at Melbourn than their white counterparts. Of the five examples, four were short cylinders and the fifth more disc-like in shape. Guido suggests that these beads may have originated from Frankish sources, coming into England in the 6th century (Guido 1999, 39).

The most numerically popular monochrome bead at Melbourn is of green and turquoise glass; ten examples found in SG65 and one in SG89. The majority of these beads are of a light opaque, coppery green colour; only two examples occurred in translucent turquoise glass. The most common shape is short-cylinder with a wide perforation. Green beads were very common in the Roman period but the majority of the Anglo-Saxon examples occur in deposits dating to the 6th and early 7th centuries (Guido 1999 42–43).

A single translucent blue bead of melon or sub-melon form was found in SG75. This was a common type in the post-Roman period, occurring in later 5th century through 6th century deposits and possibly continuing beyond the 7th century with a distribution covering most of Anglo-Saxon England (Guido 1999, 53). The example from Melbourn occurs in a grave with items suggestive of a date in the second half of the 6th century.

Opaque terracotta beads do not appear to have a Roman ancestry. They suddenly became popular in the 6th century and continued in use into the 7th century (Guido 1999, 59). The two monochrome examples from Melbourn, a short cylinder and a pentagonal cylinder, were found in SG75.

The final type of monochrome bead is opaque orange in colour and occurs in barrel, biconical, disc and short cylinder forms. This type of bead, nearly always matt in texture, is almost exclusively attributed to the 7th century. The grave goods accompanying the three inhumations (SG69, SG89 and SG95) with these beads appear to conform to the suggested dating. They included slip-knot rings, spangles and a dress pin consistent with a late 6th to 7th century date.

Sex		F	F	F	F?	F	IMM	F	F	F	F	F	F	F	Totals
Sub-group no	Skeleton no	56	65	69	72	75	78	81	82	89	95	97	105	107	
		1021	1165	1293	1045	1307	1189	1224	1229	1271	1038	1176	1267	1398	
Beads	Ground														
	Motif														
Monochrome	Pale translucent							1		3					4
Monochrome	Black			1		1				3					5
Monochrome	Opaque white					2				1					3
Monochrome	Opaque yellow					3		1		1					5
Monochrome	Green/Turquoise		10							1					11
Monochrome	Blue					1									1
Monochrome	Terracotta					2									2
Monochrome	Opaque Orange							1		1	3				5
Polychrome	Black			1											1
Polychrome	Black							1							1
Polychrome	Swirls					3									3
Polychrome	Crossed waves									1					1
Polychrome	White									9					24
Polychrome	White					15				1			1		15
Polychrome	White					13				1					15
Polychrome	White									1					1
Polychrome	White					1									1
Polychrome	White									1					1
Polychrome	White									1					1
Polychrome	White									2					3
Polychrome	Yellow					1									1
Polychrome	Blue					2									2
Polychrome	Blue					1									1
Polychrome	Eyed									1					1
Polychrome	Wound lines/bands					3									3
Polychrome	Terracotta									1					1
Polychrome	Terracotta									8					13
Polychrome	Terracotta					5									5
Polychrome	Terracotta					4									4
Polychrome	Terracotta									2					2
Polychrome	Terracotta									2					2
Amber	Single wave					12			2	6			1		21
Shell										1					1
Metal	Silver		1							2					3
Metal	Copper alloy									1					1
TOTAL beads		1	10	9	69	69	2	3	45	3	1	1	1	1	144
Wire rings	Copper alloy					1									2
Wire rings	Silver					2				4	1	1			9
Wire rings	Iron									1					1
Spangles										2					2
Pendant	Scutiform						1			1					2
Pendant	Jewelled														1

Table 20. Composition of necklaces

Polychrome Glass Beads

Of the 76 polychrome glass beads (see Table 20), the most popular motifs were that of crossed waves (43 examples) and its related motif, crossed trails or waves with dots (20 examples). These motifs occurred on a variety of grounds and colour combinations. Guido comments that although the crossed wave motif in many colours and forms lasted at least from the 5th century into the Viking period, the majority of those on a 'black' ground can be assigned to the 6th century, with a few continuing to be buried in the 7th century (Guido 1999, 26). Only one grave SG75 had beads of 'black' ground and crossed opaque white waves; associated grave goods indicate a date in the latter half of the 6th century.

A white ground with blue waves was the most common combination, a form particularly favoured in the Rhineland, the Netherlands and northern France. In England they are concentrated in the southern counties, the Midlands, and East Anglia (Guido 1999, 32). Blue waves were also favoured on yellow grounds. Opaque white waves occurred on blue and terracotta grounds. Terracotta grounds also had opaque yellow waves, but these were less popular than the white.

Four beads (two from SG75 and two from SG89) of opaque white ground had either green or terracotta waves, with or without dots. Guido has suggested, due to the greater concentration in East Anglia, that these beads are local variants made in Norfolk and Suffolk (Guido 1999, 330). A single bead (SG75) possessed the same colour combination of red and green but differed in having only a single wave. Again this may have been of East Anglian manufacture. Seven beads with white ground and crossed wave and dot motif (all from SG75) retain only their red dots, the glass forming the waves having eroded out. These, therefore, could have had either green or blue waves.

There were only three examples of beads with single waves, occurring on opaque white and terracotta grounds. The opaque white bead possessed a blue wave, a type thought to be contemporaneous with white beads with crossed waves. Equally scarce in number are terracotta beads with a single white wave. Guido noted few beads of this type in her corpus, the most closely dated example from a grave of AD575–625 at Dover (1999, 64). A similar date is suggested for the Melbourn examples from the associated finds of slip-knot rings, spangle and scutiform pendants (SG89).

Spotted beads, such as the single opaque white with terracotta spots found in SG89, are relatively rare. The most closely dated examples come from Puddlehill and Chamberlain's Barn (Beds.) with suggested dates of early 7th century (Guido 1999, 34).

A single example of a bead of opaque white ground with opaque terracotta wound lines overlying a translucent blue wave was noted from SG89. This bead is closest to Guido's type 1vii, which normally have a light-coloured translucent ground. There is, however, a single atypical example of opaque ground from Lyminge in southeast Kent (Guido 1999, 16). On

the continent this bead type occurs in 5th century graves (Guido 1999, 16). The Melbourn example, however, is associated with finds of late 6th–7th century date. The same grave yielded a related type, having a terracotta ground with opaque white bands and translucent (blue?) wave.

Three beads, all from SG75, possess a terracotta ground with white or yellow wound bands or lines. These beads are common in northern Europe in the 6th–7th centuries and have a southerly distribution in England, with only two others noted in East Anglia (Mucking, Essex and Mitchell's Hill, Suffolk) (Guido 1999, 62 and 300).

The final two polychrome beads are both single examples of types. The annular bead with black ground and opaque white and terracotta swirls (SG69) is of Guido's type 11b. They appear to be a long-lived type, beginning in the 5th but lasting into the 7th century, if not beyond (Guido 1999, 75). The Melbourn bead of this form is associated with objects of 7th century date. Although swirl beads may have their roots in the Migration Period tradition, they appear to become more popular in Final Phase assemblages (Geake 1997, 111).

The single bead of eyed form is of dark opaque blue, the eyes formed by three white opaque spots with an annular red ring overlying each (SG75). Guido notes that there are few continental analogies but suggests a 6th to 7th century date for their manufacture (1999, 54). Two were found within Phase 1 graves at Edix Hill (Barrington A), Cambs. (Malim and Hines 1998, fig. 3.32, Grave 5 no. 67; fig. 3.37, Grave 14 no. 15). At Melbourn associated finds suggest a date within the second half of the 6th century.

Non-glass beads

Amber

Amongst the 21 amber beads, seven shapes were identified. Although many amber bead collections consist of irregular shapes, thirteen of the beads from Melbourn do exhibit shaping including possible lathe-turning on the largest, bun-shaped bead (Fig. 19 SG89.1). Where beads occur in shape pairs within a necklace they are of similar weight.

At Dover amber beads were found in phases 1–4 (AD475–650), with few in the earliest phase and the majority falling within the 6th century phases. Amber beads do not survive beyond phase 4 (AD625–650) at Dover. Although not exclusively 6th century, this is no doubt their period of greatest popularity (Evison 1987, 57–60 and text fig. 11). After the first few years of the 7th century amber beads generally are only found in ones and twos (Geake 1997, 47). On this basis it can be suggested that SG75 and SG89 belong to the 6th and very early 7th centuries. SG82, with its two beads and shell pendant may be of earlier 7th century date. Occurrences of single amber beads, with no accompanying necklace ornaments (eg SG105), may have had an amuletic, as opposed to decorative, function (Geake 1997, 112; Meaney 1981, 10 and 14).

Shell

Seven cowrie shell beads were identified in SG69 and SG82. Six (all in SG69) were of sub-rectangular shape, retaining a corrugated edge on one side. This form of bead can be paralleled by finds from Shudy Camps, Cambs. (Lethbridge 1936, fig. 4 and 9.6). SG82, however, had a shell pendant with straight sawn edges, tapering in thickness towards one end, which is perforated. This form can be closely paralleled at Dover where they were found in graves dating between AD650–700 (Evison 1987, 60 and text fig. 11/A12 and A16). Meaney has drawn attention to the possible link between cowrie shells and female fertility and noted that most graves containing cowrie shells and cowrie shell beads have been placed in the 7th century (1981, 123 and 128).

Metal Beads

Capsule or biconical metal beads, two silver and one copper alloy, were found in SG89. These can be closely paralleled by examples from Dover, all from Phase 5 (AD650–675) graves (Evison 1987, 61 and text fig. 11 A19 and A20). Only one half of the copper alloy bead (Fig. 19 SG89.13) survives but unlike the Dover examples this bead lacks a central hole. It has two small circular perforations near one edge through which a small silver slip-knot ring is threaded. It is possible that this bead was constructed in a different manner to that proposed at Dover. Geake's survey indicates that double-bell beads start at the very end of the 6th century and continue into the 7th (1997, 43).

A fourth possible capsule bead was identified in SG56. Although fragmentary, this bead (Fig. 4 SG56.3) is of a long conical form, only half surviving. A similar item from Marina Drive, Dunstable is described as a silver clasp in the shape of two cones and was accompanied by a group of amber, amethyst and glass beads (Matthews 1962, fig. 3 no. 7). SG56, however, only had a single silver slip-knot ring accompanying this possible bead.

Slip-knot and wire rings

Eight detached wire slip-knot rings were found. Slip-knot rings were also present on two spangles and threaded through a bead (Fig. 19.20) in SG89. A second bead also from SG89 (Fig. 19.15) had been threaded on to an iron wire ring. All the non-ferrous rings had diameters of 25.2mm or less. Geake (1997, 48–50) has argued persuasively for these rings serving as ends or components of necklaces, and the positioning of the examples discussed here would support this view. Six detached rings were found at the neck or upper chest of a skeleton and two from the back of the skull. However, three further slip-knot rings, all of copper alloy and of similar size to those worn on the necklaces, were found at waist or femur level and served to suspend items from a belt (SG82 and SG64). These and larger copper alloy wire rings are discussed under toiletry items and 'girdle groups'.

Three methods of closure were noted on the non-ferrous rings: ends wrapped into a single knot; ends crossed over and terminals wrapped round the loop

forming two knots; and ends formed into a flat spiral with the terminals wrapped round the body of the loop. The latter form can be paralleled at Burwell, Cambs. (Lethbridge 1931, Grave 121), Edix Hill (Barrington A) (Malim and Hines 1998, Grave 60) and Chamberlain's Barn, Beds. (Hyslop 1963, Grave 39). The single iron ring was of small size and was linked, in the manner of a chain, through a slightly larger iron wire ring.

Knotted silver slip-knot rings became popular in the 7th century and continued in use possibly into the early 8th (Geake 1997, 49). There are, however, earlier occurrences of this form of ring. At Edix Hill (Barrington A), Cambs. a number of copper alloy slip-knot rings, used in the same manner as their silver counterparts, occurred at an earlier date (Malim and Hines 1998, 212).

There were two instances of single slip-knot rings unaccompanied by beads or pendants. The copper alloy slip-knot ring accompanying male burial SG72 lay under the chin, whilst the silver slip-knot ring with female burial SG97 was positioned at the back of the skull. It is possible that these rings were used in a slightly different manner, perhaps as clothes fastenings. SG72 appears to be one of the few male burials with a slip-knot ring positioned at the neck (Geake 1997, 50).

Spangles and pendants

The two silver spangles, both found at the neck of Sk1271 (SG89), consist of lozenge-shaped sheets with a central repoussé boss and four lines of dots radiating from the boss to the corners of the spangle. The edge of the spangle is decorated with a single line of dots. One corner of the spangle is perforated and retains a silver slip-knot ring *in situ*. Although spangles were applied to a variety of objects (MacGregor and Bolick 1993, 244; Meaney 1981, 189–90), both these examples appear to have formed part of the necklace in SG89. Parallels for the inclusion of spangles within festoons include examples from Holywell Row and Edix Hill. At the former site two spangles were found on a necklace with beads and copper alloy slip-knot rings from Grave 1 (Lethbridge 1931, 2). At Edix Hill necklaces from Graves 95 and 13 contained two and three spangles respectively, suspended from slip-knot rings (Malim and Hines 1998, 212). The decoration on the Melbourn spangles, in particular the repoussé boss, echoes that found on the two scutiform pendants discussed below and suggests a similar date range.

Both of the scutiform pendants (SG89 and SG78) are of simple form with domed repoussé bosses and, like the spangles, are of base silver with a high copper content. The example in SG89 has a concentric decorative scheme, whilst that in SG78 has a combination of concentric and radiate. Although found in Kent and East Anglia, the latter area has the greater concentration. As a type they are in the main of 6th century date, but at least eight examples from the East Anglia area are known from 'late cemeteries' (Hines 1984, 228). Previously these late examples have been dated

to the mid-7th century but Hines argues for continuity between the Migration Period and Final Phase scutiform pendants and suggests that some at least date to the earlier 7th (1984, 231–33).

A single example of a small cobalt blue glass cabochon or drop pendant, with copper alloy back plate and setting, was found in SG82, accompanied by two amber beads and a shell pendant bead. This form of pendant can be paralleled by versions in gold and silver (MacGregor and Bolick 1993, 160; Evison 1987, 56). An incomplete pendant of light green glass with silver backing was found in Cemetery II at Chamberlain's Barn (Hyslop 1963, 179 and fig. 12, Grave 32 no. c). As a type they appear to have been in use throughout the 7th century (Geake 1997, 40).

Necklace Composition

A major change in dress fashion took place sometime during the late 6th or early 7th century. The practice of wearing paired brooches and long strings of polychrome and amber beads was supplanted by short strings of monochrome glass, metal and shell beads and drop pendants, and the occasional use of single brooches.

As can be seen from Table 20, over 79% of the bead assemblage derived from two graves, SG75 accounting for 47.9% and SG89 for 31.25%. The occurrence of polychrome beads was in the main restricted to these two burials, the only two exceptions being single instances of polychrome beads with SG69 and SG107. The latter skeleton had no other necklace components and in common with single instances of amber beads (eg SG105) may have been worn as an amulet pendant. The quantity of beads accompanying SG75 and SG89 suggests that they formed long strings and, therefore, may pre-date the change in fashion. This would appear to be true for SG75, which was accompanied by three brooches (see below). The composition of the festoon or necklace adorning Sk1271 (SG89), containing slip-knot rings, spangles, a scutiform pendant and metal beads indicates a date in the late 6th to early 7th century. Perhaps given the quantity and mix of beads this burial might be considered transitional between Migration and Final Phase periods.

Although the sample is small, the suggested difference in date between SG75 and SG89 makes a comparison of the polychrome bead assemblages beneficial. This is especially true, as many of these beads appear to have had a lengthy period of use (Welch 1999, 94). In both of these burials a white 'ground' predominated amongst the polychrome beads, the crossed wave motif being favoured. However, the addition of dots to this motif was the preferred choice within the assemblage accompanying SG75, while only one bead in SG89 had both crossed waves and dots. Terracotta grounds with crossed waves also featured strongly in these two festoons but the addition of dots to the motif was absent from the group in SG89. In both cases yellow grounds featured but were not a major component. Dark blue grounds, although not occurring in quantity within

the festoon in SG75, were totally absent from that in SG89. The differences noted may be solely due to personal preference and until comparisons of larger assemblages of polychrome bead strings are carried out no conclusions as to chronological significance can be drawn.

The quantity of beads and other necklace components accompanying the remaining burials suggest the presence of short strings. Geake noted that nearly three-quarters of Final Phase graves had three or fewer monochrome beads, the average number across England being five (1997, 45). The greatest number of monochrome beads in this group of shorter necklace strings from Melbourn is ten, but more commonly two or three occur. Amber beads are less frequent and occur in smaller numbers within a string, while cowrie shell beads make their first appearance on these shorter strings.

Birte Brugmann bases her chronological sequence primarily on bead combination groups as opposed to date-ranges for individual bead types. These combination groups have been analysed by means of Correspondence Analysis. She also investigates the alignment of the Anglo-Saxon bead sequence with continental and Scandinavian archaeological evidence, the former of which is particularly strongly underpinned in absolute dating terms by coin finds and some dendrochronological dates.

Brugmann distinguishes three main phases, A, B and C. Phases A and B overlap considerably in the 6th century. The relationship between phases B and C is less clear, and is potentially of immense importance in relation to the transition from the traditionally named Migration Period to the Final Phase of Anglo-Saxon furnished burial. The beads of SG75 belong entirely to Brugmann's Phase B, with a large number of polychrome beads with crossing trails (waves) of types that are frequently associated with the later great square-headed brooches. The bead assemblage in SG89 is similar, although it includes one specimen of the orange, barrel-shaped type that Brugmann identified as bridging the end of Phase B and Phase C: emerging at the earliest in the very late 6th century and continuing in use well into the second half of the 7th century.

The most frequently recurring types otherwise are beads of Brugmann's monochrome wound spiral type, which are a common feature of her Phase C. Brugmann points out that the only reliable absolute dating evidence available for Phase C does not fix any dates for its types earlier than the mid-7th century. The evidence, however, does not cover the transition from Phase B to Phase C in an exhaustive manner in respect of bead types, forms or geographical occurrence. Brugmann's study fully corroborates the relative chronological sequence proposed for this cemetery and the debate over absolute datings will proceed on a far better informed basis with her study available.

Brooches

Of the five brooches recovered, the earliest form, a

small-long trefoil derivative, was found within the backfill of SG56. The very worn and incomplete state of this brooch and its recovery from the grave fill, suggests it was accidentally incorporated. Although this indicates activity in the area during the late 5th/earlier 6th century, it is not in itself evidence for burials of this date.

SG75, in addition to having a festoon of 69 glass and amber beads, had a complement of three brooches. This individual appeared to have been placed in a grave that was too small. As a result the head and right arm lay at a higher level than the rest of the body. Due to this burial position, the three brooches were found almost on top of one another. The great square-headed brooch was uppermost and slightly to the right with its footplate pointing towards the right shoulder. The head of the great square-headed brooch partially overlay the head of the radiate brooch, the footplate of which pointed towards the left shoulder. The saucer brooch was positioned just above the clavicle and beneath the other brooches.

These positionings may suggest that the great square-headed and radiate brooches served as shoulder fastenings on a 'peplos-type' gown, with the underlying saucer brooch fastening the gown to a sleeved undergarment (Owen-Crocker 1986, 25–64). Alternatively, the great square-headed brooch may have fastened an outer garment with the radiate and saucer brooches serving as the shoulder fastenings. All three brooches retained traces of textile on their fastenings. Although specific fibre species could not be identified (see below), examination indicated that the textile associated with the radiate and saucer brooches was of plain weave. In contrast, the textile associated with the great square-headed brooch was of z-spun 2-2 twill weave, ideal for woollen fabrics due to wool's felting properties. This might suggest that the great square-headed brooch fastened an outer garment such as a cloak.

The great square-headed brooch is of Hines group XVI, sub-group b (1997, 118–33), cast mercury-gilded copper alloy with silver sheet appliqué on the foot plate and side lobes, and raised corner mouldings on the two uppermost corners of the head plate. The central disc has a silver-headed rivet in the raised centre, enclosed by a circle, a band of two-strand interlace, a further circle and a rim. The broad head plate frame is punch decorated (from edge inwards) with ring and dot, 'keyhole' (ring and dot with triangular extension), ring and dot, and 'keyhole' in opposing direction. The remaining compositional elements of this brooch are identical to those found on a brooch from Bury St Edmunds (Hines 1997, pl. 58b). Hines assigns group XVI brooches to Phase 3 of his dating scheme (c. AD530–570) and it is likely that the Melbourn example dates from AD550–570.

The radiate brooch possesses a semi-circular striated head plate, demarcated by a triple linear border, with five knobs. The almost flat bow has a plain centre delineated by a groove either side, and degraded interlace along the length of the bow edges. The

slightly expanded square foot is plain. Although the type originates in the Frankish Rhineland, Insular copying is likely and the crudeness of the Melbourn example suggests that this was one such copy. The brooch bears similarities to Kuhn's Type 22 thought to date from about the first quarter of the 6th to perhaps as late as the third quarter of the 6th century (Hines 1997, 236–7).

The final brooch found in SG75 was a cast gilt saucer brooch. John Hines writes 'the decoration consists of a central ringed circle, surrounded by a broad panel of devolved animal ornament in Salin's Style I. The stylised bodies of two animals can be detected here from their still quite clear profile heads, facing in a clockwise direction on either side of the central roundel. The panel of animal ornament is enclosed by ridges and a ring of cable-twist ornament. The closest parallel to this brooch is provided by a pair of severely worn cast saucer brooches found near Ely, Cambs during the Second World War, at a site imaginatively identified as *Cratendune*, the supposed early Anglo-Saxon predecessor of Ely: these two were probably associated in a single grave group with a group XVI great square-headed brooch (Fowler 1948; Hines 1997, 118–33, 325). That brooch is unfortunately highly fragmentary, but it can still be identified as a member of the same subgroup of group XVI as the SG75 brooch and the one from Bury St Edmunds. Further near parallels to the saucer occur in a cast saucer brooch from Woodston, near Peterborough (Peterborough Museum L507) and a flat disc brooch from Market Overton, Rutland (Rutland County Museum OS53). The geographical coherency of this group, and the recurrent association with group XVI great square-headed brooches, strongly suggest that the saucer brooch and the great square-headed brooch of SG75 are broadly contemporary, both datable around the mid 6th century at the earliest.'

As Lucy (2000, 25) notes, from the later 6th century onwards only single brooches tend to be found accompanying burials and these are predominately of circular form. SG82 had a single annular brooch worn at the neck. In common with the majority of annular brooches, this example is cast copper alloy. The plano-convex sectioned ring is continuously ribbed, with a constriction to accommodate the pin (not surviving).

The size of this brooch and the width of the ring indicate that it falls within the narrow-banded group of annulars, which occur predominantly in eastern and northern regions (Cook and Dacre 1985, 77). The inception of annular brooches is thought to date from the last quarter of the 5th century. They are popular well into the 7th century and are one of the few brooch forms to remain in use from the 6th into the 7th century. This is especially true of the smaller examples (Drinkall and Foreman 1998, 263). The amber and shell beads and drop pendant accompanying this burial would also support a date in the earlier 7th century.

Pins

Of the seven pins identified, six were found worn on bodies. The seventh, an incomplete copper alloy pin

(retaining shaft and the start of a flattened head) was recovered from the backfill of SG64 and cannot, with any certainty, be associated with this burial.

SG65 and SG69 produced single examples of pierced disc-headed pins (Ross 1991, 231–6). Both pins possessed collars of incised ring moulding, and had tapering shafts but only the pin from SG69 had incised rings on its lower shaft. Neither pin retained a ring threaded through the hole, and only SG69 had slip-knot rings within the grave goods assemblage. Ross suggests these pins have a late 6th–7th century date range (1991, 234) and a 7th century date accords well with the assemblage of bead strings found with the Melbourn pins.

A single pin with an unpierced disc head accompanied SG93. The gently tapered shaft is long (over 74mm) and lacks ornament. This may be an out-sized example of Ross' Kingston disc-headed type, fitting best within his L.i.a.1 subdivision (1991, 224 and 227). A pin of this type from Little Wilbraham, Cambs is also noted for having a length outside the normal range (89mm). Kingston disc-headed pins are thought to date to the very end of the 6th century or early part of the 7th, continuing into the second to third quarters of the 7th century (Ross 1991, 229). Ross notes that pins with plain tapering shafts are likely to belong to the earlier part of this date range (1991, 229).

The pin in SG82 bears many similarities to Ross' garnet-set disc-headed type, sub-type LXI.i.a (1991, 245–49); possessing a discoid head with glass inset and a slightly swelled shaft decorated with incised grooves at the junction of the head and at the swollen portion of the shaft. The surface of the glass inset is iridescent, but it is clear that the glass is not red in colour. This is perhaps a regional variant, as occurs in some of the polychrome bead colour combinations (see above). This pin was in the same grave good set as a blue glass cabochon or drop pendant. Ross' garnet-set disc-headed pins are dated to the 7th century, and do not appear to be deposited much after the beginning of the third quarter of the 7th century (1991, 245 and 368).

These four copper alloy pins were positioned beneath the chin (SG65 and SG69), at the neck (SG82) and on the right shoulder (SG93) of the bodies. Following Ross' suggestion, pins located under the chin may have fastened a head scarf or head covering, whilst the pin positioned on the shoulder, the largest copper alloy pin recovered, may have been used to close an outer cloak (1991, 402 and 398).

The remaining two pins, one in SG78 and one in SG103, differ from the above examples both in material, bone as opposed to copper alloy, and positioning. They were found, not in the neck or shoulder area, but amongst the left ribs (SG78) and on the right tibia (SG103). Finds of bone pins accompanying skeletons are not common. Grave 94 at Edix Hill (Barrington A) produced one example (Malim and Hines 1998, 206–7), and examples are known from Little Wilbraham (Lethbridge 1931, fig. 38) and Girton College (Malim and Hines 1998, 207). The Edix Hill example, in common with those from Melbourn, was

not recovered from the neck/shoulder area but from the rib area of Skeleton 94 (Malim and Hines 1998, figs. 3.61 and 3.82).

The pin accompanying SG78 is closest in form to small disc-headed pins, a group characterised by their short length and flattened heads. MacGregor comments that this form does not appear to have had a Roman ancestry and although having a predominantly Scottish distribution, a few examples are known from farther south (1985, 119–20). It bears similarities to the metal Kingston disc-headed pins and may, therefore, be a 'skeuomorph'. A scutiform pendant was also part of this grave group (SG78), suggesting a date perhaps in the first half of the 7th century.

The bone pin in SG103 survives in a very degraded and incomplete state. The head may originally have been spherical in shape, a type known from the preceding Roman period. The only other grave good associated with SG103 was a ceramic bowl (see below).

Although the number of pins is small, the placement of the metal versus the bone pins would appear to suggest a distinction in usage. The metal pins were used to secure clothing but the function of the bone pins remains unclear.

Belt fittings

Fifteen of the sixteen buckles found were placed at the waist. The buckle in SG67 was the exception, situated at the fingertips of the left hand, in close proximity to a chatelaine. An elegant, relatively small, copper alloy form with an oval loop and rectangular back plate is the commonest type (Table 21). Four were slightly D-shaped, three in iron and the fourth, with its associated shoe-shaped rivet, of copper alloy. All the iron buckles had iron tongues but the non-ferrous buckles could have either iron or copper alloy tongues. Of the ten copper alloy buckles retaining tongues, only three were iron. Three of the copper alloy tongues were decorated with two transverse grooves situated at the base of the loop.

Buckle plates remained *in situ* on 12 frames, all of rectangular shape and folded sheet construction. The number of rivets range from two to five, although three is the commonest number. In most cases they are arranged in a line across the mouth of the plate. All the plates were of the same material as their accompanying buckle. Rivets on the copper alloy plates were also of copper alloy. However, the one surviving iron plate had silver plated, copper alloy rivets. Two of the three copper alloy rivets *in situ* on the buckle plate in SG80, had white metal washers between the rivet head and plate. The high proportion of rectangular plates surviving *in situ* assign the majority of this assemblage to Marzinzik's Type II.24, dated from the late 6th to the early 8th century (forthcoming).

The buckles could accommodate four different widths of strap (see Table 21) ranging from 8mm to 18mm. Ten buckles were associated with males and four with females, all young adult or older. None of the child burials produced buckles. Small buckles are thought to have been used to fasten a knife sheath to a belt (Evison 1987, 90). This appears to be the case

here, 14 skeletons producing buckles and knives in close proximity. Only one burial (SG91) produced a buckle without any other grave goods. As noted above, the buckle in SG67 may have been associated with a girdle group of iron rods, chains, keys and a fire steel.

The cast buckle with constricted bar accompanying SG75 was found with a shoe-shaped rivet and may originally have had a 'shield-on-tongue'. This type of buckle has continental origins. It is not precisely dated but appears somewhat before c.AD525, and is particularly associated with the period c.AD525 onwards (Hines 1997, 257). In contrast, the small D-shaped and oval buckles with rectangular folded sheet plates appear to be more common in the very late 6th and 7th centuries (Evison 1987, 89, Ager 1989, 221).

Associated with the D-shaped iron buckle from SG104, but worn on the lower back, was a strap ring. This comprised an annular iron ring threaded through two iron U-shaped riveted suspension loops. A third suspension loop, not *in situ*, was associated. The two linked suspension loops are incomplete, but each retains a single copper alloy rivet, while the detached suspension loop has two iron rivets. A spearhead and knife were also found with this burial.

Four types of strap mounts and/or stiffeners were identified. Single examples of a smaller version of the U-shaped riveted suspension loop described above occurred with SG93 and SG65 and as part of a girdle group accompanying SG64. The suspension loop from SG93 retained a small cast copper alloy ring *in situ*. These could have served to suspend items such as knife sheaths from belts or straps. Similar mounts are known from Edix Hill (Malim and Hines 1998, 282 and fig. 3.60), Burwell, Cambs. (Lethbridge 1931, fig. 22), Marina Drive, Beds. (Matthews 1962, fig. 20) and Holywell Row, Suffolk (Lethbridge 1931, fig. 18 A3 and B3), all dating to the 7th century.

A narrow bar-shaped mount decorated with three bands of three transverse lines also accompanied SG93. The bar expands at either end to accommodate

a circular perforation. Two copper alloy rivets, one with circular rove and one with clenched tip, remain *in situ* at the ends of the bar. This form of mount is closely paralleled by examples from Burwell (Lethbridge 1931, fig. 22 nos. 3 and 4) and Holywell Row (Lethbridge 1931, 37–9 and fig. 18 no. B4 and 5). The examples from Holywell Row also possess the same combination of rivets, one with a clenched tip and the other with a circular rove.

Also associated with the bar mount was a slotted mount consisting of two triangular sheets with a central, semi-circular perforation, held in place by a copper alloy rivet at each corner (SG93). Parallels for this mount were present at Holywell Row (Lethbridge 1931, fig. 14 no. C2), Burwell (Lethbridge 1931, fig. 30 no. 2) and Dover, where they occurred in graves of Phase 3 (AD575–625) and Phase 6 (AD675–700). Evison suggests that the slot would have held a narrow strap to suspend light objects such as a pouch or knife sheath (1987, 87).

The final form of strap mount, found in SG80, comprised two rectangular copper alloy sheets riveted at each corner. This mount has a combination of copper alloy and iron rivets, suggesting repair. Late 6th and 7th century graves at Dover (graves 56 and 103) had similar mounts or strap stiffeners and Evison draws attention to straps with rectangular, slotted and zoomorphic appliqué from the Trier region dating to the 6th and beginning of the 7th century (1987, 87).

Hooked tags

Two triangular hooked tags were found between the legs of burial SG107. These fastenings have been found in a variety of positions, for example below the head or beside the hip of skeletons, and sometimes occur in multiples, for example the group of five from Shakenoak, Oxon. (Dickinson 1973, 111). These tags were probably sewn on and are likely to have performed a range of functions in fastening clothing, headgear, possibly bags and purses and perhaps shrouds (MacGregor and Bolick 1993, 90). The

Table 21. Graves containing buckles

Strap width	SG	Skeleton	Shape and material	Sex
8mm	66	1145	Oval copper alloy	M
8mm	67	1370	Oval copper alloy	?F
12mm	83	305	Oval copper alloy	M
12mm	104	1002	D-shaped iron	M
12mm	85	1124	Oval copper alloy	M
12mm	80	1187	Oval copper alloy	M
12mm	77	1204	Oval copper alloy	M
12mm	82	1229	Oval copper alloy	F
15mm	72	1045	Oval copper alloy	M
15mm	79	1188	Oval copper alloy	M
15mm	91	1301	D-shaped iron	?F
17-18mm	90	1008	Oval iron	M
17-18mm	93	1132	Oval copper alloy	?
17-18mm	75	1307	D-shaped & shoe-shaped rivet copper alloy	?F
17-18mm	68	1386	D-shaped iron	M
N/A	105	1267	?oval iron & looped pin (in pieces)	F

thinness of these examples suggests they could not have withstood much strain.

They appear to be a long-used type, first appearing in 7th century graves and perhaps extending into the 11th century (Dickinson 1973, 116; Hinton (in Biddle) 1990, 549). Parallels include examples from Burwell (Lethbridge 1931, fig. 22 no.1) and Shudy Camps, Cambs. (Lethbridge 1936, fig. 1 no. E2). A 9th century pair from Winchester, found on the knees of a skeleton (Hinton 1990, 548), mirror the positioning of the Melbourn examples. Although Geake noted only eight such tags in her survey of Final Phase grave goods, she suggested that their appearance dates to the second half of the 7th century (1997, 66 and table 6.1).

Textiles

Remains of mineralised textile were recorded on nine objects. A matted and decayed clump of textile was also recovered. Liz Barham (Museum of London Specialist Services) examined the material but due to its extensively mineralised condition, fibre samples could not be taken. Although specific species could not be identified, where vegetable fibre was detected flax (linen) was thought to be the most likely candidate.

The textile remains were recovered from three burials, two female and one male (see Table 22). Tabby (plain) weaves were present in each case. The frequency of tabby (plain) weaves generally increase with 7th century material and are accompanied by a greater use of flax in women's garments (Crowfoot 1998, 239–40). The remains of z-spun 2-2 twill weave in SG75 may suggest the presence of a woollen garment, as this is an ideal weave for woollen fabrics. The positioning of the brooches (see p 113) suggests that this may have been an outer garment, perhaps a cloak. The fibres from the garments worn beneath the possible cloak were both plain weave but with evidence of different spins.

Personal equipment and tools

Combs

Composite antler combs, all of which were heavily abraded and incomplete, accompanied three burials. SG82 and SG65 had double-sided combs with plain, rectangular end plates. The plano-convex connecting plates on the comb in SG82 were unadorned, but

those in SG65 had a double linear border along the length of the connecting plate, with a zone of closely spaced cross-hatching at either end. Both combs were held together by iron rivets. Plain double-sided combs with iron rivets were found in three graves at Edix Hill (Malim and Hines 1998, graves 14, 91 and 109A), and one grave at Burwell (Lethbridge 1931, grave 79). Those with decorated connecting plates can be paralleled by examples from Winnall, Hants. (Meaney and Hawkes 1970, fig. 8 and 11).

The single-sided comb in SG64, has a curved 'hog-back' and plano-convex connecting plates. Four iron rivets remain *in situ*, with staining indicating a fifth. A single bone rivet situated near the stained area of the fifth iron rivet suggests this comb had been repaired. The connecting plates bear identical decoration on both sides: four bands of incised 'X' ornament, each 'arm' of the X comprising three incised lines, divided by a border of two to three vertical lines. This motif is bordered by a band of closely spaced cross-hatching at either end of the plate. Parallels for single-sided combs in burials include Polhill, Kent (Philip 1973, fig. 53, no. 487) Burwell (Lethbridge 1931, figs. 25, 34, 36), and Edix Hill, Cambs. (Malim and Hines 1998, 219).

In the Upper Thames valley Dickinson noted that combs were relatively rare in inhumations of the 5th and 6th centuries. Where present, they were generally double-sided. By contrast, in the 7th century combs became slightly more common, with an increase in the incidence of single-sided forms (1976, 216–18). At Edix Hill combs were suggested as being characteristically late and exclusively female (Hines and Malim 1998, 284). Skeletal evidence indicates that SG82 and SG65 contained females with age ranges respectively 19–25 and 25–35. The presence of a pierced disc pin and festoon or necklace of monochrome beads with SG65 and the shell bead, drop pendant and annular brooch accompanying SG82 do suggest a date within the 7th century. Although the age at death of the inhumation within SG64 (13 years) precludes sexing, the presence of the chatelaine chain, fire steel and shears suggests that this individual was also female.

The positioning of the combs within the grave varied. One was placed at waist level in association with a girdle group (SG64). Another was placed on the upper chest, close to a necklace of beads and a pin (SG65). A similar arrangement may have pertained for SG82. The beads and pendant from this burial were

Table 22. Mineralised textile remains (finds illustration numbers in brackets)

SG	SK	Sex	Object	Fibre	Description
82	1229	F	Pin disc with glass inset (Fig 16 82.1)	Vegetable	Woven
82	1229	F	Annular brooch (Fig 16 82.7)	Vegetable (?)	Plain weave & s-Z spun
75	1307	F	Buckle & shoe-shaped rivet (Fig 14 75.34)	Vegetable	Wound & s-Z spun
75	1307	F	Saucer brooch (Fig 14 75.32)	?	Plain weave & s-Z spun
75	1307	F	Radiate brooch (Fig 14 75.31)	?	Plain weave & z-S-spun
75	1307	F	Great square-headed (Fig 14 75.30)	Wool?	2-2 twill weave & s-Z spun
75	1307	F	Mineralised textile & brooch pin	?	Plain weave & s-Z spun
75	1307	F	Matted textile	?	Too decayed to identify
104	1002	M	Buckle (Fig 23 104.1)	Wool?	Plain weave & s-Z spun
104	1002	M	Strap junction (Fig 23 104.2)	Wool?	Plain weave & s-Z spun

found overlying the right clavicle/shoulder area, as if when the body was being positioned, the necklace had fallen to the right. The comb was found above the right humerus and may have originally formed part of this group.

Toiletry items

Three toiletry items were identified. In SG82 a copper alloy slip-knot ring was found near the left femur, associated with a girdle group. Threaded on to the ring was a cast circular sectioned copper alloy stem with a flattened perforated terminal. The end of the stem is broken, but the shape and decorative grooves near the perforation are suggestive of an ear pick. A set of toilet implements on a copper alloy slip-knot ring was found in the 19th century at Barrington, while an incomplete example came from the recent excavations at the site (Malim and Hines 1998, fig. 3.36 no. 17). Burwell (Lethbridge 1931, fig. 33 no. 5) and Holywell Row (Lethbridge 1931, fig. 14 no. F2) also produced examples of toiletry items threaded on to slip-knot rings.

Due to disturbance of the grave in antiquity, the original position of the two toiletry items in SG63 is not known. They comprise the bowl and lower stem of an iron spoon, which might well have broken from one of two iron stems on a relatively large (diameter 45mm) copper alloy slip-knot ring. Iron spoons may have had a domestic use, perhaps for mixing or measuring medicines or ointments. The majority of examples have been found in graves of females dating to the second half of the 7th century (Geake 1997, 97–8).

Keys and padlocks

Two burials had three keys, forming parts of two chatelaines. A fourth key may be present in the chatelaine remains in SG64 (see below). By the left femur SG82 had a T-shaped slide key, originally suspended from an iron ring. Amongst the items suspended from a complex chatelaine in SG67 were two slide keys, one T-shaped and the other L-shaped. Both L- and T-shaped slide keys are common in Roman and in 5th–9th century deposits in Britain and northern Europe (Ottaway 1992, 674). Keys occur on at least half of all chatelaine/girdle groups found and Geake comments that this is probably an underestimate due to the effects of corrosion (1997, 57).

Due to disturbance of the grave in antiquity, the original positioning of the barrel or cylindrical padlock in SG62 could not be determined. A small portion of a hooked or bent rod was found near the padlock and may form part of its bolt. Geake recorded only six other graves containing padlocks, while a seventh is noted from Chamberlain's Barn (Hyslop 1963, fig. 17 grave 57). These objects appear to date to the mid- to late 7th century onwards and the few known examples occur predominantly with female burials. This pattern may be the result of more females being buried with small caskets than males (Geake 1997, 83). The skeleton within SG62, although incomplete, has characteristics suggestive of a male. However, SG62 and SG63 were intercut and it is possible that the pad-

lock may have originally formed part of the grave goods assemblage of SG 63, thought from the accompanying finds to be female.

Knives and sharpeners

A total of 29 knives accompanied 27 burials, with a further example found within the fill of an 'empty' grave (SG100). Of the 25 skeletons which could be sexed and aged, knives were found with 14 male and 9 female adults and 2 children.

Although few chronologically sensitive traits have been determined for the various knife types, Hines (Malim and Hines 1998, 217) notes that knives with stepped or angled backs (type C) appear to be particularly characteristic of the 7th century. At Melbourn these form 37% of the classifiable knives, the curved backed knives (type A) forming a majority (52%) and straight-backed knives (type B) a minority (11%).

Although the majority of blades were incomplete (mainly damage to tips), blade length in most cases could be classified according to Härke's (1989) three groups (1: 45–99mm, 2: 100–129mm, 3: 130–175mm). Härke's study of knives from 5th to 7th century English burials indicate frequencies in the size groups 1–3 were about 70%, 25% and 5% respectively. The assemblage of knives from Melbourn had a higher percentage of longer knives (size groups 1–3 respectively 53.8%, 38.5% and 7.7%) perhaps reflecting the generally later date range of the burials.

Härke also noted that size group 3 knives were found exclusively with male burials, frequently in association with weapons (1989, 145 and 147). Of the two burials having size group 3 knives, only one could be sexed on the basis of skeletal traits (SG83), a male with a mean age of 60, and this burial also produced a spear socket. The finds associated with the second burial, SG93, are inconclusive in determining sex.

Two graves contained two knives (SG66 and SG72), in both cases positioned at the waist and placed on top of one another. Although not a common occurrence, Cambridgeshire parallels can be cited from Edix Hill (Malim and Hines 1998, 52, Grave 18, Sk42b), Melbourn (Wilson 1956, 33, Grave 11). Further afield, three burials at Dover (dated to the late 6th – late 7th century) contained two knives worn at the waist (Evison 1987, 116, table XVII). One of the knives accompanying SG66 deserves special mention. Its tang retains two circular iron discs at the junction of tang and blade and two further discs of iron at the end of the tang. Mineralised organic material (wood or horn) was detected between the discs, along the length of the tang and over the 'pommel' of the knife. Parallels for similar handles can be seen at Dover, where one knife had an iron 'guard plate'. A second possessed a segmented handle consisting of a series of iron discs dividing organic material. Both examples were from 7th century burials (Evison 1987, 114).

Most, but not all, knives were positioned at waist level. Two adult males each had a knife above the head (SG55 and SG89), while a male child and an adult female each had one in the area of the shoulder

and upper arm (SG58 and SG98).

Tanged, parallel sided, round-ended tools with a rectangular cross-section have been identified as sharpening steels, examples occurring at Shudy Camps, Cambs. (Lethbridge 1936, fig. 1, no. A4), and Harford Farm, Norfolk (Geake 1997, 92). These sharpening steels appear to date in the main to the 7th century (Geake 1997, 92–3). In common with most other sharpening steels, the example in SG80 was found in close association with a knife, both positioned at the waist.

Shears

Shears placed at the waist were found in SG64 and SG65. The inclusion of full-size shears with burials only became popular in the 7th century. The majority date to the second half of the 7th to the early 8th centuries (Geake 1997, 96). Both examples from Melbourn have a slight expansion at the loop, a transitional element between the earlier U-shaped and later circular loops. The larger pair in SG65 has a straight junction between arms and blade, while the smaller pair has a cusped junction. The latter can be paralleled by shears found at Edix Hill in the 19th century (Hines and Malim 1998, fig. 5.8).

Geake notes that in 7th–8th century graves in England, shears are exclusively associated with female burials (1997, 97). SG65 conforms to this pattern and the finds associated with SG64 also suggest this adolescent was female. Of the 29 graves containing shears in Geake's study group, only 6 were associated with combs. Both skeletons at Melbourn produced composite combs and one (SG65) also had a spindle whorl. Discussions on function have suggested a close link with textile production, but as Geake states it is more likely that shears served as multi-purpose cutting tools (1997, 97).

Spindle whorls

Only two graves, SG75 and SG65, contained spindle whorls. Geake noted that, although examples are known (1997, 59), their inclusion in burials is less common in the Migration Period than in the Final Phase. The finds assemblage with SG75, including a festoon of polychrome glass and amber beads, and combination of radiate, saucer and great square-headed brooches, indicates a later 6th century date for this burial. The associated spindle whorl was fashioned from the base of a Roman grey ware ceramic vessel. The diameter of the spindle hole, 9mm, indicates it is of Saxon date as whorls of the Roman period have smaller spindle diameters (Walton Rogers 1997, 1731). The whorl in SG65 was of antler. It had a plano-convex section (Walton Rogers form A1) and spindle diameter of 9.2mm. The associated grave goods, including shears and a comb suggest a date in the 7th to early 8th centuries.

Both whorls were found in the pelvic area of their respective skeletons. The whorl from SG65 was found in close association with an antler ring and several other items suggesting it formed part of a girdle group (see 'Chatelaines, girdle groups and bags'). The

buckle in SG75 may argue against Lethbridge's suggestion that many of the whorls were used as toggles to fasten the girdle (1931, 76).

Fire steels

Two burials, SG67 and SG64, each had a fire steel forming part of complex chatelaines. In both instances the fire steels appear to have hung vertically from the chatelaine and cannot be directly related to purse fittings. These fire steels are entirely of iron, with ends curled over in a loop and a 'hump' on one edge. The fire steel in SG67 had a small (diameter 2mm) circular perforation 5mm from the apex of the hump, which retains part of an iron chain link. This is closely paralleled, in both shape and presence of a circular perforation, by an example from Burwell (Lethbridge 1931, fig. 27). Geake's survey indicated that although some fire steels occur in the first half of the 7th century, they enjoyed greater popularity in the second half of the 7th and early 8th centuries (1997, 79–80).

Chatelaines, girdle groups and bags

Five burials had groups of objects placed below, and apparently suspended from, the waist. Many of the individual elements of these groups have been discussed above. However, because of their distinctive group character, each is considered as a whole below. Four of the five burials were in the early twenties to thirty-five age range. Three were anatomically sexed as females. SG64 contained a 13 year old adolescent; the accompanying finds suggest she too was female.

Chatelaine chains

Chatelaines are defined here as one or more groups of metal chains, frequently linked by rods, which hung from the waist and carried a collection of objects.

At the waist of Sk205 (SG64), immediately below a single-sided composite comb, were two figure-of-eight iron chain links, suspending an incomplete rod (possibly a stem from a slide key?) and a fire steel. The fire steel appears to be suspended by one of its looped over ends. Two copper alloy slip-knot rings and one copper alloy suspension loop are also associated with this group, possibly indicating further items were attached. A pair of shears hung down below the fire steel. The shears may have been suspended from the chatelaine, or perhaps suspended directly from the belt or girdle.

SG67 had an iron rod suspended from the girdle by means of a looped over terminal. The opposing end of the rod is linked to a group of figure-of-eight chain links. The links form two strands of chain, the first strand leading to a rod (incomplete) which then joins a small series of figure-of-eight chain links terminating with a fire steel. The fire steel hangs vertically and appears to have been attached through one of its wrapped over terminals. The second strand of chain leading from the initial rod is attached to the looped over stem of a T-shaped slide key. Two strands of figure-of-eight chains are suspended from the 'bit' of the key, one strand from each arm of the 'T'. The first strand links to both the looped over head of an L-

shaped slide key and a copper alloy Y-shaped suspension link. The ends of the Y-shaped link have broken off, but its presence suggests two further items may have been suspended from its arms. Suspended from the L-shaped bit of the slide key is a short strand of figure-of-eight chain from which two sets of rods and chains extend. All the rods within these two sets have their terminals wrapped in wire. The first set hangs straight down and consists of two rods and linking chains. The presence of a few chain links at the end of the second rod suggests that this set is incomplete. The second set of rods and chains is curved to the left and comprises a group of three rods and chain links, the third rod incomplete.

The second strand leading from the other arm of the T-shaped key comprises a group of five rods, the fifth incomplete, with wire wrapped terminals each linked to the other by figure-of-eight chains. At the junction of the fourth and fifth rods a second copper alloy Y-shaped suspension link was also attached, again suggesting further items were suspended. About 20mm to the southwest of the fifth incomplete rod, and just to the north of the skeleton's hand (which is positioned to draw attention to the chatelaine), is a small copper alloy buckle and plate. Its proximity to the incomplete chatelaine rod suggests it may have been associated with the chatelaine.

A simpler form of chatelaine was worn by SG82. This comprised an iron ring with three separate strands of short iron chain suspended from it. Two of the strands were incomplete but the third retained a short rod, the terminals wrapped in iron wire, with further chain links at the opposing end. These suspended a looped over terminal of a T-shaped slide key, which extended to just above the skeleton's left knee. Immediately to the left of the T-shaped 'bit' was a copper alloy slip-knot ring with a toiletry implement threaded in place. Due to their close proximity, it is suggested that the toiletry ring may have been suspended from the T-shaped key bit. A small copper alloy buckle was placed 80mm above and to the right of the start of the chatelaine, with an incomplete iron nail situated nearby.

SG58 was also accompanied by an iron chain link. A single chain link cannot be considered a chatelaine. It may originally have fastened a knife, lying on the upper forearm, to a belt.

It has been suggested that keys symbolised housewifely authority but, as Geake points out, several keys are known from child burials (1997, 58). The absence of jewellery in graves containing keys at Polhill caused Hawkes to suggest that such burials were not the lady of the house, but the house keeper (1973, 195). The assemblage accompanying SG82, however, included beads, a pendant, brooch and dress pin. Although the popularity of long iron chatelaines peaks in the late 7th – early 8th century, they are known from earlier deposits (Evison 1987, grave 28). The presence or absence of jewellery in the same graves as keys may have more to do with changes in costume fashions. That keys may have symbolised status or class distinction is suggested by the fact that

only two (or possibly three) out of the eighteen probable females wore keys.

Geake has examined the significance of the inclusion of chatelaines and, in particular, keys within graves. In contrast to the chatelaine groups of the Migration Period, when the keys tended to be too small to be of practical use, the keys included in the later graves are of functional size. It is evident, however, that the role the keys played within the chatelaines accompanying SG67, SG82 and perhaps SG64, ie suspending lengths of chains and/or objects, made them impractical for everyday use. In life, these objects may have functioned as keys and were perhaps worn in a different manner. However, within the context of the burial rite, they may have served to symbolise the role and/or status of the individual at the time of death. Exactly why functional, full-size keys came to be preferred in the later period is an issue that would repay further consideration.

Girdle group

The girdle group in SG65 had more varied components. The knife, which may have been suspended directly from the left side of the girdle by means of the copper alloy suspension loop, was found underneath a sherd of Roman window glass and an antler ring. The opening of the antler ring is too narrow to have formed the mouth of a bag, and the presence of three circular perforations along one edge suggests it was used to suspend items. The ring itself may have been threaded on to the girdle. An antler spindle whorl lay about 40mm to the northeast of the ring and could have been one of the items suspended. A pair of shears, a copper alloy split pin with applied head and an iron suspension ring lay on the right hand side of the body. Whether the shears were suspended from the antler or iron ring is uncertain. A bead was also recovered in this area. It is of the same monochrome, turquoise variety as the beads in the necklace accompanying the burial, from which it may have been displaced.

Similar rings of antler, many decorated with ring and dot ornament, were found at Burwell (Lethbridge 1931, figs. 32, 33 and 38) and Edix Hill (Malim and Hines 1998, 218), Cambs and at Polhill, Kent (Philps 1973, fig. 53 no. 490). They were thought to have hung from the girdle with various small items dangling from them. Attention is also drawn to the amuletic powers of antler (MacGregor 1985, 108).

Bag/purse

Organic remains did not survive on the site, unless in direct contact with metal objects. However, SG93 had a collection of objects suggestive of a purse or bag. In addition to a buckle and knife, this burial had a triangular, slotted, strap stiffener or mount and fragmentary remains of copper alloy sheeting at waist level. To the left of the skeleton and extending down from the hand was a group of finds comprising a copper alloy suspension loop, a bar-shaped mount, an iron sheet fragment and three small tacks, two copper alloy, one retaining a small rove or washer, and one iron. The positioning of this group and the presence of a suspension loop and mount are suggestive of a purse, suspended from a long belt decorated with copper alloy plates and fastenings. Finds of a similar composition, although with an ivory bag ring, were found in Grave 79 at Edix Hill where it was conjectured that the bag was suspended on a long strap which passed over the shoulder, the bag hanging by the left hip when worn (Meaney 1998, 269).

Vessels**Wooden vessels**

Two identical copper alloy rim mounts (retaining mineralised wood) were found in SG56, indicating the presence of a wooden vessel, possibly a cup or bowl. These mounts consist of a small, flat, rectangular sheet folded over and fixed by two transverse rivets at the mouth. The ends of the copper alloy rivets have been bent over or clenched, suggesting that the vessel had a thickness of about 2mm. Due to the heavily mineralised condition of the wood, species identification was not possible.

Geake concluded that the deposition of wooden vessels continued throughout the period of furnished burials (1997, 92). Finds of rim mounts from the earlier Melbourn (1952) excavations were noted in three burials and were variously described as mounts for wooden cups, bowls or gourds (Wilson 1956, 31–2, graves 3, 6 and 9). The presence of a silver slip-knot ring and a possible capsule bead of silver with SG56 is suggestive of a 7th century date for the deposition of this vessel.

The wooden vessel in SG56 was placed above the head. The three examples from the 1952 excavations were also near the head, albeit to the side. Although parallels for this positioning can be found at Holywell Row (Lethbridge 1931, graves 23, 29, 31, 37, 39 and 93), Shudy Camps (Lethbridge 1936, grave 39) and

Edix Hill (Malim and Hines 1998, grave 66) it is not universal. Some wooden vessels were placed near the legs. The positioning of some of these vessels at the head may indicate that they were drinking vessels, as opposed to other forms. However, poor survival precludes certainty on this point.

Evidence for a second wooden item is suggested by the presence of two mineralised strips of wood, one retaining a copper alloy tack (10mm in length) *in situ*. This was found near the right humerus of Sk1169 (SG 87) and may represent the remains of a wooden vessel or small box. However, with so little surviving certain identification is not possible.

Ceramic vessels

In contrast to the earlier 1952 excavations, which found only one child buried with a ceramic vessel (Wilson 1956), seven burials were accompanied by either near complete vessels, or sherds (Table 23). Of the six skeletons that could be anatomically sexed and aged one was an adult male and four were adult females, ages spanning from 17 to 30. One burial (SG64) was an adolescent of 13 years of age, but as indicated previously the grave goods accompanying this skeleton are normally associated with females. In the majority of cases the more complete vessels were positioned above the head, although there was one instance of a vessel placed underneath the stomach/pelvis area. Groups of sherds tended to be placed on or near one arm of the body.

The majority of vessels and sherds included as grave goods were plain. Only two sherds, of a sand and organic fabric (type A19), in SG63 had stamped decoration. This stamp is of a circular grid pattern ('A3' group) and has been identified as an A 3aiv stamp. This is a common stamp, East Anglia accounting for the bulk of occurrences (pers comm D Briscoe). Nine sherds of a sandstone and mica fabric (type A30) accompanied SG105. The more complete vessels were all of a micaceous fabric (type A26) with smoothed and frequently burnished surfaces. Bowls were the more popular form, and similarities in shape were noted from Shudy Camps (Lethbridge 1936, pl. I, Grave 27) and Burwell, Cambs. (Lethbridge 1931, pl. IV, Grave 99). The one instance of a tall narrow-necked jar occurred with an adult male (SG74). The form of the latter is paralleled by a vessel from Cemetery II (Grave 8) at Chamberlain's Barn, Beds., thought to be of 7th century date (Hyslop 1963, 195 and fig. 8).

The inclusion of ceramic vessels within a burial

Table 23. Ceramic vessels from burials

SG	Sk	Sex	Age	Vessel & fabric	vess/shrd/wt	Position
63	1325	?	?	Body A19	1:7:39	Disturbed burial S end of grave
				Body –stamped A19	1:2:12	Disturbed burial S end of grave
64	205	IMM	13	Bowl A26	1:22:332	Above head
67	1370	F	20-25	Body A26	1:26:565	Left of left arm
74	1012	M	25-46	Jar A26	1:1:1581	Above head
89	1271	F	25-30	Bowl A26	1:31:650	Above head
103	1263	F	17-25	Bowl A26	1:59:485	Under pelvis
105	1267	F	17	Body A30	1:9:93	Overlying right forearm

assemblage is a tradition continuing from the 6th century into the later 7th century (Geake 1997, 90). Geake noted that ceramic vessels as grave goods do not appear to follow the rules which governed the inclusion of other vessel types, ie they were fairly common, found with both sexes and all ages and were not generally associated with graves of high wealth. To an extent this holds true at Melbourn, three of the burials (SG63, SG103 and SG105) having three or less artefact categories present. However, SG64, SG67 and SG89 had five artefact categories present, whilst the single male burial (SG74) was also accompanied by a spear, possibly indicative of a higher status.

In addition to the ceramic vessels which were purposely deposited as grave goods, sherds of Saxon pottery were recovered from the fills of 14 graves (Table 24). Six of these had suffered some form of disturbance, eg superimposed burials or the remains of a second individual identified in the fill. It is, therefore, possible that some of these sherds are derived from grave goods accompanying the original interment. The majority, however, were probably unintentionally incorporated into the grave fills.

Table 24. Pottery sherds from grave fills
(vessel:sherd:weight)

Structure	Ceramic Fabric Types				
	A	A01	A19	A26	A32
G48		1:5:26	1:1:8	2:2:8	
Grave					
SG56		2:2:8		2:2:41	
SG62				1:7:82	
SG71				1:1:13	
SG74				3:3:10	1:6:73
SG77			1:1:6		
SG83				1:1:2	
SG87				1:1:3	
SG88	1:1:2			4:4:40	
SG91			1:7:41		
SG92		1:14:27		1:1:6	
SG95			1:1:6	1:1:13	
SG99				1:1:1	
SG101				1:1:6	
SG108				1:1:22	

Spears

Six adult males graves contained either a complete spearhead or part of one. In three instances the spears were positioned to the side of the skeleton, one to the left (SG73) and two to the right (SG90 and SG104). One spearhead was placed above the head, in close association with a ceramic vessel (SG74), while a second was placed above and to the right of the head (SG77). In the four instances where blades survived, one was placed across the width of the grave (SG74), two pointed to the head of the grave (SG104 and SG77), and one was placed next to the lower left leg, the spear pointing to the foot of the grave (SG73).

In two instances (SG83 and SG90) only parts of the

spearhead socket survived, and in the case of SG83 it was recovered from the grave fill. The remaining examples can be classified according to Swanton (1973; 1974). Spearheads with mid-ribbed, leaf-shaped blades could be assigned to Swanton's type B2 (SG73), traditionally dated to the 4th and 5th centuries. Welch, however, points out that the type continues into the 7th century, noting examples from Finglesham, Kent, Apple Down, West Sussex and Sutton Hoo, Suffolk (Down and Welch 1990, 94). One difference between Swanton's type B2 (1974, fig. 1d) and the example from Melbourn lies in the shape of the mid-rib. The spearhead from Melbourn possesses a hemispherical-shaped mid-rib while that illustrated by Swanton is more V-shaped. Further study is needed to determine whether this is a diagnostic difference between earlier and later ribbed types.

Small leaf-shaped spearheads, blades longer than the sockets, are classed as Type C1 (SG74). Again Swanton places this form in the 5th and 6th centuries but Dickinson argues that the overwhelming majority date to the 7th century (1976, 297-8; Geake 1997, 68). Angular blades are represented by single examples of types E4 (SG104) and F2 (SG77), dating to the 6th and 7th centuries (Swanton 1973, 81-91; Geake 1997, 69).

The graves containing spearheads are not richly furnished. The most common combination of grave goods accompanying a spearhead was a knife and buckle (SG77, SG83 and SG90), with SG104 having an additional strap ring (see p 115). One spearhead occurred on its own and although Härke notes that this accounts for 44% of all weapon burials (1997, 119) it may be noteworthy that this is the only spearhead to be placed pointing towards the foot of the grave. SG74 was accompanied by a ceramic vessel, a knife and an iron staple, the latter off to the left of the head. No other items were associated with the staple and the type of object on which it was used remains uncertain.

Development of the cemetery

Holly Duncan and Corinne Duhig

Introduction

The location of Wilson's 1952 excavation and its relationship to the more recent work remains uncertain. If these two sites did form part of the same cemetery, then our understanding of it, particularly in terms of its size and spatial development, is potentially reduced. In addition, Wilson comments that at the time of his work, further graves had been destroyed without record. The chronological range of the 30 inhumations recorded from the earlier investigations is less problematic. Of the 23 burials accompanied by grave goods, up to 14 are datable to the Final Phase, with no evidence for interments in the Migration Period (Malim and Hines 1998, 323).

The following discussion is in the main restricted to the evidence encountered during the more recent excavations, although where possible reference is made to the earlier findings. Any conclusions drawn

must be considered in the light of the above caveats.

Chronological Development

Grave Goods Chronology

As with many Saxon cemeteries, precise chronological phasing of the burials is impossible. The burials under discussion here do benefit, however, in having a clear starting point. SG75, with its assemblage of three brooches and long festoon of polychrome, amber and, to a lesser extent, monochrome beads, stands out from the rest of the burials and falls towards the end of the Migration Period. The brooch types suggest a date of burial no earlier than the third quarter of the 6th century.

An end point for the cemetery may also be provided by the group of seven inhumations (SG59, SG61, SG84, SG106–108 and SG110) on its southern edge (see p 95 and Figure 28). In addition to their peripheral position, these graves are distinguished by their west-east orientation, rectangular shape, similarities in size and, in all but one instance (SG107), absence of grave goods. As previously noted (see p 118) a date in the second half of the 7th century has been suggested for the introduction of the hooked tags found with SG107.

Current research indicates that the change from furnished to unfurnished graves accelerated after the third quarter of the 7th century (pers comm J Hines). It appears, therefore, that the cemetery was in use for about 100 years, from c.AD575 to c.AD675. The datable burials discovered by Wilson in 1952 (1956) are compatible with this suggested date range, all being attributable to the Final Phase (Malim and Hines 1998, 322–23).

Precise dating of the assemblages accompanying the remaining inhumations is more difficult. SG89 has elements traditionally attributed to the Final Phase (eg silver slip-knot rings) but also retains aspects more at home in Migration Period assemblages, such as a long festoon of amber, polychrome and monochrome beads. This assemblage also contained a simple, silver scutiform pendant, which in this area are generally of 6th century date. At least eight examples, however, are known from 'late cemeteries' in East Anglia. Previously, these have been dated to the mid-7th century, but Hines argues for continuity with earlier forms of this pendant (1984, 231–33). It is possible that this grave contained a deliberately archaic 7th century assemblage. However, on balance, it is perhaps very late 6th century in date, belonging to a transitional stage between the Migration Period and the Final Phase.

Of the remaining 44 *in situ* inhumations, 37 were accompanied by grave goods. Where datable, these fall within the 7th century but greater precision beyond this is problematic. Brugmann has proposed a mid-7th century starting point for her Phase C monochrome wound spiral beads, but the transitional period between her Phases B and C needs further study (see 'Necklace composition' p 113). Attempts to differentiate between early and later 7th century assemblages have met with a number of difficulties.

Firstly, except in Kent, it is difficult to identify specifically early 7th century assemblages (Geake 1997, 123). Secondly, as Hines notes, 'the Final Phase is defined by a multiplicity of archaeological criteria, not all of which are ubiquitously present to make the archaeological record substantially and easily comparable across the whole of Anglo-Saxon England' (Malim and Hines 1998, 280). Finally, several of the object classes used to define Final Phase graves have a long period of use and are not always found with more chronologically sensitive items. This is particularly true in relation to the 'suite' of artefacts typically found with male burials.

It is hoped that current research involving high-precision, radiocarbon dating may make a significant contribution to the ability to differentiate earlier and later 7th century assemblages (Malim and Hines 1998, 281). At present, however, only a general 7th century date can be offered for the bulk of the Melbourn burials. An exception may be SG82. The presence of amber beads may suggest that this inhumation occurs early in the sequence of 7th century graves (cf. Malim and Hines 1998, 282). The accompanying annular brooch, glass-set, disc-headed pin, cabochon pendant and double-sided antler comb would not contradict this suggestion.

Five graves (SG62–65 and SG67) situated along the western limit of the excavation have elements suggestive of a date towards the middle or second half of the 7th century. SG62 contained a padlock and SG63 an iron spoon, objects which are both thought to date towards the second half of the 7th century (Geake 1997, 123–5 and table 6.1). SG64 and SG65 were accompanied by full-size shears. Geake's survey notes that the majority of datable shears-graves belong to the second half of the 7th century (1997, 96). SG64 additionally had a hump-backed comb, one of the components of Geake's Group D finds which she has argued were introduced to grave good assemblages in around AD650, or slightly before (1997, 123–5 and table 6.1). SG67 has a long and complex iron chatelaine of chains and rods suspended from keys. Whilst such items are not unknown in earlier graves, their popularity seems to peak in the later 7th century (Geake 1997, 58).

Chronology and stratigraphic relationships

The stratigraphic evidence provided by the five groups of superimposed burials (see p 94) allows a sequence of burial events to be determined within each reused plot. However, it does not provide evidence for their relationships with surrounding burials. As two of the most intensively reused plots, (SG71–73 and SG77–80), contain predominantly male interments, the accompanying grave goods do not assist in either establishing a chronological link to surrounding graves, or in ascertaining the length of time this burial practice remained in use. The single female inhumation (SG78) within SG77–80 was found with a simple scutiform pendant. This form of pendant was in use during the later 6th into perhaps the first half of the 7th century. It cannot, therefore, assist in refining the date of the male inhumations.

In the three cases of female superimposed burials, SG94–95, SG96–97 and SG102–103, the initial burials were either poorly furnished or unfurnished. The presence of monochrome beads and a silver slip-knot ring accompanying secondary burial SG95 indicates a date within the 7th century, but cannot provide a date for the preceding unfurnished burial (SG94).

Amongst the intercutting graves (see p 94), SG58 contained items which cannot be closely dated and SG59 was unfurnished. SG62–63 both contained items with a suggested date in the mid-7th century. The composition of the grave goods assemblage within SG82 has previously been argued to date to the early 7th century. The presence of two monochrome beads, more typical of Final Phase graves (see p 109), in the later SG81 would seem to confirm the earlier dating for SG82.

Grave goods and gender groups

Introduction

Of the 53 *in situ* inhumations (omitting the foetus Sk1203 in SG78), 40 (75.5%) were accompanied by grave goods. Excluding the two proposed late 6th century graves, the percentage of 7th century inhumations with grave goods is 74.5%. Although such a percentage is not unknown, it is in sharp contrast to the results of Geake's survey of Final Phase graves. Out of her corpus of 7000 graves from 353 burial sites, only 42% of all graves were furnished (1997, 127).

Although it is tempting to draw conclusions from these contrasting figures, such as a difference in standard of living and/or burial practices, it must be remembered that the full extent of the Melbourn cemetery remains unknown. Nonetheless, of the 30 burials noted by Wilson, 23 were accompanied by grave goods (76.7%). Combining the two samples gives a revised percentage of burials accompanied by grave goods of 75.3%.

Child burials

Of the 11 identified child (below 17) burials, one was a foetus (SG78 Sk1203) and one (Sk1401) was poorly preserved within the fill of a secondary burial (SG57). The five graves of children under the age of 12 were sparsely furnished, with the range and quantity of artefact types typically limited. Children between 2 and 4 years (SG76 and SG99) had no grave goods. Children with an age range of 3.7–6.3 years (SG55 and SG57) had a single knife. The only child with an age range of 7.5–12.5 years old was accompanied by two monochrome beads (SG81).

Of the four adolescent burials, SG84 formed part of the group of seven burials identified as amongst the latest in the cemetery. Two of the remaining three adolescents were accompanied by a range of grave goods suggestive of female gender. SG64 possessed a chateleine, fire steel, shears, and a comb indicative of reaching the age of maturity. SG105 was buried with an amber bead, knife, buckle and pottery sherds. In contrast, SG101, anatomically sexed as a 15 year-old male,

had no grave goods. At least in the case of female adolescents it would appear that the range of furnishings available for inclusion is greater, and this corresponds to the cultural child-adult threshold around the age of 12 proposed by Crawford (1991, 239–45).

Adult female burials

Out of the sample of 60 individuals, 17 females were identified anatomically. A further three females could be identified on the basis of associated grave goods. Only three females were unaccompanied by grave goods and of these, one individual (Sk1171) was recovered from the fill of a different burial (SG65) and one (SG102) was truncated by a later grave (SG103). The single undisturbed and unaccompanied burial (SG70) was an elderly female (age range 60–87) located within the concentration of graves surrounding the earliest burial (SG75).

Following on from the work of Hines at Edix Hill (Malim and Hines 1998, 301–03) the range of identifiable artefact categories (RIAC) were compiled to see if any patterns could be discerned between age groups. The results are presented in Table 25. Where the anatomical age range spanned the age bands, the mean age was used to determine attribution.

The number of burials is modest and, therefore, caution must be used in drawing conclusions from this data. There is a very slight hint that women between the ages of 19 and 35 were able to attain a somewhat higher social standing than women of 35 or above. Social differentiation may have been greater amongst the females in the 'adult 1' group, whereas those in 'adult 2' would appear to have had more equal access to indicators of social standing.

Adult male burials

Out of the sample of 60 individuals, 23 males were identified. With the exception of the five unaccompanied burials (SG59, SG61, SG106, SG108 and SG110) argued to be of later 7th century date, the *in situ* graves were furnished. Generally the grave goods were not in conflict with the anatomical sexing. In only two instances were items more commonly found with female burials noted. SG72 had, amongst other items, a copper alloy slip-knot at the neck, perhaps in this instance serving as a clothes fastening. SG62 had a padlock, although disturbance makes it uncertain if this object was genuinely associated with the male occupant of SG62 or derived from intercutting grave SG63, thought from the finds to be female.

The most basically furnished male graves had a single knife (SG98 and SG88) but more commonly a knife and buckle (SG68, SG79, SG85). One burial (SG58) had a knife and chain link, the positioning of the latter at the waist suggesting it may have served as a form of belt fitting. Occasionally an additional knife (SG72 and SG66) or sharpening steel (SG80) was added to this repertoire.

Six weaponry burials, containing spears but with no evidence for shields, were present. Only one (SG73) had a spear and no accessory goods, the majority were accompanied by a buckle and knife (SG77,

Table 25. RIAC scores for female graves (Ages 'Adult 1'=17-25; 'Adult 2'=25-35; 'Adult 3'=35-45; 'Adult 4'=45+)

Date	Sg	Sk	Age	RIAC	Age band	Mean age
Late 6th	89	1271	25-30	5	'Adult 2'	27.5
Late 6th	75	1307	45+	6	'Adult 4'	45+
7th (early)	82	1229	19-25	11	'Adult 1'	22
7th	87	1169	17-25	2	'Adult 1'	20.5
7th	103	1263	17-25	2	'Adult 1'	20.5
7th	67	1370	20-25	5	'Adult 1'	22.5
7th	102	1259	21-25	0	'Adult 1'	23
7th	56	1021	21-30	2	'Adult 1/2'	25.5
7th	91	1301	30-35	1	'Adult 2'	32.5
7th	93	1132	25-35	4	'Adult 2'	30
7th	69	1293	25-35	4	'Adult 2'	30
7th	65	1165	25-35	7	'Adult 2'	30
7th	78	1189	33-46	2	'Adult 2/3'	39.5
7th	97	1176	45+	1	'Adult 4'	45+
7th	95	1038	45+	3	'Adult 4'	45+
7th	70	1305	60-87	0	'Adult 4'	73.5
7th	96	1199	Adult	1		
7th	63	1325	Adol/adult	2		
7th	65	1171	Adult	0		
Late 7th	107	1398	45-87	3	'Adult 4'	66

SG83 and SG90). SG104, in addition to the spear, knife and buckle, had evidence for a more robust strap in the form of an iron belt ring and three riveted suspension loops. SG74 differed from the norm in not having a buckle and being accompanied by a staple and a ceramic jar.

There does not seem to be any clear relationship between age and inclusion of spears. Spears were found in all adult male age bands, the greater numbers of spears with men of over 35 (4 instances) reflecting the larger population of male burials of this age (see p 97).

Wilson's 1952 investigations produced only two male weaponry burials. Grave 25 in common with the more recent excavations had a spear (possibly Swanton type C2), knife and buckle (Wilson 1956, 37). However, grave 12 (Wilson 1956, 34-5), in addition to knife, buckle and spear (Swanton type C3) also had a shield grip and boss, the latter probably belonging to Dickinson and Härke's Group 7, dating from the second quarter of the 7th century onwards (1992, 21).

Spatial Organisation

Positioning of the Graves

In the main, the pattern of burial appears to have been determined by the two principal cemetery structures: the lozenge-shaped enclosure G46 and the T-shaped arrangement of post-built structures G38-40 (Figures 25 and 28). In addition, there were a number of outlying graves, including: four sets of paired burials (SG89-90 and SG91-92 to the north of the main burial area, SG104-105 to the southeast and SG106-107 to the south). Two burials SG108 and SG110 were situat-

ed to the southwest in close proximity to the barrow. An isolated burial SG55 lay 20m NNW of the cemetery.

Western part of the cemetery

The densest concentration of graves occurred to the north and west of the lozenge-shaped enclosure. Within this area it is possible to distinguish three burial areas. The earliest datable grave SG75 appears to have been the founder burial, in the excavated area at least, attracting a cluster of 14 further burials (SG70-74, SG76-83 and SG88). It is noteworthy that the two most intensively reused burial plots (SG71-73 and SG77-80) fall within this group. Ten burials lay with heads to the south, although there were five instances of different alignment, including the founder burial which lay with the head to the ENE (Figure 28). Two burials (SG70 and SG72) lay with heads to the west and two (SG73 and SG81) with heads to the NNW.

Six burials lay on the northwest perimeter of the cemetery (SG64-69), just to the west of those centred on the founder grave. They all lay with heads to the south and appear to form a cohesive group. Within the grave goods assemblages accompanying three of the female burials (SG64-65 and SG67) are components that suggest a date towards the middle or latter half of the 7th century. This suggests that these six burials may represent a later, westward expansion from the founder cluster.

The 'founder' cluster, and its possible western extension, is notable for a number of reasons. Four of the six spear burials occur within these graves (SG73-74, SG77, SG83). Some of the highest RIAC scores for female burials are also situated within this area (eg

SG82, SG64, SG65, SG67). Two of the most intensively reused burial plots (SG71–73 and SG77–80) are adjacent to the founder. The depths of the initial grave cuts in these two groups (SG71 depth 0.65m and SG77 depth 0.85m), imply they were dug with the intention of adding further burials. This suggests that proximity to the founder grave was highly valued.

In total 27 individuals were buried in this cluster, with six instances of reused grave plots. Males, females and immature inhumations were present in a 12:8:4 ratio (three burials could not be sexed). 'Adult 1' to 'adult 4' groups were represented in both genders, the females evenly spread across the bands while males of 'adult 3' and 'adult 4' (nine examples) predominated.

The second burial area in the western part of the cemetery included the posthole structure G20, immediately southwest of the lozenge-shaped enclosure. Two burials lay with heads to the south (SG57 and SG58), a young child and a mature male, positioned close to the southwest corner of the structure. About 4m west of these burials two further graves (SG62–63) contained grave goods suggestive of a date towards the second half of the 7th century. Hence, these two burials may represent later additions to this group.

The third burial area is represented by the individual female burial SG56. This grave is cut by one of the postholes of structure G19, sited immediately WNW of the lozenge-shaped enclosure. This structure may have served as a marker for the grave, one of the largest and deepest which interestingly shows no signs of reuse.

Eastern part of the cemetery

The eastern half of the main burial area was organised around the T-shaped arrangement of post-built structures G38–39. Eight graves (SG87, SG93–99) lay to the north of the 'T', the closest about 2.5m distant. This group included two superimposed graves (SG94–95, SG96–97), each containing only two burials. Two graves (SG85–86) lay to the southwest of the stem of the 'T' and three (SG101–103) to the NE. One of the latter was a reused burial plot. These burials are generally at least 2.5m distant from the structural features. All the burials in this area lay with heads to the south except for SG99, which lay with the head to the west (Figure 28).

This area of the cemetery is characterised by less intensive use and a predominance of female burials, in particular north of the 'T'. Fewer instances of burial plot reuse (three cases) were also noted. There were two immature burials, a young child and a 15 year old male. The gender ratio of the adult burials was two males to seven females. Two further burials could not be sexed. Amongst the female inhumations, 'adult 1' burials predominated (three instances), with one burial in 'adult 2' and two in 'adult 4'. The two male burials were in 'adult 3' and 'adult 4' groups. Generally the RIAC scores for the female burials were below the median score, only one burial (SG93) achieving the median score of 4. The objects accompanying male inhumations were similarly modest comprising a knife

or a knife and buckle.

Other graves

Of the four pairs of outlying graves, only one (SG89–90) was positioned next to a structure G15. Both SG89–90 and SG104–105 lay with heads to the south and comprised one male and one female burial, the males possessing spears and the females noteworthy in having median or above RIAC scores. SG89 was also one of the earlier graves within the cemetery. Paired burials SG91–92 did not lie with heads to the south. These two graves were on the same alignment, but the bodies faced in opposing directions (SG91 ENE and SG92 WSW).

The fourth group of paired outlying burials (SG106–107) form part of a group of seven burials lying on the southern edge of the cemetery area (Figure 28). It has been argued that these form a separate group which is both spatially and chronologically distinct. This group comprised five male burials, 'adult 2' to 'adult 4' groups, one female, 'adult 4' and one immature burial of 14 to 15 years of age. All these burials lay with heads to the west.

Cemetery structures

Although a date range of AD575–675 has been proposed for the cemetery as a whole, a chronological sequence for the cemetery structures and their relationship with the burials cannot be determined. Blair (1995) has reviewed the evidence for Anglo-Saxon 'pagan shrines'. He argues that square-plan 'shrines' and 'ritual' posts echo a long tradition, stemming from Romano-Celtic shrines and re-emerging around AD580–600 as kingdoms and dynasties were forming. This late adoption of a tradition rooted in the aristocratic culture of Celtic Britain represented a 'created continuity', designed to bolster the legitimacy of the new rulers (Blair 1995, 20–22).

Although the Melbourn structural features differ in form to those discussed by Blair, in particular the lozenge shape of G46, they do appear to have functioned as a focus for burial. Blair postulates that the 'foot-post' associated with graves in some late pagan cemeteries such as Finglesham and Broadstairs, developed from the mortuary function of major single posts. He argues that the originally communal type of cult focus was becoming personalised, each family or individual having its own miniature post (1995, 20). These ideas provide a possible interpretative framework within which the evidence from Melbourn can be considered.

The founder grave would appear to have been the initial focus, and from the evidence of the superimposed graves may have remained so for some time. It is possible that the lozenge-shaped enclosure G46 was constructed around the same time, perhaps to mark the establishment of the new burial area. The smaller post-built structures G15, G19, G20 and G38–40 may signal the start of more individual and/or family grave marking. If so, this practice would appear to have commenced in the late 6th century based upon the suggested dating of the finds within SG89 situated

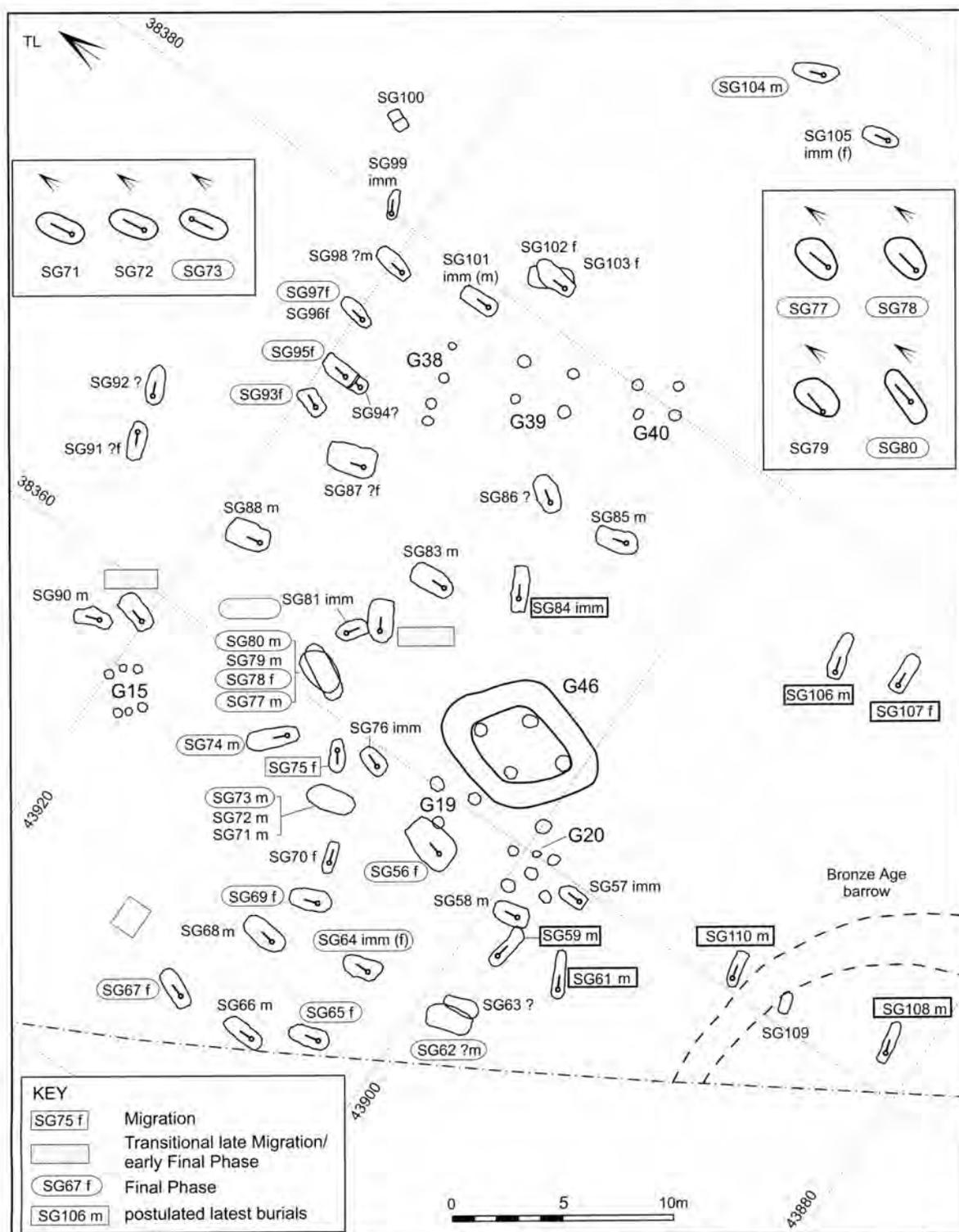


Figure 28. The Cemetery: Gender, orientation and suggested chronology. Gender indicated as follows: m = male; f = female; imm = immature; ? = uncertain

adjacent to structure G15. As has been noted above, the burials sited along the T-shaped alignment of structures, G38–40, in particular those adjacent to G38, are predominantly female. This pattern may represent some form of gender segregation, perhaps those of females that married into the community.

Kinship

Divisions of the cemetery have been argued on spatial grounds, in particular juxtaposition to cemetery structures and the founder grave. However, the underlying motivation for these burial foci is unclear. Kinship groups may provide a possible explanation. In attempting to identify family groups it must be remembered that created kinship is as important as consanguinity. However, it is not easy to identify in the archaeological record (Malim and Hines 1998, 303). Epigenetic traits amongst the burial population can be used to postulate family relationships or inter-group relatedness and the evidence for these traits has been presented in 'Epigenetic traits and congenital and developmental disorders'.

There is no clustering of inhumations sharing common dental epigenetic traits. In fact, the instances of parallelogram- and peg-shaped molars, and incisor shovelling, are dispersed. In the case of parallelogram-shaped molars and incisor shovelling, one instance of each was noted amongst the seven west-east oriented burials thought to be of later 7th century date (SG61 male and SG84 adolescent). The remaining inhumations displaying incisor shovelling (SG87 and SG105), and peg-shaped molars (SG64 and SG103) are female burials.

In contrast, the instances of spondylolysis are almost exclusively restricted to the burials clustered around the founder grave, and these are in the main male (SG73, SG80, SG83 and SG88). One female occurs within the western extension of the founder cluster, but one is positioned north of the four-post alignment (G38). Of the three instances of wormian bones two, both male, were within the burial concentration surrounding the founder grave (SG74 and SG77). A third male burial (SG106) formed part of the later west-east oriented burials on the southern fringes of the cemetery. Metopic sutures were found in two burials to the west of the founder grave (SG68 male and SG67 female) and a single inhumation east of the four-post structure G39 (SG86 gender unknown).

At Edix Hill a correlation between the instances of common genetic traits and burial position within the cemetery was found for male burials. In contrast a more dispersed pattern was noted amongst the female inhumations sharing traits. There it was argued that such a pattern would result if female exogamy was the norm (Malim and Hines 1998, 311). The evidence from Melbourn could be interpreted in a similar manner. Caution however should be exercised due to the smaller cemetery population, the density of burials surrounding the founder grave when compared to the rest of the cemetery and the relatively high prevalence of spondylolysis within the burial population. The few instances of epigenetic traits common to both the

main burial area and the postulated later 7th century burials to the south hint at continuity of a familial burial area despite the apparent change in burial rite.

Summary

In common with many Final Phase cemeteries Melbourn is sited near an older, prehistoric monument (Lucy 2000, 124–30). In this instance, however, the monument was not the main determining factor in the layout of the cemetery. Instead the burials focused on post-built structures erected during the use of the cemetery. The presence of a slight chalk ridge may have influenced the selection of this site as a burial ground, the cemetery structures enhancing its prominence.

Although the full extent of the cemetery cannot be determined, evidence from the recent excavations suggests it was established in the late 6th century, remaining in use for about 100 years. This is in contrast to some of the sites in the south Cambridgeshire area, for example Barrington A, Barrington B and Hauxton, where burial continuity is evidenced from the early 6th century through to the Final Phase (Malim and Hines 1998, 326–27).

The reasons for establishing a new cemetery, and the location of the settlement it served, remain uncertain. Hines has drawn attention to the appearance of Final Phase burial in effectively new territory beyond the bounds of the south Cambridgeshire region of the Migration Period. Sites are known in north Hertfordshire, south Bedfordshire and Shudy Camps near the Cambridgeshire/Essex border (Malim and Hines 1998, 327). Melbourn may represent one of the earlier links in this chain of expansion.

The recent excavations revealed a cemetery characterised by burials clustered around focal points (as opposed to rows), a high degree of reuse of grave plots, possibly with gender-related restrictions on this reuse, and at the time of writing unique multiple stacking of graves (SG71–73 and SG77–80). Also distinctive are the cemetery structures, which appear to evolve from providing a focus for the community (G46) to family and individual grave markers (G15, G19–20, G38–40). Together these attributes provide an unusually rich insight into the development of the cemetery.

The most intensively reused plots centred on the (female) founder grave, suggestive of an enduring need to retain a link with this individual. There were no skeletal markers that suggested the people buried within these multiple graves were related, and although this cannot be ruled out, it is possible that there were a variety of factors governing the reuse of graves, including created kinship and 'created continuity'. There were also differences evident in the manner of reuse, some graves respecting the previous burials, some truncating them and some apparently disinterring the original 'occupant', and incorporating the disturbed remains in the new grave. Whether these differences represent change over time is unclear. Nor is it clear whether the practice of grave

reuse was contemporaneous with the single burials. Reused graves were likely to have been marked in some manner, especially if the pattern of gender and age related restrictions on reuse was maintained. Subsequent ploughing, evidenced by scarring of the chalk bedrock, has removed any evidence of the form this grave marking took.

The cemetery appears to have extended westwards (graves SG62–69), with a more consistent north-south orientation. It is possible that this extension may have 'joined up' with the previously excavated area where it was noted that all burials varied no more than ten degrees from the north-south line (Wilson 1956, 30). However, current best estimates of the location of Wilson's excavation place it some 110m west of these graves. It is still, therefore, uncertain whether the two sites represent parts of separate cemeteries or one larger cemetery occupying the low chalk ridge to the south of Melbourn.

Within the cemetery's period of use a change in burial practice occurred, characterised by narrower rectangular graves, west-east orientation and poorly furnished or unfurnished graves. These graves although remaining within the area of the cemetery were positioned along the southern edge away from the main burial focus.

Sixty individuals were recorded from the recent excavations and a further thirty were noted from the 1952 investigations. If these two sites form a single cemetery this suggests a burial rate of around one per year. Estimates of the average size of the population potentially served by a single cemetery are hindered by the limited information available from the 1952 excavations. The more recent findings suggest a minimum population size of about two dozen.

Of the recent findings, immature individuals represent 18% of the buried population, a somewhat lower percentage than found in earlier Anglo-Saxon cemeteries locally but closer to that of roughly contemporary populations countrywide. There is a severe under-representation of new-borns and infants compared with modern comparable populations. This is common in ancient cemetery material and differential disposal is the favoured explanation.

There are almost equal numbers of males and females. Some adults reached an advanced age, one-third over 45 years and 14% probably over 60 and possibly considerably older. The preponderance of males in the oldest age group is not standard for archaeologically excavated cemeteries, and cannot be entirely explained by the high numbers of deaths of the younger adult females. The people were tall, some of the tallest Anglo-Saxons yet reported.

In terms of health, it is noteworthy that although there are a few fractures there are no identifiable weapon injuries such as are found at nearby cemeteries of earlier date. It appears that inter-personal conflict had become less common. Degenerative ('wear and tear') arthritis is extremely advanced in some cases, and affects nearly one-third of the population. Dental health is average for the period. There is some non-specific infection and signs that a few individuals

had iron deficiency – as regularly observed in ancient cemetery samples. One man died with a massive bladder stone, probably the cause of his death; one woman was pregnant but her cause of death is not known.

There was no clear distribution pattern of epigenetic traits although cases of vertebral developmental anomalies are frequent and, within the male population, are intriguingly clustered in the cemetery. This, combined with the dispersed pattern of dental epigenetic traits within the female population, could suggest that female exogamy was practised.

The range of grave goods at Melbourn is similar to the Phase II burials at Barrington A/Edix Hill, although the absence of bed burials and scarcity of shield bosses may suggest less of a hierarchical differentiation at Melbourn (Malim and Hines 1998, 323). It was also noted at Melbourn that the percentage of graves furnished, although not richly, was higher than generally encountered in Final Phase cemeteries. This would appear to support the suggestion that, at least in death, there were fewer hierarchical differences.

Appendix 1 Methodologies

Contextual

As part of the process of structural analysis, contexts that are closely related both stratigraphically and processually were assigned to a 'sub-group' (SG). Sub-groups represent the archaeological evidence for a distinct event or activity and form the basic unit of interpretation. A 'group' comprises an aggregation of related sub-groups, defining an interpretative entity (for example a group of four post holes forming a structure). Sub-groups and groups were then assigned to phases of activity.

For the purposes of this publication the graves within the Anglo-Saxon cemetery are presented and discussed by sub-group number. All other contextual entities are presented by group number within the relevant phase discussion.

Ceramics

The pottery has been recorded by fabric and, in the absence of a ceramic type series for Cambridgeshire, has been coded according to the Bedfordshire Ceramic Type Series. Previously published fabric types are not fully described here. Units of quantification are vessel and sherd count, and weight in grams.

Flint

The flint from the site was recorded by context and by broad and narrow term. Numbers of complete, edge damaged, patinated, cortical and burnt pieces were noted. Counts and weight were recorded by narrow term and comments were made as necessary. Total numbers of flints, by broad term, were assessed for each phase, with narrow terms being considered where appropriate (eg for specific core or tool types). The flint was also considered by phase in relation to excavated features.

Non-ceramic artefacts

The non-ceramic artefacts were identified by broad and narrow term and assigned to functional categories. For the purposes of this publication the artefacts deriving from the cemetery deposits are grouped into four main categories – personal adornment and costume, tools and personal equipment, vessels and weaponry. Each of these categories is internally subdivided, by broad term.

Human Remains

Recording methods used are primarily those of Cho *et al.* (1996), Iscan & Kennedy (1994), Stewart (1979), Steele & Bramblett (1988) and Ubelaker (1989) with other methods referenced as appropriate.

The 'five sexes' classification (F, ?F, ?, ?M, M) was used in recording. For ease of description and analysis of the material, this is then reduced to 'female', 'male' and 'sex not determined', a procedure justified by the concordance between sexing from the skeletal remains and grave goods and experience with other local cemeteries (Duhig 1998).

Subadult ages are defined as: foetal/neonate, up to

one month after birth; infant, one month to one year of age; child, one year to puberty at a notional 13 years; adolescent, puberty to skeletal adulthood at a notional 18 years (when growth ceases due to fusion of long-bone epiphyses). Adults are dealt with in two ways: firstly, age ranges and their mean points. All possible methods (eg pubic symphysis, sternal rib end, auricular area, dental attrition) were applied to each skeleton and the most reasonable estimate made from them. In some cases only one or two methods could be applied, due to damage to the relevant skeletal areas, so the ranges presented are disparate because some methods have wider or higher-extending ranges than others. For example, use of the pubic symphysis provides six ranges which are very wide and overlapping but extend upwards to 87 years of age, while by contrast the Brothwell dental-attrition system has four mutually-exclusive bands with the highest reaching only as 'over 45'. For this reason, researchers wishing to examine the age determination are directed to the original record sheets.

The second way of dealing with adult ages is the four age bands, equating to Brothwell's system of 17–25 years ('adult 1'), 25–35 years ('adult 2'), 35–45 years ('adult 3') and over 45 years ('adult 4') (Brothwell 1981). Individuals were placed according to the mean point of their age range.

Statures are calculated from the regression formulae of Trotter & Gleser (1952), using combined femur and tibia measurements when possible. The plus/minus ranges on the final stature of these are therefore 2.99cm for males and 3.55cm for females. Single leg bones were used if femur and tibia were not both present, and these have larger errors, but no upper limb bones were used due to the wide plus/minus ranges.

Description and diagnosis of pathology is based mainly on Iscan & Kennedy (1984), Ortner & Putschar (1985) and Steinbock (1976). Congenital and developmental defects of the axial skeleton are as ordered by Barnes (1994) and Hauser & De Stefano (1989). Each pathological or similar change is presented in tabular form, and diagnosis and significance are discussed in the main text.

Animal Bone

Due to the small size of the identified assemblage (only 203 fragments could be identified to species), the only method used to quantify species was a basic fragment count. Associated bones were counted as representing one animal. The age at death of the assemblage was calculated, where possible, on the basis of epiphyseal fusion (Silver 1969), and tooth wear (Grant 1982). Measurements were taken using standards set by von den Driesch (1977). Due to the anatomical similarities between sheep and goat bones (Prummel and Frisch 1986), bones of this type were assigned to the category 'sheep / goat', unless a definite identification could be made.

Appendix 2: Pottery Type Description

Anna M Slowikowski

Introduction

The pottery assemblage consists of 715 sherds, weighing 6320g. Most of the sherds came from individual vessels, although 11 vessels did comprise up to 59 sherds, weighing over 5g each. These are mainly associated with burials although not all are grave goods. Assemblage dates range from the Bronze Age to the Saxon period. The pre-Saxon pottery is only summarised here. The exception to this is the early prehistoric pottery, which is illustrated and described.

Early prehistoric (Figure 3)

All the early prehistoric pottery occurs in one fabric, a poorly fired limestone-tempered type, with some differences in the coarseness and colour. It is most often a coarse, rough fabric, buff-grey in colour with a grey core. Sub-rounded or rounded white limestone inclusions are common but poorly sorted. They vary in size from 0.2–3.0mm, although some fragments may be as large as 5.0mm. Less common inclusions are flint and clear, rounded quartz, with mean sizes of approximately 1.5mm and 1.0mm respectively.

Vessels which are identified as possible collared urns, or sherds which are likely to be collared urns, are coded X10. Other sherds are coded X01. Most of the early prehistoric pottery was found in the fill of pit G13. Decoration took the form of incised arcs on the body and incised herringbone motif on the rims of the bowl-shaped vessels (Figure 3.3–4), or twisted cord on the collar and rim of the collared urns (Figure 3.1–2).

Although collared urns are often found with cremations (Gibson and Woods 1990, 64), no cremated remains were recovered from G13. In domestic contexts, collared urns were probably used as storage vessels, the collar enabling a cloth or skin to be securely fastened (Longworth 1984, 6). The convex collar, simple rim and cord decoration suggest that at least Figure 3.1 may come early in the collared urn sequence (Longworth 1984, 21). Far less of the profile of Figure 3.2 survives although the sherds are harder fired. Faint elongated marks on some of the body sherds of this vessel may be decoration similar to crowsfeet impressions often found on late Neolithic Fengate pottery. However, these marks occur on only two of the body sherds and may be naturally occurring seed impressions or just accidental finger-nail impressions made in the course of manufacture.

Only the rims of the two bowl-shaped vessels were found; they may be parts of collars, but not enough survives to determine their forms. The herringbone incisions are in keeping with both the collared urn and the earlier Fengate traditions. The incised arcs, however, fit neither style. If the collared urns have been identified correctly, this suggests an early Bronze Age date for the G13 deposit, despite the close affinities of the decoration to the late Neolithic Fengate style.

Later prehistoric

The majority of sherds occur in a fine flint-tempered fabric, with smaller quantities of coarser flint-tempered ware. This temper is characteristic of the late Bronze Age/early Iron Age in the region. Coarse shelly wares are a significant component of assemblages of this date in Bedfordshire, Northamptonshire and Huntingdonshire, but somewhat less common in Cambridgeshire. At Melbourn they comprise only 11.17% of the assemblage. Sandy and calcareous fabrics are a minor part of the assemblage (Table 26).

Most of the vessels could not be allocated to form. Two small rims, however, each in F01A and B, suggest the presence of jars. The fragment of a carination comes from a carinated jar in fabric F01B, and one substantial vessel in the same fabric can be identified as a round-shouldered jar. Decoration is limited to single examples of finger-tipping on the rim, finger-nail impressions on the shoulder, horizontal incised lines or lines of finger pinching, the last two both on body sherds. Despite the limited forms and decorative motifs, a parallel can be suggested within Knight's group 1 assemblages (Knight 1984, 12). These assemblages have been dated to c.8th century BC, although recent research suggests a possible date as early as the 10th century BC (Knight 2002, 126–131).

Late Iron Age/Roman

The late Iron Age and Roman pottery occurs as single residual sherds in the fills of phase 3 features, particularly the graves. The types and quantities present are listed in Table 27.

Saxon

Five different fabric types were recognised, although only type A26 was found in quantity. Totals of vessels, sherds and weight in grams are in brackets.

A01 Organic-tempered ware (4:21:61)

Organic temper included chaff and chopped straw or grass. Recent research backed by ethnographic parallels suggests that a source for this tempering may have been dung (Gaimster 1986). In the south and midlands, it reached its peak of popularity in the 7th century and went out of use by the mid-8th century (Hamerow *et al* 1994, 15). The presence of chaff in at least one of the vessels suggests autumn manufacture of pottery.

A26 Micaceous (25:177:3878)

(Figure 6, SG64, no. 1; Figure 12, SG74, no. 4; Figure 19, SG89, no. 29; Figure 22, SG103, no. 1) Micaceous surfaces, especially where burnished, appear very smooth and glistening. Other inclusions are quartz and occasional black voids, visible where organic matter has burnt out. This is the commonest type on site, and there is some variation in the

Table 26. Later prehistoric fabric types

Fabric type	Description	Sherds	Weight (g)	% of later prehistoric wares (sherds)
F01A	Flint tempered (coarse)	10	81	5.59
F01B	Flint tempered (fine)	137	552	76.54
F16	Coarse shelly	20	65	11.17
F20	Calcareous (limestone?)	9	28	5.02
F29	Coarse sandy	3	7	1.68
TOTAL		179	733	100.00

Table 27. Later Iron Age and Roman pottery types

Fabric type	Description	Sherds	Weight (g)
F06B	Grog tempered (medium)	10	65
F06C	Grog tempered (coarse)	3	30
F07	Shelly	2	6
F09	Grog and sand	1	2
R	Unspecified Roman	12	43
R01	Samian	1	1
R03A	Verulamium region whiteware	2	15
R03C	Whiteware	2	3
R05A	Orange sandy	5	26
R06B	Greyware (coarse)	9	50
R06C	Greyware (fine)	14	84
R06D	Greyware (micaceous)	5	20
R07B	Black sandy	3	15
R10B	Buff gritty	2	8
R12B	Nene valley colour coat	2	22
R13	Shelly	1	11
R14	Red brown	3	26

proportions of the inclusions, the fineness of the fabric and the smoothness of the surfaces. Broadly this fabric divides into a coarse and a fine version, although there are some sherds which could be either. It is a fabric, which is not unusual in this part of Cambridgeshire (P Spoerry pers comm). All vessels are plain, although surfaces are well smoothed and frequently burnished. One bowl has signs of knife-trimming around the lower body (Figure 22, SG103, no. 1). Included among the forms are small globular bowls with upright rims and tall narrow-necked jars. A close parallel in form for the tall necked jar (Figure 12, SG74, no. 4) comes from the cemetery of Chamberlain's Barn, south Beds (Hyslop 1963, fig. 8), where it is dated to the 7th century. Myres (1977, fig. 56, no. 2905) has published a comparable complete example from Shudy Camps, Cambs, of the same date.

A distinctive feature of many of the Saxon vessels is the presence of a heavy internal black residue. The external surfaces are clean. This has been noted on other Saxon vessels, both from cemeteries and domestic settlements, eg Elsham, north Lincolnshire and Cleatham, south Humberside (K Leahy pers comm) and Wharram Percy, north Yorkshire (Slowikowski 1992, 37). A use for these vessels cannot be positively determined although it is likely that they were not

purpose made as grave goods. They all appear to be wide mouthed jars or bowls, and may have been used as lamps or for burning herbs or other substances. Despite the absence of external sooting, their use as cooking pots cannot be discounted, as their use within the embers of a hearth would result in very little soot settling on the surface. The complete vessel (Figure 12, SG74, no. 4) has no internal residue. This may be due to its form, the narrow neck being more suitable for liquid bearing vessels.

A32 Red quartz (1:6:73)

This fabric is characterised by the rounded, red quartz, which is abundant and densely packed. Some rare clear quartz is also present, as are grains of red and black iron ore. A single vessel was found, part of an upright-lugged jar. This is a characteristic fabric, with rare occurrences, usually as single examples, in Saxon contexts in mid-Bedfordshire, such as Salford (Slowikowski forthcoming) and Stewartby (J Wells pers comm).

A19 Sand and organic (6:19:112)

(Figure 5, SG63, no. 1)

A fairly smooth fabric, with quartz and coarse organic matter and/or frequent elongated voids where

organic matter has burnt out, visible on surfaces and in breaks. Possibly associated with type A01. A single example of a stamped sherd in this fabric was found in the fill of grave SG63. It is a circular grid stamp, 10x10mm in size, recorded in the Anglo-Saxon Stamp Archive as MEL-376/1: stamp type A 3aiv.

Diana Briscoe (Anglo-Saxon Stamp Archive) writes:

'The A 3aiv stamps form a large section of the 'A3' group, which describes all circular grid stamps. Over 120 stamps are recorded, thus making it a common stamp. There are 40 examples in the Archive that fall within the size range of 9x9mm to 11x11mm. The bulk of these come from East Anglia, but there are also examples from as far afield as North Yorkshire, Oxfordshire and Sussex. There is nothing that gives the stamp a particular identifying feature and therefore definite parallels to other sites cannot be given. The nearest stamp-producing sites are at Royston, Barrington, Hauxford, Haslingfield and Cambridge, Linton Heath. Interestingly, none of them has produced an A 3aiv stamp.'

A30 Sandstone and mica (1:9:93)

Hard, reduced fabric, with distinct conglomerates of quartz, 0.5–2.0mm, derived from sandstone. Loose grains, approx. 0.5mm, are scattered densely throughout the fabric. Mica is rare in the break but clearly visible on the surface as fine silver flakes.

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Bibliography

- Ager, B M 1989 The Anglo-Saxon cemetery. In I Stead and V Rigby *Verulamium The King Harry Lane site*. English Heritage Archaeological report 12, 219–239
- Barnes, E 1994 *Developmental defects of the axial skeleton in paleopathology*. Niwot, Colorado: University Press of Colorado
- Bennett, KA 1972 Lumbo-sacral malformations and spina bifida occulta in a group of proto-historic Modoc Indians. *American Journal of Physical Anthropology* 36: 435–40
- Bitschaj, J & ML Brodny 1956. *A history of urology in Egypt*. Privately printed: Riverside Press
- Blair, J 1995 Anglo-Saxon Pagan Shrines and their Prototypes. In D Griffiths *Anglo-Saxon Studies in Archaeology and History* 8. Oxford University Committee for Archaeology, 1–28
- Brothwell, DR 1981 *Digging up bones*. 3rd edition. Oxford: Oxford University Press and British Museum (Natural History)
- Bruggmann, B forthcoming *Glass Beads from Anglo-Saxon Graves: a Study of the Provenance and Chronology of Glass beads from Anglo-Saxon Graves based on Visual Examination* Oxbow
- Cho, H, Falsetti, AB, McIlwaine, J, Roberts, C, Sledzik, PS & Willcox AW (Eds) 1996. *Handbook of the Forensic Anthropology Course of the Department of Archaeological Sciences*, University of Bradford and the NMHM/AFIP, Washington, DC
- Cook, AM and Dacre, M W 1985 *Excavations at Portway, Andover 1973–1975* Oxford University Committee for Archaeology Monograph no. 4
- Crawford, S 1991 When do Anglo-Saxon children count? *Journal of Theoretical Archaeology* 2: 17–24
- Cambridgeshire Record Office (hereafter CRO) Q/RDc63, Inclosure Award, Melbourn, 1839, Map: OS, First Edition, Sheet LVIII.7 1885; OS Second Edition, Sheet LVIII.7, 1901 and adapted, 1910–11
- CRO Q/RDz9, Inclosure Award, Melbourn, Schedule, O.S. 1st and 2nd Eds
- Crowfoot, E 1998 Textiles associated with metalwork. In T Malim and J Hines *The Anglo-Saxon Cemetery at Edix Hill (Barrington A), Cambridgeshire*. CBA research report 112, 235–46
- Dickinson, T 1973 Bronze Lace-Tags from Site F. In ACC Broadribb, AR Hands, and DR Walker *Excavations at Shakenoak Farm, near Wilcote, Oxfordshire, iii, Site F*

- (privately printed) Oxford, 111
- Dickinson, T 1976 *The Anglo-Saxon Burial Sites of the Upper Thames Region, and their Bearing on the History of Wessex circa AD 400–700* Oxford University DPhil thesis unpublished
- Dickinson, T and Härke, H 1992 *Early Anglo-Saxon Shields* (reprint from *Archaeologia* 110) Society of Antiquaries
- Down, A and Welch, MG 1990 *Chichester Excavations VII: Apple Down and the Mardens* Chichester District Council
- Driesch, A von den 1976 *A guide to the measurement of animal bones from archaeological sites* Peabody Museum Bulletin I, Cambridge Massachusetts, Harvard University
- Drinkall, G and Foreman, M 1998 *The Anglo-Saxon Cemetery at Castledyke South, Barton-on-Humber* Sheffield
- Duhig, C 1998 The human skeletal material. In T Malim & J Hines *The Anglo-Saxon cemetery at Edix Hill (Barrington A), Cambridgeshire*. CBA Research Report 112, 154–99
- Duhig, C 2000 *They are eating people here! Skeletal indicators of stress in the Egyptian First Intermediate Period*. University of Cambridge PhD thesis unpublished
- Duhig, C in prep. The human skeletal remains. In C Haith *The Anglo-Saxon cemetery at St Peter's Tip, Broadstairs, Kent*. London: British Museum Publications
- Evison, VI 1987 *Dover: Buckland Anglo-Saxon Cemetery* Historic Buildings & Monuments Commission for England Archaeological Report no. 3
- Floud, R, Wachter, K and Gregory, A 1990 *Height, health and history. Nutritional status in the United Kingdom, 1750–1980, Cambridge Studies in Population, Economy and Society in Past Time*, 9. Cambridge: Cambridge University Press
- Fowler, G 1948 Cratundune: a problem of the Dark Ages. *PCAS* 41: 70–73
- Fredrickson, B, Baker, D, McHolick, W, Yuan, HA & Lubicky, JP 1984. The natural history of spondylolysis and spondylololsthesis. *Journal of Bone and Joint Surgery* 66: 699–707
- Gaimster DRM 1986 Dung-tempering? A late Norse case study from Caithness. *Medieval Ceramics*, 10: 43–47
- Geake, H 1997 *The Use of Grave-Goods in Conversion-Period England, c.600 – c.850* BAR British Series 261
- Gibson, A and Woods, A 1990. *Prehistoric Pottery for the Archaeologist*
- Grant, A 1982 The Use of Toothwear as a Guide to the Age of Domestic Ungulates. In B Wilson, C Grigson and S Payne (eds) *Ageing and Sexing Animal Bones for Archaeological Sites*
- Guido, M 1978 *The Glass Beads of the Prehistoric and Roman Periods in Britain and Ireland* Reports of the Research Committee of the Society of Antiquaries of London no.35
- Guido, M 1999 *The Glass Beads of Anglo-Saxon England c. AD 400–700* Reports of the Research Committee of the Society of Antiquaries of London no. 58 (edited by M Welch)
- Hamerow, H, Hollevoet, Y and Vince, A 1994. Migration Period Settlement and 'Anglo-Saxon' Pottery from Flanders. *Medieval Archaeology*, vol 38: 1–18
- Härke, H 1989 Knives in Early Saxon Burials: blade length and age at death. *Medieval Archaeology* 33: 144–48
- Härke, H 1997 Material culture as Myth: Weapons in Anglo-Saxon Graves. In CK Jensen and KH Nielsen *Burial and Society The Chronological and Social Analysis of Archaeological Burial Data*. Aarhus University Press, 119–27
- Hauser, G & de Stefano GF 1989. *Epigenetic variants of the human skull*. Stuttgart: Schweizerbart.
- Hawkes, SC 1973 The Dating and Social Significance of the Burials in the Polhill Cemetery. In B Philp *Excavations in West Kent 1960–1970*. Kent Monograph Series Research Report 2, 186–199
- Hillson, S 1979 Diet and dental disease. *World Archaeology* 11: 147–62
- Hillson, S 1990 *Teeth*. (Cambridge Manuals in Archaeology). Cambridge: Cambridge University Press.
- Hines, J 1984 *The Scandinavian Character of England in the pre-Viking Period* BAR British Series 124
- Hines, J 1997 *A New Corpus of Anglo-Saxon Great Square-Headed Brooches* Reports of the Research Committee of the Society of Antiquaries of London no 51
- Hinton, D 1990 Hooked tags. In M Biddle *Object and Economy in Medieval Winchester: Artefacts from Medieval Winchester* (Winchester Studies 7.2). Oxford, 548–52
- Hyslop, M 1963 Two Anglo-Saxon Cemeteries at Chamberlains Barn, Leighton Buzzard, Bedfordshire *Archaeological Journal* 120 (1963): 161–200
- Iscan, MY & Kennedy, KAR (Eds) 1994 *Reconstruction of life from the skeleton*. 2nd edition. New York: Wiley-Liss.
- Iscan, MY, Loth, SR & Wright, RK 1984 Metamorphosis at the sternal rib end: a new method to estimate age at death in white males. *American Journal of Physical Anthropology* 65 (2): 147–56
- Kennedy, KA R 1994 Skeletal markers of occupational stress. In MY Iscan & KAR Kennedy *Reconstruction of life from the skeleton*, 2nd edition. New York: Wiley-Liss
- Knight, D 1984. *Late Bronze Age and Iron Age Settlement in the Nene and Great Ouse Basins, I–II*, BAR British Series 130
- Knight, D 2002, A Regional Ceramic Sequence: Pottery of the First Millennium BC between the Humber and the Nene. In JD Hill and A Woodward (eds) 2002, *Prehistoric Britain: the Ceramic Basis*, Oxbow
- Lallo, JW, Armelagos, GJ & Mensforth, R 1977 The role of diet, disease and physiology in the origin of porotic hyperostosis. *Human Biology* 49: 471–83
- Lethbridge, TC 1931 *Recent Excavations in Anglo-Saxon Cemeteries in Cambridgeshire & Suffolk* Cambridge Antiquarian Society. Quarto Publications. New Series, No. 3
- Lethbridge, TC 1936 *A Cemetery at Shudy Camps Cambridgeshire Report of the Excavation of a Cemetery of the Christian Anglo-Saxon Period* Cambridge Antiquarian Society. Quarto Publications. New Series, No 5
- Longworth, IH 1984. *Collared Urns of the Bronze Age in Great Britain and Ireland*
- Lucy, S 2000 *The Anglo-Saxon Way of Death* Sutton Publishing
- MacGregor, A 1985 *Bone, Antler, Ivory & Horn: the technology of Skeletal Materials since the Roman Period* Croom Helm
- MacGregor, A and Bolick, 1993 *A Summary Catalogue of the Anglo-Saxon Collections (Non-Ferrous Metals)* Ashmolean Museum BAR British Series 230
- McKinley, JI 1987 Report on the skeletal material. In B Green & A Rogerson *The Anglo-Saxon cemetery at Morning Thorpe, Norfolk*. Vol. I, (East Anglian Archaeology Report 36). Gressenhall: Norfolk Archaeological Trust, 188–9
- Malim, T 1998 Prehistoric and Roman remains at Edix Hill, Barrington, Cambridgeshire *PCAS* 86 (1997): 13–56
- Malim, T and Hines, J 1998 *The Anglo-Saxon Cemetery at Edix Hill (Barrington A), Cambridgeshire* CBA research report 112
- Malim, T, Penn, K, Robinson, B, Wait, G and Welsh, K 1997 New Evidence on the Cambridgeshire Dykes and Worsted Street Roman Road *PCAS* 85 (1996): 27–122
- Maltby, M 1996 The exploitation of animals in the Iron Age: the archaeozoological evidence. In TC Champion and JC Collis (eds) *The Iron Age in Britain: recent trends*. Sheffield, 17–28

- Maltby, M 1997 Domestic fowl on Romano-British sites: inter-site comparisons of abundance *International Journal of Osteoarchaeology* 7: 402–14
- Marzinzik, S forthcoming *Early Anglo-Saxon Belt Buckles (late 5th – early 8th centuries): Their Classification and Context* BAR British Series
- Matthews, CL 1962 The Anglo-Saxon Cemetery at Marina Drive, Dunstable *Bedfordshire Archaeological Journal* volume 1 (1962): 25–42
- Mays, S 1993 Infanticide in Roman Britain. *Antiquity* 67: 883–8
- Meaney, A 1981 *Anglo-Saxon Amulets and Curing Stones* BAR British Series 96
- Meaney, A 1988 Girdle groups: reconstruction and comparative study. In T Malim & J Hines *The Anglo-Saxon cemetery at Edix Hill (Barrington A), Cambridgeshire*. CBA Research Report 112., 268–75
- Meaney, A and Hawkes, SC 1970 *Two Anglo-Saxon Cemeteries at Winnall* Society for Medieval Archaeology Monograph Series 4
- Merbs, C 1983 *Patterns of activity induced pathology in a Canadian Inuit population*. Ottawa: National Museums of Canada
- Merbs, CF 1994 'Trauma'. In MY Iscan & KAR Kennedy (eds) *Reconstruction of life from the skeleton*, 2nd edition. New York: Wiley-Liss 161–89
- Molleson, TL 1993 The human remains. In D Farwell & TL Molleson *Excavations at Poundbury 1966–80. Volume II: the cemeteries*. Dorchester: Dorset Natural History and Archaeological Society
- Myres, JNL 1977. *A Corpus of Anglo-Saxon Pottery of the Pagan Period*
- Ortner, DJ & Putschar, WGJ 1985 *Identification of pathological conditions in human skeletal remains*. Vol. 28. (Smithsonian Contributions to Anthropology). Washington & London: Smithsonian Institution Press
- Ottaway, P 1992 *Anglo-Scandinavian Ironwork from 16–22 Coppergate* The Archaeology of York Volume 17/6
- Owen-Crocker, G 1986 *Dress in Anglo-Saxon England* Manchester University Press
- Phillips, MA and Wilson, MD 2000 Water Lane Melbourn, Cambridgeshire Archaeological Field Evaluation. Bedfordshire County Archaeology Service Report no. 2000/08 (unpublished)
- Philp, B 1973 *Excavations in West Kent 1960–1970* Kent Monograph Series Research Report 2
- Prummel, W and Frisch, H-J 1986 A guide to the distinction of species, sex and body side in bones of sheep and goat. *Journal of Archaeological Science* 13: 567–577
- Putnam, G 1984. The human bones. In C Hills, K Penn & R Rickett *The Anglo-Saxon cemetery at Spong Hill, North Elmham, Part III: catalogue of inhumations* East Anglian Archaeology Report 21
- Rogers, J & Waldron T 1995 *A field guide to joint disease in archaeology*. New York: John Wiley & Sons
- Rogers, J, Waldron, T, Dieppe, P & Watt, I 1987 Arthropathies in palaeopathology: the basis of classification according to most probable cause. *Journal of Archaeological Science* 14: 179–93
- Ross, S 1991 *Dress Pins from Anglo-Saxon England: Their Production and Typo-chronological Development* Oxford University DPhil thesis, unpublished
- Salzman, LF (ed) 1938 *The Victoria History of Cambridge and the Isle of Ely*
- Silver, IA 1969 The Ageing of Domestic Animals. In D Brothwell and E Higgs (eds) *Science in Archaeology*. Thames and Hudson, London, 283–302
- Slowikowski, AM 1992. Anglo-Saxon and Medieval Pottery. In G Milne and JD Richards, *Two Anglo-Saxon Buildings and Associated Finds, Wharham, A study of Settlement on the Yorkshire Wolds*, VII, York University Archaeological Publications 9, 27–38
- Slowikowski, AM forthcoming. The Pottery. In M Dawson, *An Iron Age Settlement at Salford, Bedfordshire*, Bedfordshire Archaeology Monograph
- Steele, DG & Bramblett, CA 1988 *The anatomy and biology of the human skeleton*. College Station: Texas A & M University Press
- Steinbock, RT 1976 *Paleopathological diagnosis and identification*. Springfield, Ill: Charles C Thomas
- Stewart, TD 1979 *Essentials of forensic anthropology*. Springfield, Ill: Charles C Thomas
- Stirland, A 1991 Diagnosis of occupationally related paleopathology: can it be done? In DJ Ortner & AC Aufderheide (ed) *Human paleopathology: current synthesis and future options*. Washington DC.: Smithsonian Institution Press, 40–50
- Stockwell, EG 1993 Infant mortality. In *The Cambridge world history of human disease*. Edited by F Kiple. Cambridge: Cambridge University Press
- Swanton, MJ 1973 *The Spearheads of Anglo-Saxon Settlements* London: Royal Archaeological Institute
- Swanton, MJ 1974 *A corpus of pagan Anglo-Saxon spear types* BAR 7
- Taylor, A 1997 *The Archaeology of Cambridgeshire volume 1: South-West Cambridgeshire* Cambridgeshire County Council
- Taylor, A, Duhig, C & Hines, J 1998 An Anglo-Saxon cemetery at Oakington, Cambridgeshire. *PCAS* 86 1997: 57–90.
- Thomas, J 1991 *Rethinking the Neolithic* Cambridge
- Trotter, M & Gleser, G 1952 Estimation of stature from the long bones of American whites and negroes. *American Journal of Physical Anthropology* 10(4): 463–514.
- Ubelaker, DH 1989 *Human skeletal remains: excavation, analysis, interpretation*. (Manuals on Archeology 2). Washington: Taraxacum for Smithsonian Institution.
- Waldron, T 1991 Variations in the rates of spondylolysis in early populations. *International Journal of Osteoarchaeology* 1(1): 63–5.
- Waldron, T 1994 *Counting the dead. The epidemiology of skeletal populations*. Chichester: John Wiley
- Walton Rogers, P 1997 *Textile Production at 16–22 Coppergate* The Archaeology of York The Small Finds 17/11
- Welch, M 1999 A future for Anglo-Saxon glass bead studies? In M Guido *The Glass Beads of Anglo-Saxon England c. AD 400–700* Reports of the Research Committee of the Society of Antiquaries of London no. 58, 94–6
- Wells, C 1985 Pathology. In AM Cook & MW Dacre *Excavations at Portway, Andover 1973–1975. Anglo-Saxon cemetery, Bronze Age barrow and linear ditch*, (Oxford University Committee for Archaeology Monograph No. 4). Oxford: Oxford University Committee for Archaeology.
- Wiggins, RA Boylston & C Roberts 1999 Human skeletal remains. In G Drinkall & M Foreman (ed) *The Anglo-Saxon cemetery at Castledyke South, Barton-on-Humber*
- Wilson, DM 1956 The initial excavation of an Anglo-Saxon cemetery at Melbourn, Cambridgeshire, *PCAS* 49: 292–41
- WHO 2001. Numbers of deaths and death rates. UK: England and Wales 1997: WHOSIS

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