

7.1 Assessment of Romano-British Coinage

Ian Anderson

Introduction

7.1.1 Twelve copper alloy coins were recovered. Eleven came from the Late Iron Age/Romano-British settlement C15 to the west, and one from Anglo-Saxon grave C5. All of the coins are of Roman date. Four came from stratified deposits and eight were recovered by metal-detecting.

7.1.2 The study of the coinage assists with the following Fieldwork Event Aim:

- *to establish a dated sequence for the origin and development of the settlement.*

Methodology

7.1.3 All of the coins have been cleaned by a conservation assistant, examined under a hand lens, identified to type and classified in accordance with the standard catalogues for Romano-British coinage.

Quantification

7.1.4 Details of the coins are provided in **Table 21**. All of the coins from settlement C15 are of Late Roman date. They span a fifty year period from late Constantinian issues onwards, *c.* AD 330-380 and may have been in circulation up to and around AD 400.

7.1.5 The one exception is the coin from the central Anglo-Saxon cemetery (grave C5), which is an issue of Commodus (AD 184).

Table 11: Roman coinage by context

Site	Context	Type	SF no.	Denomination	Emperor/ King/ House	Early Date (AD)	Late Date (AD)
ARC SLT98	-	Unstratified	C2	Copy of ae3	House of Constantine	<i>c.</i> 355	<i>c.</i> 365
ARC SLT98	-	Unstratified	C391	Ae 3	Gratian	367	375
ARC SLT98	-	Unstratified	C392	Ae 3	Valens	367	375
ARC SLT98	-	Unstratified	C390	Ae 3	Valentinian I	364	375
ARC SLT98	-	Unstratified	C572	Ae 3	Gratian	367	378
ARC SLT98	-	Unstratified	C577	Ae 3	Constantine II	332	333
ARC SLT98	C354	Surface find	C393	Ae 3	Valentinian I	367	375
ARC SLT98	C608	Layer	C579	Ae 3	House of Constantine	<i>c.</i> 355	<i>c.</i> 365
ARC SLT98	C677	Layer	C580	Ae 3	Valens	364	367
ARC SLT98	C677	Layer	C581	Ae 3	Constans	348	350
ARC SLT98	C677	Layer	C582	Ae 3	House of Theodosius	378	383
ARC SLT98C		grave C5	C826	Ae 3	Commodus	184	184

Provenance

7.1.6 The Late Roman coinage was widely distributed across the site to the west of Stone Farm Bridleway, although three coins were found in the same layer. They represent issues spread across a fifty year period and there is no suggestion of a dispersed hoard either here or elsewhere on the site. Rather, the coinage indicates activity around the road and accompanying features during the middle and later part of the 4th century. The coin from grave C5 is rather different, representing a late 2nd

century issue that may originally have been placed within or near the mouth of the deceased (the bone from this grave did not survive).

Conservation

- 7.1.7 All of the coins are in reasonable condition and they can all be identified. The coins have been stabilised and packaged appropriately; no further conservation should be necessary. All of the coins should be retained.

Comparative Material

- 7.1.8 Late Roman coinage is common in East Kent, both at Canterbury and elsewhere. Over 4,000 coins, principally of Late Roman date, were recovered from Ickham and around 4,500 have come from excavations in Canterbury. The essential characteristics of this coinage, and particularly Late Roman issues, have been considered in the context of the Ickham assemblage (Casey and Brigstock, forthcoming).

Potential for further work

- 7.1.9 No further analysis is proposed, given that the coins have been identified and catalogued. The current database, prepared to CAT standards for coinage, is considered sufficient.

- 7.1.10 The coin assemblage will assist with the following Fieldwork Event Aims:

- *to establish a dated sequence for the origin and development of the settlement;*

- 7.1.11 The coinage is heavily centred on the Late Roman period and suggests activity during the middle and latter part of the 4th century. This ties in with the evidence from the ceramics and some of the other artefact categories, enabling a Late Roman phase to be identified in association with the stratigraphic evidence.

- 7.1.12 The coin from Anglo-Saxon grave C5 assists with the following Fieldwork Event Aim for that cemetery:

- *to establish the range variation in burial rites, and to view possible change in rite over time;*

- 7.1.13 It is the only coin from an Anglo-Saxon grave and one of the few pieces of Roman spolia to have been recovered from the cemeteries. Roman coins are occasionally found within early Anglo-Saxon burials in East Kent, as at Dover Buckland for example, where they may have been kept for amuletic value. In this case, however, there is a greater sense of symbolism in the deposit (Evison 1987, 122).

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7.2 Assessment of Roman Brooches

Don Mackreth, Christopher Sparey Green and Ian Riddler

Introduction

7.2.1 Nine Roman brooches, all made from copper alloy, were recovered by hand-excavation. Eight were found within the area of Late Iron Age/ Romano-British settlement C15 to the west, six derived from four cremation burials (cremations C12, C14, C15 and C16). A ninth brooch was discovered in the fill of the penannular ditch surrounding Anglo-Saxon grave C7 in the central cemetery.

7.2.2 The study of the brooches is relevant to the following Fieldwork Event Aims:

- *to establish a dated sequence for the origin and development of the settlement;*
- *To recover information on Romano-British burial practice, palaeo-pathology and demographic studies.*

Quantification

7.2.3 The brooches, all of which are of Early Roman date, are listed in **Table 22**. Six can be identified to type, and two others can be placed broadly in the Late Iron Age/ Early Roman period. The ninth piece consists merely of a small fragment.

Table 12: Roman Brooches

Site	Context	Context type	SF no.	Extent	Type	Early Date (AD)	Late Date (AD)
ARC SLT98	C49	Cremation	C4	Incomplete		25	45
ARC SLT98	C49	Cremation	C71	Fragment			
ARC SLT98	C59	Cremation	C72	Fragment	Langton Down	35	55
ARC SLT98	C59	Cremation	C73	Fragment	Langton Down	33	55
ARC SLT98	C67	Cremation	C166	Fragment			70
ARC SLT98	C85	Cremation	C74	Incomplete			70
ARC SLT98C	C1076	Ring ditch for grave C7	C894	Incomplete	Harlow	40	75
ARC SLT98	-	Deposits associated with trackway C1	C272	Incomplete	Kent Colchester	40	55
ARC SLT99	C2710	Fill of ditch C2741	C1851	Fragment	Harlow	40	75

Provenance

7.2.4 Of the eight brooches from the western part of the settlement area, two fragments (neither of which was particularly diagnostic) came from one cremation (context (49)). A further brooch, clearly of Late Iron Age/Early Roman type but also fragmentary, came from another burial (context (67)). Two brooches of the same Langton Down type came from the same context in a third burial (context (59)). Another was recovered as a surface find in the same general area; this brooch, however, was almost certainly not from a cremation burial. A fifth brooch, again fragmentary, also came from a cremation burial in the same cemetery. Another brooch, of Harlow type, survives as three fragments and was recovered from a feature in the SLT 98C cemetery, to the south of the ditch [2710] which surrounded grave C7.

7.2.5 The group of five brooches from cremation burials is of interest because, even though fragmentary, they can be dated with some precision. In addition, they are virtually the only grave goods to have come from these cremation burials.

Conservation

- 7.2.6 All of the brooches have been conserved and have been packaged to limit the need for further handling. The fragmentary nature of most of the brooches stems from the cremation process and, despite conservation, they remain fragile.
- 7.2.7 They have been recorded by the CAT and have also been placed on Don Mackreth's database of 15,000 Romano-British brooches.
- 7.2.8 Further analysis would largely be comparative and would not involve scientific analyses. There is the *caveat*, however, that Justine Bayley's forthcoming volume on the scientific analysis of Romano-British brooches may influence future decisions about sampling for metal content. Even so, this sampling is liable to be non-destructive.
- 7.2.9 All of the brooches, however fragmentary, should be retained for future study.

Comparative Material

- 7.2.10 All of the brooches appear to be of Late Iron Age/ Early Roman date. They can be compared with the extensive series from Canterbury, as well as with nearby discoveries at Dollands Moor and cremation groups from Church Hougham (Mackreth in Blockley *et al* 1995, 955-82; Mackreth in Parfitt forthcoming). Further brooches of this date have been found elsewhere within CTRL Section 1 sites, the types being relatively common in Kent. Most of the frequently-encountered types (which includes all of those seen here) have been outlined in detail in the Canterbury publication, and in forthcoming work (Mackreth forthcoming). The series from Saltwood can be described as absolutely typical for the period and the location.

Potential for further work

- 7.2.11 The study of the brooches is relevant to the following Fieldwork Event Aims:
- *to establish a dated sequence for the origin and development of the settlement;*
- 7.2.12 The brooches can be dated with some precision, even though they are fragmentary. They are extremely useful, therefore, in establishing the dating framework for the western part of the site as a whole. The presence of a single example in an Early Anglo-Saxon penannular ditch fill is difficult to explain. It does not appear to represent the Anglo-Saxon collection of Roman *spolia*, which is, in any case, very rare at Saltwood. Although therefore potentially a residual find, there is little or no activity broadly contemporaneous with the brooch recorded in the immediate vicinity, and would therefore have to be considered a stray loss.

- *to recover information on Romano-British burial practice, palaeo-pathology and demographic studies.*

7.2.13 Five of the brooches come from four cremation burials in the western area of the CAT excavations, permitting the burials to be phased, in conjunction with associated ceramics and stratigraphy. The deposition of brooches in such cremation burials can also be considered in the light of both regional practices and of burials within East Kent as a whole. This has been made easier by research carried out by Beverley Still on Iron Age burials from Kent, and by the collation of data on burials of this period by Keith Parfitt. A broader view of Late Iron Age/ Early Roman burial practice can therefore be formulated, which also encompasses burials elsewhere on the line of the high-speed rail link.

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7.3 Assessment of Roman Copper Alloy and Silver Objects

Ian Riddler

Introduction

7.3.1 Thirty-three Roman copper alloy and silver objects were hand-retrieved from Saltwood Tunnel, all within the vicinity of Late Iron Age/ Romano-British settlement C15. The copper alloy objects include a strap-end, two bracelets and several mirror fragments. In addition, there are several corroded and shapeless pieces of copper alloy that may possibly represent detritus from non-ferrous metalworking carried out in the vicinity of trackway C2. A silver pin was also recovered.

7.3.2 The study of the copper alloy and silver objects assists with the following Fieldwork Event Aim:

- *to establish a dated sequence for the origin and development of the settlement*

Methodology

7.3.3 Each of the objects has been examined and identified to type where possible. They have all been treated by a conservation assistant, stabilised and packaged appropriately. They are maintained in environmentally-controlled conditions. The overall assemblage is small and all of the objects have been examined for this assessment.

Quantification

7.3.4 The 33 copper alloy and silver objects are listed in **Table 23**. Most of them consist of small indistinct fragments representing either objects either burnt in the cremation process or waste from non-ferrous metalworking. The identifiable objects include two bracelets, two mirrors, a silver pin and a strap-end.

Table 13: Objects of Copper Alloy and Silver

Context	SF no.	Sample	Context type	Material	Object	Count	Type
-	C829		Unstratified	Cu Alloy	Sheet	1	Small fragment
-	C785		Unstratified	Cu Alloy	Strap	1	Undecorated; 2 pointed ends
-	C590		Unstratified	Cu Alloy	Strap-end	1	Amphora-shaped
C23	C198		Cremation C24	Cu Alloy	Strap-end?	1	Small cremated fragments
C23	C3		Cremation C24	Cu Alloy	Waste?	1	Metallurgical Waste ?
C23	C197		Cremation C24	Cu Alloy	Waste?	1	Metallurgical Waste ?
C35	C1		Fill of ditch C74	Cu Alloy	Mirror	1	Heavily decorated
C59	C100	11	Cremation C14	Cu Alloy	Object	6	Small indistinct fragments
C59	C980	11	Cremation C14	Cu Alloy	Object	1	Small indistinct fragments
C67	C982	10a	Cremation C12	Cu Alloy	Strip	1	Small fragment
C85	C983	12	Cremation C16	Cu Alloy	Object	9	Small indistinct fragments
C109	C101		Fill of ditch C110	Cu Alloy	Waste?	1	Metallurgical Waste ?
C160	C168		Fill of feature C323	Cu Alloy	Waste?	1	Metallurgical Waste ?
C169	C209		Fill of ditch C193	Cu Alloy	Waste?	2	Metallurgical Waste ?
C238	C986	29	Layer	Cu Alloy	Bracelet	1	Late Roman strip bracelet
C352	C404		Layer	Cu Alloy	Bracelet	1	Late Roman strip bracelet
-	C569		Unstratified	Cu Alloy	Mirror	1	
C455/ C972	C213		Post-hole C456	Cu Alloy	Sheet	1	Small fragment of a mount
C637	C993	81	Fill of feature C638	Silver	Pin	1	Undecorated discoidal head
					Total	33	

Provenance

- 7.3.5 The small lumps of formless copper alloy waste were largely recovered from the vicinity of trackway C2 towards its junction with trackway C1 to the north-west. Several fragments, however, came from four of the cremation burials and may represent parts of unidentifiable objects. Cremation C24 also produced fragments of a strap end, whose type cannot be identified. The other strap-end from the site, however, is clearly of amphora-shape and is an important addition to the corpus of late Roman belt fittings, although in this instance it is as an unstratified surface find.
- 7.3.6 Most of the mirror fragments came from the fill of a ditch, although one piece, conceivably from the same object, was recovered from metal-detecting in a nearby area.
- 7.3.7 The identifiable objects survive in good condition, whether fragmentary or complete. The waste material is abraded and powdery and cannot be readily distinguished by eye from small indistinct fragments of cremated objects. Most of the latter are too small to be identifiable.
- 7.3.8 Excavation methodology and associated metal-detecting makes it unlikely that many other objects of copper alloy or silver were not retrieved, despite the fact that excavations in the western area took place during the winter months.

Conservation

- 7.3.9 All of the objects have been examined by a conservation assistant. They have been stabilised and packaged and are retained in environmentally-controlled conditions. The smaller, indistinct and unidentifiable fragments could be discarded once photographed for archive purposes.

Comparative Material

- 7.3.10 The largest of the mirror fragments is elaborately decorated on one face with ring-and-dot designs surrounding a hatched floral pattern. It belongs to Lloyd-Morgan's type X, a comparatively rare type in this country, which is likely to be of Early Roman date (Lloyd-Morgan 1983; Lloyd-Morgan in Blockley *et al* 1995, 1010). The bracelets conform with common Late Roman strip forms. Both examples are decorated, largely with parallel grooves, allowing them to be assigned to Mould type 12 (Mould and Riddler forthcoming). The amphora-shaped strap-end is also of late Roman date, and is comparable with examples from Ickham (Ager forthcoming).
- 7.3.11 The silver pin has a discoidal head, which allows it to be placed within Cool's Group 4 (Cool 1990, 156 and fig 3.6). Copper alloy pins of this type are not common in East Kent and silver examples are even more rare.

Potential for further work

- 7.3.12 The study of the copper alloy objects assists with the following Fieldwork Event Aim:
- *to establish a dated sequence for the origin and development of the settlement*
- 7.3.13 Most of the identifiable copper alloy and silver objects can be dated in broad terms, at least. They include both objects of Early and Late Roman date. Set against the evidence from other materials, they enable a dated sequence to be compiled for the origins and development of the settlement. Further work is required to confirm the identifications described above and to correlate the objects more closely with the provisional phasing for the site. The identifiable objects also include rare types and are biased towards dress accessories, a situation observed in other assessments of the Roman cultural material. They strongly suggest that a domestic settlement lay nearby, and that there was activity here in the Early and Late Roman periods, if not necessarily in between.
- 7.3.14 The amphora-shaped strap-end is a Late Roman dress fitting which undoubtedly has official connotations, if not military ones. It is virtually the only object from this site with any possible military connotations, tending to confirm the domestic nature of occupation.
- 7.3.15 Unfortunately, the object fragments from the cremations cannot be confidently identified to specific object types, and cannot therefore contribute significantly to a consideration of Romano-British burial rites.

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7.4 Assessment of Anglo-Saxon Swords

Barry Ager and Janet Lang

Introduction

7.4.1 Eleven swords and associated fittings were found in graves excavated at the Saltwood Anglo-Saxon cemeteries. The study of this material will assist the following Fieldwork Event Aims for these sites:

- *to establish the chronology of the cemeteries;*
- *To establish the range and variation in burial rites and to view possible changes in rites over time;*

Methodology

7.4.2 Six of the swords, together with associated weaponry and other fittings, were visually examined alongside their radiographs, and a magnet was employed to assess the extent of the corrosion, although a thorough inspection was hampered by sandy concretions and, in a couple of cases, soil blocks. Associated weaponry from the same graves was also seen together with x-radiographs in most cases (excluding shields and spears). The remaining five swords were undergoing stabilisation and conservation at the time of assessment and therefore could not be examined in detail.

Quantification

7.4.3 Six swords out of a total of 11 were assessed (**Table 27**), from graves C5, C7, C15, C19, C127 and C158 (the swords not seen were from graves W41, C121, C124, C129 and C200).

Table 14: Swords from the Saltwood Cemeteries

Event Code	Grave	Cemetery	Examined	Pommel	Pattern	Magnet response
ARC SLT98C	C5	Central	Yes	'T'-shaped	?	-
ARC SLT98C	C7	Central	Yes	Ag "cocked" hat	yes	Yes
ARC SLT98C	C15	Central	Yes	Ae pyramidal	-	-
ARC SLT98C	C19	Central	Yes	Button	yes	Yes
ARC SFB99	W41	Eastern	Not seen			
ARC SLT99	C121	Western	Not seen			
ARC SLT99	C124	Western	Not seen			
ARC SLT99	C127	Western	Yes	Ring-sword	?	-
ARC SLT99	C129	Western	Not seen			
ARC SLT99	C158	Western	Yes	Button	?	not tested
ARC SLT98C	C200	Central	Not seen			

7.4.4 The condition of the material is as good as can be expected from burials in sandy soil, where ironwork is often heavily accreted and the loss of some traces of the organic materials of the hilt and scabbard is typical. The metal hilt-fittings and blades have substantially survived, except for a number of the sheet metal guards on the hilts (although the x-radiographs suggest some of these may be preserved in the concretions, while the blades are very corroded). Subsequent assessment of Mineralised Leather (see below), carried out when all 11 swords were available for examination, demonstrated that in general the preservation of organic remains was better on the five swords not examined here (Riddler pers. comm.).

7.4.5 From the forms of the pommel, five different sub-types of the broad, double-edged sword are represented. There was no observable collection bias in the assemblage.

- 7.4.6 On stylistic grounds the swords can be broadly ascribed for the purposes of this assessment to the 6th to early 7th centuries. At least one example may have been of continental origin on the basis of the decoration of the pommel (grave C7) although, as hilt-fittings could be added to blades of different origin, this needs to be checked against the assessment of construction and technology of the blade (see **Appendix 7.41**).
- 7.4.7 In terms of technology, curving elements, thought to be more characteristic of continental swords (Lang and Ager 1989), can be seen (rather indistinctly) on the blade from grave C7. Interestingly, they do not appear on radiographs of the swords from the Dover Buckland cemetery, a cemetery that is generally thought to include considerable quantities of imported objects. The sword from grave C19 also exhibits a chevron pattern with a superimposed wavy strip, which is unusual and may also be continental in origin. Ypey (1973) has shown that these patterns, found more frequently on the continent, were achieved by either grinding or cutting away the surface layers.

Provenance

- 7.4.8 The majority of the swords were from the central (graves C5, C7, C15, C19 and C200) and western (graves C121, C124, C127, C129 and C158) cemeteries. Only one example (grave W41) was recovered from the earliest eastern cemetery.
- 7.4.9 Early Anglo-Saxon swords consist of several distinct elements, including the blade, hilt, pommel and scabbard. Each component could be re-used on a different sword and there is good evidence to suggest that blades, in particular, were highly treasured and re-used. The scabbards, where they survive, do not therefore necessarily accompany the sword for which they were originally made, although it would be extremely difficult to test this hypothesis. Accordingly, they are regarded as part of an ensemble in respect of questions of rank, social status, ethnicity, etc.

Conservation

- 7.4.10 In general, cleaning and conservation of the swords will greatly assist identification of the components of the hilts and the patterns of the blades. Most dimensions can be obtained from the existing radiographs, with the notable exception of blade thickness, for which either further conservation or additional 'edge-on' radiographs would be required. Cleaning of the surviving hilt-fittings and laboratory analysis of their metals and any remaining organic materials of hilts and scabbards is also necessary, especially as they relate to questions of provenance and status. There may be surface features or decoration on any scabbard remains. Further radiography after cleaning, including stereopairs would assist in determining the pattern-welded designs.
- 7.4.11 In the case of the sword from grave C7, the radiograph shows both that an upper guard is present in the concretion, which it might be possible to retrieve. Niello may be present on the pommel. No guards are currently visible on the grave C15 sword, although again the radiograph indicates the possible survival of a lower guard of thin sheet metal. The radiograph of the sword from grave C19 shows what appears to be a small button pommel and possibly a sheet metal lower guard.
- 7.4.12 It is not possible to identify the metals of the hilt-fittings of the ring-sword from grave C127 with certainty by eye and the metals of the various components all require analysis, including the rivets; there may also be gilding present on the pommel and guard. The metal fittings and pendants visible in the radiographs have

been removed and conserved without damaging the integrity of any component. The sword from grave C158 has a wide button pommel, although no other fittings are obvious from the radiograph.

- 7.4.13 All the swords with their associated fittings should be retained for future research and potential display purposes.

Comparative material

- 7.4.14 The primary sources of comparative Kentish material are the swords from the type-site at Dover (Buckland), and also from Howletts, Faversham and Broadstairs, all accessible in the British Museum. There is a published report for the first part of the cemetery found at Dover (Evison 1987) and a radiographic study of the swords from all these sites (except Broadstairs), and others, has been published (Lang and Ager 1989). A small group of swords from the cemetery at Mill Hill, Deal, has also been published (Parfitt & Brugmann). The typological and decorative aspects of continental Frankish swords have been dealt with mainly by Behmer (1939) and Menghin (1983), whilst the blade patterns of the large number of early medieval swords from the Frankish cemetery near Schretzheim are illustrated in Koch (1977).

- 7.4.15 Five of the swords from the recently excavated cemetery at Dover (Buckland) are currently being examined metallographically by Lang and will be available for a technical comparison with the Saltwood material.

Potential for further work

- 7.4.16 Study of the swords will contribute to the primary Fieldwork Event Aims of the excavation of the Anglo-Saxon cemeteries at Saltwood:

- *to establish a chronology for the Anglo-Saxon cemeteries;*

- 7.4.17 The swords have been broadly dated for this preliminary assessment to the 6th to earlier half of the 7th centuries (or possibly later), but further work (including a consideration of the associated grave goods) will enable closer dating of the more elaborate examples. The main comparisons will be with swords from the Anglo-Saxon cemeteries of East Kent, such as Buckland (Dover), Mill Hill and Faversham.

- *to establish the range variation in burial rites, and to view possible change in rite over time;*

- 7.4.18 Study of the relative positioning of the swords and associated fittings and other material in the graves will help establish the range and variation in both burial rites and grave structures over time.

- 7.4.19 Analysis of the swords can be expected to contribute to the following new research aims:

- *to determine the range and provenance of imported objects within the Early Anglo-Saxon cemeteries, and to determine the means of trade or exchange by which they came to East Kent;*

- 7.4.20 The swords may be compared with those from the Anglo-Saxon cemeteries at Buckland (Dover) and Mill Hill. At least one of the blades has fittings of a type usually associated with continental swords and further information on the pattern welding and the metallographic structure might help in provenancing the blades,

which would have implications for trade and the movement of people. There is potential for further research, too, in determining whether the Anglo-Saxons imported some of their swords, either as blades to which they added locally made hilt-fittings, or as complete swords. The answer will contribute to the continuing debate about Anglo-Saxon exchange and political links across the Channel with the Franks during the 6th and 7th centuries. The other weaponry, like some of the belt-fittings, and the female costume jewellery from Saltwood, may also reflect and reinforce such contacts.

- *To examine technology & production centres;*

7.4.21 Coherency in the technology would imply a common technological tradition, but differences, perhaps suggesting a different ore source, or variations in workshop practice, might be discernible. The use of curving patterns, achieved by removing the surface of the blades selectively, seems to have been more prevalent on swords found on the continent. An indication of the effectiveness of the blades in use is shown by the soundness of the construction and the toughness and hardness of the metal. All swords are sufficiently well preserved to allow a small sample to be cut from the blade for metallographic examination, to be replaced by almost indistinguishable colour-matched resin. These samples would not only allow a determination of blade effectiveness, but also provide information on the state of technological development of the smithing involved in making the swords. For example, the type of metal used, use of fluxes, hardening of the metal by working with carburising, the use of quenching or quenching and tempering. Although non-destructive techniques can be employed (i.e. radiographs), these will not allow detailed metallographic comment, with the exception of whether more than one metal has been employed in blade manufacture.

- *To explore the implications for social status & deposited wealth.*

7.4.22 Further conservation work and metal analysis are required to reveal hidden components of the swords and their associated scabbards and fittings, and to enable detailed study of decoration, dimensions and worth as indicators of status. Conservation work would comprise cleaning away of sand and accretions from sections of the blades to allow both those sections to be radiographed in detail, and determine any further scabbard and sword fitting details. Swords with more elaborate hilt-fittings or finely pattern-welded blades need to be considered to see whether they are themselves indicators of high rank, as might be assumed. This applies especially in the case of the ring-sword from grave C127. Similarly, the swords with simpler hilts may possibly reflect lower rank, though not necessarily social status, as swords are usually taken to indicate relatively high status.

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7.5 Assessment of Anglo-Saxon Spears

Axel Kerep

Introduction

7.5.1 Thirty-one spears have been identified to date from the three Anglo-Saxon cemeteries, the majority recovered from the central cemetery (21), with nine examples from the western cemetery and a single example from the eastern cemetery. There are no spear ferrules from any of the graves, nor graves containing more than one spear. Almost all of the spearheads were block-lifted on site, and all have subsequently been transferred to the City of Lincoln Conservation laboratories. Block-lifts have been excavated in the laboratory and a full photographic archive of this process has been produced.

7.5.2 The study of the spearheads assists in the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*
- *To indicate the general development of each cemetery and their relationship to each other;*
- *To identify the use of space within the burial landscape.*

Methodology

7.5.3 The spearheads have been examined in association with radiographs of each object and the photographic archive of their laboratory excavation. The study has concentrated on those spearheads that were available for examination, representing a sub-sample of 26 examples (**Table 28**). It is considered unlikely that the remaining five spearheads will be significantly alter the conclusions drawn from this sub-sample.

7.5.4 The 26 spearheads have been assigned to type, and broad typological dating has been applied, where possible, based on the system devised by Swanton (1973; 1974). In seven cases the precise type could not be assigned with certainty and two options are presented, the first option being considered the most likely. To differentiate between Swanton 'C'-type spearheads and CAT 'C'-prefixed reference numbers, Swanton-type references are *italicised*.

Quantification

7.5.5 As noted above, none of the 31 graves contained multiple spearheads. The quantity of spearheads per type is summarised below (**Table 29**). The absence of common forms like C2 is interesting and as yet unexplained, although there was only one example from Dover Buckland. There are one or more examples of C3, a later development of the same form, and one of the possible examples of this type comes from a grave in the western cemetery (grave C127).

Table 15: Spearheads by context

Event Code	Cemetery	Grave	Context	Find No.	Quantity	Type
ARC SLT98C	Central	C3	C1039	C786	1	D2/ F2
ARC SLT98C	Central	C5	C1117	C864	1	G2
ARC SLT98C	Central	C12	C1074	C895	1	H2
ARC SLT98C	Central	C15	C1145	C1094	1	E4
ARC SLT98C	Central	C18	C1158	C1183	1	E3
ARC SLT98C	Central	C19	C1348	C1160	1	D1
ARC SLT98C	Central	C22	C1211	C1106	1	F1/ F2
ARC SLT98C	Central	C23	C1203	C1247	1	E2
ARC SLT98C	Central	C26	C1355	C1232	1	C3
ARC SLT98C	Central	C28	C1120	C1120	1	F3/ D3
ARC SLT98C	Central	C29	C1253	C1111	1	D1
ARC SLT98C	Central	C30	C1275	C1129	1	D1
ARC SLT98C	Central	C31	C1282	C1133	1	D1
ARC SLT98C	Central	C32	C1347	C1161	1	E4
ARC SLT98C	Central	C34	C1324	C1238	1	E3/ G2
ARC SLT98C	Central	C39	C1351	C1172	1	F2
ARC SLT98C	Central	C81	C2815	C1698	1	D1
ARC SFB99	Eastern	W104	W1747	W263	1	Not assessed
ARC SLT99	Western	C121	C3778	C2005	1	F2
ARC SLT99	Western	C127	-	C2065	1	C3/ H3
ARC SLT99	Western	C129	C3884	-	1	Not assessed
ARC SLT99	Western	C143	C4649	C2242	1	D1
ARC SLT99	Western	C150	C4681	C2149	1	H3
ARC SLT99	Western	C154	C4687	C2130/C2220	1	H3
ARC SLT99	Western	C157	C4705	C2148	1	Not assessed
ARC SLT99	Western	C173	C6208	C2405	1	E1/ F1
ARC SLT99	Western	C174	C6229	C2406	1	C3/ D2
ARC SLT98C	Central	C176	C6405	C2423	1	H1
ARC SLT98C	Central	C178	C6642	C2490	1	C1
ARC SLT98C	Central	C186	C6531	C2508	1	Not assessed
ARC SLT98C	Central	C200	C6654	C2457	1	Not assessed
					Total	31

Table 16: Spearhead totals (assessed) by type

Type	No.	Known Kentish Form
C1	1	■
C3	1	■
C3/ D2	1	■
C3/ H3	1	■
D1	6	
D2/ F2	1	■
E1/ F1	1	
E2	1	
E3	1	■
E3/ G2	1	■
E4	2	■
F1/ F2	1	
F2	2	■
F3/ D3	1	■
G2	1	
H1	1	
H2	1	
H3	2	■
Total	26	

Provenance

7.5.6 All of the graves are considered to be secure contexts, which have not been contaminated by later disturbances.

7.5.7 In four cases spears were the only weapons recovered from graves, with 21 graves producing spear and knife combinations. In 11 cases spears were accompanied by shields, and in five of those cases by swords as well. Only three weapon graves did not include spears, all of which did contain swords (**Table 30**). Spears are present,

therefore, in a succession of weapon graves extending probably from the middle of the 6th century to the second part of the 7th century.

Table 17: Weapon grave combinations

Event Code	Cemetery	Grave	Spear	Knife	Sword	Shield	Angon	Arrow-Head	Horse Harness
ARC SLT98C	Central	C15	■	■	■	■			
ARC SLT99	Western	C127	■	■	■	■			
ARC SLT99	Western	C121	■	■	■				
ARC SLT98C	Central	C19	■	■		■			
ARC SLT98C	Central	C26	■	■		■			
ARC SLT98C	Central	C32	■	■		■			
ARC SLT99	Western	C150	■	■		■			
ARC SLT98C	Central	C12	■	■					
ARC SLT98C	Central	C18	■	■					
ARC SLT98C	Central	C22	■	■					
ARC SLT98C	Central	C23	■	■					
ARC SLT98C	Central	C28	■	■					
ARC SLT98C	Central	C29	■	■					
ARC SLT98C	Central	C30	■	■					
ARC SLT98C	Central	C31	■	■					
ARC SLT98C	Central	C34	■	■					
ARC SLT98C	Central	C39	■	■					
ARC SLT98C	Central	C81	■	■					
ARC SLT99	Western	C154	■	■					
ARC SLT99	Western	C157	■	■					
ARC SLT99	Western	C173	■	■					
ARC SLT99	Western	C174	■	■					
ARC SLT98C	Central	C176	■	■					
ARC SLT98C	Central	C186	■	■					
ARC SLT98C	Central	C5	■		■	■	■	■	■
ARC SLT99	Western	C129	■		■	■			
ARC SLT98C	Central	C200	■		■	■	■		
ARC SLT98C	Central	C3	■			■			
ARC SLT98C	Central	C178	■			■			
ARC SFB99	Eastern	W104	■						
ARC SLT99	Western	C143	■						
ARC SLT99	Western	C124		■	■	■			
ARC SLT98C	Central	C7			■	■	■		■
ARC SLT99	Western	C158			■				

Conservation

- 7.5.8 All of the spearheads survive in a reasonable condition, although there is unlikely to be much metal remaining, and they are heavily corroded. A number include traces of mineralised textile on their blades and sockets; these have been separately assessed. Nearly all of the spearheads are complete or near-complete and there are no obvious signs of damage either during use or subsequent to deposition.
- 7.5.9 Further analysis may involve a study of the technology of the blades. If this includes sampling of the blades themselves, then sections would be cut from them. These, however, can be replaced and repaired and the objects can be stabilised and displayed, if thought appropriate.
- 7.5.10 The spearheads have been radiographed and are packaged in such a way as to reduce future handling to a minimum. They have been stabilised and a detailed photographic archive has been produced for each object. It is not recommended that any of the objects should be discarded.

Comparative material

- 7.5.11 Spearheads are the most common weapon type to be found in early Anglo-Saxon weapon graves. The Saltwood series can be compared with those from Holborough, Polhill, Dover Buckland, Mount Pleasant and Mill Hill Deal, as well as with earlier

Kent discoveries (Evison 1956, 97-100; 1987, 26-30; Hawkes 1973, 187-8; Parfitt and Brugmann 1997, 83-5; Riddler and Haith forthcoming). Research into specific Kentish forms, and their relationship to those on the continent, is currently being undertaken by Axel Kerep.

- 7.5.12 The absence of the *C2* form is compensated by the presence of *DI* blades, which are common in Kent (Swanton 1973, fig 19). *D2* blades were much more common at Dover Buckland (Evison 1987, table II), with only one possible example at Saltwood (grave C3).
- 7.5.13 The possible *E1* blade from central cemetery grave C173 would be unusual in a Kentish context, the type being more common in central and south-western England (Swanton 1973, 79-80 and fig 24). Spearheads of types *E2*, *E3* and *E4* are, however, common in Kent. Type *F2*, like *D2*, is a predominantly Kentish form as also (if less certainly) is the *F3* type. *G2*, although widespread, is also a familiar East Kent type. The *H* series is, like the *E1* form, more common in central and south-western England, with the exception of *H3* blades, which are well-represented in Kent (Swanton 1973, fig 42). The *H1* and *H2* blades are unusual forms for Kent.
- 7.5.14 Most of the types represented, therefore, conform with the distributions outlined previously by Swanton, and with the revised summary system used by Parfitt and Brugmann (1997, 84). The spearheads provide few independent indications of dating, most types apparently being long-lived and not closely-dated.
- 7.5.15 The spearhead from grave C23 has a mark on the blade that includes a cross and a circle. Such marks are comparatively rare, although other examples are known, both from England and the continent, and they have a long Germanic tradition (Evison 1956, 97-100; 1987, 29).
- 7.5.16 The Saltwood sequence of spearheads is one of the largest to have been excavated under modern conditions in Kent and is surpassed only by the assemblages from Dover Buckland and Finglesham, neither of which have been fully published. Swanton's work on early Anglo-Saxon spearheads remains fundamental to any future study. Härke has updated his distributions and corrected some anomalies (Härke 1992, 85-7) and work in progress on regional patterning in Kent will be centred on the larger, modern collections, for which all of the blades have been radiographed.

Potential for further work

- 7.5.17 The study of the spearheads can assist in the Fieldwork Event Aims, as follows.
- *To establish a chronology for the Anglo-Saxon cemeteries;*
- 7.5.18 The spearheads themselves cannot be closely dated as individual objects, but they can be set within a broad typological framework on the basis of a closer study of regional trends within East Kent. They assist in the chronology of weapon graves from Saltwood from the 6th to the later 7th centuries, particularly as almost all of those examined to date can be assigned to type. Even with the reservations placed on the Swanton typological system, it is clear that almost all spearheads can be placed within his type series. A closer study of those for which the evidence is equivocal at present should resolve them into clear types and into additional and new sub-types if necessary.

7.5.19 It is interesting to note that the two examples of 6th century *E4* spearheads both come from graves within the central cemetery (graves C15 and C32). It is too early to say whether this actually suggests that burial within that cemetery began before the large weapon graves were deposited there in the early 7th century, but this is clearly possible.

- *To establish the range variation in burial rites, and to view possible change in rite over time;*

7.5.20 With the weapon graves placed in a sequence, it will be possible to examine the changes in deposition across cemeteries over time. Härke has rightly noted that some spearheads were buried with the young, rather than adults; it may be difficult to determine this in some cases at Saltwood. On the other hand, most spearheads are buried with adults and social issues may not, therefore, be a major determinant (Härke 1992, tab 30). The position of each spearhead in the grave has been noted for all of the graves. Variation in burial rite can be established on this basis and compared with the results from other cemeteries in the region. The spearhead from grave C5 was pointing towards the foot of the grave, in a fashion attributed more to the Franks than the Anglo-Saxons.

- *To indicate the general development of each cemetery and their relationship to each other;*

7.5.21 The spearheads come mainly from the central cemetery although there is a reasonable sample also from the western cemetery, and the two cemeteries can be usefully compared. The earlier type of *H3* spearhead is confined to the western cemetery but, as noted above, the *E4* forms occur in the central and not in the western cemetery. The transformation in weapon burials during the second half of the 7th century can also be observed within both cemeteries and the presence and absence of spearheads is important in this respect also. The relative lack of spearheads from the eastern cemetery is of interest. Although the few weapon graves from that (earliest) cemetery may be considered in terms of developments in the burial rite over time, little work on the weapon graves of Kent has so far been carried out to confirm this hypothesis.

- *To identify the use of space within the burial landscape;*

7.5.22 It has been noted that graves with shields tend to cluster together, and similar spatial studies are possible for spearheads in relation to male graves in general and to weapon graves as a subset of those burials. The lack of human remains means that gender will, in a number of cases, be determined by grave goods alone, but even so it is possible to look at the use of space and the grouping of weapon graves over time, in relation to the development of the various cemeteries.

7.5.23 The spearheads also assist in the following new research aims:

- *To examine ethnicity, and foreign and external influences*

7.5.24 As noted above, current research into spearheads from East Kent and their relationship with those from the continent should assist in placing the Saltwood assemblage within a regional and international framework. It should allow the spearheads to be considered in the same terms as the swords and shields, and other weapon types. The Frankish and Scandinavian components in weapon graves can then be considered. In the case of spearheads, the location of the spear in the grave,

and in particular whether it points to the head or feet, is also considered to be indicative of ethnic origin.

7.5.25 Equally, the system employed by Brugmann, under which spearheads are placed into three categories in relation to their distribution in Kent, allows several forms to be identified which would be more commonly seen in central or south-western England. These forms can also be securely identified, with the aid of some investigative conservation, and checked against the corpus of material from those regions. They can also be viewed within the context of the overall burial rite to be observed in those graves. However, it should be pointed out that the origin of objects, in isolation or combination, does not necessarily indicate the ethnic origin of the buried individual that they accompany.

- *To critically examine spearhead technology*

7.5.26 Comparatively little work has been undertaken on the technology of spearheads. This stands in direct contrast to the studies of swords, seaxes, knives and shields. Studies have been undertaken on the wood types present in sockets, and that be compared and contrasted with the Saltwood examples. The metal of the blades could also be analysed using the same semi-destructive technique as proposed for swords and knives. This would undoubtedly assist in determining variability in manufacture and thereby highlighting technological distinctions. It would also be of interest to know why one of the blades (grave C23) carries a 'signature' and whether that example differs in any other respect from the other spearheads. At the same time, it would not be possible to make any broader comparisons, unlike for instance swords and knives, due to the current lack of research carried out on comparable assemblages elsewhere. With reference to ferrous object technology, see also **Appendix 7.41**.

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7.6 Assessment of Anglo-Saxon Angons

Axel Kerep and Ian Riddler

Introduction

7.6.1 Three iron angons were recovered from conspicuously wealthy weapon graves (graves C5, C7 and C200) in the central cemetery. Each is complete or nearly complete, and their original form and measurements can be reconstructed. Detailed radiographs have been taken of the angons from graves C5 and C7.

7.6.2 They are relevant to the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*
- *To indicate the general development of each cemetery and their relationship to each other.*

Methodology

7.6.3 Each angon has been examined visually and compared with the series of radiographs for the object. In each case, the angon was block-lifted from the grave and there are radiographs both of the block and of the object in detail. A comprehensive photographic and conservation archive has been compiled for each of the angons. Radiographs have yet to be completed for the angon from grave C200 (which, however, appears to be very similar to the remaining pair) and the assessment is therefore focused on the remaining two examples.

Quantification

7.6.4 A single angon came from each of the three wealthy male graves within the central cemetery: graves C5, C7 and C200. One example includes copper alloy bindings around and beyond the cleft socket. Similar bindings have been seen on angons from Sarre and Taplow (Swanton 1973, 33).

Provenance

7.6.5 The angons from graves C5, C7 and C200 were each located towards the edge of the grave, facing towards the feet of the deceased. The angon from grave C7 lay outside of the coffin but within the chamber. The remaining two examples lay in a similar position, but not within a chamber; each was accompanied by a spear.

7.6.6 They are a Germanic weapon form which, like the seax, was imported into Early Anglo-Saxon England and may also possibly have been copied and produced in this country. From formal characteristics alone it is not possible to tell at present whether these examples are of Frankish or Anglo-Saxon origin. It is worth noting, however, that the form of each head resembles other examples found in Anglo-Saxon contexts, particularly for the long, square-sectioned tips, which generally differ from continental pyramidal forms.

Conservation

- 7.6.7 Each angon has been removed from its soil block, following initial radiography. They have been placed in purpose-built packaging and have been radiographed in detail, which should greatly reduce the need to handle them in the future.
- 7.6.8 If considered necessary, future analysis could seek to identify the wood type used for the haft in each case. This is a non-destructive process that would not affect the long-term conservation requirements of the objects. The radiographs produced to date are very detailed and they provide a reasonable insight into the survival of metal and the technology of manufacture. Further conservation cleaning of the angons is not thought to be likely.

Comparative material

- 7.6.9 Angons form a distinctive and easily identifiable weapon type. The Kentish series includes examples from Temple Farm (near Cuxton), Sarre and Sibertswold. Angons are also known from rich male graves at Sutton Hoo and Taplow (Smith 1912, 359 and 377; Swanton 1973, 28-37; Bruce-Mitford 1978, 259-64). Virtually all of these graves can be assigned to the later 6th and early 7th centuries (Kentish Phase V) suggesting that the object type was fashionable for a relatively short period. Its distribution is centred on Kent, with outliers in rich male graves of the early 7th century elsewhere in eastern and central England. This mirrors the distribution of other imported object types.
- 7.6.10 Angons may have been used more for display than as functional implements, in the manner of the display shields also seen in graves C5, C7 and C200. They are more common in Merovingian graves (Bertram 1995, 59; Franken 1996) and they were used there as a form of throwing spear, in a manner described in detail by a number of Frankish and Byzantine authors (Swanton 1973, 29). The English series has yet to be studied in detail as an object type.

Potential for further work

- 7.6.11 The Anglo-Saxon series has not been studied in any detail and would certainly repay further analysis, particularly in the context of the contemporary Merovingian weapon rite. The Saltwood assemblage has practically doubled the number known from Kent and it represents the only group to have come from a Kent cemetery excavated under modern conditions. Each angon survives in relatively good condition and radiographs indicate the form of their barbs and the presence of copper alloy binding wires on one example.
- 7.6.12 The angons are relevant to the following Fieldwork Event Aims:
- *To establish the range of variation in burial rites, and to view possible change in rite over time;*
- 7.6.13 As corroborative dating evidence, angons occur only in graves of Kentish Phase V, dating to the late 6th and early 7th centuries, confirming the dating of graves C5, C7 and C200, and potentially relate these three graves together. They lay in similar positions in the graves, pointing towards the foot, as was also the case at Taplow, although not at Sarre. They represent a rare and distinctive element of the upper echelon of weapon graves in Kent during Phase V, and conceivably during that phase alone.

- 7.6.14 The angons come from weapon graves within the central cemetery and these graves are noticeably different from those seen in the other cemeteries, or at a later date within the same cemetery. The sequence of weapon graves extends from the first part of the 6th century to the late 7th century, the angons forming a weapon type that only occurs during a specific and relatively short-lived phase.
- 7.6.15 New research aims to which they may contribute include:
- *The presence and significance of display weapons in early Anglo-Saxon graves;*
- 7.6.16 Further research into the angons in relation to those from other early Anglo-Saxon graves in England, and in respect of their occurrence on the continent, should allow their specific function and practicality to be examined. If they are ‘display’ weapons of ostentation, then their distribution and deposition in the burial rite should indicate that they were not entirely functional.
- *Merovingian influence on the early Anglo-Saxon weapon rite, and*
 - *To examine ethnicity, and foreign and external influences*
- 7.6.17 Frankish weapons do occur in early Anglo-Saxon graves both in East Kent and elsewhere. The angons may be a prime example of that situation although it is also possible that they were produced in England in emulation of a Frankish weapon type. Both possibilities can be examined in the light of comparative studies of Merovingian weapon rites, and of the collection of English examples.
- *To critically examine angon technology*
- 7.6.18 Virtually no work has been undertaken on the technology of angons to date, the majority of which are housed in the British Museum. The metal of the blades could be analysed using the same semi-destructive technique as proposed for swords, knives, spears etc., this may assist in determining any variability in manufacture. However, the absence of any comparative data for the remaining angons recovered in England would make it virtually impossible to source the Saltwood examples on the basis of such analysis. With reference to ferrous object technology, see also **Appendix 7.41**.

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7.7 Assessment of Anglo-Saxon Arrowheads

Axel Kerep

Introduction

7.7.1 A set of approximately twelve iron arrowheads was retrieved from grave C5 (central cemetery). They lay together in an accreted bundle with their blades pointing towards the head of the grave. They have been radiographed and currently remain accreted together, in appropriate packaging.

7.7.2 The arrowheads are relevant to the following Fieldwork Event Aim:

- *to establish the range of variation in burial rites, and to view possible change in rite over time.*

Methodology

7.7.3 The bundle of arrowheads was block-lifted as a single group and transferred to the City of Lincoln laboratories. The arrowheads have been examined in Lincoln, in relation to the plan of the grave, and in conjunction with the radiographs.

Quantification

7.7.4 The accreted group of approximately 12 arrowheads from grave C5 represents the only set of arrowheads to have come from the site. If the arrowheads were hafted when buried, the shafts may have been up to 0.7m long based on the available space in the grave adjacent to the arrowheads when recovered. It appears that the majority of the arrowheads are complete or near-complete; following investigative conservation, it should be possible to obtain an accurate count, identify to type and to measure dimensions.

Provenance

7.7.5 The original provenance of the arrowheads is not known and could not easily be established. Arrowheads are known from other Early Anglo-Saxon graves but too few have been recovered for any work to have been carried out, as yet, on their form and technology in relation to those from continental contexts.

Conservation

7.7.6 It is necessary to carry out further investigative conservation on the objects to establish the original total of arrowheads and to clarify the range of forms present. This conservation would comprise separating a sample of the arrowheads from the accreted group, cleaning this sub-sample and taking detailed radiographs. Detailed microscopic investigation of their sockets will determine whether they were originally secured to wooden shafts, as is suspected. It would also be useful to examine the technology of their manufacture; in particular to determine whether they represent a homogeneous group, manufactured in the same manner.

7.7.7 They are currently retained in environmentally controlled conditions at Lincoln. They have been packaged so as to avoid excessive handling in the future. It is recommended that they are all retained, particularly as they represent a comparatively rare object type for this period.

Comparative Material

- 7.7.8 Arrows cannot always be readily distinguished from spears, given that they represent a smaller version of the same essential form of object (Manley 1985, 223; Evison 1987, 30-1; Härke 1992, 87). Several descriptions of those from Anglo-Saxon contexts have been produced recently and these include a number of examples from East Kent cemeteries: at Bifrons, Buttsale, Chartham Down, Chatham Lines, Dover Buckland, Eccles, Kingston Down, Mount Pleasant, Ozengell, Sibertswold and Wingham (Arnold 1982, 66-7; Evison 1987, 30-1; Riddler and Haith forthcoming; Manley 1985, 232-4; Härke 1992, 87 and 186 note 261). The majority of these are graves of the 7th century, although the object type is known, in effect, across the entire Anglo-Saxon period (Manley 1985).
- 7.7.9 In most cases, only a single example has come from each grave, although Evison has noted that some burials include sets of three, and that this is commonly seen on the continent (Evison 1987, 30). The set from Saltwood can be compared with the assemblage from Chessell Down, Isle of Wight, where around 24 arrowheads were found in an auspicious male grave, together with remains of the bow, and with Buttsale in Kent, where 23 came from a single burial (Arnold 1982, 67; Payne 1893-5, 182-3).
- 7.7.10 Few, if any arrowheads have come from the graves of male adults and most have been retrieved from those of young children which, interestingly, is not the case here. Indeed, Härke has argued that those retrieved from stratified contexts are limited to the graves of children or juveniles (Härke 1992, 186). They include two graves at Dover Buckland (Evison 1987, 30). This raises the possibility that the majority of arrowheads were interred as miniatures, either as smaller symbols of spears, or as children's implements. In the case of grave C5, however, they are laid out as a group, alongside a series of weapons, and it is more likely that they functioned as utilitarian objects in life, used in hunting or warfare.

Potential for further work

- 7.7.11 The arrowheads are relevant to the following Fieldwork Event Aim:
- *To establish the range of variation in burial rites, and to view possible change in rite over time.*
- 7.7.12 It is important to note that this is a group of arrowheads, rather than a single example; only single examples have come from the majority of contemporary East Kent graves. Here, however, a tightly-packed group of around twelve arrowheads was deposited in the grave, possibly still attached to their wooden shafts, and comparisons can be made with several other graves where arrowheads were also deposited in groups. The type of burial rite does appear to be similar and relates to ostentatious male weapon burials of the later 6th and early 7th century.
- 7.7.13 New research aims to which the study of arrowheads can contribute include:
- *Merovingian influence on the early Anglo-Saxon weapon rite; and*
 - *To examine ethnicity, and foreign and external influences*
- 7.7.14 Frankish weapons do occur in early Anglo-Saxon graves both in East Kent and elsewhere. The angons, for instance (see **Appendix 7.19**), may be a prime example of that situation although it is also possible that they were produced in England in

emulation of a Frankish weapon type. Arrowheads are found more frequently in continental cemeteries and Böhner identified eight distinct types (Böhner 1958, 162-4 and taf 29.7-14). Closer study of the Saltwood group, following investigative conservation, will allow them to be assigned to type, and comparisons can then be made with continental assemblages.

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7.8 Assessment of Anglo-Saxon Shields

Stephanie Spain

Introduction

7.8.1 Shield fittings were recovered from 15 graves. The majority was removed in soil blocks that were later excavated under laboratory conditions. The study of the shield fittings will assist the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range and variation in burial rites, and to view possible changes in rite over time;*
- *To indicate the general development of the cemeteries.*

Methodology

7.8.2 All the relevant material was considered for assessment, with the exception of a shield boss from grave W41 (eastern cemetery), which remained in a soil block and had yet to be radiographed at the time of assessment.

Quantification

7.8.3 Details of the range and abundance of shield remains, comprising bosses, board studs and grips are presented below (**Table 31**). No bias was observed due to the collection of the material.

Table 18: Typology and description of shield remains

Cemetery	Grave	Boss Type	Grip Type	Board Studs	Date
Eastern	1705	6		? Possibly rivet from boss	7 th century
Eastern	1767	Unid.	Unid.		
Western	C124	-		Set of 3 silver studs	
Western	C127	3b	1a1		7 th century
Western	C129	6	1a1 (Narrow)	Yes	7 th century
Western	C150	3 or 3b?	III	Pair of studs	6 th or early 7 th century
Central	C3	6 or 7	I	Set of medium-sized convex disc board appliqués	Mid-late 7 th century
Central	C5	3bii		Domed, plated rivets	Late 6 th / early 7 th century
Central	C5	3 or 3/6?	Narrow	Double-rivet board appliqué	7 th century
Central	C7	6		Small disc board stud	7 th century
Central	C7	3bii?	III	Domed, copper-alloy plated rivets	Late 6 th / early 7 th century
Central	C15	6			7 th century
Central	C19	3/6?			Late 6 th or 7 th century
Central	C26	6	Narrow	Set of medium-sized disc board appliqués	7 th century
Central	C32	6		Set of 3 studs	7 th century
Central	C178	3/6		Set of 3 studs	Late 6 th or 7 th century
Central	C200	3bii	1a1	? Possibly rivet from boss or grip	7 th century
Central	C200	7	Narrow	Pair of small board studs	Mid-late 7 th century
Central	C200	3 or 3b?	1a1	Large disc board appliqués	6 th century

Provenance

- 7.8.4 The shield remains derive from nine burials in the central cemetery, four in the western cemetery and two in the eastern cemetery (**Table 32**).

Table 19: Quantification of shield remains by cemetery

Cemetery	No. of Bosses	No. of Grips	No. of Studs	No. of Shields	No. of Graves
Eastern	2	1	1	2	2
Western	3	3	7	4	4
Central	13	7	30	13	9
Totals	18	11	38	19	15

- 7.8.5 Regional variation in the distribution of Anglo-Saxon shield boss types implies local manufacture. Shield bosses of Dickinson's group 3 were dominant in 6th century Kent and the earliest examples, accompanied by long grips of Härke's type III were almost certainly imported. Later examples with the more common strap grips of Härke's type I suggest that the type had been adopted and was being produced by the Anglo-Saxons. These bosses developed into Dickinson's group 6 and 7 types, but recent research has identified distinct group 3 sub-types in Kent, provisionally labelled 3bi and 3bii, which do not fit this general pattern (Spain 2000). The evidence suggests that these bosses, which were associated with a re-appearance of Merovingian long grips of Härke's type III, were imported prestige pieces of continental and Scandinavian provenance.
- 7.8.6 Preliminary assessment of Saltwood shield fittings indicates that the majority comprise Spain's group 3/6, 6 and 7 shield bosses, strap grips of Härke's type I and shield board studs, and were probably manufactured locally. The group 3b bosses, however, along with their associated long grips and domed, plated rivets, are almost certainly of Frankish provenance.

Conservation

- 7.8.7 The shield remains are iron, although a number of shield boss rivets and shield board studs are plated with copper alloy or silver. All shield bosses and fittings should be retained for further analysis.
- 7.8.8 The shield remains fall within the overall statement for iron and iron composite objects prepared for this assessment programme.

Comparative material

- 7.8.9 Evison has outlined the development of the Early Anglo-Saxon shield boss in an article on the sugar-loaf form that featured in a number of Kentish examples (Evison 1963). More recently, Dickinson's shield boss typology, based on an Upper Thames region study, has been published in a volume on Early Anglo-Saxon shields with contributions based on a national sample of Anglo-Saxon weapon burials by Härke, including classifications for shield grips and other fittings (Dickinson and Härke 1992).
- 7.8.10 Recent research on the Early Anglo-Saxon shield in Kent has refined Dickinson's shield boss typology, identifying several hitherto unrecognised group 3 sub-types and establishing finer date ranges for boss types in Kent (Spain 2000). As a result, shield bosses and other fittings can now be linked to Brugmann's Kentish phase system (Parfitt and Brugmann 1997, Brugmann 1999).

- 7.8.11 The larger group 3 bosses, often associated with long grips, are absent from the Saltwood cemeteries. The earliest bosses, of transitional group 3/ 6, date to the later 6th century and the latest, of group 7, to the second half of the 7th century. Comparable group 3/ 6, 6 and 7 shield bosses have been found in Kent at Faversham, Sittingbourne, Sarre, Bifrons, St Peters Tip, Buckland (Evison 1987) and Mill Hill (Parfitt and Brugmann 1997). The Saltwood cemeteries have also produced several type 3bii bosses, which can be paralleled with closely similar examples from Broadstairs I graves 66 and 74, dating to *c.* AD 600 (L Webster, pers. comm.).
- 7.8.12 Preliminary assessment of other shield fittings from the Saltwood cemeteries has revealed a range of board stud and grip types, also paralleled at Broadstairs I, Buckland and St Peter's Tip.

Potential for further work

- 7.8.13 The study of the shield fittings will assist the following Fieldwork Event Aims:
- *To establish a chronology for the Anglo-Saxon cemeteries;*
- 7.8.14 The shield fittings will be highly significant in establishing a chronology for the Anglo-Saxon cemeteries and will be especially important for dating the less richly-furnished male burials, since Swanton's spear-types are not closely datable (Swanton 1974). Preliminary assessment of Saltwood shield material indicates the presence of a range of chronologically diagnostic types and associations.
- *To establish the range and variation in burial rites, and to view possible changes in rite over time;*
- 7.8.15 The shield remains will also help establish the range and variation in burial rite at the Saltwood cemeteries, particularly the changing use of the weapon burial rite of which shield burial formed an important element. Preliminary assessment indicates that shields were buried throughout the period *c.* AD 550 to 700, giving a good chronological range. Further, three cases of multiple shield burial present a rare opportunity to establish the meaning behind this poorly understood high-status burial rite.
- *To indicate the general development of the cemeteries.*
- 7.8.16 As shield distribution and position in the grave often cluster within cemeteries, the identification and dating of such patterning should be undertaken in order to establish general cemetery development at Saltwood. It is also possible that this data would shed light on the relationship between prehistoric features and the Anglo-Saxon cemeteries and the use of space within the burial landscape.
- 7.8.17 The Saltwood type 3bii shield bosses constitute the first opportunity to study this imported boss-type and its use in the Anglo-Saxon burial rite since, of the few other examples so far identified, the Sarre boss is unassociated and the Broadstairs I and St Peter's Tip burials remain unpublished. The Saltwood 3bii bosses are especially important as they occur in the multiple shield burial in the central cemetery. As this material has the potential to advance understanding of high-status Kentish burial strategies and Frankish-Kentish relations and exchange mechanisms at about the end of the 6th/ start of the 7th century, it is clearly of national and potentially international importance.

- *To critically examine shield technology*

7.8.18 Shield technology could be analysed using the same semi-destructive technique as proposed for swords, knives, spears, angons etc., this may assist in determining any variability in manufacture. With reference to ferrous object technology, see also **Appendix 7.41**.

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7.9 Assessment of Anglo-Saxon Horse Harness

Angela Care Evans and Ian Riddler

Introduction

7.9.1 Two sets of horse harness were recovered from early Anglo-Saxon burials within the central cemetery. A group of fittings including a bridle bit, several strap distributors and a buckle came from grave C7, and elements of harness, including strap distributors, were found in grave C5. Both sets were hand-excavated on site. In addition, several cleats were also found in grave C12 within the same cemetery, although these appear to be structural ironwork, and are not considered further here.

7.9.2 The study of harness and related fittings assists in the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range of variation in burial rites, and to view possible change in rite over time.*

Methodology

7.9.3 The elements of harness from both graves C5 and C7 are corroded together, and have been identified from radiographs taken after excavation. They have been described largely from the radiographs, and all harness objects have been considered in this assessment.

Quantification

7.9.4 Details of the objects are provided in **Table 33**. A full set of harness for a horse may be present in grave C7, including a bridle bit, several strap distributors, a buckle and additional mounts. Traces of silver inlay are also visible on some of the elements in grave C7, suggesting that they were originally decorated. Elements of a set, including strap dividers but lacking the bridle bit, were found in grave C5. The harness in grave C121 (western cemetery) probably formed part of a baldric arrangement and appears to be complete.

Table 20: Summary of Anglo-Saxon Horse Harness items

Grave	Context	Material	Object	Count	SF
C5	1117	Iron	Harness with Divider and Looped elements	1	871
C5	1117	Iron	Harness Fittings with Divider	1	874
C5	1117	Iron	Strap Divider	1	870
C5	1117	Iron	Strap Divider with Copper Alloy rivets	1	868
C7	1081	Iron	Harness Fittings	1	1142
C7	1081	Iron	Harness Fittings	1	1143
C7	1081	Iron	Harness Fittings	1	1144
C7	1981	Iron	Bridle Bit	1	1141

Provenance

7.9.5 The horse harness occurs only in two of the three richly furnished male graves within the central cemetery. These graves can be compared for most of their contents with grave C200 and it is interesting to note that the harness fittings are one area where these graves differ from each other.

- 7.9.6 The harness in grave C5 was recovered to the left of the skeleton, close to the angon and spear, and one of the shields, and the arrangement in grave C7 appears to have been similar.
- 7.9.7 The harness from grave C121 is unparalleled in early Anglo-Saxon England and could possibly be of Scandinavian origin, although its provenance has yet to be investigated in any detail. The horse harness from graves C5 and C7 could possibly be of Merovingian origin; this too, has yet to be investigated.

Conservation

- 7.9.8 All of the objects have been radiographed, examined, stabilised and packaged. The harness from grave C121 has been separated from its soil block and accompanying sword, during which a detailed photographic record was kept. Further investigative conservation will be required to determine the full nature of the harness from graves C5 and C7, including selective cleaning and additional radiography and digital photography.
- 7.9.9 The copper alloy elements survive in good condition, with evidence for decoration, gilding and the original presence of leather straps. The iron harness in graves C5 and C7 are heavily corroded and little metal may now survive. The individual elements can, however, be identified.
- 7.9.10 Non-destructive analysis of the copper alloy harness from grave C121 would assist in determining the nature of its construction and details of its technology. Therefore, further cleaning is proposed to determine the nature and extent of the decoration.
- 7.9.11 All elements should be retained for future research and potential display.

Comparative material

- 7.9.12 Horse harness is noticeably rare in early Anglo-Saxon graves and its nature and significance have only been determined in recent years. It was not considered in Härke's work, but a useful (if now outdated) survey is provided by Vierck (1971-2). Recent discoveries at Lakenheath and Sutton Hoo have led to a reassessment of subject. The Saltwood harness elements fall into the traditions exemplified by East Anglian burials, closer resemblances lying with the Sutton Hoo material.
- 7.9.13 The copper alloy fittings from grave C121 are unparalleled. Extensive consultation with continental specialists in particular may be necessary to determine the nature and original provenance of these fittings, and to reconstruct how they were worn.
- 7.9.14 The burial with harness in grave C5 may be accompanied by the burial of a horse in adjacent grave C27. This juxtaposition may be paralleled with the situation in Sutton Hoo grave 17, where the horse was adjacent to the male burial.

Potential for further work

- 7.9.15 The study of harness and related fittings assists in the following Fieldwork Event Aims:
- *To establish a chronology for the Anglo-Saxon cemeteries;*
- 7.9.16 The elements of horse harness from graves C5 and C7 cannot be closely dated but they can be compared with other examples, both in England and the continent, from the middle of the 6th century onwards. They are likely to be of later 6th or early 7th century date. The harness from grave C121 is unparalleled and is correspondingly difficult to date independently. The dating for this grave depends on other objects and criteria. Nevertheless, the decoration on the fittings may allow them to be dated in broad terms.
- *To establish the range of variation in burial rites, and to view possible change in rite over time.*
- 7.9.17 The three richly furnished graves within the central cemetery, only two of which contained horse harness, are undoubtedly broadly contemporaneous and are likely to lie within the same generation. No attempt has been made, as yet, to place them within a sequence and to relate them to the other burials within the same cemetery. The potential exists, however, to attempt this on the basis of a large number of criteria, including the presence and absence of horse harness.
- 7.9.18 The proposed baldric in grave C121 can be compared with the situation in other male weapon graves both within the same cemetery and in the central cemetery. Other male weapon graves within the central cemetery certainly included suspension elements for the carrying of leather or textile belts across the body, in relation to the wearing of the sword. None, however, includes anything as elaborate as the fittings in grave C121. This burial can be set within a dating framework, and in the context of the weapon burial in East Kent in the 6th and 7th centuries.
- 7.9.19 Further research aims can also be proposed:
- *To determine the range and provenance of imported objects within the Early Anglo-Saxon cemeteries, and to determine the means of trade or exchange by which they came to East Kent;*
- 7.9.20 The probable Scandinavian origin for the Saltwood harness can be added to those other objects from graves at Saltwood that are considered to be continental in origin. In each case, however, they represent objects whose continental origins have, as yet, been little explored. As with other object types from Saltwood, they broaden the range of imported grave goods in East Kent.
- *The horse in early Anglo-Saxon England*
- 7.9.21 Recent discoveries of Anglo-Saxon horse burials have allowed a better-developed representation of the horse and its place in the weapon burial rite to be presented, such as the apparent juxtaposition of rider with horse, as seen at Sutton Hoo as well as Saltwood.

- *The use of space in grave layouts*

7.9.22 As with other items within graves, particularly the richly furnished examples within the central cemetery, harness appears to be specifically located in relation to the skeleton to convey meaning and/or significance. It may have been placed there as a symbol of weaponry the individual carried or used when mounted. That area of the grave, extending along the left side, appears to have represented the 'symbols of office' of a warrior. Objects on the right side of the grave, however, symbolised functions beyond warfare (recreation and possibly ritual cleansing). The arrangement in grave C7 may have been similar, although a distinction was made between objects inside and outside of the coffin. An earlier form of rite is seen with grave C121, where there is, perhaps, less of a sense of the functional arrangement of space in the burial.

- *To critically examine harness technology*

7.9.23 The technology of the harness from the various graves can be investigated using several different techniques. For the copper alloy assemblage from grave C121 non-destructive X-ray fluorescence analysis is recommended on cleaned sections of the metal. This could occur alongside a conservation assessment of the presence of other metals (gilding etc.) and other substances, like leather or textile.

7.9.24 For the iron assemblages from graves C5 and C7, investigative conservation work, comprising selective cleaning of parts of the harness and some additional radiographs is recommended. As with other iron artefacts (c.f. swords, knives etc.), sections could be cut from the harness elements to allow a determination of the metal composition and to directly compare the technology of the two assemblages. Similar comparable analysis has already been carried out on the Sutton Hoo and Lakenheath harness.

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7.10 Assessment of Anglo-Saxon Jewellery

Tania M Dickinson

Introduction

7.10.1 For the purposes of this assessment, jewellery has been defined as metal fastenings from the dress (pins and especially brooches in copper alloy, silver or gold) and other adornments of the dress (metal fittings from necklaces and finger-rings and bracelets). Belt fittings, including buckles and items suspended from the girdle, and beads are being assessed separately, but as components of the complete burial dress they must eventually be studied together in order to extract their full chronological and social context. This will assist with the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range of variation in burial rites, and to view possible change in rite over time.*

Methodology

7.10.2 Since dress fittings are such a diagnostic and significant component of Anglo-Saxon burial assemblages, the entire assemblage would normally be assessed. However, due to conservation requirements not all the material has been available for individual or equal examination. The following discussion separates the material by functional type into brooches and other jewellery (pins, fittings from necklaces, finger-rings and bracelets, and miscellaneous, that is uncertain or currently excluded items).

Quantification

7.10.3 A total of 15 brooches was recovered from the three cemeteries, but they come from only six graves, two in each cemetery. Graves W60 and W40 in the eastern cemetery contain four brooches each, graves C113 and C117 in the western cemetery contain three and two brooches respectively, whilst graves C11 and C190 in the central cemetery contain single examples. Eight graves within the western and central cemeteries contained pins, mostly fragmentary, five of which were copper alloy and three iron.

7.10.4 The total number of graves with metal ornaments from necklaces remains uncertain, pending excavation of some block-lifts. However, grave C156 (western cemetery) and graves C190 and C195 (central cemetery) had necklaces ornamented with between one and three pendants apiece: a coin-pendant was also recovered from grave C190, which like the other two graves also included looped cabochon pendants. A further six graves included either silver (graves W84 and W125 – central cemetery; grave C117 – western cemetery) or copper alloy wire rings (grave W40 – eastern cemetery; graves 25 and 178 – central cemetery), though it is not certain that all of the latter were on necklaces. In addition, grave C117 (western cemetery) contained other silver fragments, which may have been suspended from the necklace.

7.10.5 In addition, a silver finger-ring was recovered from grave C170 (western cemetery), a copper alloy example from the central cemetery and a copper alloy bracelet from grave C25 (central cemetery). It is of note that the position that these items were

recovered from in each grave might suggest that they were not worn on the hand, but due allowance should be made for post-depositional processes.

Provenance

- 7.10.6 Six main types of brooch have been identified, of which four are typically Kentish: Kentish square-headed brooches (six examples); Kentish bird-brooch (one example), Kentish keystone-garnet disc brooches (two examples) and Kentish composite brooch (one example). There is further a single annular brooch and four continental imports, probably from France and the Rhineland.
- 7.10.7 Five of the six graves with brooches feature combinations of Kentish and/ or continental brooches which allow them to be integrated with (and contribute further to) Brugmann's new phasing for Kentish cemeteries (Parfitt and Brugmann 1997; Brugmann 1999). Graves W60 and W40 and graves C113 and C117 belong to Brugmann's Kentish Phases II/ III and III respectively (*c.* 500 - 570), while grave C190, which itself contained a coin-pendant datable to the very end of the 6th century, belongs to her Phase V (*c.* 580 - 630).

Conservation

- 7.10.8 The brooches and other jewellery items will require cleaning and appropriate conservation treatment, including examination for redeposited textile remains on the brooches. The fragmentary nature of the pins precludes the need for further cleaning, except for grave W84 and grave C175. The necklace fittings and silver finger-ring require completion of their removal from soil blocks, cleaning and stabilisation.

Comparative material

- 7.10.9 The brooches are typical of the heterogenous range of women's dress fastenings found in 6th to early 7th century east Kentish cemeteries, including the nearby cemeteries of Lyminge (Warhurst 1955) and Dover Buckland (Evison 1987; Parfitt 1995). Brugmann's analysis of Mill Hill, Deal (Parfitt and Brugmann 1997; Brugmann 1999), including her characterisation of three 6th century phases in Kentish cemetery archaeology, is particularly important for dating the Saltwood brooches and brooch-combinations and for placing them in a social context. The other jewellery items can also be readily related to assemblages from elsewhere in eastern Kent, but also more widely in England, since much of it (*i.e.* pendants and some pins) is typical of late 6th to 7th century burials when dress fashions became inter-regional (Geake 1997, 37-105; Ross 1991).
- 7.10.10 Brugmann's work at Mill Hill allows the suggestion that the four-brooch combinations of Kentish and continental brooches found in the two eastern cemetery graves at Saltwood may be the earliest, overlapping her Phases II and III (*c.* AD 500 - 530/ 40 and *c.* AD 530/ 40 - 560/ 70 respectively). The three- and two-brooch combinations with Kentish keystone-garnet disc brooches from the western cemetery then follow on as Phase III (*c.* AD 530/ 40 - 560/ 70). Brugmann's Phase IV (*c.* 560/ 70 - 580/ 90) is not apparently represented, but the single composite brooch from the central cemetery typifies Phase V (*c.* AD 580/ 90 onwards). The annular brooch is less obviously datable, but may prove to be late 6th or 7th century rather than earlier (Dickinson 1990).

Potential for further work

- 7.10.11 The study of the jewellery will assist with the following Fieldwork Event Aims:
- *To establish a chronology for the Anglo-Saxon cemeteries;*
- 7.10.12 Further study is important to establish the Saltwood sequence and social complexion; as a by-product it will test and enhance Kentish and national chronology. The generally later dating of the other jewellery means that it complements the contribution of the brooches to understanding the overall sequence and social complexion of the cemeteries.
- 7.10.13 While the poor condition of the pins means that they have limited potential for further work, the necklace-fittings and possible necklace fittings represent the most important sub-group after the brooches. Of these, the coin-pendant must be the most important, providing an absolute date *terminus post quem* for the rich grave C190, and hence, through topographical inference, a datable stage in the chronological and social evolution of the central cemetery.
- *To indicate the general development of the cemeteries.*
- 7.10.14 Too few brooches were recovered to allow meaningful statistical analysis, and their potential for social analysis is diminished by the poor survival of human bone. However, the brooch-graves remain of the utmost importance, representing key moments in the deposition of significant females within their respective cemeteries. By relating them topographically and in terms of their assemblages to the other graves, it should be possible to propose models for the nature and development of the Saltwood burial grounds.
- 7.10.15 A further research aim can also be proposed:
- *To examine the nature of female costume over time, in terms of regional styles and the emulation of continental fashion.*

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7.11 Assessment of Anglo-Saxon Gold Strip

Penelope Walton Rogers

Introduction

7.11.1 Lengths of gold strip were recovered from grave C112 (western cemetery). This is the only gold thread/ strip to be recovered from any of the Saltwood Early Anglo-Saxon cemeteries. The presence of gold of any sort is a symbol of wealth/ status and if this is from a head-band (to be established) it will almost certainly indicate a woman's grave.

7.11.2 The gold will assist with the following Fieldwork Event Aim:

- *to establish the range of variation in burial rites, and to view possible change in rite over time.*

Methodology

7.11.3 Several lengths of gold strip were provided for assessment. Further pieces are still held in a soil block.

Quantification

7.11.4 This is the only item of its type from Saltwood. Further fragments of it are still in the soil-block around the skull.

7.11.5 Gold strip of this sort is generally found as the brocading thread in tablet-woven bands, where it forms a tight zig-zag with frequent kinks where it has been held down by the binding threads (Crowfoot and Hawkes 1968). In the Saltwood example, is very nearly straight, although it retains enough bends and kinks to show it was once used in this way.

7.11.6 Gold-brocaded bands of this period are mostly found in women's graves around the head, where they represent a 'fillet' or headband. These headbands are peculiarly Kentish and have clear Roman antecedents. Gold-worked textiles had been introduced into western Europe from the eastern mediterranean during the Roman imperial period, and Roman and Byzantine sumptuary laws make it clear that gold-brocaded garments were fashionable among the wealthier classes inside the empire at least from the 4th century onwards (Crowfoot and Hawkes 1967, 55).

7.11.7 Only rarely are gold-brocaded bands found in men's graves, where they run diagonally across the body, as ornament on a baldrick, or the front opening of a jacket.

Provenance

7.11.8 The gold comes from around the head of the body in grave C112. It is in good condition, which suggests that it is relatively pure. It has the appearance of having been unravelled and straightened out, although whether this was pre- or post-deposition is uncertain.

Conservation

- 7.11.9 The gold strip on the skull is at present being X-rayed, in order to establish its path across the skull. Further analysis will involve examination by quantitative XRF, in order to determine the purity of the gold. During the course of the 6th and 7th centuries the purity of gold declined over time, as it was recycled from coinage (mostly Merovingian but also Anglo-Saxon) that included increasing amounts of other alloys. The purity of gold in an object can therefore be used as a broad guide to its date. The weight of gold is also important, as it can be used as a rough measure of the amount of coin used (a Byzantine tremissis of full weight, for example, weighs 1.5g).
- 7.11.10 The gold will need little treatment, being very stable, but if further kinks and bends are found, they should be retained, so that the pattern of the weave can be established.

Comparative material

- 7.11.11 Most of the Early Anglo-Saxon comparative material has been summarised in Crowfoot and Hawkes 1968, but there are further examples from Buckland II (Walton Rogers in prep.). The pieces of gold strip supplied for assessment (at 800-1,200 microns width) are wider than any of those from Buckland II, mainly 300-400 microns and rather irregular (although one of the Buckland examples, from grave 354 was also irregular and up to 700 microns in places). It is important to investigate the quality of the gold for comparison with the Buckland II gold, to establish whether the coarser strips are less pure.
- 7.11.12 A survey of Anglo-Saxon gold thread, including Middle and Late material, appears in Walton 1989. This includes XRF results.

Potential for further work

- 7.11.13 This is an important and rare item and should be examined in detail. Study of the gold will assist with the following Fieldwork Event Aim:
- *To establish the range of variation in burial rites, and to view possible change in rite over time.*
- 7.11.14 The role of the gold thread in the burial needs to be established: is it a headband and why are some of the pieces unravelled? If a headband, the significance of this in terms of costume needs to be investigated. Why would this particular woman be wearing a Roman-style gold headband?
- 7.11.15 The corpus of graves containing such items from England currently stands at roughly 25 examples and of those 21 were 19th century discoveries, all of which were not recorded in any detail. In essence, therefore, only the braids from Saltwood and Dover Buckland II have been recorded in modern circumstances, as well as one example from Holywell Row (excavated in the 1930's). Saltwood and Dover represent the only examples to have been recorded in detail, and Saltwood is the only case where the braid was block-lifted, allowing it to be recorded in the grave in its precise position.
- 7.11.16 Detailed examination of the braid, in association with the excavation record, will allow the head-dress itself to be reconstructed. Aside from Dover, it is the only occasion that this has been possible. Moreover, the preliminary examination for

assessment (made before the remainder was fully revealed in Lincoln) indicated that it contained relatively few kinks and this is in contrast to some of the 19th century discoveries, where it appears that the gold braid was more obviously woven into an existing fabric.

7.11.17 A further research aim can also be proposed:

- *To examine the nature of female costume over time, in terms of regional styles and the emulation of continental fashion.*

7.11.18 The social context is of interest. Crowfoot and Hawkes emphasised that braid came from richly-furnished graves, but that is not the case here, and the reason for this contrast must be explored. It is a question that can be answered to some extent by placing this grave within the broader context of the cemetery landscape in terms of its dating (and comparing the dating of the gold against the typological dating) and its relationship with other (presumed) female graves. It is fortunate that the material can also be compared against the Dover Buckland II sample, to provide some insight into social context. It is recognised at the same time that the absence of human remains means that we can say nothing much about the person who wore the braid.

7.11.19 Since Crowfoot and Hawkes's research in 1967 more can now be said about why these headbands were worn. This is partly because of more recent discoveries (both in England and on the continent) some of which extend into the Middle and Late Saxon periods; and partly because of a better understanding of the Roman and Byzantine background.

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Assessment of Roman Iron Objects

Ian Riddler

Introduction

7.11.20 Two hundred and nineteen iron objects were recovered from investigations to the west of Stone Farm Bridleway, predominantly from the vicinity of the Late Iron Age/ Romano-British settlement C15. Most of these, however, are nails (100 of the sample) or indistinct, small fragments of objects which have not been identified (93 of the sample). The number of objects, other than nails, is very modest.

7.11.21 The study of the iron objects from Roman contexts assists in the following Fieldwork Event Aims:

- *to establish a dated sequence for the origin and development of the settlement.*

Methodology

7.11.22 The objects have been examined in association with radiographs, which have been taken for selected items, excluding the nails. The overall number of identifiable objects is relatively low and they have all been considered in this assessment.

Quantification

7.11.23 Details of the Roman iron objects are presented in **Table 24**. The majority is either nails or are not readily identifiable, often consisting of small fragments of corrosion, or of fragmentary shafts which probably derive from nails. These objects have not yet been radiographed, however, to confirm this situation.

7.11.24 The few objects which are not nails include two fragments of bars, five strap fittings, an implement, a knife and a possible pin.

Provenance

7.11.25 A few items came from cremation burials, including a nail, a strip of iron and an unidentified fragment. The remainder were widely dispersed across the settlement area. A number of objects were retrieved during the course of metal-detecting in this area. They are noted in the table by the grid-squares in which they were found.

Conservation

7.11.26 The identifiable objects have been radiographed, but the nails and nail-like objects have been excluded from this process. A limited amount of further radiography will take place shortly, to confirm some identifications. The objects have been examined and packaged appropriately in environmentally-controlled storage conditions.

7.11.27 The smaller, unidentifiable fragments could be discarded, as long as a radiographic record has been made of them. The fragmentary nails (almost all of the nails are fragmentary) could also be discarded, once recorded in archive.

Table 21: Roman Iron Objects by context

Context	Provenance	Object	Count
C10	Pit C9	Object	15
C23	Cremation C24	Object	3
C23	Cremation C24	Strip	1
C23	Cremation C24	Nail	1
C43	Pit C44	Lump	1
C43	Pit C44	Nails	39
C43	Pit C44	Strip	2
C48	Pit C44	Object	60
C67	Cremation C12	Object	1
C143	Pit C147	Nail	1
C146	Ditch C58	Object	1
C191	Ditch C221	Fitting	1
C238	Trackway C1	Fitting	1
C238	Trackway C1	Nail	1
C243	Trackway C1	Bar	1
C243	Trackway C1	Nails	3
C243	Trackway C1	Object	1
C252	Pit C253	Nail	19
C261	Pit C260	Strip	1
C265	Layer	Fitting	3
C265	Layer	Nail	1
C268	Trackway 814	Nail	1
C269	Trackway 814	Nail	1
C272	Ditch C273	Knife	1
C280	Pit C281	Pin ?	2
C336	Cremation C337	Nail	1
C352	Trackway C1	Hobnails	2
C352	Trackway C1	Nail	2
C427	Post-hole C428	Nail	3
C472	Post-hole C473	Strip	1
C593	Ditch C835	Fitting	1
C613	Pit C614	Nail	1
C632	Grubenhau	Object	1
C660	Ditch C661	Nail	1
C717	Pit C718	Nail	1
C754	Pit C755	Sheet	2
C791	Pit C792	Cylinder	1
791	Pit 792	Nail	1
C800	Cut C809	Nail	1
-	Metal-detected	Implement	1
-	Metal-detected	Nail	8
-	Metal-detected	Object	1
-	Metal-detected	Sheet	1
-	Unstratified	Bar ?	1
-	Unstratified	Lumps	2
-	Unstratified	Nails	14
-	Unstratified	Objects	10
		Total	219

Comparative Material

- 7.11.28 The knife has an angled back and is relatively short. It belongs to the Roman series of angled-back knives, examples of which have come from Canterbury and Ickham (Manning 1985, figs 28 and 29; types 14 and 20). The possible pin is relatively small and appears to have a circular cross-section and a globular head, being readily distinguished from the extensive series of nails. Iron pins occur both in the Roman and Anglo-Saxon periods and this example cannot be closely dated. The implement may be a chisel; unfortunately it is a surface find, although it does appear to be of Roman date.

Potential for further work

7.11.29 The study of the iron objects from Roman contexts assists in the following Fieldwork Event Aim:

- *to establish a dated sequence for the origin and development of the settlement;*

7.11.30 In this respect, the iron objects from the site have a very limited potential - none of them can be dated, other than in broad terms. There is a distinct absence of agricultural implements, which might have been expected in this rural environment. The knife, although near-complete, is of a common Roman type. The pin is of interest, because it may possibly be of post-Roman date. The remaining objects, however, have little potential to assist in this Fieldwork Event Aim.

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7.12 Assessment of Roman, Medieval & Post-Medieval Lead Alloy Objects

Ian Riddler

Introduction

7.12.1 Eighteen fragments of lead alloy were recovered from Saltwood tunnel. Eight pieces are lead melt (waste from lead alloy working), one is a section of sheet and the remaining items consist mainly of weights, alongside a vessel repair or seal and two plumb-bobs, one of which is Roman. Only half of the pieces are stratified, the remainder were discovered during metal-detecting or from an examination of spoil heaps.

7.12.2 The study of the lead alloy objects assists with the following Fieldwork Event Aim:

- *to recover dated environmental and economic indicators.*

Methodology

7.12.3 All of the objects and waste have been examined and identified to type. They have also been examined by a conservation assistant and recommendations have been made about further investigative cleaning.

Quantification

7.12.4 Details of the objects are provided in **Table 25**. The assemblage is dominated by lead melt and by the sequence of Roman objects, including a spacer, a vessel repair and a plumb-bob, which is the most interesting object within the assemblage. Half of the items were recovered from metal-detecting or from spoil heap collection. They are effectively unstratified, although four can be located to specific grid squares. Four of the items are of Roman date and the remainder are modern, with the exception of a fragment of a medieval plumb-bob and a post-medieval cloth-seal.

Table 22: Objects of lead alloy by context

Context	Context type	SF no.	Object	Count	Extent	Period
-	Unstratified	C573	Plumb-bob ?	1	Fragment	MD ?
-	Unstratified	C576	Cloth-Seal	1	Incomplete	PM
-	Unstratified	C622	Disc	1	Fragment	MO
-	Unstratified	C574	Object	1	Incomplete	MO
-	Unstratified	C575	Weight	1	Complete	UN
-	Metal-detected	C570	Plumb-bob	1	Incomplete	RO
-	Surface	C571	Weight	1	Complete	MO
-	Metal-detected	C389	Sheet	1	Complete	RO ?
-	Metal-detected	C401	Vessel Repair	1	Complete	RO
C43	Pit C44	C202	Melt	2	Fragment	MO ?
C43	Pit C44	C206	Melt	1	Fragment	MO ?
C48	Pit C44	C978	Melt	4	Fragment	MO ?
C252	Pit C253	C400	Melt	1	Fragment	MO ?
C677	Layer	C583	Spacer	1	Incomplete	RO
			Total	18		

Provenance

7.12.5 The objects are widely dispersed across the western area of the excavation. The lead melt, in contrast, is concentrated in three contexts, all of which included modern

material in their fills. The completely unstratified material is of post-medieval or modern date and the small collection of Roman objects is largely metal-detected.

Conservation

- 7.12.6 The objects and waste are stable and have been stored in appropriate packaging and environmental conditions. The alloys used for the Roman objects do not merit analysis as they do not form a homogeneous group suitable for comparative study and there is little to compare them with for this period. Work on lead alloys from Ickham was centred around groups of pendants and other dress accessories.
- 7.12.7 To determine whether the lead sheet is inscribed with a curse it could be unfolded and returned to its flattened state by a conservator. However, as an unstratified find, although recommended prior to discard, such action will not significantly contribute to further research at Saltwood Tunnel.
- 7.12.8 The overall sample is small but the modern material could be discarded.

Comparative Material

- 7.12.9 Lead plumb-bobs have been found previously in Roman contexts in Canterbury, although they are not common in East Kent. Lead vessel repairs are rather more common. The cylindrical lead spacer is almost certainly a fishing implement, used either with a net or a line. Similar objects are known from late Roman contexts at Ickham (Riddler, Lyne and Mould, forthcoming). The lead sheet is complete and has been folded at one end. It is unlikely that this is a curse tablet, although this can only be confirmed by unfolding it.
- 7.12.10 A fragment of lead which curves and tapers towards its apex originally formed part of a simple plumb-bob of medieval date. It forms an interesting contrast with the Roman example, although it is fragmentary and relatively little of it survives. The cloth-seal includes a crudely-stamped mark on the obverse, indicating that it is of post-medieval date.

Potential for further work

- 7.12.11 Although of limited potential, the study of the lead alloy objects will assist with the following Fieldwork Event Aim:
- *to recover dated environmental and economic indicators;*
- 7.12.12 The small assemblage of Roman items cannot be closely dated, particularly as only one of them came from a securely stratified context. Nevertheless, the line spacer is a welcome addition to the corpus of Romano-British fishing implements and it provides some indication of the diet enjoyed on the site at that time. The plumb-bob is a craftsman's implement and is one of only a few tools of Roman date to have been recovered from Saltwood. Neither object extends the range of the assemblage of Roman small finds noticeably beyond the domestic and small-scale industrial character seen in other material categories.
- 7.12.13 No further work is required on the objects of lead-alloy, other than a publication of a brief note concerning these items in the final Saltwood publication, the source for which would be this assessment report.

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7.13 Assessment of Anglo-Saxon Buckles and Belt Fittings

Sonja Marzinzik

Introduction

7.13.1 During excavations at Saltwood a total of 48 buckles were recovered, six from the eastern cemetery, 19 from the western cemetery and 23 from the central cemetery. Additionally, there are four belt fittings from the central cemetery and two fittings from the western cemetery.

7.13.2 The buckles and belt fittings have the potential to address the following Fieldwork Event Aims:

- *to establish a chronology for the Anglo-Saxon cemetery;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*
- *To indicate the general development of the cemetery.*

Methodology

7.13.3 For assessment all 48 buckles have been examined, with radiographs available for 28 of these. In three cases, it was only possible to examine the radiograph as the buckle was not available. Customised *pro forma* recording sheets (Marzinzik 2000) were used to document the 17 most important buckles; the remainder noted in the form of a summary table.

7.13.4 Key features of each buckle were noted (i.e. shape, presence of a plate or of additional fittings, basic measurements, form and type of rivets and any distinctive features). These allowed the allocation to Types and Typegroups developed for doctoral research (*ibid.*). This allocation allows for a three-fold system that provides a broad grouping first of all (i.e. Typegroups I, II, III etc) and then a sub-grouping or 'Type' within that first group (i.e. II.23). Finally, sub-types within each Type can be identified, i.e. 23a etc. The occurrence of each type can then be described within her typological system, which allows for patterns of distribution, dating etc to be understood. These allocations as well as preliminary dates are presented below (**Table 35**).

Quantification

7.13.5 The complete data are presented in **Table 35**. In summary, 18 buckles were of copper alloy, 29 were iron, whilst one item is probably not a buckle and will not be considered further here. Of the 47 copper alloy and iron examples, 16 were with buckle plates and 31 without. Gilding was confirmed in one case (ARC SLT99, Find No. 2002), the buckle tongue also inlaid with two garnets set on gold foil. The accompanying buckle loop (ARC SLT99, Find No. 2003) has a possible whitemetal finish.

7.13.6 Other features of note from the assemblage include wire-inlay (which could be silver in at least two and perhaps four cases), a pair of drop-shaped rivets (ARC SFB99, Find No. 1762) that retain traces of gilding, and three buckle plates are likely to have rivets with filigree collars. Such collars are occasionally made from gold wire, such as examples recovered from Ford, Wiltshire (Musty 1969).

Provenance

- 7.13.7 The assemblage of buckles recovered compares favourably with contemporaneous cemeteries excavated in Kent (see below). It is a mix of locally-produced buckle types and pieces which were either brought over from the continent, mainly Francia, or which were at least produced by craftsmen who came from there.
- 7.13.8 The date range of these buckles covers almost the whole early Anglo-Saxon period. Three of the six buckles from the eastern cemetery are typical for the earlier 6th century, whilst those from the central cemetery appear to have started slightly later (based on the diagnostic buckles present at each). There is, however, one buckle from the central cemetery that could date to the late 5th or early 6th century (Find No. 801), while the emphasis is on pieces which date to the 6th century in general and especially to the "Final Phase" (Types II.22, II.23, II.24). The western cemetery produced a number of 6th century pieces, the earliest perhaps originating in *c.* AD 530 (Types I.2, I.3), although late forms are, however, also present (Types II.24).

Condition

- 7.13.9 As far as can be seen, the buckles are all in reasonable condition. The copper alloy pieces are well preserved and degree of corrosion on the iron pieces is unremarkable. The spectrum of buckle types and degree of preservation are as expected, making any major bias of the analysis unlikely.

Conservation

- 7.13.10 The buckles are currently stored in appropriate packaging and environmental conditions for metallic objects. Future research will not affect their long-term storage, and will merely involve the study of their dimensions and non-destructive confirmation of their material. They should be retained for future study and should not be discarded.

Comparative material

- 7.13.11 For the simple iron loops (Typegroups I.10, I.11) parallels from numerous sites in England can be found. The simple copper alloy loops of Type I.9 are more restricted in their distribution, occurring mainly in the south.
- 7.13.12 continental (or continental-related) pieces of Type I.2 with shield-tongue are also found in other cemeteries of the region, e.g., Mill Hill (Parfitt and Brugmann 1997), Dover Buckland (Evison 1987). Type I.4 is much rarer and mainly occurs in Kent, with occasional pieces from Sussex (Welch 1983) or the Midlands (Timby 1996).
- 7.13.13 There are, however, a few noteworthy unexpected buckles. For example, Find No. 801 (ARC SLT98C), although typical for East Anglia, is unknown until now from Kent. Likewise, the loop form of Find No. 1165 (ARC SLT98) strongly resembles Italo-Byzantine buckle types (Ricci 1997), and the stamped decoration in shape of a cross supports an ultimately Mediterranean origin; there are no comparable pieces from Anglo-Saxon England.
- 7.13.14 Although typical for Frankish cemeteries, late 6th and 7th century buckles with wire-inlay on the plate are extremely rare in Anglo-Saxon England; the only published pieces are from Updown/ Eastry (Hawkes 1981).

Potential for further work

- 7.13.15 The buckles and belt fittings have the potential to address the following Fieldwork Event Aims:
- *to establish a chronology for the Anglo-Saxon cemetery;*
- 7.13.16 Some of the buckle types are known from other Kentish cemeteries and can therefore contribute to our understanding of regional chronology and Kentish costume. The continental or continental-related pieces, however, are particularly important for establishing a chronology, as secure chronological schemes exist for such continental objects. These are based on contemporary coins and dendro-chronological analyses, neither of which are readily available for Anglo-Saxon England.
- *to indicate the general development of the cemetery.*
- 7.13.17 Preliminary assessment has indicated the presence of a buckle types dating from the late 5th to the early 7th century. In conjunction with other closely datable artefact types, such as the jewellery, they will help to draw up a chronological grid and trace the development of the cemeteries.
- 7.13.18 In addition, the buckles assist in the following additional research aims:
- *to determine the range and provenance of imported objects within the Early Anglo-Saxon cemeteries, and to determine the means of trade or exchange by which they came to East Kent;*
 - *To examine the nature of female costume over time, in terms of regional styles and the emulation of continental fashion.*
- 7.13.19 The relatively high proportion of continental and continental-related buckles is important in view of trade and exchange and the mobility of people. The buckle of potentially Mediterranean origin is particularly interesting in this respect. Full analysis would therefore aim to provide an overview of costume on a local and regional level, and a chronological evaluation considering Anglo-Saxon and continental comparative material.
- 7.13.20 Full analysis would consist of the recording of every buckle, rather than a sample, for type and dimensions. Selected buckles of copper alloy show some resemblances by type and this could be tested in terms of the metal content also by quantitative XRF. Some investigative cleaning of the iron buckles may also be required, where it is thought likely that traces of silver inlay can be observed on the radiograph, and where these traces are not clear from the radiograph itself. In this case, the sand and stones would be removed from the object, as these can blur the radiograph image in some circumstances, and new radiographs would then be taken.
- 7.13.21 There is no substantive corpus of metal technology against which the iron buckles could be compared and most are too small and fragile to allow any metal to be cut from them. In addition, it is not entirely clear as to where on the object the sample would be removed. Therefore, no destructive analysis of the iron buckles is recommended.

- 7.13.22 There is a relatively substantial corpus of buckles from England and the continent and continental examples can be distinguished very easily, copies of continental buckles can also be identified.

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Table 23: Classification of Buckles

Event code	Grave	Context	Find No.	Material	Preliminary Date	Type/ Typegroup	X-Ray no.	Location
ARC SFB99	W40	W1801	W303	Copper Alloy	6 th century	I.3		
ARC SFB99	W41	W1956	W304	Copper Alloy	Earlier 6 th century	I.4		
ARC SFB99	W60	W1457	W44	Copper Alloy	Earlier 6 th century	I.4		
ARC SFB99	W77	W1100	W390	Iron		I.10/ I.11		
ARC SFB99	W83	W1295	W30	Copper Alloy		I.10		
ARC SFB99	W185	W1320	W388	Iron	6 th century	I.9/ I.11		
ARC SLT99	C112	C3740	C1967	Copper Alloy	Early/ Mid 6 th century	I.2		Shield-on-T
ARC SLT99	C117	C3758	C2016	Copper Alloy	Early/ Mid 6 th century	I.2		Shield-on-T
ARC SLT99	C119	C3756	C1992	Iron		II.? (await radiograph)		
ARC SLT99	C122	C3780	C1996	Copper Alloy		Buckle?		
ARC SLT99	C122	C3780	C1998	Copper Alloy	Late 6 th / 7 th century	II.24b-i		
ARC SLT99	C122	C3780	C1999	Copper Alloy		I.11		
ARC SLT99	C123	C3822	C2021	Iron		? (await radiograph)		
ARC SLT99	C124	C3825	C2002	Copper Alloy		Tongue		
ARC SLT99	C124	C3825	C2003	Copper Alloy	Early 6 th century	I.3		
ARC SLT99	C127		C2083	Iron		I.z		
ARC SLT99	C131	C3952	C2072	Copper Alloy	Late 6 th / 7 th century	II.24a		
ARC SLT99	C136	C4583	C2132	Iron		?	257	
ARC SLT99	C144	C4654	C2169	Copper Alloy	6 th century	I.5a		
ARC SLT99	C151	C4678	C2178	Iron		? (await radiograph)		
ARC SLT99	C154	C4687	C2221.1	Iron		I.11		
ARC SLT99	C155	C4691	C2170	Copper Alloy	6 th century	I.5a		
ARC SLT99	C157	C4705	C2171	Iron		Prob. II.24a		
ARC SLT99	C171		C2389	Copper Alloy	Late 6 th / 7 th century	II.24a + 2 fittings	214	
ARC SLT99	C171		C2391	Copper Alloy			214	
ARC SLT99	C174	C6229	C2401	Iron		? (await radiograph)		
ARC SLT98C	C3	C1039	C800	Iron	Late 6 th / 7 th century	II.21/ II.24	7	
ARC SLT98C	C4	C1044	C801	Iron	Late 5 th / 6 th century	I.8	7	
ARC SLT98C	C5	C1117	C876	Iron		II.z/ II.19a	31	
ARC SLT98C	C5	C1117	C883	Iron		I.11	45	
ARC SLT98C	C8	C1028	C781	Iron	Late 6 th / 7 th century	II.24	7	
ARC SLT98C	C12	C1074	C900	Iron	7 th century	II.23a	16	
ARC SLT98C	C15	C1145	C1096	Iron	7 th century (?)	II.18a	15.113	At waist
ARC SLT98C	C16	C1166	C1114	Copper Alloy	6 th century (?)	?I.7c	60.76.102	
ARC SLT98C	C18	C1158	C1231	Iron	Late 6 th / 7 th century	II.22/ II.23	67	
ARC SLT98C	C18	C1158	C1236	Iron	Late 6 th / 7 th century	II.24a	67	
ARC SLT98C	C19	C1348	C1159	Iron	Late 6 th / 7 th century	II.24b/ II.22a	57	Below swor
ARC SLT98C	C19	C1348	C1158	Iron		I.10	62.149	
ARC SLT98C	C26	C1355	C1186	Iron	Late 6 th / 7 th century	II.24a	67	
ARC SLT98C	C29	C1253	C1105	Copper Alloy	Late 6 th / 7 th century	II.24b-ii	33	Waist area
ARC SLT98C	C30	C1275	C1131	Iron		I.10	62	Just above v
ARC SLT98C	C31	C1196	C1135	Iron	6 th century	I.9	53	Waist area
ARC SLT98C	C32	C1346	C1152	Iron		I.11	54	At waist
ARC SLT98C	C33	C1331	C1146	Iron		I.11	51	Waist area
ARC SLT98C	C34	C1324	C1191	Iron		I.10		Waist area
ARC SLT98C	C41	C1356	C1165	Iron	7 th century	II.15a variant	50	Chest/ Wais
ARC SLT98C	C44	C1378	C1230.2	Iron		I.10	67	
ARC SLT98C	C184	C6649	C2503	Copper Alloy	6 th century	I.9	292.293	

7.14 Assessment of Anglo-Saxon Knives

Ian Riddler

Introduction

- 7.14.1 Knives are one of the most common object types to have been recovered from the early Anglo-Saxon graves at Saltwood. In total, 84 have been retrieved and recorded to date, and there are also three stray finds from cemetery areas. Several more knives are likely to be identified in material currently undergoing conservation.
- 7.14.2 The sample of knives from Saltwood is one of the largest to have come from an East Kent cemetery complex. It can be compared with totals of 130 from Finglesham, 131 from Dover Buckland I, 109 from Dover Buckland II, 57 from Polhill and just over 50 from Mill Hill, Deal. Both Finglesham and Dover Buckland are larger cemeteries, from which therefore a greater number of graves have been excavated.
- 7.14.3 The study of the knives may assist in the following Fieldwork Event Aims:
- *To establish the range variation in burial rites, and to view possible change in rite over time;*
 - *To indicate the general development of each cemetery and their relationship to each other;*

Methodology

- 7.14.4 The knives have been catalogued in accordance with the type series devised by Härke and by Drinkall (Härke 1992, 90-1; Drinkall and Foreman 1998, 279-84). Drinkall's system is based on Evison's work for the Buckland cemetery (Evison 1987, 113-5), where the diagnostic attribute is the shape of the blade. Evison has also incorporated the Härke scheme of knife sizes, however, thereby providing an integrated typological system. Definitions of knives and seaxes follow those outlined by Härke (1992, 89-90).

Quantification

- 7.14.5 Seventy-six knives are complete or nearly complete (if lacking their original handles) and can be ascribed to type; eight are fragmentary. All of the knives have been radiographed from which measurements of blades and tangs have been taken for quantification purposes. At the time of assessment a considerable proportion of the knives were undergoing conservation. Therefore, for the purposes of this assessment, a sub-sample has been taken from the original assemblage of 84, comprising 41 examples from the central cemetery and 13 from the western cemetery.

Provenance

- 7.14.6 In almost all cases only a single knife was recovered from each grave, with the exception of grave C15, which contained two examples. Interestingly, knives were absent from the large weapon graves C5, C7 and C200 within the central cemetery, but were otherwise present in many of the graves of both sexes (where gender is known).

- 7.14.7 The original provenance of the knives cannot be ascertained. The largest knives from Saltwood are relatively small in comparison with the sequence of seaxes from the continent, and lack any inlay or blade grooves, which might indicate Merovingian provenance. Therefore, there must be a presumption that the knives were made locally, at no great distance from the cemeteries themselves. Certainly, none can be said to be obviously continental in type, except for the short seaxes.
- 7.14.8 Knives of Härke type 4 have blade lengths in excess of 180mm and these can be defined as 'short seaxes' (Härke 1992, 89-90). Two examples came from graves C17 and C34 (central cemetery). Both graves can plausibly be regarded as late weapon graves (of *c.* AD 650 or later) for which only large knives or seaxes are present (*ibid.* 90). No other, larger forms of seax are present (*ibid.* 89). These knives may be continental, or may have been produced in emulation of continental forms.

Conservation

- 7.14.9 Most of the knives survive sufficiently well for their original dimensions to be reconstructed. Knife handles and sheaths are present only as mineral-replaced organic remains, but these can still be analysed. Metal survival is generally poor, as would be expected in sandy soil conditions, but details of knife technology are clearly visible on radiographs.
- 7.14.10 Further analysis may have repercussions on the condition of the knives, if sections are removed from the blades. This issue is considered within the assessment of Ferrous Object Technology (see **Appendix 7.41**). All of the knives have been radiographed and packaged for long-term storage. Most of them have corroded to the extent that little metal remains. They are kept in appropriate storage conditions for iron objects.
- 7.14.11 Although in effect all of the knives are composite objects (given that they originally included handles of horn, bone or wood), no other materials survive today apart from mineral-replaced organic traces. The knives can therefore be stored as iron objects. It is not recommended that any of them should be discarded. They may form a viable subject area for future research and potential display.

Comparative material

- 7.14.12 Other than the comparative collections from sites previously mentioned, smaller collections are also known from Eccles, Sarre, Monkton and Mount Pleasant. The assemblages from Bekesbourne, Broadstairs and Finglesham are currently unpublished. Material from Eastry is in preparation, and Hawkes' work at Bifrons is to be published shortly.
- 7.14.13 All of these cemeteries included graves with knives, and there is certainly the potential to look at regional studies, which are discussed below. Although some excellent work has also been carried out on knives from Merovingian cemeteries, the tendency there has been to rely on the earlier system of classification by Böhner, which is much broader in its remit than those of Härke or Drinkall.
- 7.14.14 Knives from early Anglo-Saxon cemeteries in Kent have not been widely published or discussed. The first text to deal with Kent knives was provided by Hawkes, although a more exhaustive analysis by Evison has largely supplemented that work (Hawkes 1973, 199; Evison 1987, 113-5). Härke's work was concerned with weapon graves from Anglo-Saxon England as a whole, but dealt with Kent cemeteries at Bekesbourne, Broadstairs, Finglesham, Holborough, Lyminge, Polhill

and Sarre (Härke 1992, 242-87). Knives were considered there in the context of male weapon graves, but also in broader terms, with an emphasis on the lengths of blades, rather than their shapes.

Potential for further work

- 7.14.15 Knives can be used to provide a range of information relating to chronology, technology and social issues. The principal aspects of knives considered in this assessment are size, type, chronology and gender of the deceased. Further areas of importance, including blade length in relation to age at death, technology, knife sheaths, handles and the location of the knife in the grave, can also be considered.
- 7.14.16 As such, the study of the knives may assist in the following Fieldwork Event Aims:
- *To establish the range variation in burial rites, and to view possible change in rite over time; and*
 - *To indicate the general development of each cemetery and their relationship to each other;*
- 7.14.17 Although phasing of some of the graves may be possible on the basis of knife forms, particularly if viewed in conjunction with other evidence, the knives are not, in their own right, particularly chronologically distinctive. However, at Saltwood they come from three separate cemeteries, which are known (on the basis of other diagnostic indicators) to span the period from the early 6th century to the late 7th century. The potential exists, therefore, to establish regional and temporal distinctions in knife forms, relative distributions and the associated burial rite across a period of two centuries.
- 7.14.18 For instance, knives of type 3 came from two graves in the central cemetery and five from the western cemetery. These are thought to have been placed in the graves of males alone and date to the late 6th and 7th century (Härke 1992, 90). Furthermore, it may be possible to examine differences in deposition between knives in male and female graves over time, particularly if the scant human remains are subject to DNA analysis to provide corroboratory gender information.
- 7.14.19 The knives are also relevant to the following new research aims:
- *Regionality in object design during the early Anglo-Saxon period*
- 7.14.20 The large sample of knives can be compared with those from the nearby cemetery at Dover Buckland, as well as cemeteries at some distance, including Cuxton, Polhill and Eccles (all of which are reasonably close to each other), and Finglesham. This may enable regional patterning to be identified across the county during the early Anglo-Saxon period. Regional distinctions are evident in East Kent at other periods and may also be evident here.

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7.15 Assessment of Anglo-Saxon Keys and Girdle Hangers

Ian Riddler

Introduction

7.15.1 Keys were found in a number of graves within each of the cemeteries. This included six graves from the western cemetery, three from the eastern cemetery and 20 from central cemetery. Almost all of the keys are made of iron and are large forms suitable for chests and doors, rather than smaller boxes. There is one example of a small padlock key, however, from central cemetery grave C6.

7.15.2 The study of the keys assists in the following Fieldwork Event Aim:

- *To establish the range of variation in burial rites, and to view possible change in rite over time;*

Methodology

7.15.3 Almost all of the sets of keys were removed as block lifts from each cemetery. These have been radiographed as blocks, and excavated under laboratory conditions. The assessment has involved the examination of these radiographs in relation to the grave plans and catalogues. Several of the objects themselves have also been examined.

Quantification

7.15.4 Keys were found both as single items and (more commonly) in pairs or greater numbers, across a range of graves in each of the cemeteries (**Table 36**). The exceptions include a single, small padlock key in grave C6 and single keys with T-shaped terminals in graves C14, C20 and C21 (all from the central cemetery).

Table 24: Quantification of Keys and Girdle Hangers

Site	Grave	Find No.	No.	Type of Key	Location in grave
ARC SLT98C	C6	C824	1	Small Padlock key	Bottom corner of grave
ARC SLT98C	C8	C780, C782, C784	2	T-shaped ward	At waist
ARC SLT98C	C14	C898	1	T-shaped ward	At waist
ARC SLT98C	C16	C1108	6+	Group of rods	At waist
ARC SLT98C	C20	C971	1	Latchlifter	At waist
ARC SLT98C	C21	C1138, C1139	1	Latchlifter	At waist
ARC SLT98C	C25	C1182	2	Latchlifters	At waist
ARC SLT98C	C38	C1164	4+	Group of rods	At waist
ARC SLT98C	C41	C1181	4	Latchlifter, L-shaped ward	At waist
ARC SLT98C	C102	C1848, C1849	2	Latchlifter	At waist
ARC SLT98C	C177	C2488	3	L-shaped wards	At waist
ARC SLT98C	C188	C2512	4+	Group of rods	At waist
ARC SLT98C	C192	C2431	5	Latchlifter; L-shaped ward	At waist
ARC SLT99	C141	C2350, C2352	2	Latchlifters	At waist
ARC SLT99	C151	C2158, C2159, C2162	2	Latchlifter	At waist
ARC SLT99	C156	C2517	2	Latchlifter	At waist
ARC SFB99	W17	W11	2	Latchlifters	?
ARC SFB99	W18	W391	1	Latchlifter	?
ARC SFB99	W57	W318	4	Group of keys	?
		Total	49+		

7.15.5 Almost all of the examples are complete or nearly complete and very few have suffered post-depositional damage or disturbance. Mineralised textile remains are present on a considerable number of examples, stemming in all probability from the costume of the deceased.

- 7.15.6 There are several examples of groups of relatively short iron rods, occurring in one case (grave C188) in association with several keys of longer form. All of the keys are accompanied by one or more iron rings, from which they were clearly suspended. The girdle hanger from grave C188, however, also included several copper alloy rings. With the exception of the small padlock key from grave C6, all of the groups of keys were found at or around the waist area of the deceased, at the centre of the grave, sometimes close to its edge.

Provenance

- 7.15.7 Keys were commonly found in the central cemetery, and are less frequent in the other cemeteries. No chronological distinction is necessarily implied by this situation, and it has been observed elsewhere that keys occur in graves across the entire early Anglo-Saxon period (Evison 1987, 116). It has also been noted that groups of more than two keys may be typologically later (Evison 1987, 117; Parfitt and Bruggmann 1997, 68) and on that basis a number of the central cemetery graves could tentatively be placed well into the 7th century. All of the key assemblages are likely to be of Anglo-Saxon origin, and were probably made locally.

Conservation

- 7.15.8 The keys are made of iron, with the exception of the copper alloy rings in grave C188. They have all been radiographed and have been packaged and stored as iron objects, with appropriate supports where necessary, to avoid handling as much as possible. There is no requirement to discard any of the keys.

Comparative material

- 7.15.9 Keys are widespread in early Anglo-Saxon graves, both in East Kent and further afield. All of the types seen at Saltwood can also be observed within the assemblages from Dover Buckland, Polhill and Sarre (Evison 1987, 116-8; Hawkes 1973, 195-6; Perkins 1991, 157). They are rare at Lyminge (Warhurst 1955) and Mill Hill Deal, the latter a cemetery predominantly of 6th century date. This tends to substantiate the suggestion that they increase in number and elaboration in the 7th century.
- 7.15.10 Hawkes noted that for the Polhill cemetery the graves with keys did not include jewellery and the two forms of object were distinct, implying for her that 'the key-bearer was not the lady of the house but the housekeeper' (Hawkes 1973, 195). Without necessarily accepting that conclusion, similar patterns of distribution are observed at Saltwood, i.e. the graves with keys are generally not the graves with jewellery (with the exception of grave C156).

Potential for further work

- 7.15.11 The acidic, sandy sub-soil has preserved the elements of the key assemblages well, and many show evidence for mineral-replaced textile on one or more surfaces. Although individual elements have been fractured, the shape and dimensions of each assemblage can be reconstructed, and the manner in which they were worn can be established, even if the skeletal remains have now disappeared.
- 7.15.12 The study of the keys assists in the following Fieldwork Event Aims:
- *To establish the range of variation in burial rites, and to view possible change in rite over time;*

- 7.15.13 Keys and girdle hangers form a noticeable component of female grave assemblages and at Saltwood it is possible to view their deposition over time in relation to the Kentish Phases. It appears, for example, that they are not common before Kentish Phase IV. The sample of female graves is sufficiently large to be able to examine correlations between keys and other objects in female graves, as noted above. The relative lack of skeletal remains, however, means that it is not possible to correlate them with the age of the deceased. They tend to be found with adult females (Crawford 1999, 31) but this suggestion cannot be easily tested at Saltwood.
- 7.15.14 Steuer (1982) has considered the potential value of keys as amulets, but it is more common to view keys as indications that the women who were buried with them occupied a position of domestic responsibility within the community (Hawkes 1973, 195). However, Hawkes argued that, since the graves with keys were not those with jewellery, then they were the graves of housekeepers. Burials with keys at Saltwood are generally not those of the wealthiest women, but they were buried with jewellery in grave C156, and with two glass vessels in grave C151 from the same cemetery. The Saltwood assemblages would allow Steuer's ideas concerning the symbolism of keys in graves to be tested against a sample of a reasonable size, stemming predominantly from 7th century graves.

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7.16 Assessment of Anglo-Saxon Byzantine ('Coptic') Bowls

Ian Riddler

Introduction

7.16.1 Three copper alloy bowls of Eastern Mediterranean origin were recovered from the central cemetery at Saltwood. Each came from a large and conspicuous male burial (graves C5, C7 and C200). The study of the Byzantine bowls is relevant to the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*

Methodology

7.16.2 Two of the bowls were block-lifted on-site, and one (Find no. C1090, grave C7) has subsequently been radiographed and excavated under laboratory conditions, whilst the second bowl (Find no. C2471, grave C200) awaits excavation. The latter has been radiographed, providing details of its form and general nature. The third bowl (Find no. C804, grave C5) was discovered during machine stripping, and has hence suffered some damage. It has been stabilised in the laboratory and extensively radiographed.

Quantification

7.16.3 The three bowls each came from separate graves. All of them appear to be complete and in reasonable condition when deposited in the grave. They are all of the same form, with openwork pedestal bases, cast, lathe-turned bowls with thickened rims and drop handles of semi-circular or rectangular shape. The bowl from grave C7 has been repaired during antiquity. This was so subtle and proficient, however, that it is only visible to any extent on the radiographs of the object.

Provenance

7.16.4 The example from grave C5 lay on its side on the right-hand side of the grave, towards its middle point. It contained 45 gaming pieces and fragments of a leather shoe. The bowl from grave C7 lay in a similar, near-vertical position outside of the coffin but within the chamber. The bowl from grave C200 lay towards the foot of the grave, at or beyond the feet of the deceased and close to the iron-bound wooden bucket.

7.16.5 All of the bowls are of eastern Mediterranean origin. The precise place of manufacture has not been determined for any of the bowls of this series, although various suggestions have been made, including Alexandria, without a great deal of justification. More recent work on their origins has broadened the possibilities, rather than reducing them (Dannheimer 1979; Carmela Carvetta 1982).

Conservation

7.16.6 Further research could include an examination of the metal content of each bowl using Xray fluorescence spectrometry (XRF), which is non-destructive. Equally, atomic absorption spectrometry has been used in the past on a series of Coptic

vessels, and this process involves the drilling of samples from various locations on the vessel (Oddy and Craddock 1983).

- 7.16.7 Two of the bowls have been stabilised, radiographed and packaged for long-term storage; work continues on the third example. The packaging is designed to minimise handling of the object in the future. They are stored in environmentally-controlled conditions suitable for non-ferrous metals. The bowls should be retained for future research and potential display.

Comparative material

- 7.16.8 Cast and lathe-turned Byzantine bowls of this type (generically known as “Coptic [sic] bowls”) were produced in the eastern Mediterranean during the 6th century, and possibly also in the 7th century. They were widely disseminated throughout northern Europe and they may have reached England through Italy and the Rhineland (Conway 1917-8; Werner 1961; Hawkes 1982, 76 and fig 33; Welch 1992, fig 84).

- 7.16.9 Almost all of the examples found in England have come from graves in Kent. They have not been studied in any detail since the publication of the example from Sutton Hoo Mound 1, although discoveries outside of Kent have been described (Bruce-Mitford 1983; West 1999; Hawkes 1982, 76). In 1983 only twenty were known from England, and the Saltwood group therefore makes a significant contribution to the overall assemblage.

- 7.16.10 The Kentish series includes examples from Coombe, Sarre, Faversham, Wingham, Gilton, Canterbury and Wickham. They form a homogeneous group, almost all of which (including the three examples from Saltwood) can be assigned to Werner’s type B1, characterised by their openwork pedestal bases. Examples from graves in Kent and elsewhere are not common and most were deposited during the second half of the 6th century and the first third of the 7th century. They occur in both male and female graves. Several others, including an example from Sarre and one of the bowls from Gilton, have been repaired, but more noticeably than with the Saltwood example.

- 7.16.11 In comparison to the gaming pieces recovered from one of the Saltwood bowls, elsewhere one bowl is said to have contained cremated human bone and another contained the bones of sheep and cattle. A bowl from Faversham contained hazelnuts.

Potential for further work

- 7.16.12 The bowls should be recorded in detail, without compromising their integrity in any way. The complete vessel from grave C7 includes large fragments of mineralised wood within its bowl. Although not contributing to the study of the bowls *per se*, the wood is thought to have come from the side of the adjacent coffin, and should therefore be sampled to determine the wood type.

- 7.16.13 The study of the Byzantine bowls is relevant to the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*

- 7.16.14 Byzantine bronze bowls may not have been made in the eastern Mediterranean after c. AD 550, and they occur in Anglo-Saxon graves from c. AD 575-625. They form

part of the dating evidence for graves C5, C7 and C200, and they confirm their wealthy nature.

- *To establish the range of variation in burial rites, and to view possible change in rite over time;*

7.16.15 The three male graves are broadly contemporary and it may not be possible to place them in a sequence of burial. Nonetheless, they can be contrasted with earlier and later male graves both within the same cemetery (where all of the male graves may be later) and in the other nearby cemeteries. The bronze bowls form part of a conspicuously wealthy ritual of male burial that may occur in Kent before it is seen elsewhere in Anglo-Saxon England. Its origins may lie in the Frankish realms, where chamber graves are more common and where similar burial arrangements can be seen.

7.16.16 The bronze bowls also assist in further research aims:

- *The use of space in grave layouts*

7.16.17 Each of the bowls lay in a different part of the grave. The arrangement for grave C200 can possibly be regarded as ‘typical’ of large weapon graves of the period, comparable with graves at Taplow, Broomfield and Sutton Hoo Mound 1. The layouts for the other two graves can also be paralleled elsewhere, particularly between grave C5 and Sutton Hoo grave C17. As with other burials of this period, the arrangement of grave goods *in toto* is of interest in terms of rituals for the afterlife and the symbolism of functional spaces. It has been suggested, for example, that Byzantine bronze bowls were used for the washing of hands, and this may explain their position in some graves.

- *to determine the range and provenance of imported objects within the Early Anglo-Saxon cemeteries, and to determine the means of trade or exchange by which they came to East Kent;*

7.16.18 The origins of ‘Coptic’ bowls remain uncertain, although their dating is fairly clear. In terms of their relatively homogeneous composition, the B1 bowls recovered from Anglo-Saxon contexts may have been produced during a relatively short time frame. They should be considered in two ways: alongside Merovingian and Italian examples (where B1 bowls also occur) and in terms of providing a single, central publication of the Kentish examples in relation to other traded goods of this period. The presence of other forms of Byzantine container in early Anglo-Saxon England should also be noted, alongside the Italo-Byzantine buckle from the central cemetery.

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7.17 Assessment of Anglo-Saxon Iron-bound Containers

Jean Cook and Ian Riddler

Introduction

- 7.17.1 Iron-bound wooden buckets were recovered from central cemetery graves C7, C190 and C200. In addition, the handle for a metal-bound wooden bucket came from the upper area of grave C15 in the same cemetery, close to the area where the head of the body would have lain.
- 7.17.2 The iron-bound containers were block-lifted on site. The container from grave C7 has been excavated from its block and work is in progress on the other examples. The container handle from grave C15 was hand-excavated on site.
- 7.17.3 The study of the iron-bound containers assists in the following Fieldwork Event Aim:
- *To establish the range variation in burial rites, and to view possible change in rite over time.*

Methodology

- 7.17.4 Only the iron hoops survived from the wooden buckets from graves C7, C190 and C200, each of which was recorded in the grave prior to lifting. The soil from the block-lift containing the hoops from grave C7 has been sieved. The block-lifts from graves C190 and C200 await excavation, but have been radiographed.

Quantification

- 7.17.5 Four wooden buckets are represented at Saltwood, three iron-bound examples (from graves C7, C190 and C200) and one for which only the bucket handle and accompanying escutcheons appear to be of iron (from grave C15). The iron hoops from grave C7 belong to a large bucket approximately 0.6 m in diameter, and up to 0.7 m high. The hoops were held in place relative to each other with the aid of vertical strips of iron on either side.
- 7.17.6 The buckets from graves C190 and C200 are smaller, with diameters of only 0.35 – 0.4 m and heights of less than 0.6 m, it is not entirely clear from the radiographs whether they too were held together by vertical support strips. It is more likely for the example from grave C190, but not for grave C200, where the hoops have collapsed and been compressed in the grave.
- 7.17.7 The curved fragments of iron from beside the head of the internment in grave C15 represent two conjoining parts of a bucket handle, together with one associated escutcheon. A mass of dark soil in that area might represent a part of the decayed wood of the container itself. No further fittings for that bucket could be seen.

Provenance

- 7.17.8 The presence of iron-bound wooden buckets in graves C7, C190 and C200, represents grave goods associated with three of the four richest graves from that cemetery, all dating to *c.* AD 575-625 (Kentish Phase V). It may be of note, however, that there was no bucket in the fourth rich burial (grave C5). The bucket

handle in grave C15 suggests that there was originally a wooden container in that grave as well, although no traces remained of any further fittings.

- 7.17.9 The iron-bound buckets were located in the lower corner of the two graves, beyond the coffin and within the chamber space. The smaller bucket from grave C190, however, was located above the head of the deceased, in an upper corner, possibly again beyond the coffin space.

Conservation

- 7.17.10 The iron hoops survive in reasonable condition, although there is not a great deal of iron left on any of them, and they are heavily corroded. Few wood traces could be seen on the interior of the hoops from grave C7, but there may be sufficient to be able to identify the wood type.
- 7.17.11 The buckets with iron-bound hoops were removed to the City of Lincoln Conservation laboratories, and the example from grave C7 has been excavated in the laboratory. A full photographic record has been produced of all stages of the excavation. The material from within the container has been sieved at Canterbury, without however revealing anything of the nature of the original contents.
- 7.17.12 All of the iron elements of the containers should be retained for future study. There is no requirement to discard any of this material.

Comparative material

- 7.17.13 Iron-bound containers are quite rare, in comparison with those bound by copper alloy. In total, around 40 are currently known from early Anglo-Saxon England, and are not found in England before the middle of the 6th century (East 1983, 587). The Saltwood examples are rimless, a feature comparable with Frankish examples (Böhner 1958, 69-70).
- 7.17.14 It remains difficult to establish the precise significance of the presence of iron-bound containers in early Anglo-Saxon graves. The series from Saltwood can be compared with others from wealthy graves of the early Anglo-Saxon period, including Broomfield, Sutton Hoo Mound 1, Sutton Hoo Mound 2, Sutton Hoo grave 17, Swallowcliffe Down and Taplow (East 1983; Carver 1998, 110-3 and fig 66; Speake 1989, 22-4).
- 7.17.15 Although single examples have been associated with female burials at Dover Buckland (Evison 1987, 104-5, fig 72 and pl 10d) and Bourne Park in Kent (Meaney 1964, 110), in general the presence of these containers is associated with male burials and usually placed at the foot of the grave.

Potential for further work

- 7.17.16 The study of the iron-bound containers assists in the following Fieldwork Event Aim:
- *To establish the range of variation in burial rites, and to view possible change in rite over time.*
- 7.17.17 Further analysis will potentially enable reconstruction of the buckets to be made, allowing an accurate determination of their original capacities to be made. Unless mineralised wood survives on the iron hoops it will not be possible to determine the

wood type used in their construction, although comparisons with other containers would suggest yew.

7.17.18 At Saltwood, the iron-bound containers are a prominent feature of three of the four conspicuously wealthy graves of Kentish Phase V, all of which are considered to be late 6th to early 7th century in date. The Saltwood examples, therefore, appear to emphasise the association of containers with wealthy graves, as well as the division between smaller vessels, placed at the head of the grave and larger vessels, placed at the feet. The larger vessels may have served for a community, by virtue of their size, whilst the smaller were suitable for individuals (Werner 1983; 1992, 8-11). The larger examples were, in effect, beer buckets (Ellmers 1964-5, 39). The detailed recording of the Saltwood examples allows this proposition to be tested.

7.17.19 A further research aim also emerges from the study of these containers:

- *The use of space in grave layouts*

7.17.20 The buckets assist in examining the possible division of the grave spaces from the wealthier graves into functional areas. Is there further evidence, for example, that objects relating to feasting and drinking were placed at the foot of 7th century graves, and can distinct 'functional' areas be identified within these graves? Can any patterning by function be seen in earlier, 6th century graves, or is it a phenomenon of the 7th century?

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7.18 Assessment of Anglo-Saxon Box Fittings

Ian Riddler

Introduction

7.18.1 The copper alloy and bone fittings for a box were found at the foot of western cemetery grave C117. Unfortunately, these were not block-lifted, although they were recorded in the ground at 1:1 scale and individually removed from the grave. A lock mechanism was also recovered from central cemetery grave C38, the burial of a child.

7.18.2 The box fittings are relevant to the following Fieldwork Event Aims:

- *to establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range of variation in burial rites, and to view possible change in rite over time.*

Methodology

7.18.3 The box fittings from grave C117 have been examined at the City of Lincoln Conservation laboratories. The detailed plan of their layout in the grave has also been consulted. The iron lock mechanism has also been viewed in Lincoln and its radiographs (no.s 62 and 149) have been examined.

Quantification

7.18.4 Both graves may originally have contained boxes. In each case, the wood no longer survives, however some retain traces of wood on them. Approximately thirty separate fittings, mostly of copper alloy, survived from the box in grave C117, spread over an area of 0.4 x 0.5m. These include hinges and a catch plate, as well as elements of a lock mechanism which, when reconstructed, may prove to be complete. A hasp, possibly the carrying handle for the box, is also amongst the fittings to be identified.

7.18.5 Only the lock mechanism survives in grave C38. It was located towards the foot of the grave. A ceramic vessel, an iron knife and a set of 132 glass beads were also recovered from this grave.

Provenance

7.18.6 The large collection of box fittings from grave C117 was found at the foot of the grave, beyond the crystal ball. This is a wealthy female grave that also included an amber and glass bead necklace, two brooches, a buckle, silver wire (possibly from a finger ring) and a weaving batten, amongst other items. The association of the crystal ball and the brooches suggests a date of burial in the first half of the 6th century, possibly AD 525-550.

7.18.7 The fittings from this grave survive in reasonable condition. The copper alloy pieces, in particular, remain accreted to small fragments of bone, suggesting that the box was inlaid with bone strips, and was perhaps elaborately decorated. Traces of wood are also visible. Although a block-lift of this area would have provided more information about the original nature and arrangement of the box, allowing it to be

excavated in the laboratory, it was nonetheless excavated with some care and meticulously recorded.

- 7.18.8 The lock mechanism in grave C38 lay at the foot of the grave. This was a small grave, suitable only for a young child. The presence of 132 beads and a set of keys suggests that it is the burial of a young girl, and with only one of those beads polychrome, probably indicating that the burial belongs to the 7th century, a date broadly contemporaneous with an associated ceramic vessel.
- 7.18.9 At the time of excavation, the nature of this iron object was not realised, and its identity was only revealed following radiography. No block-lift was taken of this area and no particular attention was paid to the surrounding soil, in terms of the possible preservation of organic remains. No other fittings are likely to have been missed, however.

Conservation

- 7.18.10 All of the fittings, of copper alloy and iron, have been stabilised. The iron lock mechanism has been radiographed and appropriately packaged. Work continues on the copper alloy fittings from grave C117, which are very fragile and include numerous organic traces, leading to a requirement for detailed archival recording during conservation.
- 7.18.11 Further analysis would include an examination of the wood type of the box, which can be correlated with the database currently held by Jacqui Watson at the Ancient Monuments Laboratory. Detailed, microscopic recording of the direction of wood grains would assist in the reconstruction of the original form of the box from grave C117, which could then be compared with those from Dover Buckland, in particular (Evison 1987, text figure 18). The potential for reconstructing the original shape and nature of this box is very high.

Comparative Material

- 7.18.12 Boxes are mainly found in Kent graves and most are of late 6th century or later date. The box from grave C117 is unusual both because it is relatively early (from a grave dating to around the early part or middle of the 6th century) and because it is so elaborate, with a considerable range of fittings, using both copper alloy and bone, as well as wood.
- 7.18.13 The larger boxes are generally associated with the graves of females, and the smaller examples with males (Geake 1997, 81-2; Lucy 2000, 57-8). At least ten were recovered from Dover Buckland and they were made from a variety of wood types. Examples are known also from a range of Kent cemeteries, including Kingston, Sarre and Gilton. These are all 19th century discoveries, and only those from Dover Buckland have been retrieved in modern conditions, as at Saltwood, greatly enhancing the amount of information to be gained from them.
- 7.18.14 Eight examples from Dover Buckland included lock mechanisms (known also as bolt-plates) similar to the example from Saltwood grave C38. The Saltwood lock mechanism, however, retains a twin iron spring plate, confirming earlier suggestions that these were indeed made from doubled strips of iron (Evison 1987, 101). It is possible that one of the keys found within the same burial may have been used with this lock mechanism; this possibility can be examined during future analysis.

7.18.15 Similar boxes are known also from the continent, where the decorated examples generally have a greater reliance on Christian imagery, although some can still be secular. An example from a rich female grave under Cologne cathedral survived reasonably well, and is made of wood (Doppelfeld 1959, taf 7.3). Bone inlaid examples have been considered exhaustively by Elbern (1972).

Potential for further work

7.18.16 The box fittings are relevant to the following Fieldwork Event Aims:

- *to establish a chronology for the Anglo-Saxon cemeteries;*

7.18.17 Previous research on wooden boxes with metal fittings from East Kent graves has suggested that they are first found towards the end of the 6th century. The example from Saltwood grave C117 appears to be somewhat earlier, dating to the middle of the 6th century at the latest. The wide range of objects from that grave allows it to be dated with some precision. This therefore extends the chronology of wooden boxes.

7.18.18 Iron lock mechanisms similar to that from grave C38 are relatively common and most of those from Dover Buckland belong to Phase 3 there, of *c.* AD 575-625, which accords well with the evidence from Saltwood.

- *to establish the range of variation in burial rites, and to view possible change in rite over time;*

7.18.19 The two boxes from Saltwood both come from female graves, one of which was certainly the burial of a child. In both cases the box lay at the foot of the grave, the most common position for such objects. Neither box appears to have had any contents, although any organic materials would have perished and, in the absence of laboratory excavation, it is no longer possible to check for traces of such materials. It is not unusual for boxes to contain few, if any, objects and in a number of cases the contents are amuletic, as with the presence of cowrie shells, for example, which would not have survived at Saltwood (Meaney 1981, 125-7). Amulets appear, in general, to be comparatively rare at the site.

7.18.20 Boxes have been described as ‘a cross between a modern woman’s jewel case and her work-box’ (Meaney 1981, 125). There is a contrast between the fact that few contain many if any items, but they are intrinsically large and important objects that, in Kent at least, come from rich and auspicious graves. The situation may be slightly different with the graves of children but, as with grave C38, many do emulate adult burials in terms of their grave-goods, and grave C38 may have been a burial of some status for its period.

7.18.21 The two boxes may be separated in date by as much as a century and they do show the development in forms between earlier boxes with a significant number of fittings, and the later, simpler type. At the same time, the presence of bone inlays on the box from grave C117 aligns it with a series of boxes which go back to the Roman period, and continue into medieval times (MacGregor 1985, 197-203). Such boxes are quite rare in the Early Anglo-Saxon period, further emphasising the high status of the example in grave C117.

7.18.22 The potential exists to reconstruct the box in grave C117 and to relate it to contemporary and later examples. This would essentially be a reconstruction carried out in the laboratory and based on a detailed examination of the surviving traces of wood and bone, in relation to the grave plan. The box is spread over a wide area,

implying that its sides fell outwards after burial. It is clearly a very early and important addition to the corpus of such objects.

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7.19 Assessment of Anglo-Saxon Structural Ironwork

Ian Riddler

Introduction

7.19.1 Objects of structural ironwork were recovered from seventeen graves within the three cemeteries. The ironwork includes nails, clench nails, double cleats and staples. Most of these objects were associated with coffins placed within the graves.

7.19.2 The study of the structural ironwork is relevant to the following Fieldwork Event Aims:

- *To establish the range of variation in burial rites, and to view possible change in rite over time;*

Methodology

7.19.3 All of the iron objects have been examined, together with all available radiographs and grave plans. The overall total of objects is relatively small, and no sampling was considered to be necessary.

Quantification

7.19.4 Details of the structural ironwork are provided in **Table 39**. In summary, the assemblage consists of seven clench nails, five double cleats, 12 nails and seven staples. All of the clench nails come from a single grave (ARC SFB99, grave W22). A rivet from ARC SFB99 grave W104 may in fact be another fragment of a clench nail. The nails occur in small numbers within five graves and the same can be said for the staples, which occur in just three graves, all within the central cemetery.

7.19.5 The double cleats came from central cemetery graves C5 and C12, both of which are male weapon burials of the first half of the 7th century, located in the northern part of that cemetery. A range of structural ironwork was also recovered from grave C200 but at the time of writing this has not been radiographed and its full nature is uncertain. It appears to include both staples and single cleats or angle-irons.

Table 25: Structural Ironwork

Event code	Grave	Object	Location
ARC SLT99	C118	Nail	Western part of grave, beyond the head
ARC SLT99	C134	Nail	Western part of grave, close to edge, near glass beads
ARC SLT98C	C34	Nail	South-western corner of the grave, with wood traces
ARC SLT98C	C172	Nail	Western part of grave, beyond the head
ARC SLT98C	C200	?Cleats or angle-irons	Corners of the grave, with wood traces
ARC SLT98C	C8	Staple	With knife and key, in centre of grave
ARC SLT98C	C178	Staples	One at the western end, two in the centre, one at the centre but close to the northern edge
ARC SFB99	W22	Clench nails	Single line down side of grave.
ARC SFB99	W104	?Rivet/ clench nails	-

Provenance

7.19.6 The provenance of the material, where known, is provided in **Table 40**. A further two nails came from the area of the central cemetery but are not associated with specific graves. The clench nails in grave W22 lay in a single line down the grave and are likely to have fastened two sections of wood together. Clench nails do not necessarily entail any association with ships, they were commonly used to fasten overlapping or scarf-jointed sections of wood together in a variety of different

situations. The double cleats and nail in grave C12 lay down the left side of the grave, close to traces of wood. Those in grave C5 lay in a similar position, but on the right side of the grave, to the west of the Coptic bowl. In general, the remaining elements of structural ironwork were also found at the edges of their respective graves.

- 7.19.7 The exception lies with the staple from grave C8, which lay in the centre of the grave, with a knife and a key.
- 7.19.8 The ironwork survives in poor condition although almost all of it has now been radiographed and the original form of objects can be seen on those radiographs. Structural ironwork is readily identifiable within graves, however, and it is unlikely to have been missed during excavation. Several of those iron objects that are currently unidentified may turn out to belong to this category.

Conservation

- 7.19.9 Traces of wood have accreted to the clench nails and other objects and future analysis would involve the identification of the wood type. This can be compared with the evidence from fragments of wood itself, which were recovered from graves C5, C7, C15, C21, C186 and C190 within the central cemetery, and graves C122, C155 and C156 within the western cemetery. This analysis would enable the choice of wood to be established for coffins within the cemetery. This is not normally possible within Anglo-Saxon cemeteries, but there are a number of examples of the fortuitous survival of structural wood at Saltwood.
- 7.19.10 Further analysis would also include an examination of the dimensions of the nails, which provides some indication of the thickness of wood used in each case. None of these analyses would conflict with the long-term storage of the iron objects. They are retained in environmentally-controlled conditions at the City of Lincoln Conservation laboratories. Structural ironwork is not common within early Anglo-Saxon cemeteries in Kent, and it is not recommended that any of these objects are discarded.

Comparative Material

- 7.19.11 The various forms of structural ironwork seen within the early Anglo-Saxon graves from Saltwood can all be paralleled both in East Kent and further afield, although not in any quantity in any case.
- 7.19.12 The fittings from grave C200 may well be angle-irons, which are recorded from graves at Finglesham, Gilton and Kingston, and are a comparatively rare form of structural ironwork, as also are cleats. Single cleats are recorded only from Chartham Downs, Dover Buckland, Lyminge, Kingston and Sibertswold, within Kent, and few are known from outside of the county. Double cleats (seen in Saltwood graves 5 and 12) are even more rare. They occurred within the Swallowcliffe Down burial in Wessex, and also at Winklebury Hill and Woodyates (Speake 1989, 98-115).
- 7.19.13 Structural fittings, of whatever type, tend to be centred on 7th century graves, although they are found in burials from the middle of the 6th century onwards.

Potential for further work

- 7.19.14 The range of structural ironwork from Saltwood extends to clench nails, angle irons, double cleats, nails and staples. Radiographs of the assemblage from grave C200 may yet reveal other types of structural ironwork. Aside from one publication currently in press, the range and significance of the material from Kent cemeteries has not been discussed in print, and publications have been centred on specific types of structural ironwork. The Saltwood assemblage therefore provides the opportunity to examine the different forms of ironwork in their specific contexts and to correlate their occurrence against grave types, gender and dating. Previously, this has only been possible for the Dover Buckland cemetery, where there was comparatively little structural ironwork.
- 7.19.15 It will be possible to examine why such ironwork was used so sparingly. For example, there appears to have been little requirement for nails to fasten coffins or grave structures in early Anglo-Saxon burials. Yet several burials include small quantities of nails, and the reasons for this can be explored. Grave W22, with its assemblage of clench nails, can be compared with other discoveries from Kent, England and the continent, most of which were excavated in the 19th century. The Saltwood assemblage retains wood traces, which, if examined, will allow the species of wood in that grave to be determined and to be compared with the wood traces from other burials, as noted above.
- 7.19.16 The nature and use of double cleats is not entirely clear although useful information was provided by the burial at Swallowcliffe Down in Wessex. Both these objects and the angle irons and staples come from the conspicuous male ‘founder’ graves of the central cemetery, but each of these male graves is different in this respect, and this variability can be examined. Grave structures from south-east Kent are known to differ from those on the Isle of Thanet. By comparing Saltwood with Lyminge (where structural ironwork was also found) an understanding of the regional preferences for structural ironwork over time can be developed.
- 7.19.17 The study of the structural ironwork is therefore relevant to the following Fieldwork Event Aim:
- *To establish the range of variation in burial rites, and to view possible change in rite over time;*
- 7.19.18 A range of different iron fittings can be seen within the Saltwood burials. There is clear variation over time, with clench nails, nails, staples and double cleats occurring within different cemeteries during the later 6th and 7th centuries. There have been no detailed studies of structural ironwork within east Kent cemeteries, although individual elements have been published (Evison 1979; 1980; Riddler forthcoming). Reasons behind the adoption of particular forms of ironwork within specific graves are not yet well understood, although most fittings should be seen within the context of the reinforcement of coffins. Certain forms of ironwork, like the clench nails, are relatively common within Kent whilst others, and the double cleats in particular, are much more common in Wessex and East Anglia.
- 7.19.19 The structural ironwork is also relevant to a further research aim:
- *The nature of coffins, chambers and cists within East Kent graves*
- 7.19.20 Clear evidence for a chamber was recorded with central cemetery graves C7 and C200, and a wooden bier appeared to have been placed in grave C15. Grave C1 was

stone-lined as were graves C34, C55, C171, C176, C186, C199, C204, C117, C124, C129 and C138, and graves C21, C174, C177 and C139 included pillow stones. A footstone occurred with grave C123. A wide variety of burial practices can therefore be seen within the various cemeteries and it is clearly worth attempting to view these practices for their spatial distribution and in relation to the phasing of the cemeteries and the identification of groups and subsets of burials within each cemetery. Whilst no form of structural ironwork appears to be specific to one gender, cleats and angle-irons are mainly found in female burials.

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7.20 Assessment of Anglo-Saxon Miscellaneous Objects

Ian Riddler

Introduction

7.20.1 Twenty-four fragments of copper alloy are described here. At this stage of the assessment, half can be assigned to specific object categories, the remainder have yet to be identified. The identified material includes four fragments of drinking vessel mounts, six further mounts, a small piece of copper alloy sheet and a staple. The unidentified material includes an enigmatic rectangular object found close to the ring sword in western cemetery grave C127.

7.20.2 The study of these objects is relevant to the following Fieldwork Event Aims:

- *to establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*

Methodology

7.20.3 All of the objects have been examined at the City of Lincoln Conservation Laboratories. However, as noted above in some cases objects are still undergoing conservation, and they have yet to be identified. This assessment is concerned therefore with those objects that have been identified.

Quantification

Table 26: Quantification of miscellaneous Anglo-Saxon objects

Event Code	Grave	Context	Object	Quantity
ARC SFB99	Ditch W6	W1091	Object	1
ARC SFB99	W1279	W1283	Object	1
ARC SFB99	W1453	W1561	Object	1
ARC SFB99	W1762	W1763	Object	1
ARC SLT98C	C9	C1109	Object	1
ARC SLT98C	C16	C1166	Mount	1
ARC SLT98C	C39	C1351	Object	1
ARC SLT98C	C101	C3037	Mount	1
ARC SLT99	?	C3744	Mount	1
ARC SLT99	C117	C3758	Object	1
ARC SLT99	C129	C3884	Drinking Vessel Mount	1
ARC SLT99	C129	C3884	Drinking Vessel Mount	1
ARC SLT99	C129	C3884	Drinking Vessel Mount	1
ARC SLT99	C129	C3884	Drinking Vessel Mount	1
ARC SLT99	C130	?	Object	1
ARC SLT99	C154	C4687	Staple	1
ARC SLT99	C155	C4691	Object	1
ARC SLT99	C170	C4725	Mount	3
ARC SLT99	C170	C4725	Object	1
ARC SLT99	C172	C6200	Object	1
ARC SLT99	C172	C6200	Sheet	1
ARC SLT99	C173	C6205	Object	1
			Total	24

7.20.4 A list of all of the copper alloy objects is provided in **Table 40**. They include four drinking vessel mounts, all of which come from the same grave, six other fragments of mounts from a variety of graves, a small piece of undecorated copper alloy sheet, and a staple. In addition, an enigmatic rectangular object, which appears to be decorated, was found close to the ring sword in ARC SLT99 grave C127.

Provenance

- 7.20.5 The four fragments of drinking vessel mounts all come from ARC SLT99 grave C129. They lay close to the centre of the grave, in the presumed position of the upper legs of the deceased.
- 7.20.6 The remaining fragments of mounts were found in ARC SLT98C graves 16 and 101, and ARC SLT99 grave C170. Two further fragments are not associated with specific graves. The small fragment of undecorated sheet came from ARC SLT98C grave C172 and the staple came from ARC SLT99 grave C154.

Conservation

- 7.20.7 Further analysis is likely to involve two elements:
- *Identification of mineralised wood and/ or traces of organic material associated with the drinking vessel mounts, other mounts and staple;*
 - *Detailed analysis of the drinking vessel mounts, to establish whether they were decorated and gilded.*
- 7.20.8 Neither process should affect the integrity of the existing fragments; it is more a question of whether the surviving traces visible on these objects are suitable for further analysis. This can be determined by discussion with conservators.

Comparative Material

- 7.20.9 Complete drinking vessels (other than those of glass) are comparatively rare in Anglo-Saxon England, but there are several examples of the survival of metal mounts from their apertures, notably at Sutton Hoo and Taplow (Care Evans 1983, 316-408). Glass drinking vessels are more common on the continent than examples in other materials (Evison 1955) but there, as in England, the survival of mounts and their identification is a comparatively recent phenomenon.
- 7.20.10 Further examples are known from Broomfield, Castledyke, Little Wilbraham, Loveden Hill and Holywell Row, suggesting that they were originally quite common, and may not have been confined to princely graves. Most examples are, however, associated with male graves. The small mounts from Saltwood resemble those from other Kent sites at Chartham Down, Dover Buckland, Faversham, Sarre and Sibertswold for the presence of clips attached to a circular frame.
- 7.20.11 Triangular 'vandykes' are not apparent within the Saltwood assemblage, although they do occur in contemporary burials in Suffolk. The drinking vessel mounts from Saltwood appear to be less auspicious than the Suffolk assemblages, and they may represent burial of a lower status, although there are other possible explanations for these differences.
- 7.20.12 The small collection of copper alloy mounts includes a variety of pieces, some of which are simple repair clips (*cf* Evison 1987, 105) whilst others may have formed part of bead strings (as copper alloy loops) as with the example from ARC SLT98C grave C16. In most cases, conservation work is continuing on these objects, and they have yet to be conclusively identified. The range of mounts known from this period is extensive (Hinton 1996, 50-5).

- 7.20.13 Small copper alloy staples like example from ARC SLT99 grave C154 are relatively common finds, both in Kentish graves and elsewhere. They can be distinguished from structural ironwork in terms of both their material and their size. Some were certainly used as part of the fittings for boxes, but that does not appear to be the case here. All of the objects in this grave, the burial of a young child, were deposited down the right side, close to where the coffin would have been situated, and they may have acted as structural fittings, or as parts of a wooden object which lay down this side of the grave.
- 7.20.14 The enigmatic mount from grave C127 is, as yet, unparalleled in Anglo-Saxon England. It appears to be a decorative mount of rectangular shape with rivets for attachment. It may have formed a part of a baldric for the deceased in this grave. The decoration is not yet apparent, and the object is still undergoing conservation, and has yet to be radiographed. It is likely, however, to be of considerable importance when its full detail is revealed.

Potential for further work

- 7.20.15 The study of these objects is relevant to the following Fieldwork Event Aims:
- *to establish a chronology for the Anglo-Saxon cemeteries;*
- 7.20.16 The drinking vessel mounts from grave C129 stem from an object type largely of late 6th or early 7th century date. This grave has not, as yet, been phased in any detail. The other grave goods include an unusual (but not unique) mixture of sword, shield, spear with glass beads, possibly from a second occupant of the same grave. The sword has yet to be dated with any precision, but the shield is thought to be a 7th century type. Weapon burial of this sort appears to have gone out of fashion in the second half of the 7th century, and this burial can tentatively be placed in the first half of that century at present.
- 7.20.17 The drinking vessel mounts can be examined in detail, under a low-powered microscope, to determine their original form and method of fixing, and to assess whether traces of gilding or other metals are present. Their forms can then be compared with those from other burials and this should assist in determining their relative dating. That dating can be compared with the evidence from other objects within the same graves.
- 7.20.18 All of these indicators suggest that this grave belongs to the first part of the 7th century and that it is broadly contemporary with the ‘princely’ burials found further to the east. This is interesting (if tentative) confirmation that burial continued at the western cemetery whilst the central cemetery was also in use. Furthermore, the western cemetery may have been used for a relatively long and unbroken period of time from the middle of the 6th century through to the second half of the 7th century.
- 7.20.19 The enigmatic mount from grave C127 may form part of a baldric for the deceased in that grave. Changes in the arrangement of weapons on the body, in terms of buckle forms and the means of suspension, can be seen between the earlier male burials like this one, and the later series of 7th century graves. This contrast has seldom been seen in East Kent within the same burial landscape. The careful, laboratory-based excavation of the block around the sword in grave C127 will enable the nature of the fittings there to be identified, and their original positions to be reconstructed. Possible continental affiliations can then be explored.

- *to establish the range variation in burial rites, and to view possible change in rite over time;*
- 7.20.20 The drinking vessel mounts form another element of male burial of the later 6th and early 7th centuries. Such mounts might have been expected within graves C5, C7 and C200, but they are found only within grave C129, which appears to be broadly contemporary with them. The symbolism of drinking containers is not confined to male graves and these vessel mounts should be viewed in association with glass vessels and with the large iron-bound buckets found in several auspicious graves, all relating to feasting and drinking.
- 7.20.21 The mount from grave C127 needs to be cleaned by a conservator and assessed for the traces of metals present. It may also have been gilded, and may include inlay. It is clearly decorated, but the nature of that decoration is not yet apparent. Study of the style of the decoration will enable the provenance of the object to be determined. Careful excavation of the block-lift, currently in progress, will allow the arrangement of objects here to be reconstructed, so that it will be possible to see how the sword was placed on the body, and whether it was worn within a baldric arrangement. That arrangement can then be compared with the evidence from the other sword burials within the various cemeteries, allowing an interesting view of weapon deposition over time, in the context of weapon burial within this part of east Kent.
- 7.20.22 Various graves within the cemeteries show indications of a display of feasting, or so it seems. This may be simple ostentation during the funeral itself, or a structured deposition in preparation for the afterlife. Although it may not be possible to come to any firm conclusions about these different possibilities and the symbols of burial seen here, there are clearly a range of vessels, of ceramics, iron and wood, and glass, which have been placed in male graves, and possibly also in female graves. The original contents of these containers (if there were any) have disappeared and there are no surviving residues worthy of analysis; but a comparison of these different depositions, in terms of their structure within each grave, may assist in describing the nature of this burial rite.

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7.21 Assessment of Anglo-Saxon Non-Ferrous Object Technology

Catherine Mortimer

Introduction

7.21.1 Individual Anglo-Saxon non-ferrous items have been assessed in terms of their form, function and possible symbolic value by the relevant material and/or artefact type specialists. Here, they are assessed *en masse* for their technological aspects. The study of technology assists in the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*
- *To indicate the general development of each cemetery and their relationship to each other;*

Methodology

7.21.2 This assessment was carried out in November 2000, further areas for study may emerge at later stages of work, as many artefacts at that time were undergoing conservation and were not available for assessment. A more comprehensive understanding of the range of objects will be possible once the initial conservation work is completed.

7.21.3 The objects were reviewed at the City of Lincoln Conservation laboratories and were discussed with conservators there. Discussions have also taken place with Tania Dickinson and Ian Riddler.

Quantification

7.21.4 A total of just over 80 objects of copper alloy were retrieved from Early Anglo-Saxon graves at Saltwood, alongside five silver and/or gold brooches. The copper alloy objects include three Coptic bowls, approximately thirty fittings for a box, two bracelets, eleven brooches, eighteen buckles, several coins, four drinking vessel mounts, six other mounts, three pins and a quantity of sundry items. In addition, silver wire finger rings were recovered, alongside gold strip from a headband and several gold and silver pendants.

Provenance

7.21.5 All of the objects assessed comprised Anglo-Saxon grave goods, the majority recovered from the central cemetery and to a lesser extent, western cemetery. Comparatively few non-ferrous metal artefacts were recovered from the earliest late 5th to mid/ late 6th century eastern cemetery.

Conservation

7.21.6 Most of the copper alloy objects survive in a reasonable condition. They have not been cleaned, with a few exceptions, and this may allow technological details (particularly inlays) to be examined before they are commissioned for display or other purposes. The silver and gold items also survive in good or excellent condition and are suitable for analyses. It is important to schedule this work in collaboration

throughout with the conservation staff and to be aware of their own particular requirements for the objects.

- 7.21.7 Technological analyses will largely be non-destructive and would not conflict with any long-term storage requirements. Further details of proposed analyses are outlined below. Any samples taken would be retained for future research, and would not be discarded.

Potential for Further Work

- 7.21.8 The study of the technology of these objects assists with the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*
- *To indicate the general development of each cemetery and their relationship to each other;*

- 7.21.9 Technological research was not amongst the primary aims of the excavation, but there are two aspects of the artefact research which will require technological analysis:

MATERIAL IDENTIFICATION

- 7.21.10 This is required for accurate descriptions in the catalogue, as well as for the typological research by other specialists. In the main, non-destructive surface analysis, such as X-ray fluorescence (XRF), will confirm which materials are present. For example, there are currently about 13 objects whose bulk material or surface coating is unknown or not positively identified. In addition, there are about five objects with inlays that, if XRF results are inconclusive, will probably require the removal of tiny samples (about the size of a pin-head) for analysis by X-ray diffraction (XRD). Further areas of query may emerge after conservation, or during analysis by other specialists.

- 7.21.11 It is possible that some of this analysis may be need to be carried out at an early stage of study, i.e. during conservation of the pieces to allow appropriate treatments, but as a stand-alone study. The material identification phase would take about three days and would require access to a suitable research laboratory.

- 7.21.12 The relative purity of the gold objects should be analysed and viewed critically against earlier suggestions that gold becomes less pure over time during this period (Hawkes et al 1966; Brown and Schweizer 1973). The objects of gold from Saltwood are relatively well-dated, facilitating such a study.

- 7.21.13 A further area of study lies with the white material present on the composite disc brooch from grave C190. The precise nature of such material is still not well-understood (Evison 1951) and an excellent opportunity exists here to apply scientific techniques to the problem.

- 7.21.14 For further, broader based comparisons, access would be required to the objects from the Lyminge cemetery, which are currently held at Maidstone Museum. With the agreement of the curators of that museum it would be possible to carry out comparative analyses, which would serve to place the Saltwood objects into a wider,

regional perspective, although it is accepted that analysis of the Lyminge assemblage may be beyond the remit of the Saltwood assessment.

- 7.21.15 The Lyminge objects include several brooches which are directly comparable with Saltwood (principally square-headed and radiate brooches), as well as an excellent collection of buckles. The composition of the Saltwood jewellery could then be directly compared with the Lyminge assemblage. In addition, technical data relating to the Dover Buckland cemetery would be made available by the British Museum (Ian Riddler pers. comm.) and would also form a useful set of comparanda. Further analyses could also be carried out on material from other Early Anglo-Saxon cemeteries in Kent encountered in the course of the Rail Link excavations.

CONSTRUCTION INFORMATION

- 7.21.16 Investigative conservation techniques will undoubtedly provide fascinating insights into construction techniques. Most objects should not pose any particular difficulties and the artefact specialists should be able to cull enough information from the conservation records and X-rays to make brief comments, such as 'cast, with three rivets in attachment at end,' for the catalogue. However, the most complicated items (eg buckle SF900, disc brooch SF2413, pendant SF2411) will require more work, with the possibility of additional X-raying and microscope work. For example, it will be useful to determine the designs of the gold backing foils of the garnet inlays, in order to compare them with other examples of the period. The method of cell construction could be studied using detailed microscope study, backed up with X-radiography.
- 7.21.17 The Coptic bowls will also require careful study, for example, to examine the mend on the example from grave C7. A stand-alone technical study of these items would take up to 4 days, but this will depend somewhat on how much of this type of work the artefact specialists themselves carry out. Analyses carried out on the Coptic bowls would allow their metal contents to be compared with each other, and also with the earlier analyses of the 1980's carried out on examples held in the British Museum. Although the latter are not entirely easy to reconcile with modern techniques, it is nonetheless possible to make some valid comparisons. Access will also be available to examinations carried out on similar bowls from some continental cemeteries.
- 7.21.18 Both the above types of information would provide essential details for the catalogue and for the discussion texts. Higher levels of technical analysis can also be proposed, which again may be considered beyond the remit of the Saltwood assessment. For example, the technical data could form the basis for a technological summary, with reference to other relevant collections, to put the technological findings in context.

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7.22 Assessment of Anglo-Saxon Ferrous Object Technology

Brian Gilmour

Introduction

7.22.1 The potential for the technological investigation of a large group of broadly contemporaneous iron finds from Anglo-Saxon burials such as those from Saltwood tends to be much underestimated largely because of the very corroded condition in which objects like this usually survive. Iron objects also tend to be viewed by modern observers as largely utilitarian and therefore inherently not as interesting as objects of precious metal. Both these views are mistaken, particularly for Saltwood that is so rich in ironwork, including very high status objects such as swords and angons.

7.22.2 Unlike other metals of antiquity the alloys of iron were smelted as a solid spongy mass known as a bloom (deriving from old English - *bloma* or flower, most probably because of its appearance). The two main consequences of this are firstly that the iron itself (of whatever alloy) is heterogeneous in composition, and secondly that many iron objects are of composite manufacture, that is they are made of different pieces of iron or steel hammer-welded together.

7.22.3 Not only is there a large number of iron finds from Saltwood but also a wide range of objects is represented. Whether utilitarian or high status or somewhere in between there is a large enough number of objects of different types for the potential for the recovery of valuable archaeological information to be extremely high. Also the unusual properties of iron mean that a much broader range of information can be recovered than is possible for most objects, whether metal or not. Research over the past 20 years has shown that the iron industry in the Anglo-Saxon period was much more developed in various ways than had previously been thought.

7.22.4 The study of the technology of the iron objects assists in the following Fieldwork Event Aims:

- *To establish a chronology for the Anglo-Saxon cemeteries;*
- *To establish the range variation in burial rites, and to view possible change in rite over time;*
- *To indicate the general development of each cemetery and their relationship to each other;*

Methodology

7.22.5 This assessment has been carried out using information supplied by Ian Riddler and Michelle le Mairie on the iron objects from Saltwood. At this stage, the objects have not been inspected, but a great deal of discussion has taken place with the City of Lincoln Conservation Laboratories in terms of the nature and condition of the objects, and all of the the radiographs have been examined. This represents a sample of approximately 90% of the objects.

Conservation

7.22.6 The proposed methodology for analysis is as follows:

- 7.22.7 In each case, once the conservation work has been carried out - particularly the removal from the object's loose encrusted material from the ground - a sample would be cut from part of the object where the metal (as seen from X-ray etc) is known to survive better under the corrosion. For the most part the clean metal is vital for the success of this analytical work although some information can be retrieved from *in-situ* iron corrosion products especially in the case of swords.
- 7.22.8 Samples need to be representative of the object as a whole and therefore, in the case of swords it means taking a narrow wedge-shaped section extending half way across the blade. This is done using a rotating diamond tipped cutting disc so as to minimise damage to the rest of the object. Where required, and as a matter of course for swords, the original appearance of the object is restored by filling the gap left by the sampling. This is done using an inert resin, coloured and contoured to match the surrounding corroded appearance.
- 7.22.9 All samples are mounted in a resin block to enable metallographic analysis to take place. Polished and etched sections of all these objects are examined by microscope to determine the overall structure that is then recorded (briefly) and photographed at low magnification to produce photo-macrographs which form part of the subsequent report. Routine use of (Vickers) micro-hardness testing should also be made to help recover additional information relating to the observed structures. Electron-probe micro-analysis should also be employed for all the sword sections, and a proportion of the other sections, in order to identify and measure the proportions of the minor and trace elements present in the iron, and also to analyse the slag still trapped in the metal.
- 7.22.10 Elemental maps should also be made to show how the distribution of minor elements in the iron varies across the sections that may be highly significant, particularly in the case of pattern-welded swords. To a large extent this will also reveal the distribution of these minor elements in their original positions in the iron corrosion products where the iron metal has corroded away. This is very helpful in reconstructing the original appearance of very complex composite objects like pattern-welded swords. Where useful these maps should be reproduced alongside reconstruction diagrams in the final reports.

Comparative Material

- 7.22.11 It will be possible to compare the results for the swords with those examined from certain other Kentish cemeteries, notably many of those from Sarre and Bifrons, and also scattered examples from several other cemeteries. Very few comparable (Kentish) spearheads, knives or other iron artefacts have yet been examined, which should be done in order to record the range and variations in the types of iron used.
- 7.22.12 This analysis may also determine how the objects were used, and as far as possible to suggest the extent to which the production might be fairly local, or which iron alloys might have been brought in from further afield or imported. The new studies, currently underway, of spearheads from Kentish cemeteries provide the impetus for this technological work to take place. With this in mind, some objects like the angons may be identifiable as having been imported.

Potential for Further Work

- 7.22.13 The Saltwood ironwork (the largest material category group of finds from the site) should provide the basis for the recovery of a great deal of valuable technological information. This should compliment the information gained from the examination

of other finds as well as greatly enriching the database of archaeological evidence from the site.

- 7.22.14 Sourcing the iron could be difficult, but not impossible. Ironstone was present at Saltwood and was collected. It would be advantageous to analyse that, particularly against samples from the Weald, and those from France. For smithing styles there is limited potential, particularly in examining the quantity of re-used iron seen in different types of object over time. Without the furnaces, however, it is not possible to provenance the styles, although it is likely that different styles will be identified.
- 7.22.15 If technological studies are undertaken on the swords, knives and spears, the principal classes of edged implement, then it will be possible to build up a very comprehensive picture of manufacturing techniques over time, and to view any significant technological changes. Work has been carried out in recent years on ferrous metallurgy in northern France and there is also a certain amount of work in progress. Vincent Goustard has published a study of a 9th century ironworking furnace from Compiègne (east of Beauvais) and a Merovingian iron smelting site at Boécourt has also been published, together with some articles on the broader questions of ironworking in the Merovingian period. There is quite a burgeoning amount of new French literature on this subject, including some work on objects from cemeteries, forming a useful body of comparative data.
- 7.22.16 The study of the technology of the iron objects assists in the following Fieldwork Event Aims:
- *To establish a chronology for the Anglo-Saxon cemeteries;*
 - *To establish the range variation in burial rites, and to view possible change in rite over time;*
 - *To indicate the general development of each cemetery and their relationship to each other;*
- 7.22.17 The main aim of the study of a large group of objects like this is not only to identify the iron alloys used to make individual artefacts but also to compare how the different types of iron available were combined in the different classes of objects represented. Many iron objects are likely to be composite in their construction with more than one iron alloy used. Unlike other early metals iron and its alloys were produced in the solid state. This plus the unusual properties of iron, especially with respect to the ways it combines with carbon at different temperatures, means that not only the composition but much information about the smithing history and any subsequent heat-treatments can also be revealed by technological examination.
- 7.22.18 The Saltwood assemblage offers the opportunity to examine a wide range of material that extends across the entire Early Anglo-Saxon period. The examination of specific object types, therefore, can be placed within a chronological framework, in an attempt to view and to explain change over time. Variation can be examined within individual objects and object types, and also across the different cemeteries, in order to consider whether the study of technology can add to the information provided by typological and social analyses.

7.22.19 The potential of each object type can be briefly summarized here:

SWORDS

- 7.22.20 All 11 swords (and scabbards) came from well-stratified graves. They should be sampled and examined technologically and the results compared internally (i.e. with the results across the group) and with any technological results from other nearby groups of swords and with those from further afield, principally at Dover Buckland. The potential of swords to yield extremely valuable and exciting technological information cannot be over-emphasized.
- 7.22.21 The variability of sword manufacture will clearly be of interest. It may be possible to group the swords by various technological criteria, and to compare these groups with those from Dover Buckland, where similar work has been carried out. The broader question of schools of manufacture and different production centres could be examined to some extent, particularly if some of the sword blades turn out to be obviously Frankish. Closer attributions (to regions of Francia) may be difficult, and the interpretation of the variability may itself be unclear. It will nonetheless be possible to recognise and to comment on that variability.
- 7.22.22 A large group of swords like this also means that it should be possible to gain a good impression of the types of sword designs that would have been popular among the elite sword-bearing people buried at Saltwood. Comparisons with the swords in graves C5, C7 and C200 are particularly interesting, in this respect. Apart from being able to work out the range of designs present, the iron alloys used and the ways they were combined to produce the finished blades and their subsequent heat-treatments, the number of swords present means that a comparison of the standard of production quality can also be made.
- 7.22.23 It is clear from X-ray work to date that most of the swords are fairly heavily mineralized but with some core metal surviving. Technological work would be focused on the parts of the blades where the metal survives better under the corroded surface. The results would also be compared to those of the spearheads, angons and some of the larger knives.
- 7.22.24 Preliminary X-ray work suggests that all 11 swords may be found to be pattern-welded and therefore will be very elaborately made with a variety of intricate weld patterns that would have been visible on the surface of the original blades. It is not known for certain what was the main purpose of pattern-welding but the way they have so far been found to have been made suggests that these were primarily display weapons, very likely designed to show just how good the swordsmiths art could be.
- 7.22.25 Display weaponry can be identified in a number of ways. For example, comparisons of the pairs of shields from the large male graves will determine which confirm with existing types and which show ostentation, usually in terms of their size (making them heavy and unwieldy to use in combat) or in terms of the additional decorative fittings placed on them. For the swords and knives, it is possible to identify whether they had been used in most cases (depending on how well they survive) and to create a broad scale of use, from 'none' to 'extensive'. Technological analysis will assist greatly in this respect, in concentrating on the edges of the blades and examining traces of wear, which are correlated with the evidence from the radiographs. It should therefore be possible to determine which swords have been used, and which have not; and to establish whether the unused swords were for display or combat. The technology of the blades should allow this to be seen: a combat sword will have been produced in a particular way, to combine lightness,

durability and flexibility. These characteristics are not necessarily present on a display weapon, which may also be of different dimensions.

- 7.22.26 As display weapons, swords of this kind may have been primarily a mark of the prestige of the owner rather than having been a standard weapon of war. The investigation of the sword blades from Saltwood would aim to look at the ways in which these swords stood out as a group, to look at the quality that was achieved for (and possibly was demanded by) this particular group of people. Also the swords that appear to be earliest should be compared with those that are later to see if any technological change occurs over the hundred years or so represented in the cemetery. The swords from the 'princely' graves, for example, may turn out to be display weapons, but this is not necessarily the case with those from other graves.

SPEARHEADS

- 7.22.27 Of the 32 spearheads excavated it would appear from initial X-ray work that about half of these are too heavily mineralized to make technological analysis worthwhile. It would be very useful to analyse the remainder and to compare the results with those of the swords. Although comparatively few Anglo-Saxon spearheads have yet been examined in this way, the technological evidence that has been recovered (i.e. number and type of metals used in manufacture) suggests that these weapons were relatively utilitarian in their construction, reflecting their probable role as the actual standard fighting weapon. However there are signs that pattern-welding – which for centuries had been developing for swords – was starting to be used for spearheads as well.

- 7.22.28 We can also expect composite construction to have been used to make better quality weapons (most probably by exploiting the physical properties of steel or phosphoric iron). Even where spearheads are found to have been made of an apparently single grade of iron the evenness of the metal will give us a good guide of whether or not, or the extent to which the iron used has been processed. The less it has been processed the more likely the iron is to have been made locally unless there were any specialized iron producers operating locally, which is unknown as yet. The proximity of the site to Wealden ore supplies and ironworking centres is of considerable interest in this respect.

- 7.22.29 Signs that specialist iron-makers were operating in the area will be looked for in any subsequent analysis of the ironwork from this site. The evidence may boil down to the extent to which the full variety of iron alloys were used in more utilitarian iron objects - most things apart from swords.

ANGONS

- 7.22.30 Angons - the narrow form of spear resembling (and possibly derived from) the Roman *pilum* - are a typically Frankish form of weapon and all three examples found at Saltwood should be analysed, given the likelihood that these are Frankish imports. This would be confirmed if they are found to be different compositionally from other objects. If, however, the background iron structure and its trace element and slag compositions are all found to be the same as other comparable objects - mainly spearheads - then there may be good grounds for thinking these to be (probably local Kentish) copies of this Frankish form of weapon.

KNIVES

- 7.22.31 Although approximately a hundred knives were found in the Saltwood cemetery the proportional effects of corrosion have clearly been greater due to the smaller size of the knives compared to the spearheads. X-radiography would suggest that about a

quarter of the knives survive in good enough condition for technological examination to be worthwhile. The knives should be sampled and analysed to identify their structure, determine what heat-treatments have been used, and look for possible examples of decorative welding techniques.

- 7.22.32 Particular attention should also be paid to the possibility of recycling - the incorporation of scrap iron (or steel) into the blades. The results will help assess the overall quality of the knives from the site and will also help in judging the results obtained for the spearheads and in comparing these to the technology of the swords.

WEAVING BATTEN

- 7.22.33 This would be well worth examining to investigate the possibility that it might have been made from a cut down sword (which is often the case). If so it will effectively raise the number of sword blades to 12 and could therefore be investigated as such. If it has been made as a weaving batten then its construction and the type of iron used is likely to be very simple and would provide a very useful benchmark for judging much of the rest of the ironwork from the site.