

7.1 Assessment of Anglo-Saxon Mineralised Leather

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Introduction

- 7.1.1 Among iron artefacts recovered from the excavations are swords and knives upon the blades of which are preserved the mineralised remains of scabbards and sheaths. Of these, the swords appeared to retain the best examples of mineralised leather, and as such are considered in detail below.
- 7.1.2 In addition, a fragment of skin or leather was found within the Byzantine bowl from central cemetery grave C5. It belongs to a small group of leather objects surviving from 6th/ 7th century contexts (Cameron 2000, 2-5).
- 7.1.3 The study of the leather and mineralised remains is relevant to the following Fieldwork Event aims:
- *To establish a chronology for the Anglo-Saxon cemeteries;*
 - *To indicate the general development of each cemetery and their relationship to each other;*

Methodology

- 7.1.4 For the purposes of this assessment, five swords were examined (from graves C5, C7, C15, C19 in the central cemetery and grave C127 in the western cemetery); the remainder of the swords were undergoing conservation at the time of assessment. Radiographs of the knives have been examined.

Quantification and provenance

- 7.1.5 Mineralised wood and textile remains are visible on the five assessed swords and it may be that further organic remains, such as animal hair and skin, leather and vegetable fibres, are concealed beneath the outer layers. The quantity of mineral preserved organic remains is abundant; the quality cannot be vouched for without detailed examination, but appears to be good. Mineral-preserved organic remains from this site show considerable potential for study and analysis.
- 7.1.6 Of the 84 knives recovered, radiographs of some show evidence of mineralised sheath remains (e.g. central cemetery graves C30, C31 and C33). It is likely that these were of skin product, but knives from the earliest contexts at Saltwood may be of wood and skin.
- 7.1.7 One piece of leather in three fragments from grave C5, preserved by contact with the copper Byzantine bowl in which it lay, may still have a high organic content.

Conservation

- 7.1.8 To examine the mineralised leather in detail some 'unrelated' traces of textiles in the outermost layers originating from burial wrapping and/ or other deposits within the grave need to be removed. As this is a destructive process, it is suggested that a textile specialist record these traces prior to removal.

- 7.1.9 The application of consolidants to mineralised and copper-preserved organic remains prevents proper examination and analysis and it would be helpful if this was avoided until study is complete.
- 7.1.10 Further analysis will involve the taking of samples - approximately 5mm² - from all of the swords and from a 10% sample of the knives, for examination by scanning electron microscopy. Four samples per scabbard and one sample per sheath are allowed for. The use of scanning electron microscopy is standard practice for the study of mineralised organic remains (Cronyn *et al* 1985; Watson 1988). The samples are prepared by plasma-coating in gold and are not replaced on the swords or knives afterwards.
- 7.1.11 The leather will be examined, photographed and described. A sample (1g) will be removed from the leather fragment to assess degree of organic survival through analysis of carbon/ nitrogen (C/N) and stable isotope levels, and a further sample (3mm²) will be removed for scanning electron microscopy to allow the condition of the leather to be assessed.

Comparative material

- 7.1.12 Some details of scabbards and sheaths from the Anglo-Saxon cemetery at Buckland, Dover are published in Evison (1987). All known references to sheaths, scabbards and Anglo-Saxon leatherwork in England (except shoes) are contained in Cameron (2000), including details of sheaths and a scabbard from the 6th/ 7th century cemetery at Snape, Suffolk (Filmer-Sankey and Pestell forthcoming); Frankish parallels are published by Menghin (1983).

Potential for further work

- 7.1.13 Evidence for the use of leather in Britain in the 5th and 6th centuries is extraordinarily scarce and it may be that untanned skin products were normally utilised instead. Whether or not this was so, it would seem that in the late 6th/ early 7th century a change took place, marked by the introduction of 'Rhenish-type' leather sheaths into eastern Britain and more frequent use of leather in artefact production. This collection therefore has a high potential to add to our knowledge of the use of leather in the early Anglo-Saxon period. The potential for chemical analysis might therefore be good but this will need to be verified (by C/N ratios) before further analysis is attempted.
- 7.1.14 The leather items will contribute to the following Fieldwork Event Aims:
- *to establish a chronology for the Anglo-Saxon cemeteries;*
 - *To indicate the general development of each cemetery and their relationship to each other;*
- 7.1.15 Details of swords and scabbards often contribute to the dating of graves, and some scabbards from Saltwood are already known to possess key dating features, such as a particular style of braid binding. Bindings of braid, occurring on scabbards in Kent, Essex, London, Buckinghamshire and Suffolk only, are characteristic of the late 6th and early 7th centuries. The significance of this feature, only recently identified (Cameron 2000, 39-40, 75), and reasons for its geographical and chronological boundaries are not yet fully understood. Fresh evidence recovered from Saltwood could throw new light on this aspect of Saxon material culture and the political background that influenced it.

- 7.1.16 Following study and sampling procedures, a report will be produced in which mineralised remains of sheaths and scabbards from Saltwood will be characterised, described and compared to other known examples of similar date. This will also require the dating of each sword burial both by its context and by considering the contents of each grave in total, including the swords. The unidentified (as yet) leather object from grave C5 will be described, compared to other known pieces from Pagan Saxon contexts, and its significance assessed.

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7.2 Assessment of Anglo-Saxon Textile Remains

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Introduction

7.2.1 At the time of assessment only material from the central cemetery was available for examination, although further textile remains were evident in the other cemetery groups and will be dealt with separately. Out of 582 objects examined from the central cemetery, 51 objects from 27 graves were identified as having mineral-preserved textile on or near them.

7.2.2 The textiles mostly represent clothing on the body (or sometimes wrapping and binding fabrics). They will further the following Fieldwork Event Aims:

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

Methodology

7.2.3 Of the 51 objects identified for this assessment, previous research has shown that further allowance should be made for *c.* 10% more items emerging during conservation. This assessment is therefore based on an anticipated total of *c.* 60 items for study from the central cemetery alone.

7.2.4 Lengths of gold thread/ strip from grave C112 in the western cemetery is assessed separately (see **Appendix 7.25**).

Quantification

7.2.5 Of the objects assessed, several have more than one textile in association. As a result, it is anticipated that the assessed sub-sample will yield approximately 75 different textiles. Examination of the remaining unassessed textile remains will undoubtedly add to this total.

7.2.6 The fabric-types identified so far are mostly the usual ones for an Anglo-Saxon cemetery, namely 2/ 2 twill, 2/ 2 diamond twill and tabby; some have yarn spun Z x Z and some are Z x S. Of particular interest is the fine tape binding on the sword-scabbards in graves C5 and C7 and the wool diamond twill with a tablet-woven border on the sword from grave C15.

7.2.7 Most of the objects with mineral-preserved textile are iron (it is understood that there are more copper-alloy objects with textile from the other cemeteries). This may have introduced a bias into the material (see below).

Provenance

- 7.2.8 All objects are from sealed burials and are therefore considered securely dated.
- 7.2.9 The textiles are mineral-preserved (preserved by association with metal) and include fully mineralised (mineral-replaced) and partially mineralised. None of the material is preserved in its original state.
- 7.2.10 In one case (grave C7) most of the textile has been preserved as lines of iron corrosion in the sand, sometimes arranged in folds and layers. No technical details concerning the textile structure can be achieved, but the position of the folds of the clothing in relation to the body and the artefacts should be recorded very carefully, as few if any examples of such evidence have been previously recorded.
- 7.2.11 The recovery of different textile-types depends on (i) soil conditions (acid or alkali), (ii) the metal of the object with which the textile is associated (iron or copper alloy), (iii) the date of the burial, and (iv) the social status of the dead person. Saltwood appears to be on acid sand and most of the objects are iron. It is likely (but not yet proven) that acid soils and iron objects will over-emphasise wool at the expense of linen.
- 7.2.12 All evidence from Anglo-Saxon cemeteries is being recorded on a computerised database, so that the four variables listed above can be examined statistically through basic quantification. The sample from Saltwood is sufficient to provide useful comparanda for other cemeteries in Kent on different soil types.

Conservation

- 7.2.13 Some of the items still have substantial amounts of sandy soil adhering (**Table 37**) and need to be cleaned by a conservator so that the textile can be studied. The remainder can be studied before or after conservation, as convenient.

Table 37: Mineral-replaced objects requiring conservation

Grave	SF number	Object no./ type
Grave C7	C1142	Object C7
Grave C15	C1101	Object C13
Grave C17	C896	Seax
Grave C25	C1235	Object C11
Grave C31	C1133	Small spearhead
Grave C31	C1134	Object C2
Grave C32	C1152	Object C4
Grave C40	C1174	Object C1
Grave C41	C1165	Object C12

- 7.2.14 The textiles should be left on the object and not cleaned away, unless there is some research objective to be achieved. The layers of textile in grave C7 will need to be recorded in collaboration with the conservator who dismantled the soil-block (and perhaps with the aid of field notes).
- 7.2.15 The identification of the fibre (wool or flax/ hemp) is an essential part of the textile record and also the most difficult to achieve where textiles are mineral-preserved. Where possible, the identification will be done by transmitted-light microscope. Some fully mineralised samples may be selected for Scanning Electron Micrographs. This selection will be based on the state of preservation of the textile and the likelihood of achieving a useful result. Allowance should be made for 30 SEMs.

7.2.16 No attempt will be made to identify dyes, or the fleece-types of the wool, because the material is not well enough preserved to allow this.

7.2.17 The storage of the textiles will be whatever is suitable for the objects to which the textiles are attached.

Comparative material

7.2.18 The author has all textiles from Anglo-Saxon cemeteries on a computerised database. Of the 120 cemeteries included on this database, 22 are from Kent. The Kent entries include 270 textiles and the large collection from Buckland II will be added to this in the near future, when the catalogue entries have been finalised.

7.2.19 Regional and chronological patterns in this material have been tentatively identified, although there are problems of bias in the evidence which need to be addressed. Saltwood has an important role to play in this respect, in providing a block of reliable data on a discrete group of iron artefacts of a known date-range on a known soil-type.

7.2.20 This is a relatively small group of material and all items will be examined and recorded using the system published in Walton and Eastwood (1988). The costume evidence will be compared with that gathered from other cemeteries (e.g. Owen-Crocker 1986; Walton Rogers 1998 and 2001).

Potential for further work

7.2.21 The textiles from this cemetery will further the following Fieldwork Event Aims:

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

7.2.22 The chronology provided by the dating of the metal objects will allow us to discern changes in use of textiles over the period of the cemetery. This will be done by charting the proportion of linen to wool (linen tabby is thought to increase with time) and changes in weave structures (in more northerly Anglo-Saxon cemeteries, there seems to be increasing standardisation in the later 6th and 7th centuries).

7.2.23 Although the possibility of a bias in the sample through differential preservation has been noted, this can still be taken into consideration when compiling information about the proportion of linen to wool as a means of differentiating weave structures through time. There is considerable data from a number of cemeteries, Dover Buckland II being particularly important in this respect because it was excavated under modern conditions, as also has the much smaller Mount Pleasant sample. These two cemeteries lie on chalk and both include burials known to be contemporary with those at Saltwood, facilitating a direct comparison of survival rates for linen and wool. The scale of the bias can therefore be calculated with some precision.

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

7.2.24 The textiles vary in quality, and some will help identify high-status burials. The fine tape bindings on scabbards, for example (see below), have only been seen before in barrow burials of warriors, such as Taplow, Kent, and Sutton Hoo and Broomfield Barrow, Essex.

- 7.2.25 The mineralised textiles are also relevant to the following new research aim:
- *To examine the nature of female costume over time, in terms of regional styles and the emulation of continental fashion.*
- 7.2.26 This will be done by producing a catalogue of all textile items, including fibre identifications wherever possible, and plotting the textile information on the grave plans, so that some conclusions can be drawn concerning the styles of clothing worn and the fabric-types used for individual garments. This information will be compared and contrasted with not only that gathered from the other 23 Kent cemeteries with textile, but also with the evidence from Anglo-Saxon cemeteries outside Kent.
- 7.2.27 The analysis will explain how the material contributes to the national study of Anglo-Saxon textiles (outlined above), describe the likely styles of clothing worn by the buried people, and highlight the high-status features of individual graves such as the scabbard bindings in graves C5 and C7.

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7.3 Assessment of Anglo-Saxon Textile Implements

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Introduction

7.3.1 A fragmentary bone or antler double-pointed pinbeater was recovered from context C376 and a complete iron weaving batten came from western cemetery grave C117. Further textile manufacturing implements are represented by the ceramic loomweights, which have been considered in a separate assessment.

7.3.2 The study of implements used in textile manufacture 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 establish a dated sequence for the origin and development of the settlement including associated structures and trackways etc*

Methodology

7.3.3 The pinbeater fragment has been examined in Canterbury, both for its type and its material. The iron weaving batten has been analysed at the City of Lincoln Conservation laboratories and radiographs of the object have been consulted. Conservation work continues on this object at the time of writing. Radiographs have been taken of the block-lift, but not of the object itself in any detail. Nonetheless, it is possible to examine the original form of the object.

Quantification

7.3.4 Sufficient survives of the pinbeater (virtually the only bone or antler object to have come from Saltwood) to identify it as of double-pointed form (Riddler forthcoming; Walton Rogers 1997, 1755).

7.3.5 The iron weaving batten is complete and extends to 0.6m, with the characteristic blade knob at one end and a tang for a handle at the other. It is not clear at this stage whether mineralised remains of the handle survive on the tang.

7.3.6 Although other bone or antler pinbeaters may have been placed in graves within any of the cemeteries (and most likely within the latest central cemetery) none have survived. Similarly, although antler spindle-whorls would also not have survived, there are, however, no Anglo-Saxon examples in any other materials (ceramics or stone) recorded from the site.

Provenance

7.3.7 The fragmentary pinbeater came from the fill of a post-hole (C869, group C48), forming part of a structural complex to the west of the site, dating to the early medieval period.

- 7.3.8 The weaving batten was discovered within grave C117. It lay to the left of the deceased, adjacent to a spread of beads, at the level of the upper body, with the handle close to the head.
- 7.3.9 Both objects survive in good condition. The pinbeater is fragmentary but it was broken in antiquity and was probably discarded as a result of this fracture. The weaving batten is complete, although it lacks its organic handle.

Conservation

- 7.3.10 Conservation work continues on the weaving batten. It was recovered in a block-lift, which has been radiographed on large format plates. The batten has been removed from the block and is currently being radiographed in detail. In part, the intention here is to reveal whether any traces of pattern-welding are present (see below). It is maintained in environmentally-controlled conditions and will be placed in purpose-built packaging.
- 7.3.11 The pinbeater has been cleaned and assessed for its conservation requirements. It has been packaged and is maintained in appropriate conditions. Further analysis of the pinbeater is limited to determining whether it is made of bone or antler. A preliminary examination suggests that it is antler; more detailed analysis is non-destructive.
- 7.3.12 The iron weaving batten may possibly be cut down from a sword blade. Detailed radiographs suggest that it is pattern-welded, and this certainly does relate it to the swords from Saltwood and elsewhere. A technological examination of the blade, using the same technique as for the swords, will allow it to be compared directly with them. Broader comparisons can also be made with the Dover Buckland battens, at least one of which is currently undergoing detailed analysis.
- 7.3.13 Further analysis of the weaving batten would be centred on determining whether its blade is pattern-welded and, if so, whether the pattern is similar to that on any of the swords from Saltwood. In addition, any traces of the original material of its handle can be analysed, to determine whether it was made of bone, ivory or wood. These processes are non-destructive. Both objects should be retained.

Comparative Material

- 7.3.14 Double-pointed pinbeaters are found in Roman contexts (although they are rare in this country) and occur throughout the Anglo-Saxon period. They are associated with the warp-weighted loom (Walton Rogers 1997, 1755; Riddler forthcoming). At some sites, including London, Winchester and York, the double-ended variant is not seen beyond the 10th century. At Canterbury, however, it appears that this trend is not maintained, although the small quantity of double-ended pinbeaters from 11th century contexts may well be residual (Blockley *et al* 1995, 1173-4; Elder and Riddler 1988, 135-8 and figs 26.94 and 27.95). At the present time, there are few examples of Middle Saxon or later double-ended pinbeaters from East Kent, outside of Canterbury itself. Current evidence suggests that they were used during the 5th to 10th centuries, with some slight changes in formal design over that period (Riddler forthcoming).
- 7.3.15 Several summaries have been produced of iron weaving battens, the majority of which come from excavations carried out before the Second World War, or in the immediate post-War period (Evison 1987, 111-2; Chadwick Hawkes 1958, 30-5; Millard *et al* 1969, 17-22; Koch 1969, 187-9). They are known from East Kent

graves at Bifrons, Dover Buckland, Finglesham, Ozengell and Sarre (Chadwick Hawkes 1958, 30-5; Evison 1987, 111). Most examples have come from rich female graves. Previously they were thought to have been deposited between the late 6th and mid-7th centuries but more recent finds indicate that they go back to the middle of the 6th century at least. Hawkes (in Millard *et al* 1969, 20) has suggested that 'none can confidently be dated much before 550' and this may have a bearing on the dating of the example from grave C117, although it was a statement of the 1960's.

- 7.3.16 The Saltwood example is relatively large, with an overall length of around 0.6m, which places it alongside the longest examples from Kent, where the majority of examples have been found. It should be noted that they are not common in Frankish graves, and have generally come from Alamannic, Thuringian or Langobardic burials (Evison 1987, 111-2; Koch 1969, 187-9 and 193).

Potential for further work

- 7.3.17 The study of implements used in textile manufacture assists in the following Fieldwork Event Aims:

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

- 7.3.18 Iron weaving battens occur in Kent graves from *c.* AD 550 to 625 and the example from grave C117 appears to be one of the earliest (and one of the largest) of the series. Its size may, however, relate to the fact that it could have been cut down from a pattern-welded sword, as has been suggested for other examples, although this is debateable (Millard *et al* 1969, 21). There are only around twenty examples from Anglo-Saxon graves in England, the majority of which have come from Kent. The dating evidence for the series as a whole assists in the dating of this grave, which is currently thought to have been deposited *c.* AD 525-550, only just within the range for this object type. Further analysis, particularly on the dating of examples from the continent (which now seem to pre-date AD 550, contrary to previous suggestions), may assist in dating this example. A review of the dating of the Kent graves would also be useful, given that the relative and absolute dating of most of those burials was undertaken several decades ago, and may now need to be revised slightly.

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

- 7.3.19 The weaving batten comes from one of the richest graves within the western cemetery and this emphasises their deposition within auspicious female burials, as with Dover Buckland graves 20 and 38, Finglesham graves D2 and 203, and Sarre grave 4. The position of the batten in the grave is similar to that in Dover Buckland grave 20. Textile production was undoubtedly important at this period, as also was fashion. Many of the rich female burials of the 6th century in East Kent, for example, may well have been wearing Frankish or Frankish-influenced costume (Walton Rogers forthcoming). Contemporary settlement evidence suggests that spinning was carried out in most households, but it is not certain that every one also included a loom. The significance of the iron weaving batten may lie in its continental origins (if the majority were imported) rather than in its presence in the grave. They may have been relatively common, with the majority produced in wood rather than metal. A pattern-welded iron example, whether custom-made or cut down from a sword, could have been seen as a luxury object, which does not necessarily define its owner merely as a weaver.

- *to establish a dated sequence for the origin and development of the settlement including associated structures and trackways etc*

7.3.20 The double-pointed pinbeater is almost certainly of post-Roman date and, given the comparative evidence gathered above, it is likely to date to the Early or Middle Saxon periods. It provides further corroboratory evidence of Anglo-Saxon settlement within this area.

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