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SUMMARY

As part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL) the Museum of London Archaeology Service (MoLAS) was commissioned by Union Railways (South) Limited (URS) to undertake three phases of fieldwork at Cuxton near Rochester, Kent; these were an evaluation in 1997, a detailed excavation in 1998 and a watching brief in 1999.

Late Bronze Age- Middle Iron Age, 900BC to 300BC

- Six large postholes formed a circular 'hut' *c* 4.0m in diameter and a large number undated postholes appeared to form an associated enclosure, which had a main entrance to the east. In the western side of the enclosure were two hollows containing significant deposits of burnt flint and charcoal, probably representing cooking areas.
- Some storage pits contained a large amount of pottery and fragments of daub but most contained no dating evidence of other material. The site also included a number of 'satellite' postholes concentrations, and a tree bole, containing Iron Age pottery.

Roman

- Occasional finds of Roman date had been redeposited in some of the Anglo-Saxon graves.

Anglo-Saxon cemetery 7th century AD

- The 36 inhumations (one probably died in childbirth/late stages in pregnancy) included males and females; 21.8% of the sample were juveniles. The finds suggest the cemetery was in use of c. AD580–700. There were several identified grave types:

  Simple Graves
  - Twenty-four graves do not appear to have had an external structure.

  'Tumulus' Graves
  - Eleven graves showed evidence for being surrounded by a penannular ditch accompanied by a posthole located between the terminals.

  'Posthole' grave
  - One grave was surrounded by ten small postholes, forming a structure around and possibly above the grave.

  Other features of note:
  - One grave had an internal ledge.
  - One grave had a broad slot in the base at the 'foot' end.
  - One of the burials had flint nodule packing around the body.
  - Four burials showed clear evidence for a wooden coffin (seen by dark rectangular stains).

Artefacts were recovered from 31 of the 36 graves in the cemetery. Metalwork is the dominant category and the finds mainly fall into the categories of dress accessories and weapons. Although in a typically 'pagan' location on high ground away from a settlement, the Cuxton cemetery can be seen as of Conversion period, with elements that are pagan or semi-pagan, and others that are possibly wholly Christianised. Most artefacts are of native origin, probably from Kent.

Medieval and Post-medieval

Field boundary ditches and plough strikes indicate agricultural activities. A possible road surface was found crossing the lower slopes of the site. There was some 19th century landscaping of the hillside, with terracing and infilling of the nearby dry valley, and chalk quarrying nears the area of the cemetery.

Potential

Prehistoric settlement:

The site has good potential for analysing the layout of the various settlement parts, including the main enclosure, main building, subsidiary enclosures and buildings and areas of pitting. The finds will inform on the type, status and date of the occupation.

Anglo-Saxon cemetery:

The human skeletal material has potential for further work, despite the generally poor condition of much of the bone, due to the rarity of burial sites of this date. This, together with what is assumed to be the relatively high proportion of the original cemetery population, associated grave goods and the opportunity to study this transitional period, increases its interest.

1. INTRODUCTION

1.1 Project Background

1.1.1 The Museum of London Archaeology Service (MoLAS) was commissioned by Union Railways (South) Limited (URS) to undertake a detailed archaeological investigation at Cuxton, Kent. The site was situated to the west of Rochester, on the northern side of the River Medway, directly to the west of the M2 Medway Bridge. This work formed part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL).

1.1.2 The archaeological Written Scheme of Investigation prepared by Rail Link Engineering (RLE), was agreed in consultation with English Heritage and Kent County Council (KCC) on behalf of the Local Planning Authorities.

1.1.3 The site is centred on URL grid point 52022 47484 and Ordnance Survey National Grid Reference 572000 167350. The combined area of the site measured approximately 700m (north to south) x 500m (east to west).

1.1.4 This post-excavation assessment incorporates results of the following Fieldwork Events:

- the evaluation (ARC CXT 97) in three phases
- the excavation (ARC CXT 98) in two phases (Areas A and B for URS and Area A1 on behalf of the Highways Agency)
- the watching brief (ARC 330 98).

Table 1: Fieldwork events Chainage 49+800 – 50+150

Fieldwork event name:	**Fieldwork event code**	**Type**	**Contractor**	**Dates:**
Cuxton Anglo-Saxon Cemetery	ARC CXT 97	Evaluation	MoLAS	17/04/97 to 28/04/97 Evaluation Phase 1 and 2
				08/07/97 to 09/07/97 Evaluation Phase 3
Cuxton Anglo-Saxon Cemetery	ARC CXT 98	Detailed excavation	MoLAS	24/07/98 to 21/08/98 Phase 1 (Area A)
				07/09/98 to 25/09/98 Phase 2 (Areas B and A1)
Area 350 Watching Brief	ARC 330 98	Watching brief	MoLAS	Early 1999

1.2 Geology and Topography

1.2.1 The site is situated on the south-facing slope of the Medway River valley, approximately 2km to the south-west of Rochester (Figure 1). The area of archaeology was confined to a flattish terrace, approximately half way down the side of the valley. This site commanded excellent views both up and down the Medway. In addition the site lies opposite the Nashenden Valley, which has been a routeway through the North Downs since prehistoric times (and still the route of the Pilgrims Way /North Downs Way). Within the archaeological site is a dry valley (Figure 3) and to the eastern side of the Medway M2 bridge (outside the limits of the works), is another dry valley.

1.2.2 The underlying geology is the Upper Chalk of Cretaceous age (Figure 2). The chalk bedrock is overlain by Hillwash Head deposits of Pleistocene and recent age. These deposits consist mainly of chalk fragments and light brown silt laid down by colluvial processes. In the dry valley that runs north-west to south-east these deposits are more silty in nature. The site was sealed by *c* 0.30m of topsoil.

1.2.3 To the north of the site is the A228, which is on the route of an ancient roadway along the Medway Valley (Roadway LIN40, SMR No. TQ76 NW144 No. Rochester, URL [Union Railways Limited] 1994), at approximately 50m OD. The archaeological site is at approximately 30m OD and the area of the site nearest to the River Medway is at approximately 6.5m OD (Figure 3).

1.2.4 The landscape of the area is dominated by a series of post-medieval chalk quarry pits. A fairly small quarry pit cut through part of the archaeological site, and two more (one filled in) occur further to the west. The site has also been truncated by the construction of the London to Chatham railway; a second railway (the Maidstone to Strood), passes on an embankment across the southern part of the area of excavation.

1.2.5 Dominating the site is the M2 road bridge crossing. This bridge, constructed in the 1960's, passes immediately to the west of the archaeological site on a series of piers. Part of the area of the archaeological site was stripped during the construction of this bridge, but the presence of Anglo-Saxon graves were not noted or the burials unduly disturbed (due to the depth of the burials in the chalk). Any burials that occurred beneath the bridge would have been destroyed.

1.2.6 Modern land use varied with the majority of the site under arable cultivation, with an area of rough pasture around a disused quarry. In Area B, north of the London to Chatham railway line, the land was waste ground, being very overgrown with shrubs and small trees.

1.3 Archaeological and Historical Background

1.3.1 The site was identified as having possible archaeological interest from a Sites and Monuments Record entry (URL 1994) that referred to an Anglo-Saxon grave with weapons that was found in the 19th century during the construction of the railway (but which railway was not specified).

1.3.2 In 1997 URL commissioned MoLAS to undertake a field evaluation (ARC CXT 97) consisting of 26 trial trenches. This work identified the main area of archaeological interest as being an area of Iron Age occupation and an Anglo-Saxon cemetery.

1.3.3 Following on, in 1998, a detailed archaeological excavation (ARC CXT 98) was undertaken (Areas A and B, Table 1). This included an extension of the CTRL archaeological works to incorporate adjacent Highways Agency M2 widening works (Area A1, Table 1). The investigation involved the area stripping of the site to expose all archaeological features cutting chalk bedrock, and locating a trench section across the dry valley. The results of this investigation were further evidence of Bronze Age to Iron Age activity and 36 Anglo-Saxon burials, for which an interim report (URS, 1999) was prepared.

1.3.4 In the general area there have been other archaeological finds. At Cuxton village there was a Roman burial (Tester, 1963) and evidence of earlier occupation including Lower Palaeolithic implements (Cruse, 1986).

2. ORIGINAL PRIORITIES, AIMS AND METHODOLOGY

2.1 Lines of enquiry

- The natural landscape, its geomorphology, hydrology, vegetation and climate.
- The changes to the landscape into humanly occupied spaces.
- The manipulation and consumption by humans of natural resources.
- The organisation of the landscape into social and political units.
- Ritual and ceremonial use of the landscape.
- The ways in which human populations moved through the landscape, including the organisation of communication networks.
- The economy of the human populations using the landscape including trade and contact with other populations.
- The influence of continental Europe on the human landscape. The CTRL provides a transect through Kent and along what have become major communication routes from the Channel to the Thames Estuary. Are there any patterns?

2.2 Research Objectives:

Hunter Foragers (400,000 BC – 4,500 BC)

- Define the nature of contemporary geomorphology and environment and its changes through time
- Define range of human activity and where it took place, particularly through the study of palaeo-economy
- What was the effect of climatic and environmental change on human lifeways and adaptive strategies?

Early Agriculturalists(4,500 – 2,000BC)

- Define nature of contemporary environment
- Determine nature and effect of clearance for agricultural activity
- Define ritual and economic landscapes and relationships
- Determine nature and changes in economic lifeways, eg relative importance of hunter-foraging and agriculture, studied especially through the recovery of faunal and charred plant remains.

Farming communities (2,000–100 BC)

- Determine spatial organisation of the landscape in terms of settlement location in relation to fields, pasture, woodland, enclosed areas and ways of moving between these
- Consider environmental change resulting from landscape organisation and re-organisation
- Determine how settlements were arranged and functioned over time
- Ritual and ceremonial use of the landscape.

Towns and rural landscapes (100 BC–AD 1700)

- What was the effect of the development of towns (e.g. London, Springhead) on the organisation of the landscape? Need to identify where towns were
- Did population increase and concentration effect natural resource exploitation and accelerate environmental change?

- How were settlements and rural landscapes organised and how did they function?
- How did the organisation of the landscape change through time?
- Consider the effect on the landscape of known historical events, *eg* the arrival of Roman administration

The recent Landscape (1700 – 1945)
- In what ways was local rural economy affected by Enclosure and agricultural intensification
- Consider changes in land use and organisation following construction of the railways
- Consider the defence of the Thames Estuary and North Kent during periods of threat eg Napoleonic Wars and World Wars
- Consider the effects of river(side) exploitation and trading locations

2.3 Landscape Zone Priorities

2.3.1 In light of the above the following Landscape Zone Priorities were identified.

Reconstruction of the changing palaeo-environment for all time periods present, through 'on-site' and 'off-site' studies, and the interaction with past economies.
- The interaction of hunter foragers with the natural environment
- Changes arising from the adoption of agricultural based economies
- The effects of 'urban' growth and decline at Springhead, and the adoption of Roman ways and organisation in general

Spatial organisation of the landscape, and changes through time
- The socio-economic landscape of later agriculturalists (2000-100 BC)
- The immediate pre-Roman – early Roman urban-rural landscape
  - Pre-Roman urban origins
  - The effect of the Roman administration on the established economic landscape
  - The impact and effect of the development of Roman Watling Street
  - Character, function and development of the rural urban fringe, and satellite uses
  - Urban economy – trade and exchange;

The late and immediate post-Roman landscape
- The decline of the urban economy and wider changes in the later Roman economy in general – how this is reflected in the archaeological resource, and its effect on rural settlement and economy
- 'town life or life in towns'

Ritual and ceremonial use of the landscape
- Saxon burial practice at Cuxton

2.4 Fieldwork Event Aims

2.4.1 The primary aims of the investigation as supplied in the WSI were;

- Provide information of Anglo-Saxon colonisation, land use and cultural affinities within the region, with particular reference to a) the Watling Street corridor, and b) the Medway as a barrier or means of communication, by:

- Establishing a chronology for the cemetery
- Establishing a sequence of development within the cemetery
- Determining burial practices as preserved by archaeological remains, including artefact assemblages
- Palaeo-demographic and palaeo-pathological analysis
- Recovering palaeo-environmental remains from ditches and other features
- Provide information on mid-late Iron Age land use, environment and economy

2.5 Fieldwork Methodology and Summary of Excavation Results

2.5.1 The methodology of the initial evaluation (ARC CXT 97) was to cut a series of 30m long trial trenches, using a tracked excavator, to a depth of 1.20m or until archaeologically significant layers or the underlying geology was reached. Archaeological features were half-sectioned and slots were dug across ditches and graves. This identified the area with significant archaeological potential.

2.5.2 For the excavation (ARC CXT 98, Figure 3), the area of high potential was stripped using a tracked excavator. The spoil was moved off site by dumper. Archaeological features were then plotted and subject to detailed 100% excavation and recording. This was the methodology in the WSI prepared by RLE and agreed with English Heritage and Kent County Council (KCC) on behalf of the local planning authority.

2.5.3 The only variation to the excavation was the inclusion of a further area of investigation (Area A1), located alongside the M2 Medway Bridge. This phase of excavation was funded by the Highways Agency, and carried out in advance of the A2/M2 Junctions 1 to 4 widening scheme.

2.5.4 The investigations found:

Late Bronze Age- Middle Iron Age 900BC to 300BC

2.5.5 Six large postholes formed a circular 'hut' *c* 4.0m in diameter and a large number undated postholes appeared to form an associated enclosure, which had a main entrance to the east. In the western side of the enclosure were two hollows containing significant deposits of burnt flint and charcoal, probably representing cooking areas. Some storage pits contained a large amount of pottery and fragments of daub but most contained no dating evidence of other material. The site also included a number of 'satellite' postholes concentrations, and a tree bole, containing Iron Age pottery.

Roman

2.5.6 Occasional finds of Roman date had been redeposited in some of the Anglo-Saxon graves.

Anglo-Saxon cemetery 7th century AD

2.5.7 The 36 inhumations (one probably died in childbirth/late stages in pregnancy) included males and females; 21.8% of the sample were juveniles. The finds suggest the cemetery was in use of c. AD580–700. The graves can be divided into several types.

Simple Graves

2.5.8 Twenty-four graves do not appear to have had an external structure.

'Tumulus' Graves

2.5.9 Eleven graves showed evidence for being surrounded by a penannular ditch accompanied by a posthole located between the terminals.

'Posthole' grave

2.5.10 One grave was surrounded by ten small postholes, forming a structure around and possibly above the grave.

Other features of note:

- One grave had an internal ledge.
- One grave had a broad slot in the base at the 'foot' end.
- One of the burials had flint nodule packing around the body.
- Four burials showed clear evidence for a wooden coffin (seen by dark rectangular stains).

2.5.11 Artefacts were recovered from 31 of the 36 graves in the cemetery. Metalwork is the dominant category and the finds mainly fall into the categories of dress accessories and weapons. Although in a typically 'pagan' location on high ground away from a settlement, the Cuxton cemetery can be seen as of Conversion period, with elements that are pagan or semi-pagan, and others that are possibly wholly Christianised. Most artefacts are of native origin, probably from Kent.

Medieval and Post-medieval

2.5.12 Field boundary ditches and plough strikes indicate agricultural activities. A possible road surface was found crossing the lower slopes of the site.

2.5.13 There was some 19th century landscaping of the hillside with terracing and infilling of the dry valley and chalk quarrying nears the area of the cemetery.

2.5.14 The only limitation to the data collection was the paucity of dating evidence recovered from the majority of the prehistoric postholes. This has had little overall effect on the interpretation of the stratigraphic sequence, as it has been possible to derive the approximate date of the features from stratigraphic and other relationships (section 3.1).

2.6 Assessment Methodology

2.6.1 This assessment report was commissioned by URS to the specification for assessment reports produced by RLE (CTRL Section 1 Archaeology: Post excavation Assessment Instruction no. 000-RMA-RLEVC-00030-AB), as discussed with English Heritage and Kent County Council. The production of this assessment report was managed by Gordon Malcolm and Niall Roycroft and specialist advice was provided by the Museum of London Specialist Services.

3. FACTUAL DATA AND QUANTIFICATION

3.1 The Stratigraphic Record

Natural deposits

3.1.1 The natural landscape consists of chalk bedrock which has been modified by periglacial erosion. There are several narrow gullies or cracks in Areas A and A1 that run north-west to south-east (Figure 4) which are probably caused by periglacial action exploiting weaknesses in the chalk.

Hillwash deposits

3.1.2 The landscape was further modified by hillwash deposits which were mainly recorded in the evaluation trenches (ARC CXT 97). These were formed by the downslope movement of material caused by a combination of water action and gravity. A major feature was a dry valley aligned north-west to south-east that was *c* 4.0m deep at the north-west end. Due to safety considerations it was impossible to obtain a full profile across the valley but it was possible to take 2 monolith samples in trial trench 1071TT (Appendix 14) and some bulk samples (Appendix 13).

3.1.3 In trial trench 1066TT, located close to the River Medway (Figure 3), a deep and sharply sloping chalk terrace was investigated by machine trench. Deposits were recorded to a depth of 5.40m, and were a combination of hillwash and alluvium laid down by the River Medway. Possibly in combination with the dry valley. This was the interface between the chalk terrace and the river floodplain.

Undated features (Figure 4)

3.1.4 A number of features, which were morphologically similar to Bronze Age and Iron Age contexts but containing no dating evidence, were recorded at the site. The majority of these features were postholes, with several larger features that were probably the bases of pits. A few of the features contained burnt flints possibly from cooking fires. Others features interpreted as tree root boles were identified, although it is not possible to say if these were a result of deliberate clearance.

3.1.5 In Area A there were six large postholes each over 0.40m deep. Although no artefactual dating evidence was recovered the spatial association of these features suggests that they formed a circular structure *c* 4.0m in diameter. In one of the postholes a large amount of burnt material was recovered. Stratigraphically this structure was earlier than an Anglo-Saxon grave and it is likely that this structure represents all that remained of a late Bronze Age/Iron Age hut. The hut was probably the source of large pieces of daub recovered from the nearby pits. Assuming that the daub originated for the hut it provides evidence for this hut having an external render of sandy mortar and possibly some decorative (or functional) mouldings round the door (Appendix 2).

3.1.6 No horizontal deposits survived, nor was there an eaves drip gully. This structure was located near to a concentration of postholes, also undated, that may have formed a larger enclosure to the east of the hut. It has been possible to derive a plan of the enclosure but, in the absence of dating evidence, it has not been possible to identify if more than one phase is represented. On the eastern side of the enclosure were two double postholes which may represent a gateway to the

main enclosure. Such structures – roundhouses with squarish shaped enclosures have been dated previously to the Bronze Age (Richard Bradley pers comm) but there was no dating evidence on the site (for example redeposited in later features) which matched such an early date.

3.1.7 The postholes became 'shallower' the further to the south they were found. This shallowness reflects a change from the terrace platform to the sloping valley side, and an increase in (modern) plough disturbed subsoil was noted. This evidence probably indicates there was either an unknown depth of 'ancient' topsoil in this area which also increased in thickness, whereas the posthole depth cutting was kept fairly constant or that the chalk slope has suffered more erosion than the terrace area.

3.1.8 The western side of the enclosure does not appear to be very well represented. However, in this area are two hollows in the chalk (probably tree boles) in which were found significant deposits of burnt flint and charcoal (Appendix 13 and Figure 4), which may be from fires near the enclosure.

3.1.9 Other concentrations of postholes may be the remains of other huts and enclosure structures although these are at present uncertain. The undated pits are presumed to have been external and thus provide some evidence for land use division. The shapes and absence of finds in these pits indicate that they probably had a grain storage function and had been emptied and deliberately backfilled. The impression of deliberate backfilling is given by the uniformity of the fills and the absence of finds. Finds would normally be expected to lie around the site and to have washed into the pits through natural forces. However, it could be that the site was very poor in ceramic and bone artefacts. It is also likely the pits are from different phases of use/occupation.

3.1.10 Recent work on the A2/M2 Road Widening Construction compound to the east of the Medway M2 bridge has revealed further areas of postholes and pits. This eastern area was more severely truncated than the western as it had been used for the original construction compound during the M2 bridge construction. However, there was sufficient survival to identify a number of large pits and a possible posthole enclosure. A few pits were also revealed further down the slope, towards the River Medway. None of the features contained any dating evidence, but it is very likely they all belong to the same prehistoric settlement as seen to the west of the bridge.

Late Bronze Age and Iron Age features 900 to 300 BC (Figure 4): Large groups of pottery of an Early Iron Age date, c *550/500-350/300 BC.*

3.1.11 This is the earliest dated phase on site. In Area B there was a large storage pit containing a large amount of pottery (Appendix 1) and fragments of daub (Appendix 2). A nearby concentration of postholes also contained some pottery. In Area A there was another large storage pit that contained early to middle Iron Age pottery. A tree bole in Area A has been included with this group of features as it also contained Iron Age pottery. This suggests that at least one tree was cut, or blown, down at this time. The pits and the presence of fragments of daub are evidence of nearby Iron Age buildings of a settlement such as a farmstead. For this reason it is likely that the pits are associated with the undated hut and enclosure feature above.

3.1.12 The date range for this farmstead is very extended, and it is likely that the site went through periods of development and decline. However, the long range of occupation is partly due to the nature of the dating evidence. The richness of

some of the pit assemblages, including significant amounts of daub, pottery, botanical remains, animal bones and burnt flint, compared with the barrenness of others appears to show the hut/enclosure site was cleared at least once.

3.1.13 The site never seems to have been very rich as no artefacts or ecofacts were recovered redeposited in contexts further downslope. It is not thought that horizontal truncation of the chalk had removed a significant amount of the more ephemeral features, although the truncation did increase towards the M2 bridge which has certainly distorted the picture somewhat. It is clear that all deposits not directly cut into the chalk bedrock had been removed.

Roman

3.1.14 The site revealed finds of Roman date re-deposited in some of the Anglo-Saxon graves. The finds show Roman activity in the area, possibly moving downslope from the routeway now under the A228 (1.3 above), or from manuring the fields.

Anglo-Saxon cemetery 7th century AD (Figures 5 and 6)

3.1.15 Most Anglo-Saxon cemeteries are located on high ground away, but visible from, the associated settlement (Lucy 2000, 152), perhaps at a distance of around 500m. The position of the Cuxton cemetery, on the terrace facing south-east (no graves occur where the site begins to drop towards the dry valley to the west) may indicate the direction of this associated settlement, on the eastern side of the Medway M2 road bridge. However, the potential area of settlement has probably been entirely removed by a modern quarry pit (named Cuxton 2, Figure 3).

3.1.16 In total thirty-six graves have been excavated for CTRL/Highways Agency. Further graves (at least the one on the Kent SMR) were disturbed when the London to Chatham Railway was constructed in the 19th century, and it is likely that another couple were truncated with the construction of the Medway M2 bridge. Recent work on the A2/M2 Road Widening has shown that the Anglo-Saxon cemetery did not extend to the east of the Medway Bridge, thus it has been completely defined. A total number of around forty graves may have once existed here.

3.1.17 Much of the bone in the graves was of a poor condition. The reason for this was deduced to be as a result of the extremely thin topsoil in the area. It seems to have been the case that the graves formed virtual 'bedding trenches' for larger shrubs and trees and, as a result the more shallow graves were severely disturbed by root action. In some cases, although bones and burials were identified and planned in the field, the occurrence of roots growing down inside the bones caused these bones to disintegrate almost entirely when lifted. The deeper burials were generally unaffected by tree root disturbance and remained in good condition. A second form of disturbance was in the form of rabbits, which had used the loose grave fills as burrows. It should be noted again that the cemetery was (re)discovered by the finding of scattered, disarticulated human bone which had been kicked out from a rabbit hole. The rabbit disturbance was confined to the hedgerow alongside the railway.

3.1.18 There was no obvious boundary to the cemetery, such as a ditch or fence line but this is not unusual, as the cemetery is defined by the topography of the chalk terrace. Where the valley side begins to slope steeply down to the south and west there are no further graves. Similarly at the back end of the terrace (where the present London-Chatham Railway is located and the land rises) there is a limit to the burial area. The total cemetery area is thus defined as being a maximum of *c* 90m x *c* 35m.

3.1.19 There is evidence (penannular ditches) that many of the graves had small tumuli raised up above them. The use of chalk to form these small mounds would have made them highly visible in the surrounding landscape.

3.1.20 The graves fall into three main categories based on external structures or the lack of them and are set out below.

Simple Graves

3.1.21 There were twenty-four examples where the grave does not appear to have had any external structure. Some of these graves were almost square in shape and, where bone occurred in these square graves it was extremely fragmentary due to root disturbance. Field records and measurements almost always appear to indicate a burial of small stature often lying on one side with the knees slightly flexed. It is therefore likely that many of these simple, square graves are of juveniles.

'Tumulus' Graves

3.1.22 There were eleven examples where the grave is surrounded by a shallow penannular ditch, usually accompanied by evidence for a posthole located between the ends of the ditch. The ditches are partly the result of excavation of material to upcast and to build small mounds or barrows over the graves. These mounds, being composed partly of chalk would have been visible from some distance. The postholes, where they survived, probably represent some form of marker post connected with the burial rite/interred individual (stating name and status etc).

'Posthole' grave

3.1.23 One grave was surrounded by ten small postholes for a structure around and possibly above the grave. Why only one burial in the cemetery was treated to this particular burial rite is not clear at present, but may be determined by further analysis of the finds and bone.

Internal structures/features

3.1.24 Other features included at least one other grave with an internal ledge. This is a fairly common feature of graves in Kent and may have to support a canopy or burial vault above the grave. One of the burials had flint nodule packing around the body; one ([214]) had a broad slot at the feet and four had had coffins or plank linings (remaining as dark rectangular stains).

Provisional phasing

3.1.25 Evidence from snail analysis showed that the penannular ditches were open and filled naturally (Appendix 12). Careful excavation and sampling for snails, which indicated a natural accumulation of material, showed that no ditch contained kerb stones or other evidence of revetting. If the graves were tended and kept clear of vegetation the mounds would have remained as distinctive features in the landscape for some time, however, it is probable, given the exposed nature of the site, that they collapsed quite quickly. Evidence for this was found in grave [280] which was partly truncated by burials [285] and [302]. This intercutting provides a clue for provisionally defining a series of burial phases based on grave alignment and type.

3.1.26 Within the cemetery there appears to be three broad grave orientations (Figure 6):

- North-north-west to south-south-east (head to north-north-west):15 burials

- North-west to south-east (head to north-west): 13 burials
- North-east to south-west (head to south-west): 8 burials

3.1.27 These provisional groups may represent different phases of burial within the cemetery. If the north-north-west to south-south-east graves are the earliest, and there is evidence for the grave [280] (north-north-west to south-south-east) being cut by [285] and [302] (both north-west to south-east), then it is possible to deduce a sequence.

3.1.28 This provisional phasing sequence can be seen on the site with the layout of the cemetery (Figure 6) with

- the north-north-west to south-south-east phase forming a 'dispersed group' across the terrace (note especially the positions of [263], [315], [280], [242], [240] and [261] forming an arc).
- Once the tumuli/markers of this group had partially collapsed a new group of tumuli (note especially the positions of [302], [296], 285], [217], [172] and [166]) are erected *behind them* (but are thus still visible from the south-east). This second phase of burial is concentrated in the western part of the site, but the leading graves still form an arc facing south-east.
- The third alignment, those that are more east to west ([190], [282], [305], 323], [164], [318], [357], [378], [367]), none of which are associated with tumuli or other external structures, are placed in 'front' of the others and spread along the front of the terrace. The more east to west alignment does not necessarily reflect an over-riding Christian influence; for example grave [164] contained a burial with shield and spear in the traditional manner and [305] is one of the richest graves on site.

3.1.29 No further graves were identified in the post-excavation assessment, but a sieved sample from grave [240], which contained a female, was found to contain some bones from an infant/neonate. This leads to the conclusion that the woman either died in childbirth or in the later stages of pregnancy.

3.1.30 There was only one instance of intercutting and then only of the ditches surrounding graves. This stratigraphic relationship could be explained by the previously noted differences in orientation represent different phases of activity in the cemetery (Figure 6).

3.1.31 Besides this example of intercutting it is not currently possible to define absolute phasing to the cemetery until a fully integrated analysis of the stratigraphic and artefactual evidence is completed. The finds suggest the cemetery was in use in the late 6th to late 7th century and further analysis may refine this date and highlight clusters of contemporary burials.

3.1.32 The level of bone preservation varied from good to very poor (Appendix 10).

3.1.33 The burial characteristics can be summarised in the following table:

Table 2: Burial characteristics ARC CXT 98

Notes: A: Adult, C: Child, F: Female, M: Male, Unk: unknown

Burial	External Structure	Grave Goods	Align-ment	Head at	Comments	Preservation (high/ medium/ low)	Complete-ness %
164	None	Yes	NE-SW	SW	A, M by finds	Low	40
166	Ditch and posthole	Yes	NW-SE	NW	A	Low	50
168	None	Yes	NNW-SSE	?NNW	A, ?F by finds	Low	20
172	Ditch and posthole	Yes	NW-SE	NW	C, ?M by finds, coffin	Low	50
178	None	Yes	NW-SE	NW	A	Low	50
186	None	Yes	NNW-SSE	?NNW	C, ?F by finds	Low	35
190	None	Yes	NE-SW	SW	A	Low	50
193	None	Yes	NW-SE	NW	A, M	Medium	90
210	None	Yes	NW-SE	NW	A, ?F by finds	Low	25
214	None	Yes	NW-SE	NW	A, F	High	90
217	Ditch and posthole	No	NW-SE	NW	C	Low	20
239	Grave fill	No			C	Low	10
240	Ditch and posthole	Yes	NNW-SSE	NNW	A,F coffin	High	40
242	Ditch and posthole	Yes	NNW-SSE	Unk	C	Low	20
246	None	Yes	NNW-SSE	NNW	A, ?M by finds,	Low	40
249	None	No	NW-SE	NW	A, M	Medium	90
261	Ditch	Yes	NNW-SSE	NNW	A, M	Medium	90
276	None	Yes	NNW-SSE	NNW	C, ?M by finds	Medium	10
280	Ditch	Yes	NNW-SSE	NNW	A, coffin	Medium	50

Burial	External Structure	Grave Goods	Align-ment	Head at	Comments	Preservation (high/ medium/ low)	Complete-ness %
282	Ditch and posthole	Yes	NE-SW	SW	Unk, no bone survived, ?coffin	None	00
285	Ditch and posthole	Yes	NW-SE	NW	Unk, no bone survived	None	00
290	None	Yes	NNW-SSE	NNW	Unk, no bone survived, coffin	None	00
293	None	Yes	NW-SE	NW	C, ?M by finds	Low	10
296	Ditch and posthole	Yes	NW-SE	NW	A, F	Low	60
299	None	Yes	NNW-SSE	NNW	A, M	High	80
302	Ditch	Yes	NW-SE	NW	A, ?crouched	Medium	40
305	None	Yes	NE-SW	SW	A, F by finds	Low	75
312	None	Yes	NNW-SSE	NNW	A, M by finds, flint packing	Low	10
315	Post-holes	Yes	NNW-SSE	NNW	A, M by finds, coffin	Low	40
318	None	Yes	NE-SW	SW	A	Low	25
323	None	Yes	NE-SW	SW	A	Low	25
357 (fill)	None	No	NE-SW	Unk	Unk, no bone survived	None	00
360	None	No	NNW-SSE	NNW	A	Low	40
363	Ditch	Yes	NNW-SSE	NNW	A, F	Medium	90
367 (fill)	None	Yes	NW-SE	Unk	Unk, no bone survived	None	00
372	None	Yes	NNW-SSE	NNW	A, M by finds	Medium	60
378	None	No	NE-SW	SW	A	Medium	75

Post-medieval features

3.1.34 No burials were interred in the cemetery after the late 7th century and the landscape reverted to open land probably used for agriculture. Dated features from the post-medieval period are the next archaeological features to leave an impression in the landscape. These include field ditches recorded in trial trenches 1067TT and 1074TT and in the watching brief (Figure 3). There was some landscaping of the hillside with terracing and the infilling of the dry valley. A possible road surface was found in the evaluation trenches 1070TT and 1077TT. These indicate that there had been subdivision of the land and that access through the landscape was necessary.

Modern features

3.1.35 Few modern features were recorded on the site as, when such features were identified no further investigation took place. A large cut, located near to the edge of the quarry in Area A, was investigated but it became apparent it was possibly a geotechnical pit. Other geotechnical pits were recorded in the evaluation ARC CXT 97. In Area B a large amount of modern truncation was identified but not recorded in detail. This truncation is possibly the result of landscaping connected with the use of the area as a municipal tip.

3.2 The Artefactual Record

Pottery

3.2.1 A large early Iron Age assemblage was recovered, the best group of which was recovered from a pit which also contained a large quantity of daub. This group included many partially complete vessels and was composed of both coarse wares and fine wares, including an unusual vessel which is possibly spouted or 'horned'. The combination of coarse and fine wares and the range of vessel types suggest the assemblage derives from domestic occupation. The presence of a possible spouted or 'horned' vessel may indicate continental contact (Appendix 1: section 4)

3.2.2 A smaller quantity of later Iron Age and Roman material was also recovered, although most of this was residual in later features.

3.2.3 Pottery from the cemetery phase included three complete Anglo-Saxon pots from three male graves, all dating to the 7th century. Two are locally made, one possibly imitating a Continental form. The third is an imported Frankish bottle of a type which is similar (but not identical) to many other examples found in Kent.

3.2.4 In addition there is one sherd of medieval pottery and two of 18th/19th century date recovered from the post-medieval phase.

Ceramic building material

3.2.5 A total of 5.085kg of ceramic building material from five contexts was examined for the assessment, comprising 4.79kg of daub and 0.295kg of tile. Roman material was noted in two Anglo-Saxon contexts, [213] and [242]. Daub was present in three contexts, two of which [342] and [383] have Early to Middle Iron Age pottery dates and the third of which ([105]) is from the cemetery phase. All context assemblages are small, with the exception of [342] and [383] which are respectively large and very large. The daub, which is well-preserved, was part of a wattle and daub structure, probably with a domestic function, which had been finished with a thin coat of mortar.

3.2.6 The very small tile assemblage consists of two fragments of Roman roofing tile, probably of 1st or 2nd century date.

Worked and burnt flint

3.2.7 Small assemblages of undiagnostic worked flint and burnt unworked flint were recovered from all phases.

Humanly modified and unworked stone

3.2.8 The six artefacts of, or including, worked stone form a small but important assemblage of late 6th or 7th century dress accessories. These comprised four beads (two of amethyst and one each of chalk and amber), a small cut garnet and a cabochon garnet mount on a silver buckle. In addition, there is part of a pendant, the poorly preserved mount of which may be of amber or bone.

Glass

3.2.9 The glass finds were all from the cemetery and forms a small but important assemblage of 42 beads and three mounts, two set in pendants; there is no vessel glass. Most beads were found in grave [214]. The majority is monochrome and of 7th century date (possibly 600 to 650); only one is decorated, but a piece of a reticella bead was reused in a pendant, while a loose mount is of blue and yellow marbled glass.

Metalwork

3.2.10 Metalwork forms the bulk of the finds from this site, and of these iron is the dominant category. All is from the cemetery phase and is implies a date range of AD 580–700. The finds mainly fall into the categories of dress accessories and weapons, but a few other personal items are present. The assemblage has many affinities with Saltwood and other Kentish sites, but differs in that there is nothing diagnostically Jutish or Scandinavian. The range of types, and the number of imports is also much smaller than at Saltwood. A needle case or container from female grave [305], however, may be a rare import from the eastern Mediterranean. Belt fittings in graves [261] and [282] may be of Frankish origin, or Kentish copies; the type being well known in Kent. The finds are mainly of English origin and are probably from Kent. Several composite objects are present, but most pieces are quite simple, and none of the most characteristic Kentish garnet jewellery is present. The general absence of this type (only two occurrences of garnets) may reflect the status of the site, or show that the assemblage mainly dates to the end of the garnet tradition.

Worked bone and shell

3.2.11 The worked bone finds are from the cemetery and form a small but important assemblage They include four composite items, these comprise two bone and iron pendants, apparently identical and so far unparalleled, and part of a double-sided comb with iron rivets. The poorly preserved mount in a third pendant may be of bone or amber. Also present is a bead made from a cowrie shell.

Organics

3.2.12 Mineralised organic matter is present on a number of items from the cemetery. Mineralised wood mainly occurs in combination with the iron of shields and spears. Mineralised textiles are present on shields and spears, on dress accessories and on other items. Some traces of leather were also observed.

Artefact summary

3.2.13 Artefacts were recovered from 31 of the 36 graves in the cemetery. All are stratified in Anglo-Saxon deposits and consistent with a date range of c.AD 580 to 700. Metalwork is the dominant category and the finds mainly fall into the categories of dress accessories and weapons. Although in a typically ‘pagan’ location on high ground away from a settlement, the Cuxton cemetery can be seen as of Conversion period, with elements that are pagan or semi-pagan, and other that are partly wholly Christianised. The site appears to broadly contemporary with others in and around Rochester (Watts Avenue, Star Hill, Eastgate, Cuxton and Strood, which may have played a role in the defence of the Medway as the northern boundary of Kent. A close parallel also exists to the north of the Medway at Polhill, in the Darent valley, where a similar range of the burial rites and associated artefacts was found. Comparisons and contrasts can also be noted between Cuxton and other sites in Kent. Aspects of the date, status

and cultural links of the site, and possibly its location away from Channel coast, are reflected by the range and numbers of artefacts.

3.2.14 Unlike Saltwood and other sites in Kent, there is nothing diagnostically Jutish or Scandinavian, and there is a general absence of both brooches and Kentish/Frankish garnet jewellery. Most artefacts are of native origin, probably from Kent, and compared to Saltwood, imports are comparatively few and limited in range. The glass beads, however, are probably from the Continent, while belt fittings in two male graves may be of continental (Frankish) origin or local copies. The amethyst beads and copper alloy needle case/container may be from the eastern Mediterranean; the cowrie shell is from the Mediterranean or Middle East.

3.3 The Environmental Record

Human Bone

3.3.1 The 36 inhumations from the Anglo-Saxon cemetery at Cuxton included males and females; 21.8% of the sample were juveniles. The condition of the bone was poor in 23 individuals (71.8%) and in only four burials (12.5%), was the condition regarded as good. Although in a minority of cases little remained of the buried body apart from a few teeth, truncation of the skeleton was generally minor. Thus, sixteen (50%) had 50% or more of the skeleton present and a further nine (28%) had more than 80% of the skeleton present. The burials appear to cover a tight time span and there is the strong possibility that they represent a few generations of an extended family.

3.3.2 Investigation of the two urns, mentioned in the interim report (URS 1999) as potentially containing cremations, found that they did not in fact, contain human cremations. Thus no cremations were recovered from the site.

Animal bone

3.3.3 The site at provided a total of 230 fragments weighing 0.83kg arising from nine contexts. Identifiable bones amounted to just over 50% of the hand collected assemblage and a mere 6% of the sieved collections. The former included a few bones that could be aged and/or showed butchery marks. There were no measurable or worked bones.

Molluscs

3.3.4 The site provided a total of 26 sample groups containing approximately 639 shells. These derived from bulk samples (residue and flot fractions) and column samples. The material included mainly terrestrial species with only a few fragments of marine shell, common mussel. There were no freshwater species. Although the assemblage included catholic, shade loving, open country and burrowing forms, catholic species provided only a minor component.

Charred plant remains and charcoal

3.3.5 Seven samples were examined for plant remains. One, sample <11>, from an Iron Age pit feature, contained an interesting charred assemblage of grains, seeds and chaff. The remaining samples were poor and dominated by modern root and moss fragments.

Geoarchaeological

3.3.6 The valley sediments sampled in trial trench 1071TT and the section through the dry valley represent a sequence of periods of landscape stability (when soil-

forming processes predominated) and instability (when erosion took place up-slope and sedimentation occurred in the dry valley). These:

- begin with the periglacial environments of the late Pleistocene
- followed by a period of soil formation (possibly early Holocene),
- followed by low intensity land-use (possibly Late Bronze Age-Iron Age-Roman),
- then a possible period of abandonment (perhaps Anglo-Saxon and medieval),
- followed by more intensive agricultural activities, which caused dramatic erosion and possibly modification of the landscape (post-medieval).

3.3.7 Unfortunately these episodes remain to be dated precisely but the sequence could reflect the archaeological episodes recorded on the nearby terrace.

3.4 Dating

3.4.1 No samples were taken on the site for specific dating purposes and no radiocarbon, dendrochronological, luminescence or archaeomagnetic dating has taken place for this assessment. However, it is recommended that radiocarbon (AMS) dating be carried out on the snail shells (Appendix 14: Geo-archaeology).

3.4.2 There is an adequate amount of charcoal for radiocarbon dating certain prehistoric, and otherwise undated features (such as the pits full of charcoal and burnt flint). However, the lack of directly associated features, and the probability of modern root and other organic contamination (due to the very thin topsoil) means that it is unlikely to be of great benefit to the project.

3.4.3 As a 200g bone sample (a femur) is necessary for radiocarbon dating, there are sufficient quantities of human bone for this technique, and it may be possible to use such dating to corroborate ideas about phases of burial. It is envisaged that around six samples would be needed to clarify the phasing. However, the first stage of this research must rest with a detail analysis of the finds material based on the three broad grave alignment groups, as there are no stratigraphic relationships with which to augment the basic ^{14}C results.

3.5 Archive Storage and Curation

3.5.1 The archive index has been updated and additional work is necessary on many of the finds (3.6) in order to prepare them for long term storage.

3.5.2 At present it is recommended that all the finds are retained at this stage to inform the next (analysis) phase of work, with the exception of:

- the burnt flint, which can be sampled,
- no further work is necessary on the Roman tile assemblage and can therefore be discarded
- all bulk samples but sample <11> may be discarded
- the monolith samples which should be set in resin.

3.5.3 Once the full potential of the assemblage has been realised then a review of the material can be undertaken in order to identify which parts of the assemblage need to be consigned to long term archive storage.

3.5.4 Under the terms of the CTRL Act 1996, all human remains are to be reburied.

3.6 Conservation

General

3.6.1 Once the finds came off-site, the objects were laid out to dry and packed with silica gel to ensure there was no deterioration. A phase of stabilisation of vulnerable/actively corroding small finds, X-radiography and the cleaning of coins for dating has been completed. This work mainly concerned five copper alloy artefacts (including 2 coins), two ceramic pots and five iron artefacts. A number of objects require further cleaning, stabilisation and re-packing in preparation to further analysis work being carried out on them.

Pottery

3.6.2 Conservation work on the pottery is complete and there are no further conservation requirements or implications for long term storage posed by further analysis.

Ceramic building material

3.6.3 The material is in good condition but care should be taken to store it in a stable environment of mid-range temperature and relative humidity, as the daub could be adversely affected by damp. The daub should not be put into long-term storage until the provenance and date has been established, as it may be necessary to do further analysis on the assemblage.

Flint

3.6.4 The material is appropriately packed for long-term storage. Some of the burnt unworked flint is in poor condition but good packing will help to support it physically and buffer its environment.

Stone

3.6.5 One amber bead, [186] <26>, has hairline cracking on the surface.

Glass

3.6.6 All the glass finds are stable and packed appropriately for archive.

Metal
Copper alloy

3.6.7 Nine copper alloy items (see below) have small areas where the copper alloy is corroding *ie* the surface has not formed a stable patina and the metal continues to oxidise to corrosion products. These spots are not advanced and the objects are not breaking up. The active spots are fairly typical with a small proportion of copper alloy artefacts from any site, but further treatment will remedy the situation.

3.6.8 Nine copper items are actively corroding and should be treated to stabilise them. These are as follows.

- [164.4] <7> Buckle
- [178] <3> Buckle
- [190] <134> Buckle
- [246G] <8> Buckle
- [282] <137> Buckle
- [282] <137> Buckle
- [282] <17> Mount

- [285] <126> Pin
- [290C] <6> Buckle

Iron

3.6.9 Iron always benefits from sealed storage with dry silica gel; if iron is not kept in very dry conditions, it usually deteriorates very fast. This gel was changed (*ie* substituted for regenerated bags), often at first then every six months, which is the standard period of time and usually sufficient. Only one iron item is at an advanced stage (but new storage arrangements have halted the deterioration); the other iron items are in various early stages of the slight metal corroding but the objects are not breaking up.

- [372] <85> should be actively treated as added.

3.6.10 Twenty-eight accessioned metal items that need no further conservation work are insufficiently supported for long term storage and need re-packing. These are:

- Iron [130] <261>, [190.4] <114>, [214.7] <50>, [240A] <53>, [240B] <56>, [240C] <51>, [240D] <59>, [246A] <46>, [246E] <52>, [261] <57>, [285B] <68>, [290D] <67>, [293] <63>, [293] <66>, [293] <71>, [296] <77>, [296] <78>, [305C] <89>, [305F] <87>, [315A] <84>, [315G] <86>, [48] <246B>, [54] <214.7>, [72] <299C>, [73] <293>, [96] <312>, [261] <131>, [367] <107>.

Bone and shell

3.6.11 All five of the bone and shell finds should be repacked. The comb and pendants should have plastazote mounts within the boxes to protect them from over-handling, because of their extreme fragility. Two items should ideally be packed, enclosed with silica gel, as in these cases the iron component is all that is keeping the object together.

Organics

3.6.12 Fully mineralised items or impressions in the corrosion product can be stored as metals, enclosed with dry silica gel. Where true organic material survives, stable mid-range environmental conditions will be necessary to conserve this for future examination/analysis.

3.6.13 This approach may affect the survival of the metal element of these artefacts in the long term, but where there is good survival of mineral preserved organics, their rarity makes this approach a valid risk to take. Conducive environmental conditions; physically protective packaging and storage/display in stable temperatures and humidities will assist greatly.

Human bone

3.6.14 The material does not require any conservation work for the purposes of long term storage as, under the terms of the CTRL Act 1996, all human remains are to be reburied. The material is appropriately packed for medium-term storage during the period of analysis.

Geo-archaeology

3.6.15 Further analysis of the monolith samples is likely to be destructive and long - term storage of these samples would not be appropriate. It is recommended that whatever remains of the monolith samples after the analysis stage should be discarded.

3.7 Archive Index

Table 3: Archive index, ARC CXT 98, Area 350 Zone 6

Item	Number Of Items or boxes or other	No of Fragments or litres or weight	Condition (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
ARC CXT 98, Area 350 Zone 6			
Contexts records	282		I
A1 plans	-		
A4 plans	110		D
A1 sections	-		
A4 sections	3		
Films (monochrome) S=slide; PR=print	5 PR		I
Films (Colour) S=slide; PR=print	5 S, 2 PR (+ second set)		I
Small finds	(190) See below		
Stone (boxes)	Registered finds boxed together: 3 size 1; 6 size 3; 3 size 4; 1 size 5; 1 size 6	5	I
Metalwork (boxes)		140	I
Glass (boxes)		43	W, I
Bone and shell (boxes)		2	W, I
Lithics (boxes)	2 boxes size 1	17	W, I
Burnt flint (boxes)	See lithics	9.32kg	W, I
Pottery (boxes)	4 size 1; 2 size 2	267	W, M, I
Fired clay (boxes)	1 size 1	4.79kg	W, I
CBM (boxes)	1 size 1	0.30kg	W, I
Human Bone (boxes)	7 size 1; 7 size 2	35 individuals	W, I
Animal Bone (boxes)	1 size 1	230	W, I
Molluscs	1 size 1	639	P, I
Flora	See animal bone		P, I
Flots	1 size 1		P, I
Misc.	1 size 1		P
Soil Samples (10 lit. buckets)	14		P - 50%
Soil Samples (no. of contexts)	13		
Soil Samples (Monolith/kubiena tin)	2		

Quantification of Finds by volume Zone 6 (ARC CXT 98)

Description	**Capacity**	**No.**	**Total Volume**
Shoe box (size 1)	0.0108m^3	22	0.2376 m^3
Skeleton box (size 2)	0.0311m^3	9	0.2799 m^3
Large Stewart box (size 3)	0.0154m^3	6	0.0924 m^3
Medium Stewart box (size 4)	0.00773m^3	4	0.03092 m^3
Small Stewart box (a) (size 5)	0.00226m^3	1	0.00226 m^3
Small Stewart box (b) (size 6)	0.00367m^3	1	0.00367 m^3
Total			0.64675 m^3

4. STATEMENT OF POTENTIAL

4.1 Summary and assessment of quality and potential

Stratigraphy

4.1.1 The stratigraphy is the basis of the site sequence, which underpins all further work and analysis. The production of a subgroup matrix and definition of groups resulted in the identification of several distinct phases of activity, which have varying amounts of potential.

- Provide information on the Iron Age land use, environment and economy

Land clearance

4.1.2 It seems reasonable to say that the site was cleared of mature trees in advance of the prehistoric occupation (one tree bole contained pottery, two other tree boles had been re-used as hearths). This clearance can therefore be dated to the Late Bronze Age/Early Iron Age. Once the area was cleared, erosion forces/settlement use would have quickly stripped much of the overlying soils, and it is very unlikely that substantial trees would have been allowed to grow again on the terrace (the site was obviously clear of trees again in the Anglo-Saxon period for the cemetery use).

The undated (probably prehistoric) features

4.1.3 These consist mainly of postholes, some possible pits and a posthole enclosure structure. Being undated means they have limited potential for further analysis unless they can be associated with other features. The potential will increase if comparable structures can be identified from published sites excavated in the area and along the Medway Valley. In this area of the CTRL works an early/middle Iron Age enclosure of posthole construction has not been found.

The dated Bronze Age to Iron Age features

4.1.4 These have some further potential for defining land use and understanding of the economy, but it is limited by the small number of actually dated features revealed, ie the three pits and a few postholes. The two main pits are actually dated to c 550/500 – 350/300BC which may represent the most active phase of this site. The potential will increase if these dated features can be related to the undated features by comparison to other sites.

4.1.5 It is possible that the posthole enclosure at Cuxton is Iron Age, and would have been a ditch were it not for the high chalk bedrock. This main enclosure is presumably a stock pen, rather than a defensive arrangement. Other features have been interpreted as pit areas, fencelines and possible huts (one with a hearth), and it may be possible to reconstruct the layout of the site and identify areas of use. For example, all of the dated pits occur to the west of the site, the hut/enclosure appears in the middle, the main (open area) hearths appear to the south of the hut etc.

Work to the east of the M2 Medway road bridge

4.1.6 Recent work to the east of the M2 Medway road bridge has found more (undated) evidence for this settlement. We can therefore assume that the majority

of the settlement site (that survived) has now been recorded, so the potential for comparison with other published sites increases significantly. This is especially true as dated posthole enclosures are often attributed to the Bronze Age.

Economy

4.1.7 The area of the site is fertile, thanks to colluvial soils on the gentle valley slopes, and is well watered from a (now) dry valley to the west (Figure 4) and a dry valley to the east of the Medway M2 road bridge. Most of the pits identified in the prehistoric settlement had the size and shape for grain storage pits, and the main potential for identifying their function comes from the assemblage in sample <11> (most of the pit samples did not contain useful material). The siting of storage pits implies a permanent settlement.

4.1.8 The main enclosure was almost certainly for stock (the site does not show any real attempt at defence), and the animal bone assemblage shows examples of ox and sheep/goat.

4.1.9 The general lack of domestic finds suggests an element of 'poverty', where resources from the nearby woodland (Merrals Shaw) would have probably been exploited for general use materials, and there was no real need/desire to trade for substantial amounts of pottery or metal goods. This is notable as the prehistoric settlement at Rochester was only a couple of kilometres to the north and the site is close to the banks of the Medway, so trade/communication would have been easy if required. No items of jewellery or obvious evidence for 'ritual activity' were found.

The Anglo-Saxon cemetery

4.1.10 The stratigraphy in conjunction with the finds and human bone analysis has the potential to answer the following Fieldwork Events Aims;

- *Provide information of Anglo-Saxon colonisation, land use and cultural affinities within the region, with particular reference to a) the Watling Street corridor, and b) the Medway as a barrier or means of communication, by:*
  - Establishing a chronology for the cemetery
  - Establishing a sequence of development within the cemetery

4.1.11 The cemetery is easily identifiable as the graves cut directly into the natural chalk. The almost total lack of intercutting means there are no contaminated contexts. The only intrusions noted were disturbance caused by root action and occasional animal burrowing. There is thus a major potential for comparison with other published sites in the region such as at Polhill in the Darent valley, and those of Rochester, notably Watts Avenue and Star Hill, Eastgate.

4.1.12 A potential chronology and development, based on grave type and orientation has been suggested but, due to a lack of intercutting and a closeness in date for the entire cemetery assemblage (c AD580 – 700) it is, at this stage, difficult to establish a perfect sequence. However, there is the potential, through detail comparison of the provisional phasing with the finds assemblage (referencing probable 'heirloomage' etc), and combining results from radiocarbon dates, that a realistic cemetery sequence can be achieved.

  - Palaeo-demographic and palaeo-pathological analysis

4.1.13 The use of DNA analysis may also contribute to the potential realisation of identifying family groups and perhaps help to trace a number of generations buried on the site. DNA profiling would also help identify the palaeo-demographic origins of this group. This would be in conjunction with the finds,

which, while mostly Kentish in origin, appear to show affinities to the Frankish Kingdoms, rather than Scandinavia or Denmark. An important area for study is to the extent to which the native populations adopted the Anglo-Saxon lifestyle and traditions. Almost all cemeteries of the Anglo-Saxon period show evidence for the Anglo-Saxon population in terms of grave goods. However it is most unlikely that all the people buried were of, or descended from, the 'occupying population'. It is quite likely that, by the time of the Cuxton cemetery the population was extremely mixed. Is this theory reflected in the DNA results?

4.1.14 Many of the male graves contained weapons, the rapid scanning of the human remains has not identified any obvious pathologies associated with warfare/battle. It is not thought that this is a conquering, warring, group but a small, settled community probably concerned with farming. There is a cluster of Anglo-Saxon sites in this area of the Medway, presumably operating as satellites in association with Rochester. This potential connection with Rochester, in terms of trade and supply should be examined further.

- *Provide information of Anglo-Saxon colonisation, land use and cultural affinities within the region*

4.1.15 Numerous Anglo-Saxon cemeteries have been identified in the area, and there is a great potential for attempting to identify the areas of control each of these groups had. This could be done by comparing the dates and spatial distribution of the burial grounds (cemeteries were theoretically within site of the associated settlement - perhaps up to 500m distant), and the number of individuals in these cemeteries. It is already clear from the cemetery distribution that the Medway formed a clear communications corridor into Kent, and can be readily compared with the settlements/burial sites in the Darent, Thames and Wandle river valleys.

4.1.16 The Cuxton Anglo-Saxon Cemetery does not really seem to associate with the Watling Street corridor, which passes from Cobham to Rochester and then south to Maidstone. The site may be associated with a track/route that passes down the western side of the Medway Valley, but this can not as yet be proved.

- Determining burial practices as preserved by archaeological remains, including artefact assemblages

4.1.17 The apparent changes in burial alignment, the clustering of graves and presence of structures in the cemetery are all features previously noted at Anglo-Saxon cemeteries in Kent. The date of the cemetery places it in the Conversion period when there was the final move away from more pagan practices to Christianity. Correspondingly there are no diagnostically Jutish or Scandinavian finds from the graves. Although mainly of local origin some of the finds recovered suggest trade links with the continent, with Frankish buckles, a Frankish pottery bottle and some glass beads. There is some evidence from further afield, with a needle case from the eastern Mediterranean, and a cowrie shell from the Middle East/ Mediterranean.

4.1.18 The apparent preservation of four coffin shapes is significant and will highlight on coffin construction (for example, no nails were used), shapes and techniques. It is possible that, as one of the burials was overlain by flint nodules, this individual may not have been buried in a coffin. It is possible there may be a connection with the coffin and 'status', age at death or phase of the burial. Although no connections are obvious at the moment – the coffin could simply be an accident of survival, it is sometimes possible to identify the burial arrangement by the position of the body; for example:

- Shroud burials often have the arms extended with hands beneath the hips
- Coffin burials are usually supine with the hands across the stomach area
- Sometimes the individual has been compressed into the coffin which is too small, and this shows in the positions of the shoulders and knees
- Perhaps the burial has slumped against one side of the coffin during interment.

4.1.19 There is certainly potential for detail study of the recorded burial practices. It would be unusual for shrouded/naked burials to occur at this period, as it is clear that most of the individuals were buried richly clothed (as seen by the material survival in the metal corrosion products, Appendix 8), and with accessories. In addition to this point, it should also be noted that:

- some burials were interred slightly flexed, lying on their sides (probably showing an absence of coffin/tight shroud)
- some of the internal structures may indicate the construction of wooden 'tombs/vaults'
- five burials were unaccompanied by (surviving) grave goods

4.1.20 Stratigraphically, comparison/contrast with the contemporary Anglo-Saxon CTRL site at Saltwood should be noted. The main interests lie in the differences between the sites:

- The Saltwood site is generally regarded as richer than Cuxton in terms of grave goods (and therefore richer in terms of lifestyle), but is significantly poorer in terms of human bone preservation.
- The Saltwood cemetery must have been associated with a larger form of settlement than Cuxton, judging from the greater number of burials. The Saltwood settlement was, potentially, a re-occupation/continuation of a Roman and prehistoric occupation. Cuxton seems to represent an extended family unit (or small group of families) farming an area away from a settlement focus (but probably supplying Rochester with market goods).
- Both sites re-use areas of prehistoric activity, but in the case of Cuxton this appears to have been co-incidence, whilst at Saltwood this appears to have been deliberate.

4.1.21 The main focus for comparison may come from DNA profiling to try and establish the palaeo-demographic origins of the two populations (but this might not be possible at Saltwood) and to see whether this is reflected in the finds assemblage.

The post-medieval features:

4.1.22 The few features have limited potential to define the nature of activity during the post-medieval period. Three field boundaries orientated from north to south indicate the presence of four fields during the post-medieval period (Figure 3). The general widths of these field can be calculated and plough strikes indicate the direction of ploughing. A road orientated from south-west to north-east passed across the lower part of the site during this period (parallel to the modern trackway which lies further up the slope, Figure 3). This road has to be either a farm track or the post-medieval routeway down this side of the Medway Valley. It is possible that this road may be a late version of an earlier routeway.

4.1.23 The impact of the 19th century railway and chalk quarry activity can be seen in the filling in of the dry valleys and the re-grading dumps on the lower slopes of the Medway valley side.

Artefacts

4.1.24 The size, condition and character of the early Iron Age assemblage means it has potential to contribute to studies of Iron Age land use patterns and economy. The assemblage is also important for ceramic studies of this period and has the potential to provide information on the fabrics and forms in use and to compare these to the few other groups from the region. The presence of an unusual form, a possible 'horned' bowl, may indicate continental contact.

4.1.25 The daub assemblage has good potential to provide some information on the Iron Age structures on the site. The potential of the very small Roman ceramic building materials assemblage is probably limited to providing evidence of Roman activity in the immediate vicinity, and some information on the distribution of Roman tile fabrics in north Kent

4.1.26 The Anglo-Saxon pottery and other finds have the potential to inform on the sex, wealth, status and cultural affinities, dress, burial rituals of the Cuxton community. They will also support the chronology for the burial sequence on the site, which mainly fall within the Conversion period.

4.1.27 The finds can be used to:

- relate the site to others in the locality and with them,
- to consider the role of the Medway as a boundary/communication route,
- assess how this was defended in the 6th and 7th centuries (by site location)
- assess how communications networks may have changed in the 7th century.

4.1.28 Within the wider context the finds can be compared and contrasted with others contemporary sites in Kent, and those between Dover/Folkestone and London, to consider how socio-economic and political factors such as cultural groups and marketing are reflected by site location, assemblage composition and dating. They have the potential to contribute to the formulation of a sequence and chronology for the cemetery, especially when combined with the provisional phase groupings. At present there appears to be so much overlap with the individual grave assemblages, that the picture is far from clear.

4.1.29 The organic and textile remains (found associated with the metal finds) have considerable potential to inform on the burial rituals and on contemporary dress, as well as wider issues such as exploitation of the landscape.

Environmental

4.1.30 Despite the general poor condition of the bone itself, the individual skeletons were reasonably complete and, hence the potential for demographic analysis and palaeo-pathology is high. Detailed analysis, following reconstruction, will allow diagnosis of age, sex and pathology not evident during the original scanning of remains.

4.1.31 The burials appear to cover a tight time span and there is the strong possibility that they represent a few generations of an extended family. Despite fragmentation, there is a good chance that non-metric traits registered on the bone will support close family relationship. DNA analysis could (possibly) then confirm genetic relationship.

4.1.32 The sediment sequence obtained from the monolith samples has potential to be compared to the archaeological evidence for occupation on the site and in its

environs, in order to examine possible inter-relationships between human settlement and landscape change.

4.1.33 The molluscan assemblage provides potential for study of local habitats. The terrestrial fauna derives from a mixture of habitat preferences ranging from open country to more shaded situations. Analysis of species composition and relative abundance will indicate spatial and temporal changes and may allow consideration of changes in local land-use. Only one marine mollusc (mussel) was identified and this was from one of the lowest layers in the column sample from the dry valley. It is therefore possible this derives from the prehistoric occupation site on the high ground immediately to the east and would therefore help to date the sequence.

4.1.34 The small animal bone assemblage (230 fragments) has some potential for analysis, particularly with regard to the Iron Age and Saxon material. Although the recovery of evidence for age-at-death and butchery is limited, there is sufficient material from the major domestic mammals, particularly ox and sheep/goat, to consider the dietary implications of carcass-part representation. Identification of the frog/toad and small mammal bones from Early Iron Age pit [342] may indicate to some degree, the nature of the local habitat.

4.1.35 Only one sample <11> from an Iron Age pit has further potential for further analysis. This will provide information on the cultivation and consumption of cereals.

4.1.36 The sediment sequence already obtained from the monolith samples has potential to link landscape change to human activity in the area, by comparison with the archaeological evidence for occupation on the site (based on ceramic evidence) and environmental evidence for landscape change (based on mollusc evidence).

4.1.37 The sequence should also be compared to similar sequences for other parts of the CTRL route and to the nature and chronology of valley sediments studied elsewhere in the area (for example that of ARC TGW 97, Area 330 Zone 3 and in the Nashenden Valley ARC NSH98, Area 350).

4.1.38 Further sedimentological work on the monoliths (magnetic susceptibility and loss on ignition) may be able to confirm and add more detail to the reconstructions of landscape change proposed in the assessment. In particular, it may be able to identify periods of soil formation and landscape stability in the profile.

4.1.39 Such comparison could only take place if dating of the geoarchaeological evidence was available. No ceramic dating evidence was recovered from the contexts sampled. However, as discussed in Appendix 14 and section 3.4.1, it may be possible to date the snail shells from both the monolith and snail column samples by AMS. This should allow at least an outline chronology to be established.

Conservation

4.1.40 Except where otherwise specified, the accessioned finds are stable and packed appropriately for long term storage.

Stone

4.1.41 Buckle [246] <8> has been identified for cleaning prior to illustration/photography. The metal element should be lacquered, post-cleaning.

The [214] <27>, amethyst beads are encrusted with chalk and should be gently cleaned and repacked prior to illustration/photography.

4.1.42 One amber bead, [186] <26>, has hairline cracking on the surface. Gentle cleaning, then minimal application of consolidant to the surface could assist. However, this object should be reassessed at the time of application to determine whether this is necessary – supportive repacking may be sufficient to protect it from over-handling and deterioration.

Composite

4.1.43 One item [214.10]<41>, composite copper and glass, was identified for surface cleaning prior to photography. The copper element should be lacquered, post-cleaning.

Metal

4.1.44 All of the metal artefacts have been X-rayed. Where any detail needs to be clarified a further X-ray image might assist.

4.1.45 Nine copper alloy items require further treatment to attempt to stop corrosion.

4.1.46 All the ironwork is should continue to be packed in dry silica gel. Twenty-eight iron objects need to be re-packed. Twenty-seven other registered metal items would need conservation work prior to recommended illustration/photography. This would involve re-adhering and support fills for broken parts in some cases, cleaning and subsequent treatment in others, repacking in most cases, as appropriate for long term storage.

4.1.47 Further analysis is recommended on four metal accessioned items to identify metal elements present on their surfaces:

- [261] <140> and <148> - two stud fittings of identical design - X-Ray Flourescence (XRF) to confirm if any solder on the inside, to determine how these were attached.
- [261]<127> Disc - XRF to confirm the identity of the metal.
- [282]<137> Buckle – XRF to determine any silvering or gilding on surface and XRF (or if possible X–Ray Diffraction XRD) to identify white fill mineral packing back of buckle.
- [285]<126> Pin - XRF to determine if any gilding on surface.

4.1.48 Three metal items were identified for further cleaning to investigate their construction. Treatment is necessary post cleaning. These were:

- [193]<14> Lace chape
- [261]<12> Lace chape
- [285]<126> Pin

Bone and shell

4.1.49 All five of the bone and shell finds should be repacked. One item, [214.11] <44>, has been identified for cleaning, prior to illustration/photography.

4.2 Overall statement of potential

4.2.1 The principal site data contributes to the following Time Periods as defined in the CTRL Archaeology Research Strategy and their Research Objectives:

Farming communities (2,000–100 BC)

- *Determine spatial organisation of the landscape in terms of settlement location in relation to fields, pasture, woodland, enclosed areas and ways of moving between these*

The site shows potential for:

4.2.2 Dated woodland clearance in the Late Bronze Age to Early Iron Age.

4.2.3 Settlement location in the landscape, found and implied exploitation of the landscape in terms of arable, pasture and woodland (through animal, plant and stratigraphic evidence). It is interesting that the only evidence for the use of marine/river resources was limited to a single mussel shell in an otherwise undated context in the base of the western dry valley.

4.2.4 The main Iron Age enclosure had an entrance approached from the east. It is not suggested that this formed part of a major routeway, but a track passing along lower ground (as seen by the post-medieval trackway) parallel to the river Medway would be expected.

- *Consider environmental change resulting from landscape organisation and re-organisation*

4.2.5 It has been stated that it is unlikely that mature trees were allowed to re-grow on the terrace on the hillside after they had been initially cleared. Other effects can not be determined.

- *Determine how settlements were arranged and functioned over time*

4.2.6 The site has good potential for analysing the layout of the various settlement parts, including the main enclosure, main building, subsidiary enclosures and buildings and areas of pitting. It is likely there is a degree of development and contraction on the site but this can not be traced due to a lack of dating evidence.

- *Ritual and ceremonial use of the landscape.*

4.2.7 No evidence for prehistoric ritual or ceremonial use of the landscape was found.

Towns and rural landscapes (100 BC–AD 1700)

- *What was the effect of the development of towns (e.g. London, Springhead) on the organisation of the landscape?*

4.2.8 The nearest Roman town to Cuxton was Rochester. Satellite farms can be expected to have lined the Medway valley during the Roman period and recent studies (CTRL Landscape document 2001) have suggested that these farms may occur at a distance of approximately 2km to 2.5km distance from the town. The Cuxton site was almost certainly part of a Roman estate but the only Roman finds were residual in Anglo-Saxon graves, and were therefore probably in the topsoil when the graves were dug. The finds are likely to have been deposited on the fields during 'manuring' in the Roman period. A small occupation site is noted on the Kent SMR a short distance to the east of the Medway bridge.

4.2.9 Rochester was also an Early Medieval town and a small 'satellite farm' was established near to the Cuxton cemetery site. This was probably located to the east of the Medway M2 bridge, perhaps not far from the earlier Roman site (detail examination of the Kent SMR may shed further light onto this). The Cuxton site ARC CXT 98 was partly used as a cemetery. The cemetery area was convenient, visible and commanding. It is assumed that the rest of the excavated areas were farmed land but there is no evidence for this.

4.2.10 The implied location of the settlement and the location of the cemetery, combined with the previously existing archaeological information for this part of the Medway valley gives a good opportunity to address the influence of the farms/settlements on the organisation of the landscape.

4.2.11 It appears that the cessation of burial at Cuxton coincides with the establishment of a Bishop at Rochester (c AD695). This may mean that the landscape was reorganised at this time, with rural populations being required to use local parish churches for the burial of the dead.

- *Did population increase and concentration effect natural resource exploitation and accelerate environmental change?*

4.2.12 No evidence for population increase and accelerated environmental change was found.

- *How were settlements and rural landscapes organised and how did they function?*

4.2.13 It seems that the Cuxton site was used for burial of an extended family unit or a small group of families, associated with a 'farm'. The distance from Rochester probably meant that the farm produced goods for the main town. It is likely that the people buried on the land owned or controlled it. The distribution of similar burial/settlement sites in the upper Medway Valley should be mapped to see if any patterns emerge as to spheres of influence and areas available for exploitation.

- *How did the organisation of the landscape change through time?*

4.2.14 The site was presumably farmland during the Roman period, a cemetery and farmland between AD 580 and 700, and then reverted to 'farmland' for the rest of the period. Post-medieval field systems show farmland in the ?17th to 19th centuries.

4.2.15 Analysis of the Anglo-Saxon cemetery at Cuxton has considerable potential to inform the debate about the conversion of the Anglo-Saxon population to Christianity. Most of the burials have been dated to the 7th century when pagan beliefs and burial practices were being replaced by more prosaic Christian practices. The evidence excavated at Cuxton suggests that pagan practices continued here until, at least, the end of the 7th century.

4.2.16 Spatial analysis of the stratigraphy, finds and human remains from the Anglo-Saxon cemetery phase will allow correlations to be made between factors such as:

- bone condition
- sex (male, female, juvenile)
- individual finds such as spears, shields, knives
- status of individuals based on finds assemblages (weapons or domestic)
- dating

4.2.17 Further analysis and comparison with other excavated examples of finds such as the glass beads, the cowrie shell, the needle case and the Frankish buckles will allow conclusions to be drawn about the local population and its trade links with the continent and further afield.

4.2.18 Although there are significant differences between the two sites, some comparison between the Cuxton site and the CTRL site at Saltwood, Hythe will be useful. Differences in the location and assemblage composition of the two sites (and others near them) will help to understand the implications of these differences. Does the marked contrast between the range and numbers of 'luxury' goods at Saltwood (eg. brooches, buckets, Coptic bowls) and the scarcity of such items at Cuxton reflect status or the size and location of the associated settlement sites? Cuxton may appear poor by comparison with Saltwood, but it was possibly of some standing in the local area, a few finds are of a relatively high quality, while one is potentially unique.

4.2.19 The use of grave markers and structures such as mounds and penannular ditches all have the potential to define the status and place of Cuxton in its wider landscape. The cemetery was prominently located and many of the burials were obviously marked. If the suggestion of principally pagan practices as indicated by the finds is borne out by further analysis, the prominence of the burials has potential to comment upon the status and acceptance of pagan beliefs during the 7th century which is seen as the period of conversion to Christianity.

- *Consider the effect on the landscape of known historical events, eg the arrival of Roman administration*

4.2.20 The effects of known historical events on the landscape can not be determined. Clearly the area was used as a cemetery in the Anglo-Saxon period. It may be possible to consider the effects on the *native population* of the arrival of the Anglo-Saxons, referring to the adoption of Anglo-Saxon ways of life and styles.

Additional

4.2.21 The plans and photographs of the individual burials and associated finds assemblages provide potential to illustrate the results of analysis. This will be aided by the quantity and quality of the finds, which, combined with the relative simplicity of the sequence demonstrates a key site in any wider CTRL archaeology publication.

4.2.22 In conclusion the Anglo-Saxon cemetery at Cuxton is of local importance with its relationship to Rochester and its hinterland, and of regional importance as one of a large number of Anglo-Saxon cemeteries excavated in Kent. It should also be noted that the period of conversion to Christianity is a nationally important research aim and the site should contribute to this aim significantly.

4.2.23 Additional work would involve aims such as;

- To establish any correlations between the various elements of cemetery activity such as alignment, dating, sex and individual burial rites.
- To use DNA mapping to identify any family groupings
- To use ^{14}C radiometric dating to corroborate ideas about phases of burial
- To establish the nature of the cemetery by the use of regional comparanda
- Detail analysis of the finds assemblage in order to try and augment any ideas on chronology, trade, lifestyles and burial sequences
- Detail analysis of the human bone assemblage with reference to:
  - Preservation

  - Demography
  - Status and Physique
  - Health of the populace
  - Child growth and development
  - General pathology
  - Genetic and cultural relationships
- Further conservation works to prepare the material for further analysis and archive curation.
- To study in detail the early Iron Age site in the context of the lower Medway valley, which would involve searching the published sources and the Kent SMR.
- To study in detail the Anglo-Saxon site in the context of the lower Medway valley, which would involve searching the published sources and the Kent SMR.

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6. ACKNOWLEDGEMENTS

This assessment report was prepared by Tony Mackinder and Niall Roycroft, with the following MoLSS specialists; Liz Barham (conservation), Lyn Blackmore (Saxon pottery and registered finds), Jane Corcoran (geo-archaeology), Lisa Gray-Rees (botany), Alan Pipe (animal bones and molluscs), Susan Pringle (ceramic building material), Louise Rayner (prehistoric and Roman pottery), Bill White (human remains). The plans were by Sophie Lamb and Kate Pollard of MoLAS. OS information was supplied by URS. The work was project managed by Niall Roycroft and Gordon Malcolm.

APPENDIX 1: ASSESSMENT OF POTTERY

Lyn Blackmore and Louise Rayner

1. Introduction

1.1 Ceramic finds were recovered through hand excavation of 100% of all features on the site. A single pit that was half sectioned during the evaluation phase was subsequently fully excavated. The majority of the pottery recovered came from a series of early Iron Age rubbish pits with very rich assemblages. A number of complete and near complete vessels were recovered from Anglo-Saxon graves. The majority of postholes and the remainder of the pits contained little or no material.

1.2 All the pottery has been assessed.

1.3 The following fieldwork event aims are relevant to the study of this material:

- Provide information on the Iron Age land use, environment and economy
- To establish a chronology for the cemetery.
- To help determine burial practices.

2. Methodology

2.1 All of the sherds recovered were recorded using standard MoLSS recording methods. The material is recorded on a context by context basis using fabric, form and decoration as unique identifiers. The pottery sherds were recorded using the Canterbury Archaeological Trust (CAT) regional fabric codes and fabric reference collection. However, in general the use of these codes should be taken to indicate broad fabric groupings and not that defined fabrics occur in this assemblage.

2.2 The material is quantified by count and weight. The presence of diagnostic sherds and aspects of condition were also noted. The data was recorded on standard pro-forma sheets and on the MoLAS Oracle database, subsequently converted to RLE Datasets.

3. Quantification

3.1 The Iron Age and Roman assemblage totalled 261 sherds (6777g). Of these only five are Roman, or of probable Roman date. The remainder are later prehistoric, predominately Early Iron Age in date, although one context [114] contains a sherd more characteristic of the Mid to Late Iron Age period.

3.2 The Saxon pottery comprises two complete chaff-tempered jars and one virtually complete imported bottle. In addition there is one small medieval sherd and two of post-medieval date.

4. Provenance

4.1 The bulk of the assemblage is composed of flint-tempered material that broadly dates to the Late Bronze Age-Early Iron Age period. Where large groups were recovered ([342], [383]), the forms present suggest an Early Iron Age date, *c* 550/500-350/300 BC. The smaller groups of flint-tempered sherds were recovered from pits, postholes and tree throw holes. These probably represent activity contemporary with the larger pit group but at present are placed within a broader chronological span. More refined fabric analysis may relate the material more closely.

4.2 The largest and most important assemblage is a pit group from [342] and [383], between which there are sherd links. The details of this pit group are shown in the table below. These contexts contain a number of individual vessels and the condition and size of the sherds is very good. Many of the vessels are partially complete or are represented by large joining sherds. The condition suggests these assemblages represent primary deposition of material from a nearby settlement. There was also a quantity of daub recovered with these contexts supporting the suggestion that the pottery derives from a domestic settlement. The size of this group and number of definable vessels means this assemblage has the most potential to contribute to the research aims.

4.3 The [342] assemblage contained a minimum of 19 identifiable individual vessels. Most of these are worthy of illustration and therefore as a single closed group would be an important addition to the study of Early Iron Age ceramics from the region. The assemblage consists of both coarse ware jars and fine ware bowls and ?cups. Although most of the vessels are undecorated, there are some examples with finger-tipped impressions on shoulders and evidence for rustication on surfaces, as well as a vessel with a red-coated (or haematite) surface. Many of the more simple, utilitarian forms could be placed within the late Bronze Age/Early Iron Age transition period but the presence of two fine ware bowls with rounded shoulders and deep flaring rims, and a foot-ring bowl base suggest a date in the 5th to 3rd centuries BC. This concurs with the small quantity of pottery recovered in the evaluation phase which included a further rusticated sherd and vessel with dimpled decoration. These were dated *c* 550-350/300 BC.

4.4 The assemblage from [342] also contained an unusual ‘oddity’ vessel. This only consisted of two joining sherds and the fabric is flint-tempered, comparable with the rest of the assemblage. The unusual aspect of this vessel is the shape of the rim, which has either a spout or perhaps is more akin to ‘horned’ vessels as evidenced in assemblage from north France (Hurtrelle *et al* 1989). A further example has been recovered from another site within the CTRL project at White Horse Stone and a previous example from Hawkinge, although both of these locations are further east than ARC CXT 98.

4.5 The rim from an everted rim jar or bowl in a glauconite-rich fabric was recovered from [114] ditch fill. The use of glauconite-rich fabrics for similar forms can be evidence on Iron Age settlements in Essex and Kent. The assemblage from the Iron Age site at Farningham Hill included glauconite-rich fabrics, which occur in foot-ring bowls or jars. These are dated mid 3rd to mid 1st century BC. The use of glauconite-rich fabrics continued in use in Kent throughout the Later pre-Roman Iron Age, focusing particularly in the Medway valley (Thompson 1982, 31). These fabrics do not appear to have survived the

conquest, which would suggest that the sherd from [114] could range in date from *c* 3rd century BC – AD 50. The lack of glauconite-rich fabrics in the large pit group would suggest that this sherd relates to a later phase of activity. However this sherd is in a very abraded condition and was recovered from the fill of a ditch that surrounded a Saxon burial.

4.6 The Roman pottery was recovered as single sherds, in pit, ditch and posthole fills and one unstratified sherd. The pottery is, where identifiable, of local Kentish production and includes the rim of a Black-burnished fabrics 2 everted-rimmed jar (CAT R14.1) and North Kent /Upchurch fine grey ware (CAT R16). The grey sandy ware sherds are probably also local, but are unsourced at present. The diagnostic sherds date from the later 1st (CAT R16) and early 2nd century (CAT R14.1). There is nothing to suggest more than one phase of Roman is present. However all but one of the Roman sherds were recovered from the fills of ditches around Anglo Saxon graves and are therefore residual.

4.7 The Frankish bottle is an import from northern France. It was found in the grave of an adult male [246] who was also buried with a high quality silver buckle with garnet mounts and the latest shield found on the site. The pot was placed by the feet, on the right (south) side of the grave.

4.8 The tall-necked chaff-tempered jar from [290] is probably a local product. It was placed at the foot of the grave, on the right side of the grave. No bone survived but the presence of a spear indicates that this was a male grave.

4.9 The chaff-tempered jar from [293] is also probably a local product. It was found by the head of a child; the presence of a spear suggests that this was the grave of a boy.

4.10 The medieval sherd was intrusive in grave [214], while one post-medieval sherd was found in the ?geotechnical pit [112], the other is unstratified.

5. Conservation

5.1 Two ceramic pots were conserved in 1999 to stabilise them.

5.2 There are no conservation requirements for the pottery or implications for long term storage posed by further analysis.

5.3 It would not be appropriate to consider discard for this material.

6. Comparative material

6.1 The vessels from the large pit assemblage [342] and [383] find parallels amongst other contemporary groups from the region, particularly the material from Barham Downs and an enclosed Iron Age settlement (site 8) at Bridge (Macpherson-Grant 1980). This assemblage also contains both coarse and finer wares and importantly includes foot-ring bases amongst other vessels which arguably could be dated to an earlier period. In the discussion of this group Cunliffe states,

> 'either the collection reflects earlier occupation of the site (Barnham Downs) or that the basic forms, once introduced in the earlier period (ie 1000-800 BC) continued in use for a long time. The two explanations are not mutually exclusive but in the absence of large well-stratified groups for study, it is impossible to be more precise' (Cunliffe 1980, 178).

6.2 Clearly the Cuxton pit group is an important addition to this discussion as a well-stratified, large assemblage, which appears to derive directly from settlement activity. The regional implications of this are important because these comparative assemblages are some distance from Cuxton; published contemporary or comparable assemblages from the nearby locality are clearly lacking.

6.3 No exact parallel have yet been found for the very unusual form of the tall-necked jar from [246], which probably imitates a Frankish bottle. In this it may be compared with a bottle from Strood, which was thought to be of Franko-Kentish type (Swanton 1973, 146, Fig.55). It has a biconical body, rouletting on the shoulder, and a much wider neck than is usually seen on imported wares, with a marked cordon around it (*ibid*, Fig.55g); the fabric of this pot is unknown.

6.4 The profile of the jar from [293] is similar to a vessel from Sittingbourne, Kent (Myres 1975, Fig.16, No.3763).

6.5 Frankish bottles like that from [246] were produced at a number of centres in Northern France (Evison 1979, 30; Bayard and Thouvenot 1993, 317-8), where they were in use during the 5th and 6th centuries. Most known English examples are from sites in the eastern part of Kent which are near to the Channel, notably in Thanet (Sarre and Monkton, Margate and Broadstairs), and in the Dover area (*ibid*, 57; 92, Table 1; 110; Map 3); an example has also been found at Saltwood. The form of the Cuxton bottle is rather more rounded than most published English finds, which tend to have more ovoid or biconical bodies and slightly wider necks; a close parallel in form, although not in decoration, is published by Bayard and Thouvenot (1993, 317; Fig.15; No.3). Rouletted decoration like that on the Cuxton bottle (*ibid*, type 1d), however, has been noted at the cemeteries of Faversham, Buckland Kingston and St Peters, the latter having the closest parallel for the decoration on the Cuxton find (*ibid*, 8-13; 68; Map 3 and Fig.3b; Evison 1987, Fig.49, No.2).

7. Potential for further work

7.1 The study of the Iron Age material should assist the following Fieldwork Event Aims:

- *Provide information on the Iron Age land use, environment and economy.*

7.2 The size, condition and character of the Early Iron Age assemblage means it has potential to contribute to the Fieldwork Event Aim relating to the Iron Age land use and economy. The assemblage is also important for ceramic studies of this period and has the potential to provide information on the fabrics and forms in use and to compare these to the few other groups from the region.

7.3 The association of this well-dated assemblage with a well-preserved collection of daub has the potential to provide important information on construction techniques used in this period. From initial assessment the daub would appear to derive from a structural use.

7.4 The Roman pottery is of little potential beyond providing evidence for Roman activity in the area. No further work is recommended for the Roman material.

7.5 The study of the Saxon pottery should assist the following Fieldwork Event Aims:

- *To establish a chronology for the cemetery*.

7.6 The tradition of chaff-tempered pottery is long-lived, but the general dating of the other finds places the pots from [290] and [293] in the 7th century; it seems unlikely that they are heirlooms. Frankish bottles occur in both domestic and funerary contexts on the continent; it has been suggested that they mainly die out in the second half of the 6th century. In England, however, the type appears to continue rather later, and Professor Evison, favours a late 6th to 7th century date for both the Kentish examples and those from the Pas-de-Calais (Evison 1979, 45; MacPherson-Grant 1993, 171). The find from [246] is thus probably contemporary with the other grave goods.

7.7 The medieval sherd indicates that grave [214] may have been disturbed in the 13th century.

- *To help determine burial practices.*

7.8 All three Saxon pots were found in male graves. The simplest pot was from the child grave, and this was found by the head. The import and possible copy of an import either were, or probably were, associated with the adults, and both were placed at the feet. This indicates possible different burial practices for adults and children, and possibly a heirarchy in the males, as the imported bottle was from one of the richer male burials. On the Continent decorated bottles occurs in both domestic and funerary contexts, but in England they are primarily associated with Kentish burials which are considered to be Christian; they must, therefore, be part of some non-pagan ritual (Evison 1979, 57-8). There is scope to develop this field of research when the finds are considered together with full grave inventories.

7.9 The following Landscape Zone aims (towns and their rural landscapes 100 BC - AD 1700) may be addressed when the finds are considered together with the other accessions:

- *The economy of human populations using the landscape, including trade and contact with other populations.*

7.10 The chaff-tempered wares could have been produced quite locally, but the Frankish bottle is evidence of some contact, direct or indirect, with the Continent. It is probable that bottles such as the Cuxton find entered the country via Dover.

- *New research aims:*

7.11 The form and decoration of the imported bottle are new additions to the typological corpus for Kent and merit analysis and discussion as such. It is also important that the bottle from Strood and other relevant parallels within Kent, including the Saltwood bottle, are examined to compare their fabrics. Scientific analysis such as Inductively Coupled Plasma Spectroscopy (ICPS) or Neutron Activation analysis is desirable to relate the imported bottle to the data on other Kentish and continental finds which have already been studied (Cowell 1979) and to help establish whether the source is in Northern France or in Belgium.

Further Work

7.12 It is recommended that further work on the Iron Age material should include:

- Define fabric descriptions for Early Iron Age pottery and integrate into CAT fabric series
- Comparative study of other Early Iron Age groups from the region
- Prepare publication catalogue for illustrated vessels
- Prepare publication text for assemblage

7.13 It is recommended that further work on the Anglo-Saxon material should include:

- Fabric analysis of the imported bottle (including ICPS and comparative study of other bottles)
- Comparative research (literature)
- Discussion with other specialists, notably Prof. Vera Evison
- Integration with stratigraphic and other finds data
- Compilation of catalogue
- Writing of report
- Illustration
- Photography

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Table 4: Assessment of Prehistoric pottery, quantification and attributes

Context	Count	Weight	Period	Comments
100	4	58	LBA/EIA	Flint-with shell temp.
105	1	10	LBA/EIA	Flint-temp.
109	4	49	LBA/EIA	Flint-temp with dec.
114	1	3	MIA/LIA	*c* 3rd c BC – mid 1st c AD Glauconite fabric everted rim.
147	5	11	LBA/EIA	Flint-with shell temp.
163	1	3	LIA/RO	Grog-temp.
242	1	4	LIA/RO	Shell-temp.
325	11	132	LBA/EIA	Flint-temp.
330	6	49	LBA/EIA	Flint-temp.
331	12	123	LBA/EIA	Flint-temp. carinated sherd.
332	2	4	LBA/EIA	Flint-temp.
333	4	32	LBA/EIA	Flint-temp.
338	1	1	LBA/EIA	Flint-temp.
340	1	6	LBA/EIA	Flint-temp.
342	176	5623	EIA	Large group; see table 5
383	20	544	EIA	Large group related to [342]

Temp. Tempered
Dec. Decorated

Table 5: Assessment of Roman pottery, quantification and attributes

Context	Count	Weight	Period	Comments
0	1	2	RO	R73
102	1	9	RO	R73
116	1	2	RO	R14.1 (2F) everted rim jar; 120-300 AD
125	1	1	RO	R16; 70-120 AD
144	1	1	RO	R73

Table 6: Assessment of prehistoric pottery, additional detail

Context	Count	Weight	Fabric	Description	E Date	L Date	Period	Comments
342	1	18	FLIN	FND	500	300	EIA	Horizontal ?row of fingernail impression. Similar shd. in A2 site 8 no. 84.
342	1	27	FLIN	JAR RUST	500	300	EIA	Base of jar with rustication on surface
342	1	130	FLIN	JAR	500	300	EIA	Footring jar with cross lightly burnished on underside.
342	1	165	SAND	BOWL	500	300	EIA	Well made bowl in dark sandy fab. Well polished. Rounded shoulder & flaring rim. 5th - 3rd c
342	2	28	FLIN	BOWL	500	300	EIA	Simple hemispherical bowl (cup?) Lightly burnished.
342	2	58	FLIN	BOWL SPT	500	300	EIA	Spouted/horned bowl? Very unusual vessel
342	5	421	FLIN	JAR FND	500	300	EIA	Shouldered jar with FND giving cabled effect on rim. Similar to A2 site 8 no. 134 (fig.15)
342	8	68	FLIN	BOWL RED	500	300	EIA	Fine ware bowl class iv with red coated surface, burnished int; carinated shoulder sl=383
342	13	420	FLIN	JAR FTD	500	300	EIA	Carinated jar with FTD on shoulder
342	14	339	FLIN	BOWL FTD	500	300	EIA	Most shds join; burnished inside; open form? Large vessel.
342	31	1716	FLIN	JAR	500	300	EIA	Illustrate x9; varying rim detail, mainly slack shoulder upright rim.
342	99	2343	FLIN		500	300	EIA	Misc body sherds both coarse ware and fine ware vessels
383	1	12	FLIN	BOWL RED	500	300	EIA	Red coated surface; fine flint in sandy matrix; burnished int.

Context	Count	Weight	Fabric	Description	E Date	L Date	Period	Comments
383	1	132	FLIN	JAR	500	300	EIA	Slack shouldered jar either warped from re-firing or has ?spouted rim. Rim undulates.
383	2	25	FLIN	BOWL	500	300	EIA	Well polished surfaces
383	16	375	FLIN		500	300	EIA	Coarse ware bs mainly from jars, although some have int surfaces with traces of smoothing

Key:
FLIN Flint Tempered
SAND Sand Tempered
RUST Rusticated Decoration
FND Finger Nail Decoration
RED Red-Finished Or Red-Coated Surfaces
FTD Fingertip Decoration
SPT Spout

Table 7: Assessment of post Roman pottery, quantification and attributes

Context	Count	Weight	Period (Spot date)	Comments (i.e. fabric groups/ form/ type/ presence of decoration)
380 (290)	1	877	EM	EMS4. Complete tall-necked jar. Handmade in a chaff-tempered fabric. Ovoid body, separated from the upright neck by a pronounced cordon. 580-700 AD
381 (293)	1	602	EM	EMS4. Shouldered jar with flaring rim and very slightly sagging base, containing a cremation. Handmade in a reduced chaff-tempered fabric. 580-700 AD
246	3=1	817	EM	EMS9? Frankish wheel-thrown bottle in a hard sandy greyware, slightly abraded. Light vertical burnish on the upper body; horizontal bands of unevenly applied rouletting or stamped decoration on the shoulder and girth. Where visible, this forms a segmented cable design (a closely spaced curving 'Z' motif). 580-700
214.7	1	2	MD	M19G jug 1170-1350 AD

Key to the post-Roman fabrics codes:
EMS9 frankish
EMS4 Chaff-tempered ware
M19G Green glazed French whiteware

APPENDIX 2: ASSESSMENT OF CERAMIC BUILDING MATERIAL/ ASSESSMENT OF FIRED CLAY

Susan Pringle

1. Introduction

1.1 A total quantity of 5.085 kilogrammes of ceramic building material and daub, comprising 4.79 kilogrammes of daub and 0.295 kilogrammes of tile, was recovered by hand excavation from five contexts. All the contexts are small with the exception of [342] and [383]. All the ceramic building material has been examined for the assessment.

1.2 The study of the material should assist with the following field event aims:

- *to provide information on Iron Age land use, environment and economy*.

2. Methodology

2.1 All the material was examined and recorded for the assessment using a binocular microscope. Fired ceramic building material has been divided by form, and fragments counted and weighed. The fabric types have been noted, using the Museum of London fabric type series (type series numbers recorded in the comments field of Table 9), and any complete dimensions or other features of interest recorded.

2.2 The fired clay assemblage has been counted and weighed, and the presence of features such as original surfaces, impressions, the presence of mortar or tempering noted.

2.3 The data has been entered on the MoLAS Oracle database, subsequently converted to RLE Datasets. All the material has been retained.

3. Quantification

3.1 The total weight of ceramic building material scanned for the assessment is 5.085 kilogrammes, of which 4.79 kilograms is daub, 0.285 kilogrammes is securely identified Roman tile and 0.01 kilogrammes is abraded tile, thought to be of Roman date. Roman material was noted in two contexts, [213] and [242], both otherwise undated.

Roman building material

3.2 The Roman tile assemblage is very small, with only 0.285 kilogrammes of securely identified tile. Types represented are tegula and imbrex, both of which were used primarily for roofing. Such small quantities suggest that the material is not in primary destruction deposits, but is either residual, or has been dumped on the site as rubbish. No complete tiles, or complete dimensions, were noted.

Table 8: Roman tile counts and weights for each tile type (securely identified material only)

Form	Count	Weight (grammes)
Tegula	1	260
Imbrex	1	25
Total	2	285

3.3 Both tiles were in similar red-firing fabrics of the type, made from London clays, which is commonly found in London (2815 group). Both have medium-grade moulding sand. Much of the material of this type from the London area is thought to have produced at kilns on Watling Street to the north-west of London between c 50 and 160 AD. It is interesting that there was no white-firing tile present, as this was produced in large quantities by the kilns at the Eccles Roman villa, some 7 kilometres south-east of Cuxton on the other bank of the Medway, and was exported to London in the 1st century AD. However, the assemblage is too small for this type of negative evidence to have validity.

Daub

3.4 Daub was present in three contexts, two of which ([342] and [383]) have Early to Middle Iron Age pottery dates and the third of which [105] is undated. The quantities are set out below.

Table 9: The daub assemblage by subgroup, context, count and weight in grammes.

Subgroup	Context	Count	Weight (grammes)
64	342	29	2910
64	383	52	1870
185	105	1	10

3.5 The daub assemblage from context [342] is of interest. Many of the fragments have one smoothed surface, and clear impressions of interwoven wattle on the other surface, indicating that they are the remains of a wattle and daub structure, probably a hut or house. The daub itself is orange-firing with a light brown skin on the smoothed (?external) surfaces, although much of it is reduced showing that it was burnt in anaerobic conditions. This is the usual pattern of discoloration seen when a standing wattle and daub structure is destroyed by fire. The daub contains traces of an organic temper, probably either grass or straw.

3.6 The assemblage has two features of particular interest. Firstly, some of the smoothed surfaces have traces of what appears to be a thin, light brown, slightly sandy limewash or mortar, which may have been applied to improve resistance to rain erosion. Secondly, two conjoining ‘corner’ fragments have a moulded ridge or flange on the angle (context [383]); they also show traces of limewash. Their function is not known, but it is possible that they represent some sort of simple architectural moulding around a doorway or similar feature, and they should be illustrated.

3.7 Small fragments of a second type of daub or fired clay were noted in subgroups 64 and 185; this is a pale orange-firing sandy clay with white limy streaks and coarse calcareous inclusions. In contexts [105] and [342], these include

fragments with a columnar structure which is probably gypsum. These also occur in samples of natural taken from the site.

4. Provenance

4.1 The precise provenance of the material is not known at this stage. The daub is in subgroups 64 and 185, which are pit-fills; the Roman tile is in subgroups 111 and 132, Saxon grave fills.

5. Conservation

5.1 The material is in good condition but care should be taken to store it in a stable environment of mid-range temperature and relative humidity, as the daub could be adversely affected by damp. The material should not be put into long term storage until the provenance and date of the daub has been established, as it may be necessary to do further analysis on the assemblage. No further work is necessary on the Roman tile assemblage.

6. Comparative material

6.1 The material comprises of a good assemblage and should be compared with the daub and fired clay from other Iron Age, Roman and Saxon sites in the project.

7. Potential for further work

7.1 The assemblage appears to be composed of material of two periods, Early to Middle Iron Age and Roman. It thus has the potential to provide information on the following original Landscape Zone aims and Field Event aims.

7.2 Farming communities (2,000-100 BC)

- *Determine spatial organisation of the landscape in terms of settlement location in relation to fields, pasture, woodland, enclosed areas and ways of moving between these (original landscape zone aim 2.3.a)*
- *Determine how settlements were arranged and functioned over time (original landscape zone aim 2.3.c)*

7.3 Assuming the daub assemblage in context [342] is contemporary with the Iron Age pottery, it has the potential to provide information on the structures of the Early to Middle Iron Age settlement. It is very unlikely that wattle and daub destruction debris would have been moved very far.

7.4 There are features of interest in the daub assemblage, such as the mortar coating and the moulded flange, that could potentially provide information about the construction and appearance of domestic structures in the early Iron Age. These features are of considerable interest and the most diagnostic pieces in the assemblage should be compared with examples from other Iron Age settlements, and examined in relation to re-constructions of domestic structures.

7.5 Town and their rural landscapes (100 BC – 1700 AD)

- *How were settlements and rural landscapes organised and how did they function?*

7.6 Although sparse, the presence of Roman tile suggests the possibility of Roman activity in the vicinity of the site.

7.7 Field event aims

- *To provide information on Iron Age land use, environment and economy*

7.8 If the daub represents, as seems likely, the remains of a domestic structure from the Early or Middle Iron Age, its analysis has the potential to provide information on Iron Age land use and on the appearance of domestic structures.

7.9 No further work is needed on the Roman ceramic building materials. The potential value of the daub assemblage is such that more detailed examination is required to retrieve information on the methods of manufacture, form and finishing treatments.

Further Work

7.10 Further work should include:

- re-examine the daub to define more precisely the materials of which the structure was built (e.g. dimensions of wattles; identification of other organics) and the nature of the limewash, and select material for illustration
- search the literature for parallels of similar date with the aim of identifying the function of the flanged fragments
- write report
- editing

8. Bibliography

None

Table 10: Assessment of Ceramic Building Material /Assessment of Fired Clay

Context	Count	Weight	Type (brick/ tile etc.)	(spot date)	Comments
105	1	10	DAUB	550-300BC	MoL 3102
213	1	10	TILE	AD 50-160	MoL 2815
213	1	260	TEGULA	AD 50-160	MoL 2815
242	1	25	IMBREX	AD 50-160	MoL 2815
342	29	2910	DAUB	550-300BC	MoL 3102
383	52	1870	DAUB	550-300BC	MoL 3102

APPENDIX 3: ASSESSMENT OF WORKED FLINT

Philippa Bradley

1. Introduction

1.1 A small group of worked flint and an assemblage of burnt unworked flint was recovered from the excavations. The worked flint is dominated by debitage, which is generally undiagnostic and has limited potential for dating. The burnt unworked flint consists of small to medium sized fragments of heavily calcined flint.

2. Methodology

2.1 The material was recorded by typological group, where appropriate notes were made on pertinent technological attributes. Brief notes were also made on the general condition of the material. The burnt unworked flint was briefly scanned and quantified, a general note of the condition of the material was also made.

2.2 The worked and unworked flint was recorded onto the MoLAS Oracle database, and subsequently converted to RLE Datasets.

3. Quantification

3.1 A total of 17 pieces of worked flint and 146 pieces of burnt unworked flint were recovered. The flint is summarised below.

4. Provenance

4.1 The flint came from a series of context types (pit fills [100], [102], [102/103], [105], [109], posthole fill [351], tree-throw hole fill [156], ditch fill [125] and grave/grave fills [242], [305], 342]. Other than the burnt unworked flint from [102/103], [105], [156] and [342] there were few concentrations of material.

5. Conservation

5.1 The material is appropriately packed for long-term storage. Some of the burnt unworked flint is in a poor condition but good packing will help to support it physically and buffer its environment.

5.2 Selected burnt unworked flint could be discarded, keeping only a selection of representative material for archive purposes. The full quantification (by weight and number), together with a description of the material discarded would provide sufficient records for any future work.

6. Comparative material

6.1 This group has potential for comparison with that from other sites along the CTRL route.

7. Potential for further work

7.1 This group of flint has relatively limited potential as it is composed largely of burnt unworked flint or undiagnostic debitage. However, it is likely that this material is of Neolithic-Bronze Age date; the small size of the assemblage and its composition preclude any refinement of the dating. This dating is based on technological attributes (eg mostly hard-hammer struck) of the material and its general appearance.

7.2 Although the material indicates some form of prehistoric activity in the vicinity it is of very limited extent. Given this limited potential no further work is required. If a summary is required for publication it can be drawn from this assessment report, and the evaluation report by Jon Cotton (URL 1997).

7.3 None of the flint has potential for answering the fieldwork event aims established for the site.

8. Bibliography

URL, 1997, 'Cuxton Anglo-Saxon Cemetery (ARC CXT 97) Archaeological Evaluation' prepared by MoLAS

Table 11: Assessment of worked flint

Event code	Context	Count	Period	Comments [presence of diagnostic material/ dominance tool/flakes etc.]
ARC CXT 98	102	1	?LBA-LIA	Flake fragment, SH?
ARC CXT 98	102/103	7	?LBA-LIA	Flakes, one or two cortical
ARC CXT 98	105	3	?LBA-LIA	Flakes, 1 is slightly bladelike
ARC CXT 98	125	1	?LBA-LIA	Broken blade, poss used edges
ARC CXT 98	305	2	?LBA-LIA	2 possible flakes
ARC CXT 98	342	1	?LBA-LIA	Burnt flake
ARC CXT 98	351	1	?LBA-LIA	Serrated flake, Slightly blade-like, worn serrations
ARC CXT 98	367	1	?LBA-LIA	Flake

Table 12: Assessment of burnt flint

Event code	Context	Count	Weight	Comments
ARC CXT 97	41	4	120	Calcined grey
ARC CXT 97	-	1	18	Calcined grey, spit sample 30-40cm
ARC CXT 97	-	2	24	Calcined grey, spit sample 110-120cm
ARC CXT 98	100	1	21	Calcined grey
ARC CXT 98	102	6	5	Calcined grey
ARC CXT 98	102/103	40	3412	Calcined grey
ARC CXT 98	105	50	4100	Calcined grey
ARC CXT 98	109	2	23	Calcined grey
ARC CXT 98	156	20	792	Calcined grey
ARC CXT 98	242	10	168	Calcined grey
ARC CXT 98	342	17	638	Calcined grey

APPENDIX 4: ASSESSMENT OF HUMANLY-MODIFIED STONE

Lyn Blackmore
Conservation by Liz Barham

1. Introduction

1.1 A total of five objects from ARC CXT 98 are of stone, while one includes a garnet in a composite object. In addition there is part of a badly preserved pendant which may be of amber or bone. The artefacts were recovered by hand excavation and sieving.

1.2 The study of the material should assist the following fieldwork aims:

- *to establish a chronology for the cemetery and a sequence of development within it*
- *determine burial practices*

2. Methodology

2.1 All the finds were examined and each find was given an individual accession number.

2.2 The data was recorded on accession cards and onto the MoLAS Oracle database, and subsequently converted to RLE Datasets.

3. Quantification

3.1 Four finds are beads; all are complete. Two drop-shaped beads are of amethyst, one round bead is of amber, while one small cylindrical bead is of chalk. These were found in four different contexts.

3.2 Two finds are of garnet; one a loose cut stone, while the other is in a mount on a composite buckle.

3.3 In addition there is one small and badly preserved pendant fragment (in an iron mount) which may be of amber or bone (see also bone assessment).

4. Provenance

4.1 The amethyst beads were probably imported from the eastern Mediterranean, although they could be from India (Huggett 1988, 66-8). They were found, together with a copper alloy and glass pendant and a bone and iron pendant on the left hip of the female in one of the two most prestigious (for this site) female burials (grave [214], Plate 2), which also contained 28 glass beads, probably from a necklace.

4.2 The loose garnet was found in the other 'rich' female grave on the site ([305]).

4.3 The amber bead was found in a child grave; it is probably of Baltic origin, but could be English (Huggett 1988, 64-6). It is not associated with any other finds, and thus its date is uncertain.

4.4 The chalk bead was found in adult burial, and suggests the deceased was a woman. It was probably made locally.

4.5 The buckle with garnet mounts is from one of the 'richer' male burials on the site ([246]).

5. Conservation

5.1 This assessment considers requirements for finds analysis, illustration and investigative conservation of the accessioned stone finds from ARC CXT 98. It also includes work necessary to produce a stable archive in accordance with MAP2 (English Heritage 1992), and to the standard required by the Museum of London's standards for archive preparation (Museum of London 1999).

5.2 Treatments are carried out under the guiding principles of minimum intervention and reversibility. Whenever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object.

5.3 All conserved objects are packed in archive quality materials and stored in suitable environmental conditions. Records of all conservation work are prepared on paper and on the Museum of London collections management system (Multi MIMSY) and are temporarily stored at the Museum of London.

5.4 The stone accessioned finds were assessed by visual examination of the objects using a binocular microscope where necessary. The finds were reviewed with reference to the accessioned finds assessment (Appendix 9).

Illustration

5.5 It is recommended that the [246]<8> buckle and the [214]<27> amethyst beads should be illustrated or photographed. The buckle would require cleaning prior to this. The amethyst beads, which are encrusted with chalk should be cleaned and repacked prior to this.

5.6 Preparation for archive deposition or storage prior to display: The amber bead [186] <26> has hairline cracking on the surface. Gentle cleaning, then minimal application of consolidant to the surface could assist. However, this object should be reassessed at the time of application to determine whether this is necessary – supportive repacking may be sufficient to protect it from over-handling and deterioration.

6. Comparative material

6.1 Saxon beads of amethyst are more common in Kent than in any other part of the country, the largest concentration being from Faversham. Most finds occur singly or in pairs in burials thought to be Christian in character, for example at Buckland (Evison 1987, 60) and Kingston in Kent, and Burwell and Shudy

Camps in Cambridgeshire (Huggett 1988, 66-8). There are numerous parallels for the Cuxton examples, ranging in date from the late 6th to the third quarter of the 7th century; findspots in the Kent include Saltwood (two beads in grave 156), Watts Avenue, Rochester (Payne 1895, lv: two beads found in a grave) and Polhill (Philp 1973, Fig.55, no.518; Hawkes 1973, 192).

6.2 Amber beads are most common in mid to late 6th century graves (Huggett 1988, 64-6); and are less common in Kent than in other parts of the country where they were used; most examples from Kent cluster in the Canterbury area and in Thanet. A much larger number of amber beads was found at Saltwood.

6.3 Garnet and buckle. Garnets are more usually found on slightly earlier Kentish sites, and the two finds from Cuxton represent the end of the tradition; parallels must exist in the literature for the buckle from [246].

7. Potential for further work

7.1 The study of the material should assist the following Fieldwork Event Aims:

- *To establish a chronology and a sequence of development for the cemetery.*

7.2 The general dating of amethyst beads and the character of the associated glass beads places the two beads from [214] in the 7th century, and the chalk bead is likely to be of the same date. The absence of large strings of glass and amber beads jewellery typical of the 6th century suggests that the amber bead is contemporary with the other beads from the site (see glass), but it could also be an heirloom. The rarity of garnet jewellery on the site suggests that the buckle is probably of mid-to-later 7th-century date.

- *To help determine burial practices.*

7.3 Study of the stone artefacts in conjunction with the other finds with which they were associated (if any) will help to determine burial rites and whether these were influenced by age or gender. The location of the two amethyst beads on the left hip of the female in [214], for example, is quite unusual, as beads such as these are usually found in the area of the head or neck. Since the beads from [214] were touching, and also aligned with the body (east to west), bioturbation is unlikely and it would seem that they were purposely placed, perhaps in a bag or purse. In some cases the choice and number or items buried may have had a symbolic function beyond indicating the age or wealth of the deceased or his/her family. The single amber bead from a child grave is consistent finds elsewhere in the country (Meaney 1981, 67; Geake 1997, 47), but the amethyst beads may have been used as amulets.

7.4 The following Landscape Zone aims (Towns and their rural landscapes 100 BC-AD 1700) may be addressed when the finds are considered together with the other accessions:

- *The economy of human populations using the landscape, including trade and contact with other populations:*

7.5 The amber, amethyst beads and the garnets are imports which are typical of many sites in the region and this aspect of no richer or poorer than most other contemporary Kentish assemblages. Consideration of the wider distribution of these object types can be used to develop an understanding of the trade patterns in region and patterns such as the ratio of quantity to distance from the Channel

coast (Huggett 1988). At Saltwood, for example, many more amber beads were found than at Cuxton, but the number of amethyst beads is proportionally less in terms of the overall assemblage. Although the means by which they reached the site must remain uncertain, the Cuxton finds demonstrate that the community was party to exchange mechanisms, whether internal or external, and reflect the highly developed trade links between Kent and the continent in the late 6th and 7th centuries. The status of the stone artefacts (items in current use, heirlooms, or pieces no longer needed as a result of damage or changes in fashion) is also relevant to any discussion of cultural affinities evidenced by fashions in dress or technology in the 6th- to 7th-century.

Further Work

7.6 In order to address the questions outlined above, further work (within the context of analysis of the graves as a whole) should include:

- Analysis of problematic amber/bone pendant
- Consideration of the finds by grave group and distribution
- Comparison with finds from other sites
- Compilation of finds catalogue for inclusion in publication
- Writing of finds report
- Preparation of finds for illustration (by type and grave group)
- Editorial/liaison
- Conservation

8. Bibliography

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Table 13: Assessment of the stone

Context	Special number	Material	Count	Period	Date	Comments
41	152	Chalk	1	EM	7th century	Bead; small oval complete
186	26	Amber	1	EM	Late 6th-7th century	Bead: complete
214	27	Amethyst	2	EM	Late 6th-7th century	Beads: 2 complete
246	8	Garnet (with silver and gold)	1	EM	Mid-to second half of 7th century	Garnet mount in gold filigree wire on a silver buckle plate. X-6643
305	93	Amber or bone? with iron	1	EM	Late 6th to 7th century	Pendant fragment, as above with iron mount for suspension (to analyse)
305	187	Garnet	1	EM	7th century	Mount; small cut garnet

X- X-radiography number

APPENDIX 5: ASSESSMENT OF GLASS

Lyn Blackmore
Conservation by Liz Barham

1. Introduction

1.1 A total of 45 objects from ARC CXT 98 are of glass; almost all are beads and typical of the 7th century. The artefacts were recovered by hand excavation and sieving.

1.2 The study of the material should assist the following fieldwork aims:

- To establish a chronology for the cemetery and a sequence of development within it.
- To help determine burial practices.

2. Methodology

2.1 All the finds were examined. Each find was given an individual accession number and their basic shape was determined using the Buckland typology (Evison 1979).

2.2 The data was recorded on accession cards and onto the MoLAS Oracle database, and subsequently converted to RLE Datasets.

3. Quantification

3.1 This relatively small assemblage of 42 glass beads was recovered from eight different graves; all but one bead is complete.

3.2 In addition there are three mounts, two of which are set in metal frames as pendants (<39> and <41>); of these, <41> was possibly made from part of a bead). The third find is a counter or loose mount of blue and yellow marbled glass (<33>).

3.3 Most beads are small and of cylindrical form, but a few are barrel-shaped, with convex sides; some of these are very small. Other forms comprise annular (two examples), polygonal, coiled cylinder and small melon beads (one of each).

3.4 Most beads are monochrome; red is the most common colour, but others are of blue, green, yellow and white. Polychrome beads are rare, but one large red bead had a chevron inlay (now missing). The possible bead fragment in a pendant (<41>) has reticella decoration. The other pendant mount is of dark green glass, while the mount or counter is of blue and yellow marbled glass.

4. Provenance

4.1 The source of the beads cannot be determined with certainty, but it is generally accepted that beads of this the type found at Cuxton were probably imported from the Continent, possibly from or via the Low Countries.

4.2 Beads were found in eight graves; two graves also contained glass mounts, some in pendants. The best groups are from graves [214] (Plate 2) and [305], both identifiable by their finds assemblages as rich female burials.

4.3 Grave [214] contained 29 beads, probably from a necklace, found on the area of the right shoulder with a silver ring. The pendant containing a glass mount (<41>) was found by the left hip with the two amethyst beads and a bone and iron pendant.

4.4 Grave [305] contained one melon bead, a mount/counter and a gold pendant with glass mount; other significant finds from this grave include a bulla and a workbox.

4.5 All the other graves had three beads of less, and several have only one.

5. Conservation

5.1 This assessment considers requirements for finds analysis, illustration and investigative conservation of the glass accessioned finds from ARC CXT 98. It also includes work necessary to produce a stable archive in accordance with MAP2 (English Heritage 1992), and to the standard required by the Museum of London's standards for archive preparation (Museum of London 1999).

5.2 Treatments are carried out under the guiding principles of minimum intervention and reversibility. Whenever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object.

5.3 All conserved objects are packed in archive quality materials and stored in suitable environmental conditions. Records of all conservation work are prepared on paper and on the Museum of London collections management system (Multi MIMSY) and are temporarily stored at the Museum of London.

5.4 The accessioned glass finds were assessed by visual examination of the objects using a binocular microscope where necessary.

Illustration.

5.5 One item [214.10]<41>, composite copper and glass was identified for surface cleaning prior to photography. The copper element should be lacquered, post-cleaning.

Preparation for archive deposition.

5.6 All the glass finds are stable and packed appropriately for archive.

6. Comparative material

General.

6.1 Beads are found on most Saxon cemetery sites, but many assemblages are slightly earlier in date. In the local context, plain glass beads and a few polychrome beads were reported in graves at Watts Hill, Rochester (Payne 1895; 1897), but the date of these finds is unclear. One of the closest contemporary groups is that from the Polhill cemetery, in the Darenth valley. Numerous beads have been found at Saltwood (including more polychrome beads), and these should certainly be compared with the Cuxton finds. Other sites include Buckland, where monochrome red beads were among the most common; these were dated to after 575 (Evison 1987b, 61). Coiled cylinder beads occur at Buckland and at Finglesham (Hawkes), while small melon beads are found at Buckland and at Leighton Buzzard (Hyslop 1963) amongst other sites (Geake 1997). There is also relevant material on the Continent, notably from Dorestad, and Maastricht, and research into beads from Birka and Ribe which may contribute to the study of the Cuxton finds

Reticella beads.

6.2 Two beads with reticella decoration from Buckland were dated to 525-600 (*ibid*, 65). The mount for the pendant with containing part of reticella bead (<41>) is unusual, but the piece is similar in concept to a silver pendant from Horton Kirby (Cumberland 1940, 142, pl.1) and another from Sibertswold (Hawkes 1990, Pl.4). Other Kentish sites with possible comparative material include Broadstairs, and Bekesbourne.

Melon beads.

6.3 The melon bead from [305] was found in association with a workbox and a bulla. At the Garton cemetery II (Geake 1997, 48) similar associations were recorded.

7. Potential for further work

7.1 The study of the material should assist the following Fieldwork Event Aims:

- *To establish a chronology and a sequence of development for the cemetery:*

7.2 The absence of large strings of glass and amber beads typical of the 6th century and the small size and monochrome colouring of most of the Cuxton beads places them in the 7th century. Reticella beads are generally dated to the second half of the 6th century, and so the pendant <41> could either be an heirloom or a contemporary piece made with part of an old bead. Melon beads have Roman origins, but are a long-lived tradition. The distribution of the beads and mount/counter suggests that graves [168], [193], [302] and [305] could be earlier than [214], but the full range of evidence must be analysed to verify this (grave [214] also contained pendant <41>, which could be older than the beads).

- *To help determine burial practices. Beads are usually associated with women and children;*

7.3 The presence of beads in the male grave [193] could be accidental, but it is of interest that these are the only annular beads from the site, and they could have some special significance. It is usual to find only one or two beads in child graves, but the number and nature of the beads in select adult female graves may be indicative of status. Small monochrome beads often occur in conjunction with workboxes (Geake 1997, 45), melon beads less frequently so (ibid, 48). The

choice of beads may have some significance in the Cuxton grave [305]. Melon beads tend to occur with other Roman objects, although nothing obviously older was noted in grave [305]. Consideration of the beads in conjunction with associated items such as silver rings or pendants may give a better picture of the original necklaces, although it is recognised that much will have been lost.

7.4 The following Landscape Zone aims (Towns and their rural landscapes 100 BC-AD 1700) may be addressed when the finds are considered together with the other accessions:

- *The economy of human populations using the landscape, including trade and contact with other populations:*

7.5 The collection of beads and pendants from Cuxton is typical of the period, and no richer or poorer than most other contemporary Kentish assemblages. The beads were probably imported from the Continent, possibly from or via the Low Countries. Although the means by which they reached the site must remain uncertain, they reflect the highly developed trade links between Kent and the continent in the 7th century, and demonstrate that Cuxton was party to some exchange mechanisms, whether internal or external. Consideration of the beads and pendants in the light of the wider distribution of these types can be also used to develop an understanding of trade patterns and affinities within the region, including the relationship of quantity of imported goods to distance from the coast. The possible reuse of an old reticella bead (a type generally dated to the second half of the 6th century) to imitate the more upmarket type of pendant found at Horton Kirby gives an insight into the economy.

New research aims.

7.6 Study of the beads *per se* will inform on technology and their use as items of fashion jewellery. The original colours of the reticella mount should be tested, and ideally the composition of all the beads should be studied by X-Ray flourescence (XRF; Bayley 1987, 187) to group like beads and separate those that are superficially similar but technically different. This information will help to identify the range of sources represented in the assemblage, and, by comparison with other sites, to inform on trade and distribution patterns.

Further Work

7.7 In order to address the above research questions, it is recommended that the beads should be studied as part of the grave groups and as items of jewellery and symbolism, with reference to the comparative material and the research by Brugmann, Evison, Guido, Hirst, Koch, and others. This work should include

- Analysis of reticella and other beads
- Integration of the finds with the stratigraphic information
- Comparison with material from relevant sites
- Compilation of finds catalogue for inclusion in publication
- Writing of finds report
- Illustration or photography of a representative selection of the finds Editorial/liaison
- Conservation

8. Bibliography

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Hyslop, M, 1963, 'Two Anglo-Saxon cemeteries at Chamberlain's Barn, Leighton Buzzard, Bedfordshire' *Archaeol Journ* CXX, 161-200.

Table 14: Assessment of the glass

Context	Material	Count	Type	Period	Date	Comments (description)
214	Glass and copper alloy	1	Mount	EM	Late 6th or 7th century	Pendant. Copper mount with glass mount with reticella decoration (reused bead?)
305	Glass and gold	1	Mount	EM	7th century	Pendant. Gold with green glass mount ; complete
168	Glass	1	Bead	EM	7th century	Red bead; complete
168	Glass	1	Bead	EM	Late 6th or 7th century	Turquoise coiled cylinder bead; complete
193	Glass	1	Bead	EM	Later 6th or 7th century	Pale green annular bead
193	Glass	1	Bead	EM	Later 6th or 7th century	Burnt ?green annular bead; complete
210	Glass	1	Bead	EM	7th century	Blue bead; complete
210	Glass	1	Bead	EM	7th century	Yellow bead; complete
210	Glass	1	Bead	EM	7th century	White bead; complete
214	Glass	10	Bead	EM	7th century	Red beads; complete
214	Glass	1	Bead	EM	7th century	White bead; complete
214	Glass	6	Bead	EM	7th century	Green bead, one small wound; complete
214	Glass	8	Bead	EM	7th century	Blue beads, 4 very small; complete
214	Glass	3	Bead	EM	7th century	Yellow beads, 2 very small; complete
214	Glass	1	Bead	EM	7th century	Yellow-green bead; complete
296	Glass	1	Bead	EM	7th century	Green bead; complete
302	Glass	1	Bead	EM	Late 6th or 7th century	Large polychrome bead, red with impressed chevron decoration (inlay missing)
305	Glass	1	Bead	EM	6th or 7th century	Small green melon bead
305	Glass	1	Mount	EM	Late 6th or 7th century	Mount or counter, blue and yellow marbled glass
357	Glass	3	Bead	EM	7th century	Very small yellow beads

APPENDIX 6: ASSESSMENT OF METALWORK

Lyn Blackmore
Conservation by Liz Barham

1. Introduction

1.1 A total of 126 objects from ARC CXT 98 are of metal and 14 are of composite construction which includes metalwork. The majority is typical of the late 6th and 7th centuries. Most finds were recovered by hand excavation, but one or two were found in sieved residues. The study of the material should assist the following fieldwork aims:

- To establish a chronology for the cemetery and a sequence of development within it.
- To help determine burial practices.

2. Methodology

2.1 All the finds were examined. Each find was given an individual accession number, and the data was recorded on accession cards and on the Oracle database and subsequently transferred to RLE Datasets. Almost all the metalwork has been X-rayed and a few pieces have already been stabilised. The location of the finds in relation to the grave plan and their location in the graves has only been considered general terms.

3. Quantification

3.1 A total of 126 metal finds was recovered, together with 14 items which are of composite construction. The finds are stored in six large and four small plastic Stewart tubs.

3.2 The most abundant material is iron (87 accessions). Sixteen different types of artefact are made of iron; one item has yet to be identified (Table 14). The most common finds are knives (34 accessions), while buckles and spears are almost equally represented (12 and 11 accessions respectively). Four shield bosses are present, but there are no swords. Iron also occurs with other materials in eight composite items; iron rivets are also present in the bone comb.

3.3 The second most common material is copper alloy (29 accessions). Twelve different types of artefact are made of copper only, and most are dress accessories and personal items (Table 14). Buckles are the most common object (12 accessions), with mounts in second place (6 accessions). In addition, copper occurs with other materials in seven composite objects.

3.4 Precious metals (silver and gold) are less frequent (Table 14). One pendant is made of gold alone, while another has a glass setting in a gold mount (see also glass assessment), while one buckle is of silver with decoration using gold and garnets. The eight items of silver jewellery include six rings in two sizes and a bulla pendant.

3.5 Mineralised organic matter is present on several items (see Organics Assessment).

Table 15: Summary quantification of the metalwork by material and object type

Object	Iron	Copper	Gold	Silver	Composite	Total
Bracelet		1				1
Buckle	8	12			5	25
Buckle plate		2				2
Chatelaine(?) fragments	5					5
Coin?		1				1
Lace tag		2				2
Disc	1	1				1
Ferrule	1					1
Hook/pin	1					1
Key	5					5
Knife	34				1	35
Mount	7	6			2	15
Needle case		1				1
Pendant			1	1	5	7
Pin	1	1		1		3
Purse		1				1
Purse/strike-a-light	1					1
Ring	2			6		8
Shield boss	5=4				1	6=4
Shears	2					2
Shield	1				1	1
Spear	11					11
Tool	1					1
Work box		2=1				2=1
Unknown	1				1	1

4. Provenance

4.1 Most items are probably of English/Kentish origin, but one or two buckles with triangular plates could be from the Continent or are Kentish copies, while a container or 'needle-case' may be from the eastern Mediterranean. An unusual ring-headed pin from grave [285] is of 'Celtic' style (see below. 6.7).

4.2 Most of the copper alloy is in reasonable condition. The most interesting items comprise the workbox, needle-case/container and pendants from grave [305], and the purse from [282]. There is also a good range of buckles.

4.3 The iron varies greatly; some of the shield bosses, spears and knives are near complete, although some are far from robust, but many other finds are badly fragmented, especially the thinner items such as shield grips, keys and chatelaine attachments. The identification of some of these latter finds is tentative and may change as the analysis proceeds.

4.4 All the finds derive from graves. The largest group is from the rich female grave [305], which contained 17 items. Smaller groups were found in grave [372] (8 items), grave [315] (8 items) and [246] (7 items). The numbers of objects, however, do not necessarily indicate the richness of the grave. All the groups are important – even those with only one or two finds, as they contribute to part of the wider picture (see below), but a few stand, either because they contain more objects or because of the nature of the finds.

Male graves.

4.5 Arguably the best male groups are from burials [261] and [282], both of whom wore belt buckles of continental style and seem to have had purses hanging from the belt. Grave [261] is also the only burial with 'coins'; one is real, but illegible, while a disc of silver is probably a symbolic coin. An iron disc may have had the same function, although it could be from a buckle. These were found with a small tongue-shaped mount and were probably contained in a bag or purse. This has not survived, although an iron ring and a copper alloy buckle may have been part of it. The purse seems to have been placed beneath a bunch of keys. Other finds from this grave comprise a lace chape and a mount.

4.6 The purse in grave [282] has a kidney-shaped metal frame with two small buckles which may have fastened the flap. It seems to have contained a knife (or shears) and two possible tools. The belt set in this grave is intriguing as it either comprises parts of two buckles (perhaps a repair), or has a D-shaped belt plate and a triangular strap-end; the latter would be unusual. Also in this grave was a large knife/

4.7 Also of note is grave [246], which contains a spear, shield, and a composite buckle, originally with two garnet mounts encircled by beaded gold wire. The fact that the buckle was found by the thigh suggests that it may have slipped from the waist. However, as the waist was probably hidden by the shield, it is not impossible that the buckle was purposely placed so that it could be seen. The other weapon graves are also of interest for the combination of different shield and spear types, which may help refine their dating. All the above can inform on dress and burial rites as well as trade and economy.

Female graves.

4.8 The best female group is from [305] (see above), which was richly furnished with jewellery of copper, silver and gold, as well as other personal items such as

a work box and a needle-case/container. The workbox is squashed but the fine punched decoration on the lid and base is visible on the X-ray, while the zoomorphic attachment plate is particularly interesting. The second most elaborate female grave is [214], which had a number of metal items placed on the left side, at the waist and hip. These include shears, which lay under the left arm, and two knives, and a chatelaine with iron ring and two keys. A composite buckle at the waist may have fastened a shroud. Other finds include a buckle, three composite pendants and a bone comb with iron rivets (see bone and glass assessments). Both these graves can inform on dress and burial rites as well as trade and economy.

Specific items.

4.9 It was noted that knives, shields and spears were placed in a variety of locations. Knives were found to the left of the body, to the right, on the chest, at the waist or at the feet; some were pointing up while others were pointing down or laid obliquely. Spears were placed to the right or the left of the body. In grave [164] the shield and spear were on the same side of the body, but in grave [246] they were on different sides, and the shield appears to have been over the hip, as if held by the deceased. In two graves the shields were placed at or over the feet. These differences have not yet been quantified but are of relevance to the different research aims (Section 7).

5. Conservation

5.1 This assessment considers the requirements for finds analysis, illustration and investigative conservation of the metal finds from ARC CXT 98. It also includes work necessary to produce a stable archive in accordance with MAP2 (English Heritage 1992), and to the standard required by the Museum of London's standards for archive preparation. (Museum of London 1999).

5.2 Treatments are carried out under the guiding principles of minimum intervention and reversibility. Whenever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object.

5.3 Most conservation work on metal artefacts begins with visual examination under a binocular microscope followed by mechanical cleaning using scalpel and other hand tools. Occasionally other mechanical devices such as air abrasive and power pen or mini drill are used. Mechanical cleaning will reveal detail and a conservation surface beneath often voluminous corrosion products enabling the true shape and purpose of the artefact to be understood. After cleaning to reveal detail copper alloys were stabilised with a corrosion inhibitor (benzotriazole) and coated with a protective lacquer (Incralac). Where necessary and appropriate, iron accessioned finds are coated with a tannic acid solution corrosion inhibitor.

5.4 All conserved objects are packed in archive quality materials and stored in suitable environmental conditions. Records of all conservation work are prepared on paper and on the Museum of London collections management system (Multi MIMSY) and are temporarily stored at the Museum of London.

5.5 The accessioned metal finds were assessed by visual examination of the objects using a binocular microscope where necessary, and by examining their related X-

radiographs. The finds were reviewed with reference to the above assessment by Lyn Blackmore.

5.6 Five copper alloy artefacts (including 2 coins) and five iron artefacts from the ARC CXT 98 assemblage were conserved in 1999 to stabilise them and to enable identification of the coins. All of the metal artefacts have been X-rayed. Where any detail needs to be clarified and a further X-ray image might assist, this has been included in the time estimate provided as part of the investigative conservation work.

Analysis/Investigative cleaning

5.7 It must be stressed that no conservation work can be carried out without prior analysis of the metals where relevant, and of the evidence of organics associated with many of the metal items, which hold very great potential.

5.8 Further analysis is recommended for 4 metal accessioned items to identify metal elements present on their surfaces:

- [282]<137> Buckle – X-ray flourescence (XRF) to check for silvering or gilding on surface and XRF to identify white fill mineral packing back of buckle.
- [261] <140> and <148> - two stud fittings of identical design - XRF to check for any solder on the inside, to determine how these were attached
- [285]<126> Pin - XRF to check for any gilding on surface
- [261]<127> Disc - XRF to check the identity of the metal.

5.9 Three items were identified for further cleaning to investigate their construction. Treatment is necessary post cleaning. These were:

- [285] <126> Pin
- [193] <14> Lace chape
- [261] <12> Lace chape

Illustration.

5.10 Twenty seven accessioned items were identified for conservation work prior to illustration/photography. This will involve re-adhering and support fills for broken parts in some cases, cleaning and subsequent treatment in others, repacking in most cases. Please note the above recommendation regarding prior analysis.

Gold

- [305] <1> Pendant

Silver

- [305] <9> Ring
- [305] <10> Ring
- [305] <185> Pendant
- [305] <183> Ring
- [305] <151> Ring

Copper

- [372] <2> Buckle
- [305] <22> Needlecase
- [305] <21> Workbox
- [285] <126> Large pin
- [261] <15> Buckle

Iron

- [293] <63> Spearhead
- [312] <138> Spearhead
- [246D] <49> Grip
- [315P] <99> & [315F] <100> Shield boss
- [164.5] <65> Shield boss
- [372] <61> Shield boss
- [290A] <70> Spearhead
- [299A] <62> Spearhead
- [164.1] <121> Spearhead
- [276] <45> Knife
- [193] <119> Knife
- [178] <123> Knife
- [164.3] <117> Knife
- [312] <94> Knife
- [214.4] <145> Knife
- [315A] <84> Knife
- [305D] <90> Knife

5.11 The need to clean three composite items including metal [214.10] <41> and [214.11]<44> and [246G] <8>, for illustration/photography has been noted elsewhere in respectively the glass, the bone and the stone report.

Preparation for archive deposition.

5.12 Nine copper items are actively corroding and should be treated to stabilise them. These are as follows. Please note the above recommendation regarding prior analysis.

- [282] <137> Buckle
- [290C] <6> Buckle
- [282] <137> Buckle
- [178] <3> Buckle
- [190] <134> Buckle
- [282] <17> Mount
- [285] <126> Pin
- [164.4] <7> Buckle
- [246G]<8> Buckle

5.13 All the ironwork is actively corroding. It is generally in deteriorating condition, and in one particular case is at an advanced stage ([372]<85>Spearhead). All the iron accessioned finds should continue to be packed in dry silica gel.

- [372] <85> should be actively treated as added protection as it is already close to disintegration.

5.14 Twenty eight accessioned metal items that need no further work, are insufficiently supported in their boxes and need re-packing. These are:

- Iron: [367] <107>; [214.7] <50>; [293] <71>; [305F] <87>; [240C] <51>; [240B] <56>; [296] <78>; [190.4] <114>; [296] <77>; [285B] <68>; [246A] <46>; [315G] <86>; [261] <57>; [240A] <53>; [73] <293>; [130] <261>; [48] <246B>; [72] <299C>; [305C] <89>; [54] <214.7>; [96] <312>; [246E] <52>; [240D] <59>; [293] <66>; [261] <131>; [290D] <67>; [293] <63>; [315A] <84>.

6. Comparative material

General

6.1 There are numerous sites in the county and beyond with which this assemblage should be compared. The material appears to fit well within the Kentish culture of the late 6th and 7th centuries. Although some pieces such as the large 'purse frame' are quite unusual, several parallels for the buckles, purse mount/strike-a-light, spears and shields have already been noted in other cemeteries across the country. Some examples of relevant sites/finds are listed below.

Relevant sites

6.2 Sites in north-west Kent which have, or are likely to have, relevant comparative material include Horton Kirby (Cumberland 1940), Cuxton, Strood and various sites in Rochester (Payne 1985; 1897; 1900), and Polhill (Philp 1973, fig.54, No.507). Little of this material has been adequately published, and so museum collections (notably those in Rochester and Maidstone) should also be visited to ensure that Cuxton is correctly related to them. Other sites in Kent include Faversham (eg Leeds 1936), which is broadly contemporary with this group, Buckland, near Dover (Evison 1987), and Finglesham (Hawkes 1958). Some parallels also exist in the much larger assemblage from Saltwood, although this may have a longer time scale and contains a wide range of objects not found at Cuxton (such as jewellery of Scandinavian and Frankish type, buckets and Coptic bowls). Comparanda will also be found in Faussett's *Inventorium Sepulchrale* and from other early archaeological work in Kent (Swanton 1973; Meaney 1964; Geake 1997). Sites outside Kent include the Cambridgeshire cemeteries of Burwell and Shudy Camps (Lethbridge 1931; 1936), Continental literature has not been checked, but there are undoubtedly relevant assemblages in France and the Low Countries.

Work boxes

6.3 Workboxes similar to <21>/<141> have been found at various sites including Buckland (Evison 1987, 106-8), at Dunstable, Burwell (eg. Lethbridge 1936, Fig.36), and Polhill in Kent (Philp 1973, Fig.53, No.489; Hawkes 1973, 196-8); these reports and that on Finglesham reports include numerous references to similar finds from other sites. The 'needle-case' <22> may prove to be an import from the eastern Mediterranean; stylistically it can be compared with a censer from Glastonbury Abbey, also thought to be from the eastern Mediterranean (now in the British Museum). The Cuxton container is probably related to finds in bone from Buckland and from Liege, Belgium (Evison 1987, Fig.21b, 108-110).

Jewellery

6.4 Pendants with filigree decoration of similar type to the gold example <1> from Cuxton have been found at Faversham (Leeds 1936, Pl.XXXc) and Sibertswold (Hawkes 1990, PL.4, L.21), amongst other sites. Gold pendants, with and without glass settings and similar to those from [305] have been found at Risely and Sibertswold (Cumberland 1940; Hawkes 1990, Pl.4, L.22; see glass assessment), Burwell (Lethbridge 1931, Fig.36) and Buckland, Dover (Evison 1987), amongst others.

Purses

6.5 Purse frames like [282] <20> are very rare, especially with associated buckles and mounts and possible contents. A much more elaborate example was found at Sutton Hoo, while simpler examples containing tools are known from

Swallowcliffe Down and a few other sites. The iron mount/strike-a-light is a much more common type, with several parallels in Kent and also at Shudy Camps, Cambs.

Buckles and lace tags

6.6 The 'Continental' buckles and possible strapend with triangular plates ([261], [282]) could be imported, but are more likely to be Kentish copies of continental styles. Several parallels from Faversham and other sites are now in the British Museum and Ashmolean Museum (MacGregor and Bolick 1993); they include a buckle with decorated D-shaped plate and iron axis pin from Faversham (*ibid*, no.34.1). Many parallels can be found for the small copper alloy buckles, some of which may derive from scabbards (*cf.* Lethbridge 1936, 13-4; Fig.7; Swanton 1973, Fig.64). A buckle with three large decorative rivets securing the rectangular buckle plate has a parallel at Polhill, where a lace tag was also found (Philp 1973, fig.54, Nos.491-2; no.507).

Ring-headed pin

6.7 No real parallel has yet been found for the unusual ring-headed pin with its stepped profile ([285] <126>; the plan ring is off-set from the shank); it could be part of a set of linked pins, but also resembles more ornate handpins of the Saxon period which have been described as Celtic (Youngs 1989, 25-6; *cf* examples in the British Museum). The term 'Celtic' in this sense is used to describe an artistic style most prevalent in Ireland and Scotland in the 6th to 9th centuries, which was spread by missionaries and incorporated Frankish and Anglo-Saxon traditions.

Weapons

6.8 Spears and shields figure frequently in cemetery assemblages in the region. Several parallels exist in the material from sites in Rochester, including a ferrule identical to [293] <71> found at Roebuck Road and a shield with four circular rivets like those from [372] <108> from Watts Avenue. Another local site with weapons is Strood. Parallels for the spear styles can be found in Swanton (1973) and the sites listed therein. A butt-ferrule from [372] is paralleled at Guildown, Surrey (Swanton 1973, Fig.58) and also at Finglesham, Kent (Hawkes 1958, 22 Fig.14c). The shield boss types can be matched in Dickinson and Härke (1993).

7. Potential for further work

7.1 The study of the material should assist the following Fieldwork Event Aims:

- *To establish a chronology for the cemetery.*

7.2 With the exception of one or two possible heirlooms, the assessment has shown that the metalwork is slightly later than first thought. It indicates a general time-scale of c. AD 580 to 700 for the site, and that most graves probably date to the period to AD 600-680. A chronological sequence of the shield boss types represented can be traced from [372], to [315], to [164], to [246], and many other finds can be broadly placed within the earlier, mid- or later 7th century. The potential thus exists to refine the dating of some, if not all graves when the combined dating evidence of different groups of finds has been analysed and thus offer a more precise chronology for the site.

- *To establish a sequence of development within the cemetery.*

7.3 At present it can be noted that three of the four graves with shields are on the northern side of the site; none have ring ditches. The four graves with the most prestigious grave goods are at the south-western end of the site, with a broadly east-west orientation; three of these lack associated ditches. Most of the graves within penannular ditches contained few finds. Some possible trends can thus be identified and explored. Correlation of the refined dating evidence for the graves, the spatial distribution of the burials and the nature and orientation of the different classes of burial will permit better conclusions to be drawn regarding the place of different burial practices within the sequence of cemetery development and which of these are contemporary.

- *To help determine burial practices.*

7.4 The assessment of the metal shows that the finds derive from male and female graves. As a whole the assemblage is normal, but there are some important individual finds and useful assemblages of both weaponry and domestic/personal equipment. It can be seen that some graves were simply furnished, while two female graves and two male graves were more prestigious; of these, a male and a female were buried side-by-side and may be related. The nature and placing of the finds in the graves shows no deviation from the norm at the period during which the cemetery was in use; indeed, most graves are quite simply furnished, especially by comparison with sites such as Saltwood. Nonetheless, GIS, computer-based and manual study of the combination and positioning of the different items in the graves (or how they have corroded), will help to throw more light on burial practices and rituals which may reflect age, gender or status (see above, provenance). If the patterns already noted can be developed by or new patterns identified with can be these can then be compared with other sites of the period. In particular, the finds have the potential to inform on:

- a) The dress in which the deceased was buried and how the choice of belt buckle, the use of pins and buckles at the shoulder to fasten cloaks may relates to age, gender, status and social or cultural affinities or changes through time (see also organics assessment).

- b) Whether differences in the placing of items in male, female and child graves can be related to age, gender, status or cultural affinities. Knives and buckles are particularly useful indicators as they are common to all categories of burial on the site, were found in a variety of positions, and occur in different sizes; some may been in a sheaths. The positioning of spears and shields may help to identify specific male groups or burial practices for males of different ages.

7.5 The following Landscape Zone aims (towns and their rural landscapes 100 BC-AD 1700) may be addressed when the finds are considered together with the other accessions:

- *The ways in which human populations moved through the landscape, including the organisation of communication networks.*

7.6 The Medway was a northern boundary of the kingdom of Kent, and so the weapon graves can be used to address questions related to the changing political situation in the 7th century, and the defence of the river crossing at Rochester. Weapons of the 5th and 6th century would have been used in this way, but if the

need to defend the crossing continued in the 7th century why are there comparatively few shields and no swords (see also general assessment of the graves).

- *The economy of human populations using the landscape, including trade and contact with other populations.*

7.7 The metal finds from this site comprise a very important assemblage with some high quality pieces and some of particular interest. Most are quite homogenous, and show a Kentish 'cultural identity' for the site, but a few finds such as the continental-type buckles, the purse frame and the pendants are more informative as to trade and wider contacts. Given that there are only two continental-type buckles, what is their significance? Do they represent gifts or incomers to the local community? Whether imported or not they demonstrate some influence of foreign dress on the local population. XRF analysis of the copper alloys would determine which items were of bronze, brass and might demonstrate whether items were produced at the same site or different sites. This is particularly applicable to the buckles, which constitute the largest group of copper alloy finds and to the 'Celtic' pin and needle-case/container, as the latter two may demonstrate contact (direct or indirect) with places beyond the usual Kentish/Frankish sphere. The relatively large amount of iron from the site shows that the community had sufficient means to bury artefacts that could otherwise have been recycled. Metallurgical analysis of the iron might show the composition of the iron and the techniques used in its manufacture; this data could then be compared with that from other sites, including Saltwood and the analysis of finds from other sites such as Ramsbury in Wiltshire (Tylecote *et al* 1980).

Further research aims:

7.8 The group forms an important addition to the finds from the known cemeteries of west Kent/the Medway area. Study of the finds in their own right will inform on technology and use, and will help to provide a much-needed typology of different classes of finds for this part of Kent, where many earlier finds still go unpublished.

Weapons

7.9 The weapons form an important group of finds and merit study as a group. The typology and dating of the shields should be considered in the light of the typology and research presented by Dickinson and Härke (1993); it is of note that the true sugar-loaf form considered typical of the later 7th century is absent from this group. The spears have been provisionally assigned to groups defined by Swanton (1973), but these identifications, and the function of the spears need to be confirmed. Are they all throwing spears and are they all typical for Kent? Are any forms rare examples of their type in Kent? Apart from typology, the technology of the spears should also be considered, *ie*. metallurgy and evidence for pattern welding. It may be possible to reconstruct the diameter of the shields from fittings such as the four rivets, and it must also be established whether some of the longer, thinner items currently listed as keys or possible chatelaine fragments are not parts of shield grips. This study would also inform on the function of the site in the context of the Medway as a boundary of Kent.

Knives

7.10 The knives occur in a range of shapes and sizes. All are small to medium in size, but some are very small indeed; some are straight-backed, while others are angle-backed; no seaxes are present, although [178] <123> is a smaller version of this

form. In some cases the nature of the handles and presence of sheaths can be suggested. The collection can be used to construct a typology of shape, size, date and function (the latter yet to be determined) which can be compared with other sites and then applied to questions such as economy and trade connections.

Technology

7.11 Scientific analysis of the selected spears, knives and composite items will inform on their construction and technology. The metal of buckle [282]<137> should be tested to ascertain if it was silvered or gilded, while the plaster-like filling must also be identified and its function determined; was it a filling to keep weight down? If so, why does it also cover part of the upper surface? This work is also of relevance to questions of burial practice and the wider economy.

Further work

7.12 It is recommended that all finds are illustrated from life or from X-ray in order to present complete inventories of the graves. Some of this could be achieved by details of grave plans, as in the Buckland report. The better pieces (c.100) should be drawn and or/photographed for the catalogues; the best examples of each object type could be used to illustrate typologies in artefact discussions. Further work should include:

- Study of the relation of the finds groups to location on the site and comparison of the position of finds in the graves
- Comparison with literature on relevant sites
- Visits to museums and relevant collections to view unpublished material (British Museum, Rochester, Maidstone, Canterbury and Dover museums, Saltwood and any other CTRL Saxon sites)
- Compilation of finds catalogue for inclusion in publication
- Liaison with conservation and other specialists (beads, wood and textiles) Study and integration of specialist analytical reports
- Writing of finds discussion by object/function type
- Preparation of finds/instructions for illustration/photography
- Conservation
- Scientific Analysis & investigative cleaning
- Conservation for illustration/photography
- Preparation for archive deposition

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Table 16: Assessment of the metalwork by material and object type

Context	Special number	Material	Count	Period	Date	Description and comments
299-C	72	Composite	1	EM	7th century	Buckle. Iron with copper alloy rivets; very poor condition.
214-9	25	Composite	1	EM	7th century	Buckle. Iron with copper alloy rivets X-6642; Investigate/conserve
246-G	8	Composite (silver, gold garnet)	1	EM	Mid-to second half of 7th century	Buckle. With two fragments of buckle plate, silver. One (of two) cabochon garnet in mount of beaded gold wire. X-6643. Conserve/restore for photo/display
312	96	Composite	1	EM	Later 7th century	Buckle. Iron with copper rivets (decorative); X-6653. Poor condition but clean for photo/display
363	24	Composite	1	EM	Mid-7th century	Buckle. Complete; iron frame with copper alloy plate.X-6642
299-B	82	Composite	1	EM	7th century	Knife? Complete; iron with copper rivet ?pattern welding X-6656
193	23	Composite	1	EM	7th century	Mount. Copper on textile wood/leather; X-6642; clean/investigate (some mould)
246-F	13	Composite	1	EM	7th century	Mount. From shield? Complete oval plate +2 perforations; copper with iron on the back. X-6642; stabilise
305	186	Composite	1	EM	7th century	Mount. Copper/iron; X-6643
305-D	93	Composite	1	EM	7th century	Pendant. Bone or amber in iron mount; cf [214]. X -6653;
214-11	44	Composite	1	EM	7th century	Pendant. Decorated antler disc with iron mount X-6646. Clean for photo/display

Context	Special number	Material	Count	Period	Date	Description and comments
214-10	41	Composite	1	EM	Late 6th or 7th century	Pendant. Copper and reused bead with reticella decoration. Clean for photo/display
214	40	Composite	1	EM	7th century	Pendant. Antler/iron
305	39	Composite	1	EM	7th century	Pendant. Complete; small gold pendant with green glass setting
315-E	101	Composite	1	EM		Shield. X-6653 wood, iron and copper
305	19	Copper	1	EM	7th century	Large bracelet, with twisted fastening; complete. Good condition. X-6644
290-C	6	Copper	1	EM	Mid-late 7th	Buckle. Tiny buckle with oval frame and square buckle plate with serrated edge. X-6642
164-4	7	Copper	1	EM	mid 7th-century	Buckle. Very small; oval frame and triangular plate. X-6642
178	3	Copper	1	EM	7th century	Buckle. Complete; small oval frame, square buckle plate, X-6643
190-1	4	Copper	1	EM	mid-7th	Buckle. Complete; tiny oval frame and rectangular buckle plate. X-6642
190	134	Copper	1	EM	7th century	Buckle plate. Two tiny fragments
261	18	Copper	1	EM	Late 6th- to early 7th	Buckle. Complete oval frame; see <16>. X-6642/6644;
261	133	Copper	1	EM	7th century	Buckle. Complete; tiny. X-6642
282	137	Copper	1	EM	Late 6th- to early 7th century	Buckle. Large, with integral triangular plate in two pieces (laminated). Continental type; filled with plaster-like matter, which also covers part of the upper surface. X-5883. Silvered or gilded? Test metal
282	188	Copper	1	EM	mid-7th century	Buckle. Complete; tiny buckle associated with purse; see <189><190>. X6643

Context	Special number	Material	Count	Period	Date	Description and comments
282	189	Copper	1	EM	mid-7th century	Buckle. Complete; Tiny buckle associated with purse; see <188><190>. X-6643
293	5	Copper	1	EM	7th century	Buckle. Complete; Tiny buckle and buckle plate
372	2	Copper	1	EM	7th century	Buckle. Complete; oval frame, rectangular buckle plate secured by three large decorative rivets; pin *in situ.* Very good condition – possibly unworn. X-6643
261	15	Copper	1	EM	Late 6th to early 7th century	Buckle plate. Complete triangular. Good condition. X-6642; see <16>, <18>. Clean/Draw/report.
261	16	Copper	1	EM	Late 6th- to early 7th century	Buckle plate . Complete D-shaped with large rivets, iron attached X-6642; SEE <15><18>
261	128	Copper	1	EM	7th century	Coin. Rather thick and no obvious design. Roman?
261	127	Copper	1	EM	7th century	Disc. copper or silver (symbolic coin). Gilded? Needs metal test
193	14	Copper	1	EM	Later 7th- century	Lace tag. Complete; thin, long and pointed (for a girdle?); X-6642. Investigate construction
261	12	Copper	1	EM	7th century	Lace tag. Complete; thin, long and pointed (for a girdle?); X-6642. Investigate construction
261	140	Copper	1	EM	7th century	Mount. Domed stud from <16>;, as <148> X-6642; (sieved). Check for traces of solder
261	147	Copper	1	EM	7th century	Mount. Complete, tongue-shaped + rivet; X-6642, 6644
261	148	Copper	1	EM	7th century	Mount. Complete; domed stud from <16>, as <140> X-6642; 6644. Check for traces of solder

Context	Special number	Material	Count	Period	Date	Description and comments
282	17	Copper	1	EM	7th century	Mount. Complete; triangular with tiny rivets. X-6642;
282	190	Copper	1	EM	7th century	Mount. Strip, associated with purse; see <188><189>. X-6643
305	22	Copper	1	EM	7th century	Needle case. Complete; incised decoration, lid attached to a chain, possible import. X-6644. Good condition; clean for photo/display
285	126	Copper	1	EM	Mid to later 7th century?	Pin. Unusual ring-headed form (Celtic or part of set of linked pins? Possibly gilded? X-6642. Test metal/investigate construction/clean for display/photo
282	20	Copper	1	EM	Later 7th century	Purse. Holes for attachment to cloth. Associated with two small buckles and mount (<140>, <148><149>; X-6643
305	21, 141	Copper	1	EM	Second half of 7th century	Workbox. Complete; cylindrical but squashed, other fittings present. Punched cruciform decoration on lid and base, and a zoomorphic attachment plate. X-6641. Clean for photo/display ?restore
305-P	1	Gold	1	EM	Second half of the 7th century	Pendant. Complete; scutiform with filigree quatrefoil and central boss (applied, not repousse); X-6643. Clean for photo/display
246-B	48	Iron	1	EM	7th century	Buckle. Small oval with pin; X-6646
296-D	122	Iron	1	EM	7th century	Buckle. Complete circular frame, with pin (conserved); X-6651.
305-C	89	Iron	1	EM	7th century	Buckle. Complete; small oval frame with long triangular plate; X-6650. Clean for photo/display

Context	Special number	Material	Count	Period	Date	Description and comments
315-D	98	Iron	1	EM	7th century	Buckle. Complete; oval frame; X-6650
363-A	97	Iron	1	EM	7th century	Buckle. Complete with rectangular buckle plate; X-6650. Clean/investigate construction
166	111	Iron	1	EM	7th century	Buckle. Complete with pin; oval frame; poor condition. X-6651
214-7	54	Iron	1	EM	7th century	Buckle. Complete with scarf joint (bent); X-6646.
293	73	Iron	1	EM	7th century	Buckle. Oval frame, pin missing; X-6651
296-B	77	Iron	1	EM	7th century	Chain/hasp with ring; 3 pieces; X-6653.
296-C	78	Iron	1	EM	7th century	Chatelaine or keys; as <77>; X-6652
178	115	Iron	1	EM	7th century	Chatelaine or chain, 3 pieces; X-6653.
261	57	Iron	1	EM	7th century	Chain/chatelaine. X-6653. Poor condition (21 fragments).
305	87	Iron	1	EM	7th century	Chain. X-6650
261	129	Iron	1	EM	7th century	Disc, perforated ?buckle fitting ?symbolic coin
293	71	Iron	1	EM	7th century	Ferrule; from a spear. Cylindrical binding around a central tang. X-6654
164-2	110	Iron	1	EM	7th century	Hook or key?; X-6650
214-7	143	Iron	1	EM	7th century	Key bit. X-6646; from <60>
214-7	144	Iron	1	EM	7th century	Key bit. X-6646; from <60>
214-7	60	Iron	2	EM	7th century	2 keys in 6 pieces) - see <143> <144>; X-6647 Poor condition
261	130	Iron	1	EM	7th century	Key or chatelaine fragments X-6554; very poor condition (c.20 small pieces).
190-4	114	Iron	1	EM	7th century	Key bit? X-6653 end fragment?

Context	Special number	Material	Count	Period	Date	Description and comments
240-D	59	Iron	1	EM	7th century	Knife. Complete small blade/tang; possibly in leather case; poor condition but associated wood; X-6646; as <51>?
246-E	52	Iron	1	EM	7th century	Knife. Blade with part of tang, tip missing; X-6646
282-	125	Iron	1	EM	7th century	Knife. Complete (2 pieces); angle-backed type, poor condition; X-6650
290-D	67	Iron	1	EM	7th century	Knife. Blade + tang (3 pieces) in poor condition; X-6646.
290-D	150	Iron	1	EM	7th century	Knife. X-6651
296-A	79	Iron	1	EM	7th century	Knife. Complete (2 pieces); X-6651.
299-B	81	Iron	1	EM	7th century	Knife. Complete small angle-backed; X-6648
305-D	90	Iron	1	EM	7th century	Knife. Blade;. poor condition. X-6648; as <92>?
305-D	91	Iron	1	EM	7th century	Knife. Blade (2 pieces, poor condition); X-6648
315-B	104	Iron	1	EM	7th century	Knife. Blade, poor condition. X-6651
363-B	102	Iron	1	EM	7th century	Knife. Long angle-backed knife (2 pieces; see also <103>); X-6648
363-B	103	Iron	1	EM	7th century	Knife. Tang; X-6651 (part of <102>)
164-3	117	Iron	1	EM	7th century	Knife. Complete; small, angle-backed blade+tang,;X-6648. Clean for photo?
166	118	Iron	1	EM	7th century	Knife. Tang and part of blade; X-6648;
172	116	Iron	1	EM	7th century	Knife. Blade fragment, X-6648
178	123	Iron	1	EM	Later 7th century	Knife. Complete; medium-sized angle-backed seax-type; reasonable condition. X-6655. Clean for photo?

Context	Special number	Material	Count	Period	Date	Description and comments
190-3	120	Iron	1	EM	7th century	Knife. Complete but missing tip; large knife blade/tang, poor condition; X-6655
190	149	Iron	1	EM	7th century	Knife. Fragments X-6655; (was <120>)
193	119	Iron	1	EM	7th century	Knife. Complete small blade; X-6651. Clean for photo?
214-4	58	Iron	1	EM	7th century	Knife. Blade and part tang; poor condition;. X-6646
214-4	145	Iron	1	EM	7th century	Knife. Blade and part tang (3 pieces). X-6646 (was <58>)
261	131	Iron	1	EM	7th century	Knife. Half of a long blade. X-6648
276	45	Iron	1	EM	7th century	Knife. Complete small blade + tang; X-6650. Clean for photo?
293	66	Iron	1	EM	7th century	Knife. Complete blade + part tang (2 pieces); poor condition. X-6651.
305	88	Iron	1	EM	7th century	Knife. Blade (3 small pieces); X-6648
305	92	Iron	1	EM	7th century	Knife. Tang; X-6653; as <90>?
312	94	Iron	1	EM	7th century	Knife. Complete small angle-backed; X-6648. Clean for photo/display
312	95	Iron	1	EM	7th century	Knife. Blade; X-6648; blade
318	139	Iron	1	EM	7th century	Knife. X-6651
323	124	Iron	1	EM	7th century	Knife. 6 small fragments, very poor condition; X-6653
367	106	Iron	1	EM	7th century	Knife. Blade (2 small pieces); X-6648
372	105	Iron	1	EM	7th century	Knife. Complete blade (4 pieces, poor condition); X-6651.
285-B	68	Iron	1	EM	7th century	Knife. Six fragments in poor condition; X-6653.
282	76	Iron	2?	EM	7th century	Knife. Possibly two items (7 pieces) ; X-6650 in very poor condition.

Context	Special number	Material	Count	Period	Date	Description and comments
246-E	146	Iron	1	EM	7th century	Mount. Twin domed rivets? shield fitting; X-6646.
149	109	Iron	1	EM	7th century	Mount or hinge X-6650; clean to investigate
190-5	112	Iron	1	EM	7th century	Mount. With 3 rivets X-6653
190-2	113	Iron	1	EM	7th century	Mount. X-6653
261	132	Iron	1	EM	7th century	Mount. Complete; curved ?coffin/box fitting X-6648
372	108	Iron	4	EM	6th century?	Mount. 4 large circular shield mounts; X- 6654
282-D	69	Iron	1	EM	7th century	Mount. Strip, in poor condition ?shield fitting; X-6651.
240-A	53	Iron	1	EM	7th century	Pin? Two joining pieces, with textile; X-6646
305-F	135	Iron	1	EM	7th century	Purse/strike-a-light, complete; X-6650. Clean for photo/display
214-7	50	Iron	1	EM	7th century	Ring. Complete; from chatelaine or bag. X-6646
367	107	Iron	1	EM	7th century	Ring. From chatelaine? in 15 small pieces; X-6652
296-C	80	Iron	1	EM	7th century	Shears. Near complete (4 pieces) but in poor condition; X-6656.
214-3	43	Iron	1	EM	7th century	Shears. extremely poor condition (18 pieces) X-6647;
246-D	49	Iron	1	EM	7th century	Shield. Mount or grip; X-6646. Clean/conserve for photo/display
246-C	64	Iron	1	EM	Mid-late 7th century	Shield boss. Complete; conical (not sugar loaf type) + grip; the latest from the site; X-6638
315-D/P?	99	Iron	1	EM	Late 6th –earlier 7th century	Shield boss. Half small low cone, copy of continental type? X-6649. Potentially reconstructable; Clean conserve for photo/display

Context	Special number	Material	Count	Period	Date	Description and comments
315-F	100	Iron	1	EM	Late 6th –earlier 7th	Shield boss fragments. As <99>);,X-6649
164-5	65	Iron	1	EM	late 6th – mid 7th century	Shield boss. Virtually complete low cone type; 3rd in the sequence on the site; also part of associated mount; X-6637. Clean conserve for photo/display
372	61	Iron	1	EM	6th century?	Shield boss. The oldest from the site (group 3 type?). Near complete with spike at top; X-6636.Clean/conserve for photo/display
246-A	46	Iron	1	EM	7th century	Spear. 4 pieces, part of blade and socketed end; X-6647.
290-A	70	Iron	1	EM	7th century	Spear. 3 pieces; X-6656. Reconstructable;
299-A	62	Iron	1	EM	7th century	Spear. Complete. Short angular trowel-shaped blade (Swanton type E1 or F2?) with long shank. Good condition. Clean for photo/display?
315-A	84	Iron	1	EM	7th century	Spear. Near complete short leaf-shaped with long shaft (Swanton type D.1); average condition (see also <86>). X-6658; X-6653
315-G	86	Iron	1	EM	7th century	Spear. 2 small fragments, X-6653; part of <84>
164-1	121	Iron	1	EM	7th century	Spear. Near complete; short leaf-shaped blade (Swanton type D1?), with unusual rounded base. X-6657. Good condition. Clean for photo/display?
293	63	Iron	1	EM	7th century	Spear. Complete type D leaf-shaped; X-6639. Good condition. Clean for photo/display?

Context	Special number	Material	Count	Period	Date	Description and comments
312	138	Iron	1	EM	7th century	Spear. Complete; small leaf-shaped – type D or F? X-6657. Good condition. Clean for photo/display?
372	83	Iron	1	EM	Later 7th century?	Spear. Near complete leaf-shaped (Swanton type C.3); latest find in grave?. Poor condition. X-6645.
372	85	Iron	1	EM	7th century	Spear. Butt-ferrule. X-6655
276	47	Iron	1	EM	7th century	Spear. Possible spear shaft (3 joining pieces); X-6655.
282-B/C	75	Iron	1	EM	7th century	Awl? complete? 2 pieces and numerous flakes; X-6658
240-B	56	Iron	1	EM	7th century	Uncertain. Perforated disc with additional attachment; need to re-X-ray or clean; X-6646
305	185	Silver	1	EM	Late 7th century	Pendant (bulla). 3 fragments; X-6643. Clean for photo/display
293	74	Silver	1	EM	7th century	Pin. Metal to be checked. X-6653
214.1	11	Silver	1	EM	7th century	Ring. Complete
305	9	Silver	1	EM	7th century	Ring. X-6643. Clean for photo/display
305	10	Silver	1	EM	7th century	Ring. Complete; X-6642 . Clean for photo/display
305	151	Silver	1	EM	7th century	Ring. Complete (as <10>). Clean for photo/display
305	183	Silver	1	EM	7th century	Ring. Complete, small X-6643 (was <9>). Clean for photo/display
305	184	Silver	1	EM	7th century	Ring. Fragment; X-6643 (as <9><10>)

Key:
X- X-radiography sheet number

APPENDIX 7: ASSESSMENT OF BONE AND SHELL

Lyn Blackmore
Conservation by Liz Barham

1. Introduction

1.1 Three items from ARC CXT 98 are of bone with iron, while one is either of bone or amber with iron. One bead is made from a cowrie shell. The artefacts were recovered by hand excavation and sieving.

1.2 The study of the material should assist the following fieldwork aims:

- *To establish a chronology for the cemetery and a sequence of development within it.*
- *To help determine burial practices.*

2. Methodology

2.1 All the finds were examined for the assessment, and each item was given an individual accession number. The data was recorded on accession cards and entered onto the Oracle database and subsequently converted to RLE Datasets.

3. Quantification

3.1 Three artefacts are made of bone and iron. One is a comb while the others are pendants. In addition there is a small and badly preserved pendant fragment which could be of bone or amber.

4. Provenance

4.1 The comb, two pendants (probably identical) and the cowrie bead were found in the same rich female grave ([214]). One of the two pendants was found by the left hip, together with two amethyst beads, and another pendant of copper alloy and glass. The comb was placed lower down, on top of the left leg, possibly in a case of some kind, although this has not survived.

4.2 The third pendant was found in grave [305]. This may contain amber or bone, but if it is of the same type as those from [214] it would suggest a connection between these two burials, which contained the richest groups of female grave goods. Cowrie beads usually occur in necklaces, although they can occur elsewhere in the grave.

4.3 Given the poor condition of the bone it is possible that other bone objects buried on the site have not survived, but the apparent cluster in two graves may be significant.

4.4 The two antler pendants may be of local origin but the cowrie shell is an import, possibly from the Red Sea. If the third pendant proves to contain amber this may also be an import, although it could have come from elsewhere in England.

5. Conservation

5.1 This assessment considers requirements for finds analysis, illustration and investigative conservation of the bone and shell finds from ARC CXT 98. It also includes work necessary to produce a stable archive in accordance with MAP2 (English Heritage 1992), and to the standard required by the Museum of London's standards for archive preparation. (Museum of London 1999).

5.2 Treatments are carried out under the guiding principles of minimum intervention and reversibility. Whenever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object.

5.3 All conserved objects are packed in archive quality materials and stored in suitable environmental conditions. Records of all conservation work are prepared on paper and on the Museum of London collections management system (Multi MIMSY) and are temporarily stored at the Museum of London.

5.4 The accessioned finds of bone and shell were assessed by visual examination of the objects using a binocular microscope where necessary, and by examining their related X-radiographs.

Analysis.

5.5 One item, [305] <93>, was identified for further investigation and analysis: scanning electron microscope (SEM) examination is recommended in order to identify the material in the iron mount; this is thought to be bone, but could be amber.

Illustration.

5.6 One item was identified for cleaning, ([214.11]<44>) prior to illustration/photography.

Preparation for archive deposition or storage prior to display.

5.7 The bone comb [214.6] <42> is in a particularly poor condition, but some of the larger fragments have matching break edges and can be re-adhered to clarify its shape.

5.8 All five of the bone and shell finds should be repacked: The comb and pendants should have plastazote mounts within boxes to protect them from over-handling, because of their extreme fragility. [214] <44> and [305] <93> should ideally be packed, enclosed with silica gel, as in these cases the iron is all that is keeping the object together.

6. Comparative material

6.1 From what remains of the comb it would appear that it is standard for the period; it is less ornate than the single-sided comb from Polhill (Hawkes 1973, 198; Philp 1973, Fig.53, No.487). No parallels have yet been found for the pendants, but they are clearly related to the decorated bone disc with an iron mount found at Burwell (Lethbridge 1931, 62-3; Fig.32, no.6).

6.2 Cowrie beads are known from several burials of the period, including Finglesham and Buckland, Dover (Meaney 1981, 123-28; Geake 1997, 62).

7. Potential for further work

7.1 The study of the material should assist the following Fieldwork Event Aims:

- *To establish a chronology for the cemetery, to establish a sequence of development within the cemetery.*

7.2 The date of the antler pendants is uncertain, but the cowrie bead and other finds in grave [214], indicate that this is a 7th century burial. Further research into these items may allow this date to be refined.

- *To help determine burial practices.*

7.3 The two antler pendants may also have ad some amuletic purpose. Cowrie shells are popular amulets even today; in the 7th century they may have signified the female gender/fertility, although other interpretations have been suggested (Meaney 1981, 128; Geake 1997, 62). It is likely, but by no means certain, that cowrie beads had the same symbolic meaning and were used by those who were unable to obtain a complete shell. Cowrie shells and beads were almost always buried with younger women and children. The fact that only one bead occurs on this site and that it is together with the antler pendants in one of the richest female graves may help to interpret the age and status of the deceased.

7.4 The following Landscape Zone aims (towns and their rural landscapes 100 BC-AD 1700) may be addressed when the finds are considered together with the other accessions:

- *The ways in which human populations moved through the landscape, including the organisation of communication networks.*

7.5 The antler pendants and comb indicate specialised bone-working; the rarity of the former may indicate that they were imports to the site, or made by itinerant craftsmen.

- *The economy of human populations using the landscape, including trade and contact with other populations.*

7.6 Cowrie shells and beads indicate contact with populations who either lived in or were in contact with the Middle East or Mediterranean. The means by which cowries reached England and were redistributed across the country is unknown; their distribution is mainly confined to coastal Kent, and the southern Midlands (Geake 1997, Map 27). The antler pendants are so unusual that, if a parallel can be found, they will indicate contact, direct or indirect, with that site.

New research aim.

7.7 Study of the finds *per se* will be of importance to typological and technological studies of Early to Middle Saxon material culture. If possible the dimensions of the bone comb should be established. All finds should be illustrated and/or photographed.

Further Work

7.8 Further work should include:

- Further analysis, including identification of bone/antler/amber and cowrie
- Integration of the finds with the stratigraphic information
- Comparison with material from other sites:
- Compilation of finds catalogue for inclusion in publication
- Writing of finds report
- Preparation of finds for illustration/photography

- Conservation

8. Bibliography

Geake, H, 1997, 'The Use of Grave Goods in Conversion Period England' *BAR Brit Ser 261.*

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Lethbridge, T C, 1931, 'The Anglo-Saxon Cemetery at Burwell Cambridgeshire' *Cambridge Antiq Soc New Series, 3.*

Meaney, A L, 1981, 'Anglo-Saxon Amulets and Curing Stones' *BAR Brit Ser 96.*

Table 17: Assessment of composite bone finds and worked shell

Context	Special Number	Material	Count	Period	Date	Comments (Description)
214.6	42	Bone/iron	1	EM	Late 7th century	Double-sided comb; antler with iron rivets; very fragmented
214.7	40	Bone/iron	1	EM	Late 7th century	Pendant made of antler pedicle with part of iron mount; decorated with a circle of punched dots; very fragile
214	44	Bone/iron	1	EM	Late 7th century	Pendant fragment, as above with iron mount for suspension; very fragile
305	93	Bone?/ iron	1	EM	Late 7th century	Pendant fragment, as above with iron mount for suspension (possibly amber not bone)
214	142	Shell	1	EM	7th cent	Small cowrie bead

APPENDIX 8: ASSESSMENT OF ORGANICS

Lyn Blackmore
Conservation by Liz Barham

1. Introduction

1.1 A total of 44 objects from ARC CXT 98 have the remains of organic matter. The metal artefacts were all recovered by hand excavation.

1.2 The study of the material should assist the following fieldwork event aims:

- *To establish a chronology for the site.*
- *To help determine burial practices.*

2. Methodology

2.1 All the finds were examined for traces of organic material such as textiles, leather or wood. Since these mainly survive as traces on a metal object, they share the same accession number. The material appears to consist of impressions on corrosion product or mineral preserved organics from an original organic artefact. Preliminary assessment under low magnification suggests that little if any material remains truly organic.

2.2 The data was recorded on accession cards and on the Oracle database and subsequently converted to RLE Datasets.

2.3 The finds were broadly related to the graves on the grave plan and to their location in the graves.

3. Quantification

3.1 A total of 44 finds have traces of mineralised organic matter. Mineralised wood and textiles occur on 26 and eleven artefacts respectively, while one accession comprises wood fragments only. Traces of mineralised leather seem to be present on seven objects, while unidentified mineralised organic matter is present on four items. These materials occur in combination on seven items.

3.2 Four of these objects are buckles of composite metals, two are on objects of copper alloy while the remainder are of iron, mainly knives, spears and shields.

4. Provenance

4.1 Mineralised organic materials were present in 21 graves; most fragments are very small, but sufficient survives to address some of the research aims. Some of the mineralised organics from finds which have provisionally been identified as keys or chatelaine fragments could in fact be from coffins or smaller boxes.

Wood.

4.2 Most mineralised wood occurs in conjunction with shield bosses and grips, and in the shafts of spears, but is also found on knives. The best groups are from [246] and [315].

Textiles.

4.3 Most textiles are associated with buckles, but they also occur on shields, spears and knives. Grave [296] is the only one which has textiles marked on the site plan (over the thighs), but none were retrieved or noted on the objects. The best finds are from [214], [246], [261], [290] [293] and [372]; all finds, however, should be examined by a textile specialist. In all cases the amounts of cloth are small, but sufficient survives to show that different kinds of textiles are present, both fine linen (perhaps undergarments or shrouds) and coarser cloths, perhaps used for cloaks. Both types are visible on <70>, a spear from [290]. Textiles might have been expected in the workbox from [305], as has been found on other sites in the country (Crowfoot 1973), but none were recovered. No remains of the bags or purses survived other than traces on the purse-mount/strike-a-light <135> from grave [305].

Leather.

4.4 Leather remains are much harder to identify with certainty at this stage; some possible pieces were noted in association with mounts, but it possible that more survive in the corrosion products.

5. Conservation

5.1 This assessment considers the requirements for analysis and investigative conservation of the mineral-preserved organics on the metal finds from ARC CXT 98. It also considers work necessary to produce a stable archive in accordance with MAP2 (English Heritage 1992), and to the standard required by the Museum of London's "Standards for archive preparation" (Museum of London 1999).

5.2 Treatments are carried out under the guiding principles of minimum intervention and reversibility. Whenever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object.

5.3 All conserved objects are packed in archive quality materials and stored in suitable environmental conditions. Records of all conservation work and analysis technical reports are stored on paper and on the Museum of London collections management system (Multi MIMSY) and are temporarily stored at the Museum of London.

5.4 The accessioned metal finds and their associated organics were assessed by visual examination of the objects using a binocular microscope where necessary, and by examining their related X-radiographs.

Analysis/Investigative cleaning.

5.5 No conservation work on the accessioned metal finds should be carried out without prior analysis of the evidence of organics associated with them, which hold very great potential. Preliminary assessment under low magnification suggests that these consist of textile, wood and leather, mostly preserved in

mineralised form or as impressions in the corrosion product. Much of this material can be conserved *in situ*, provided that conservation treatments and cleaning for investigation and prior to illustration/photography are carried out selectively. A value judgement would have to be taken on pieces where detail is obscured by preservation of organics, however in most cases, the mineral-preserved organics provide very significant evidence about their context and should not be removed. Fully mineralised items can be stored as metals; enclosed with dry silica gel, but where true organic material survives, stable mid-range environmental conditions will be necessary to conserve this for future examination/analysis.

5.6 This approach may affect the survival of the metal element of these artefacts in the long term, but where there is good survival of mineral preserved organics, their rarity makes this approach a valid risk to take. Conducive environmental conditions; physically protective packaging and storage/display in stable temperatures and humidities will assist greatly.

5.7 Examination under an SEM could assist in most cases with identifying the material present; the nature, ply and spin of thread and type of weave; or, where an appropriate sample survives, the species of wood or source of leather. In most cases the textile remains appear too mineralised to separate out fibres for identification of an individual sample, but they may be distinguishable *in-situ*. The expertise of identification in textiles, wood and leather would need to be out sourced, and funding allowed to cover this work. In some cases, some preliminary cleaning away of surface corrosion would be necessary by a Conservator to clarify the detail before examination.

5.8 Provision for illustration and stabilisation for archive deposition or storage prior to display is covered in the metals assessment report.

6. Comparative material

6.1 There are numerous relevant sites in the county and beyond with which this site must be compared, notably Polhill, Kent (Crowfoot 1973) and Buckland, Dover (Crowfoot 1987). Little material from the local sites in the Rochester area has been published.

Wood.

6.2 The identifiable wood in the spears from Polhill was mainly found to be oak and hazel, with one of ash. At Buckland a wider range of wood species was identified, including lime and willow; the latter might be expected on a site by the Medway.

Textiles.

6.3 The textiles from Polhill were limited, being associated with only five objects, but a range of different weaves was found which can be compared with the Cuxton finds. Those from Buckland provide a much larger sample; as at Cuxton most were preserved on iron objects. Other sites with textile remains include Darenth Park, Dartford (Crowfoot 1990), Orpington (Crowfoot 1968), Sibertswold, Finglesham and Kingston in Kent (Crowfoot 1973, 203; Crowfoot 1958), Sutton Hoo and Broomfield (Crowfoot 1983), Dunstable and Kempston (Crowfoot 1973, 203); some of these sites are, however, earlier than Cuxton.

7. Potential for further work

7.1 The study of the material should assist the following Fieldwork Event Aims:

- *To establish a chronology for the cemetery.*

7.2 The organics offer little scope for dating other than by ^{14}C analysis; none of the wood is capable of dendro dating.

- *To establish a sequence of development within the cemetery.*

7.3 The finds may offer some scope for comparison of shields and spears and perhaps of dress, but they are unlikely to contribute to refining the sequence of development. Analysis of the insect pupae, and possibly also the textiles, however, may inform conditions at the time of different burials.

- *To help determine burial practices.*

7.4 The finds have the potential to conform on how the deceased was dressed and how the grave goods were placed in the grave. Study of the position of different finds in the graves and where the organic material occurs may help to inform on items which were no longer present by the time of excavation. Wood remains on the outside of a shield boss, for example, may derive from a collapsed shield (eg grave [372]), or from an adjacent spear (eg [315]). If the wood is compressed, it may indicate the lack of, or rapid collapse of a coffin. Good preservation suggests a coffin or a protected environment such as within a spear socket. Of special interest are the purses from male graves [261] and [282]; the layout of these finds in the graves may help establish the size of the original bags in which they were placed.

7.5 The textiles hold greater potential for comparative research. Can the nature, ply and spin of the thread be defined (eg. linen, flax, wool)? What is the range of fabrics (eg. tabby, twill, tablet weave)? Did the Cuxton people share the same preference for tabby weave as those at Buckland and Updown (Crowfoot 1987, 194)? If so, does it reflect a southern preference for less heavy cloth than was favoured in the north, or was the choice of cloth dictated by the burial rites, climate, or the season at the time of burial? Can colour or embroidery be detected? Are any hems or seams present? Is the textile on the buckles from belts or from other pieces of clothing? Analysis of the textiles might help to show whether mats were placed in the graves., What are the other organics? Does leather survive in any of the buckle plates and can it be identified to species? Can leather sheaths or fleece linings from them be detected on the knives

7.6 The following Landscape Zone aims (towns and their rural landscapes 100 BC-AD 1700) may be addressed when the finds are considered together with the other accessions:

- *The ways in which human populations moved through the landscape, including the organisation of communication networks.*
- *The economy of human populations using the landscape, including trade and contact with other populations.*

7.7 Identification of the wood used in the shields and spears may help to determine the species, the kind of landscape from which it was obtained, and perhaps differences between the materials used shields and spears. The textiles form an important addition to the finds from the known cemeteries of west Kent/the Medway area, of which only Polhill has been adequately published (Crowfoot 1973). Identification of the fibres and textile remains may help to determine their

quality (are they the work of professional weavers?) and establish whether any cloth or raw material was imported.

Further Work.

7.8 Further work should include:

- Scientific analyses of the organic remains
- Study of the relation of the finds groups to location on the site and comparison of the position of finds in the graves
- Comparison with material from surrounding sites
- Compilation of catalogues for inclusion in publication
- Liaison with conservation and other specialists
- Writing of discussion by object/function
- Writing of thematic texts
- Preparation of finds/instructions for illustration/photography
- Photography
- Conservation

8. Bibliography

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Crowfoot, E, 1983, 'The Textiles' in R Bruce-Mitford 1983, The Sutton Hoo Ship Burial 3 I, 409-79.

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Philp, B, 1973, 'Site 24. The Anglo-Saxon Cemetery at Polhill, Dunton Green' in B Philp *Excavations in West Kent 1960-1970*, 164-214.

Table 18: Assessment of the organic materials

Context	Special number	Material	Period	Date	Comments
164-1	121	Iron	EM	7th century	Wood in the socket of a spear. Also pupae cases?
166	118	Iron	EM	7th century	Wood (mineralised) on a knife
172	116	Iron	EM	7th century	Wood (mineralised) associated with a knife blade X-6648
178	115	Iron	EM	7th century	Wood adhering to a chatelaine or chain, 3 pieces
190-3	120	Iron	EM	7th century	Wood (mineralised) associated with a knife
193	14	Copper alloy	EM	Later 7th century	Textile(?) remains inside a lace chape/strap end,
193	23	Composite	EM	7th century	Textile/wood/leather under a copper alloy mount
214-7	54	Iron	EM	7th century	Organics; slight traces on a round buckle
214-9	25	Composite	EM	7th century	Textile; excellent remains on the back of a composite buckle
240-C	51	Wood	EM	7th century	Wood (mineralised) with good potential for identification of species
246-A	46	Iron	EM	7th century	Wood in situ in spear shaft; also ?pupae cases.
246-D	49	Iron	EM	7th century	Wood (mineralised) possibly from spear? Also excellent textiles on shield grip; compare textile with 372
246-E	52	Iron	EM	7th century	Wood (mineralised) on the tang of a knife
246-E	146	Iron	EM	7th century	Wood in situ between twin domed rivets (?shield fitting);
261	57	Iron	EM	7th century	Textile fragments (excellent) on a chain/chatelaine;
261	147	Copper alloy	EM	7th century	Leather associated with a small tongue-shaped mount
282	69	Iron	EM	7th century	Wood/leather traces on a mount (?shield fitting);
282	76	Iron	EM	7th century	Wood.(good preservation) associated with a ?knife
285-B	68	Iron	EM	7th century	Wood fragments associated with a ?knife
290-A	70	Iron	EM	7th century	Wood (mineralised) and excellent textile preservation (2 types) on a spear
290-D	67	Iron	EM	7th century	Textile and/or wood adhering to a knife

Context	Special number	Material	Period	Date	Comments
293	66	Iron	EM	7th century	Wood (mineralised) on tang of a knife,
293	73	Iron	EM	7th century	Leather traces on a buckle with oval frame,
293	74	Silver	EM	7th century	Textile (excellent mineralised) on a ?silver pin.
296-A	79	Iron	EM	7th century	Wood on tang of a knife
296-B	77	Iron	EM	7th century	Wood in a hasp with chain link
296-D	122	Iron	EM	7th century	Leather and pupae cases on a round buckle,
299-B	81	Iron	EM	7th century	Wood on tang of a small angle-backed knife
299-C	72	Composite	EM	7th century	Textile (belt?); good remains on a composite metal buckle
305-C	89	Iron	EM	7th century	Textile/leather traces on a small oval buckle
305-F	135	Iron	EM	7th century	Textile (mineralised) traces on a purse/strike-a-light
312	94	Iron	EM	7th century	Wood (mineralised) on a small angle-backed knife
312	96	Composite	EM	650-700?	Textile/organics on a composite buckle
315-A	84	Iron	EM	7th century	Wood in shaft and textile remains on a spear
315-D	98	Iron	EM	7th century	Organics (?leather) on a buckle with oval frame
315-D/P?	99	Iron	EM	Late 7th/early 8th century?	Wood (mineralised wood) on a shield boss (as <100>)
315-F	99	Iron	EM	Late 7th/early 8th century?	Wood associated with shield boss
315-G	86	Iron	EM	7th century	Wood associated with a spear (part of <84>)
363	24	Composite	EM	Mid- 7th century	Organics (mineralised) on a composite buckle
363-A	97	Iron	EM	7th century	Textiles (mineralised) and ?pupae cases on a buckle,
372	61	Iron	EM	Mid- to late 6th century	Wood (mineralised) on the of outside of a shield boss, possibly from collapsed coffin; also good textile remains on grip; compare textile with 246
372	83	Iron	EM	Later 7th century	Wood in the socket of a spear.

Context	Special number	Material	Period	Date	Comments
372	85	Iron	EM	7th century	Wood in socket of a butt-ferrule
372	105	Iron	EM		Wood (mineralised) on a knife

APPENDIX 9: SUMMARY ASSESSMENT OF THE ACCESSIONED FINDS FROM THE GRAVE GROUPS AT CUXTON CEMETERY

Lyn Blackmore

1. Introduction

1.1 A total of 190 objects from 31 graves at ARC CXT 98 have been accessioned; a few items share more than one accession number, while others should be split. The concentration of the finds in the graves varies considerably. Most finds were recovered by hand excavation, but one or two were found in sieved residues. They comprise an important assemblage with some high quality pieces and a few of particular interest (the gold pendants, workbox, needle case/container and continental-style buckles).

1.2 The study of the distribution of the finds and their location in the different graves has considerable potential to assist the following fieldwork aims:

- *To establish a chronology for the cemetery and a sequence of development within it*
- *To help determine burial practices.*

2. Methodology

2.1 All the finds were recorded on the MoLAS oracle database with single entries for most items. These entries have been subsequently added to the RLE Datasets. The finds were assessed by material category (see separate reports) and then grouped by grave in order to gain an impression of the range of assemblages and the correlation of object types. The finds were related to the graves on the grave plan, but their location has not been considered other than in general terms.

3. Quantification

3.1 A total of 190 finds were recovered. Taking the assemblage by material category, iron is the most common material in most graves. Copper is well represented in some graves but is not present in every group. The beads of glass and stone are mainly from one grave, with smaller groups from a few others. Quantification is complicated by the fact that several items are composites. Organic material is hard to quantify but exists in mineralised form on many items.

3.2 In all 31 of the 36 inhumation burials contained grave goods which had been associated with skeletons; finds were also recovered from three other contexts [149], [357], [367]. Most graves contain less than five items, but a few stand out as particularly rich (see below).

3.3 The most common finds are weapons, knives, jewellery and dress accessories. There are no swords or true seaxes, and no brooches.

4. Provenance

4.1 The distribution of the finds in the graves is summarised in Table 18. All the groups are important – even those with only one or two finds, as they contribute to part of the wider picture (see below), but a few are more prestigious and should be discussed in detail. The finds from [246], [290], and [293] were also associated with pottery.

Male graves.

4.2 Of the graves that contained identifiable males, [299] had a spear but no shield. Male [261] is of particular interest, as he wore at least one continental-style belt set, and had no weapons; this is the only burial with 'coins' (one real and two symbolic). The finds from [261] are well preserved and the belt fittings are of particular interest as they are either imported or copies of a continental type, and possibly older than the other finds. This male also had a lace tag at the waist, suggesting an additional girdle, while the distribution of the other finds suggests that they might have been in a bag or purse

4.3 Four graves containing unsexed adult remains have typically male assemblages; of these, [246] and [372] each contained spears and shields. The shield from [372] is the oldest from the site, and is the only one with large rivets. Grave [246] is of interest, partly because the shield is the latest from the site; the deceased had a high quality composite belt buckle and was also accompanied by an imported Frankish bottle. This grave should be discussed in detail. Graves [164] and [312] each contained only a spear; male [164] had a possible cloak fastener at the shoulder.

4.4 Some graves containing no bone also have typically male assemblages ([282], [290]). Of these, [290] contained a spear and a chaff-tempered pot, while [282] seems to be related to [246] as it is the only other grave containing a Continental-style belt buckle, this time in association with a much better purse which seems to have contained a knife and a tool. Discussion of this grave must consider other burials with purses containing tools. The above graves are of relevance to the study of burial rites, economy and trade.

4.5 Skeleton [193] was identified as adult male, but the grave goods could equally be female, as they include two glass beads and no specifically male items; this could perhaps be the grave of a young man.

Female graves.

4.6 Four graves contained bone identifiable as adult female ([214], [240], [296], [363]). Of these, the best group is from [214], which was comparatively richly furnished with a necklace of glass beads and at least one silver ring, and numerous items in the area of the waist and pelvis. Some items such as shears, knives and a chatelaine are often found in these locations, but the placing of two amethyst beads by the left hip is unexpected. Two bone and iron pendants, which must have been fastened to a belt, are also very unusual. This was the only female grave with a comb, although it is in such poor condition it is quite possible that others have decayed. The site records note that the comb was once in a case, although no trace of this survives now. A composite buckle at the waist may have fastened a shroud. The finds from [240], a mother and child burial, include a silver pin on the chest and a disc-like object found at the waist which remains to be identified; it is unlike any of the other buckles from the site and could be an important find.

4.7 One skeleton identifiable only as an adult ([305]) contains the most wealthy female assemblage from the site, with more jewellery than [214], and several items not found in any other grave; the finds are also in good condition. The grave goods include several pendants and necklace rings of gold and silver, and the only bracelet from the site. Of particular interest are the workbox and needle-case/container, of which the latter could be imported from the East Mediterranean. The iron includes purse mount/firesteel, at least two, possibly three knives and fragments of keys/chatelaine. This is a key group dating to the mid- or second half of 7th century; parallels for different items may be found in Southampton, Norfolk, and Suffolk, amongst other sites. The above graves are of relevance to the study of burial rites, economy and trade.

4.8 Two adult graves, [168] and [210], containing only beads are probably of younger women, while [285] contained a very unusual ring-headed pin which of 'Celtic' type (Appendix 5, 6.7).

4.9 Four graves identified as children contained grave goods. Of these, [172], [276] and [293] were probably boys; [293] and possibly [276] contain spears, while [293] also has a chaff-tempered pot. The bead from [186] might suggest that this burial was of was a girl.

Indeterminate.

4.10 Several skeletons identifiable only as adults contained items that could be male or female, and some graves contain very few artefacts, or none at all. This could reflect either their status or date (*ie*. the preference for unfurnished graves after the end of the 7th century.

5. Conservation

5.1 Needs for conservation and investigation have been noted in the individual assessments. It must be stressed that since the overall scheme of the publication has not yet been determined these should be open to revision. For example, should it be decided to photograph certain grave groups together (and this would be highly desirable) there will almost certainly be further conservation work needed than has currently been indicated.

6. Comparative material

6.1 Technically all sites in Kent are of some relevance to the study of the Cuxton finds, but those in the Medway area and between Rochester and the coast around Dover (including Saltwood) must be considered. There are numerous relevant sites beyond the county with which this site should be compared. The material appears to fit well within the culture of the late 6th and 7th centuries in southern England, and although some pieces such as the large 'purse frame' are quite unusual, several parallels for the buckles, purse mount/strike-a-light, spears and shields have already been noted in other cemeteries across the country. Some of the more relevant sites are listed below.

6.2 The closest published site is that at Polhill in the Darenth valley, although this might start and end slightly later than Cuxton (Philp 1973; Hawkes 1973). Closer still, but largely unpublished and potentially earlier in date, are the finds from

cemeteries in Rochester, notably those at Watts Avenue and Star Hill, Eastgate, (Payne 1895, lv; 1897, liv-lvii; Smith 1912, 376; Meaney 1964, 134). Other sites in Orange Terrace and Roebuck Road were first thought to be Jutish, but may also be relevant (Payne 1898, 3; 1900, liv-lv). Finds of the same date have also been recovered previously from Cuxton and Strood (Smith 1912, 377; Meaney 1964, 138; Swanton 1973). Other sites in north-east Kent which have, or are likely to have, relevant comparative material include Horton Kirby (Cumberland 1940; Meaney 1964, 124). Little of this material, however, has been adequately published.

6.3 Other relevant sites in Kent include Faversham (eg Leeds 1936), Sibertswold (notably grave 172, which offers a parallel for grave [305]), Buckland, Dover (Evison 1987) and the more diverse sites of Finglesham (Hawkes 1958) and Saltwood. Comparanda will also be found in the Faussett collection (*Inventorium Sepulchrale)* and the various publications by Roach Smith, amongst others. Sites outside Kent include Sutton Hoo, Taplow, Boss Hall, Southampton, the Cambridgeshire cemeteries of Burwell and Shudy Camps (Lethbridge 1931; 1936), and Leighton Buzzard (Hyslop 1963). Continental literature has not been checked, but there are undoubtedly relevant assemblages in France and the Low Countries.

7. Potential for further work

7.1 The study of the material should assist the following Fieldwork Event Aims:

- *To establish a chronology for the cemetery*

7.2 With the exception of one or two possible heirlooms, the assessment has shown that the metalwork is slightly later than first thought. The finds, can be broadly dated to the period 580-700, and it has been found that there is a sequence within the dates of the four shield bosses. Most finds date to the mid-7th century, but some items, including at least one shield, were old when buried, and others may well have been so. The cemetery thus spans two or at most, four generations. The potential exists, through further research, to refine the dating of the finds in at least some of the graves, but the problem of the unfurnished graves and those with very few finds, which could equally be chronologically late, or of lesser status, needs more attention.

7.3 Scientific dating of the human bone (^{14}C), if this can be done, would help to establish a more precise chronology for the site. The 7th century falls on a particularly good part of the ^{14}C dating curve, and the use of high precision samples (200g longbone) would allow dating within 40 years at 95% confidence. Up to six samples taken from suitable graves with different orientations and grave goods would aid both the phasing and interpretation of the site and the dating of the finds.

- *To help determine burial practices*

7.4 The investment in artefacts and mortuary structures at Cuxton is somewhat polarised and the grave assemblages range from largely furnished to largely unfurnished. Two female graves ([214] and [305]) and two male graves ([246], [261]) contained more 'prestigious' items than the others. As at Polhill (Hawkes 1973, 200), the graves former lie within ring ditches, but the latter do not. The significance of this phenomenon needs more consideration, but reflects investment choices in the use of either below-ground accessories or above-

ground monuments. The former can in turn be used to consider variables such as age, gender, status, cultural affinities and beliefs of the individuals and perhaps also relationships between them (eg the pairing of graves [282] and [305]); there is much scope to develop this field of research.

7.5 The assessment has also shown that the finds can help in the identification of male and female groups where the preservation is poor or bone is lacking altogether, and that they have the potential to inform on contemporary dress. There are, however, a few anomalies where 'male' objects occur with female inhumations, and vice versa, which need further consideration. Study of the combination and positioning of different items on or by the body, and the way in which they have decayed or corroded, will help to build up a picture of burial rites in relation to age or gender, and if these rites changed through time. The lack of brooches and cloisonne jewellery probably reflects changes in dress during the 7th century (Boddington 1990, 189) as much as the early Christian date of the site (Lethbridge 1931, 70), but are the shields are found graves on all alignments. Are they associated with more pagan/less Christian males or is the shield in the east-west grave [164] an heirloom?

- *To establish a sequence of development within the cemetery*

7.6 Once the dating of the finds has been established and/or refined, analysis of the different burial practices and the distribution of the graves may help to identify some chronological trends and perhaps even family groups. At present it can be noted that three of the shield burials are aligned to face the Medway, and that they lack ring ditches. The 'richest' graves are at the western end of the site, with an approximate east-west orientation, and three of them lack ring ditches. The semi-furnished graves might be poorer individuals, but it is more probable that they are later in the sequence (see above).

7.7 The following Landscape Zone aims (towns and their rural landscapes 100 BC-AD) 1700 may be addressed when the finds are considered together with the other accessions:

- *The ways in which human populations moved through the landscape, including the organisation of communication networks*

7.8 Even if the cemetery cannot be linked to a settlement, research into the finds can aid the understanding not only the site itself but the wider context in which the community functioned. The weapons from 5th- and 6th-century cemetery sites in the Rochester area reflect the fact that this was an important river crossing (Hawkes 1982, 74), but it must be determined to what extent the need to defend the northern boundary of Kent persisted in the 7th century. Given that Cuxton was on the north bank of the Medway, did it defend the Kentish kingdom, or that of Surrey? Indeed, given the lack of swords, can the composition of the male grave goods at Cuxton be used to demonstrate a 'military' function at all? The presence of spears does not necessarily denote that this was a warfaring community; it is likely that every male used one, for hunting as much as combat. Shields are weapons that become less common in graves throughout the 7th century. The similarity of the finds to assemblages from both sides of the Medway might thus reflect a more peaceful era and the development of Watling Street as part of the new communication and trade networks that were established between Canterbury, Rochester and London in the 7th century.

- *The economy of human populations using the landscape, including trade and contact with other populations*

7.9 The finds from ARC CXT 98 are generally quite homogenous, and show a 'cultural identity' of sorts for the site. Parallels between the pottery and other finds from sites on both sides of the Medway have been noted in the different material assessments (above), and these testify to trade networks, even if they cannot yet be defined. The amethyst beads, cowrie bead and the possible imported metalwork point to contact, direct or indirect with places beyond the immediate Kentish/Frankish sphere (evidenced by the glass and the pottery bottle). The gold does not indicate external trade as such as it was probably recycled.

7.10 Of particular interest for the CTRL project, therefore, is the question of how objects from the Continent were distributed (via Dover or other ports), and the changing proportion of imports as the distance from the coast increases. The Cuxton and Saltwood sites should be analysed within their own terms of reference, but comparison and contrast of the differences in the location and assemblage composition of the two sites (and others near them) will help to understand the implications of these differences. For example, does the marked contrast between the range and numbers of 'luxury' goods at Saltwood (eg. brooches, buckets, Coptic bowls) and the scarcity of such items at Cuxton reflect status or the size and location of the sites? Cuxton may appear poor by comparison with Saltwood, but it was possibly of some standing in the local context: a few finds are of a relatively high quality, while one is possibly unique. The large amount of iron shows that the people of Cuxton had sufficient means to bury items that could otherwise have been recycled

7.11 It also needs to be determined whether the Cuxton people were culturally closer to those of Darenth than, say, Faversham. Saltwood appears to have a longer time span and has continental affinities which are characteristic of that area, but not obvious at Cuxton or in north-west Kent. More detailed comparison of the Cuxton finds with those from other sites, including Saltwood, will also help to establish whether there was continuity of tradition, or cultural change in 7th-century Kent, how this was manifested and how it relates to regional and national trends. Consideration of these and related points will help to place other Kentish sites of the period within this research framework.

- *New research aims.*

7.12 New cemetery assemblages of the 7th century are important, wherever they are, and Cuxton is a welcome addition to the corpus for Kent, and especially to the known cemeteries of west Kent/the Medway area, many of which are slightly earlier in date. They will inform on technology and use, and will help to provide a much-needed typology of different classes of finds for this period in this part of Kent, where many earlier finds still go unpublished. This work will ideally include a survey of the collections in Rochester and Maidstone museums, and will help to redress the imbalance of knowledge of 7th-century Kent, where more is known of the east than the west. Consideration of the site in the context of Conversion-period cemeteries, both in the county and across the country as a whole, will be of regional, if not wider significance.

Further work

7.13 If studied in detail, Cuxton has the potential to become a type-site for north Kent for some time to come. It is recommended that the finds are presented both by grave group and by object type, with a discussion of the overall significance of

the material. In addition to the tasks included in the material-specific finds assessments, time must be allocated in order to:

- Analyse the general relation of the finds groups to their location on the site
- Study the finds assemblage in its local, regional and national context
- Edit the catalogues by grave and discuss the grave groups
- Prepare tables and a general discussion of the assemblage
- Edit finds texts

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Table 19: Assessment of the finds by grave group

SK: Skeleton, A: Adult, M: Male, F: Female, C: Child, Brackets (): Provisional sex

Context	Sex	Date	Material	Count	Comments
149	Grave fill	7th century	Iron	1	Hinge?
164	SK/A (M)	7th century	Copper	1	Very small buckle
164	SK/A (M)	7th century	Iron	4	Shield boss, virtually complete low cone type Spear; short leaf-shaped blade Small, angle-backed knife Unknown
166	SK/A	7th century	Iron	2	Buckle with pin, oval frame Knife
168	SK/A (F)	Later 7th century	Glass	2	Beads (red, turquoise spiral)
172	SK/C	7th century	Iron	1	Knife (blade)
178	SK/A (F?)	7th century	Copper	1	Small buckle; oval frame and square plate
178	SK/A (F?)	7th century	Iron	2	Medium-sized angle-backed seax-type knife Chain/chatelaine? (fragment)
186	SK/C	7th century	Amber	1	Bead
190	SK/A	Mid-to-later 7th century	Copper	2	Tiny buckle, oval frame and rectangular plate Two tiny fragments buckle plate
190	SK/A	7th century	Iron	5	Large knife Knife 2 Mounts Key fragment
193	SK/AM (F?)	7th century	Composite	1	Copper mount on wood/leather
193	SK/AM (F?)	Later 7th century	Copper	1	Lace tag
193	SK/AM (F?)	7th century	Iron	1	Knife, complete small blade; X-6651
193	SK/AM (F?)	7th century	Glass	2	Beads (pale green annular; burnt ?green annular)
210	SK/A (F?)	7th century	Glass	3	Beads (blue, yellow, white)
214	SK/AF	7th century	Silver	1	Ring
214	SK/AF	7th century	Iron	7	Buckle Ring (chatelaine?) 2 keys 2 knives Shears

Context	Sex	Date	Material	Count	Comments
214	SK/AF	7th century	Composite	3	Iron buckle with copper rivets 2 antler pendants with iron mounts
214	SK/AF	7th century	Shell	1	Small cowrie bead
214	SK/AF	7th century	Stone	2	Beads: 2 amethyst drops
214	SK/AF	7th century	Glass	29	Beads: 1 white; 10 red; 6 green; 8 blue; 4 yellow
214	SK/AF	7th century	Bone	1	Comb: Antler/iron rivets [214-6]
240	SK/AF+C	7th century	Iron	3	Small knife, complete; possibly in leather case Pin? (with textile) Uncertain. Perforated disc with additional attachment
240	SK/AF+C	7th century	Wood	1	Fragments of box/coffin?
246	SK/A (M)	Mid-to-later 7th century	Composite	1	Buckle, copper alloy with garnet in mount of beaded gold wire
246	SK/A (M)	7th century	Copper	1	[246f] x-6642; oval plate +2 perforations
246	SK/A (M)	Mid-to-later 7th century	Iron	6	Shield boss, complete, conical + grip Shield mount or grip Twin domed rivets ?shield fitting Spear Knife Buckle, small oval
	SK/A (M)	7th century	Pottery	1	Frankish bottle
261	SK/AM	Late 6th to early 7th century	Copper	10	Tiny buckle, possibly from purse Large Continental-style buckle with rounded buckle plate and triangular buckle plate with domed studs Lace tag Mount (tongue-shaped + rivet) Coin? Disc (?symbolic coin, possibly silver)
261	SK/AM	7th century	Iron	5	Key? Suspension loop Knife Perforated disc (buckle fitting or symbolic coin) Mount

Context	Sex	Date	Material	Count	Comments
276	SK/C	7th century	Iron	2	Spear? Knife
282	No bone (M)	7th century	Copper	6	Large belt buckle; continental type with integral triangular plate Purse frame with 2 Tiny buckles and mount Triangular open mount
282	No bone (M)	7th century	Iron	4	Large, angle-backed knife Knife? or shears Tool (?awl) Mount (strip) in poor condition ?file or shield fitting?
285	No bone	Later 6th to 7th century?	Copper	1	Unusual ring-headed pin (Celtic or part of set of linked pins?
285	No bone	7th century	Iron	1	Knife? Poor condition; associated wood; X-6653
290	No bone (M)	Mid-to-later 7th century	Copper	1	Tiny buckle, oval frame; plate with serrated edge.
290	No bone (M)	7th century	Composite	1	Spear (with mineralised wood/ textile)
290	No bone (M)	7th century	Iron	2	2 knives
290	No bone (M)	7th century	Pottery	1	Tall-necked chaff-tempered jar
293	SK/C (M)	7th century	Silver	1	Pin
293	SK/C (M)	7th century	Copper	1	Tiny buckle and buckle plate
293	SK/C (M)	7th century	Iron	4	Buckle; oval frame, Ferrule or tool Spear, type D leaf-shaped; Knife
293	SK/C (M)	7th century	Pottery	1	Chaff-tempered jar
296	SK/AF	7th century	Glass	1	Bead (green)
296	SK/AF	7th century	Iron	5	Knife Chatelaine/keys Shears (with textile) Buckle, round
299	SK/AM	7th century	Composite	2	Knife, iron with copper rivet ?pattern welding Buckle/plate + copper rivets
299	SK/AM	7th century	Iron	2	Spear Knife
302	SK/A (F)	7th century	Glass	1	Bead (large polychrome)

Context	Sex	Date	Material	Count	Comments
305	SK/A (F)	7th century	Gold	1	Scutiform pendant with filigree quatrefoil and central boss; high quality
305	SK/A (F)	7th century	Silver	6	Bulla pendant 5 rings (1 broken) and one fragment
305	SK/A (F)	7th century	Composite	1	Fragment
305	SK/A (F)	7th century	Composite	2	Small gold pendant with green glass setting Bone in iron mount; cf [214]
305	SK/A (F)	7th century	Copper	3	Bracelet with twisted fastening. Needle-case/box with lid attached to a chain ?import Work box, cylindrical with punched decoration; zoomorphic attachment plate
305	SK/A (F)	7th century	Glass	2	Bead (small green melon bead) Blue marbled ?mount/counter
305	SK/A (F)	7th century	Iron	7	Purse/strike-a-light (textile) Small oval buckle with long triangular plate 4 knives Chatelaine/key?
305	SK/A (F)	7th century	Stone	1	Small cut garnet
312	SK/A (M)	Later 7th century	Composite	1	Iron buckle with decorative copper rivets
312	SK/A (M)	Later 7th century	Iron	3	Spear 2 knives (mineralised wood)
315	SK/AF (M)	Late 7th - early 8th cent	Composite	1(3)	Shield boss, small low cone type
315	SK/AF (M)	Late 7th - early 8th cent	Iron	3	Spear, short leaf-shaped Knife Buckle
318	SK/A (F)	7th century	Iron	1	Knife (or shears)
323	SK/A	7th century	Iron	1	Knife, very poor condition; X-6653
357	No bone	7th century	Glass	3	Beads (very small yellow)
363	SK/AF	Mid-to-later 7th century	Composite	1	Buckle, iron frame with copper alloy plate
363	SK/AF	Mid-to-later 7th century	Iron	2	Buckle (textiles) Long angle-backed knife (2 pieces)

Context	Sex	Date	Material	Count	Comments
367	No bone	7th century	Iron	2	Knife Ring from chatelaine?
372	SK/A (M)	7th century	Copper	1	Oval buckle, rectangular buckle with three large decorative rivets. Possibly unworn.
372	SK/A (M)	6th century; later 7th century	Iron	8	Knife (mineralised wood) 4 large circular shield mounts Shield boss (the oldest from the site) Spear, leaf-shaped; latest find in grave Spear, butt-ferrule

APPENDIX 10: ASSESSMENT OF HUMAN BONE

Bill White

1. Introduction

1.1 Human skeletal material was recovered during the excavation of the Anglo-Saxon cemetery. There were 36 graves on the site but grave [240] contained remains from two skeletons, an adult female at the base and the partial remains of a child in the sieved sample [239]. It is likely this female died in childbirth or the later stages of pregnancy.

1.2 Investigation of the two urns, mentioned in the interim report (URS 1999) as possibly containing cremations, found there were in fact, no cremation burials on the site.

2. Methodology

2.1 All the human skeletal material was scanned and assessed in accordance with the MoLSS Environmental Archaeology Manual (in preparation).

2.2 Preservation/bone condition, the rough percentage of completeness, general age (child/adult) and obvious pathology/sex were noted and these details are summarised in the table below. The data has been entered onto the MoLAS Oracle database for human bone and transferred to RLE Datasets.

3. Quantification

3.1 During the excavation of ARC CXT 98 the remains of 37 inhumation burials were recovered from 36 separate graves, in which skeletal material survived in 32. Of this total 28 (87.5%) were clearly adults and 7 (21.8%) were clearly children. Of the adults four (12.5%) were obviously men and four (12.5%) were obviously women. This proportion may change after further work involving reconstruction of the skeletons.

3.2 It is known that at least one, probably more graves were destroyed by 19th century railway construction (London to Chatham railway) and it is possible others were removed during the construction of the M2 Medway Road Bridge. Recent work has shown that no burials occurred to the east of the M2 Bridge (A2/M2 Junctions 1 to 4 Road Widening works, ongoing) so it may be stated that the cemetery may have originally contained a maximum of 40 to 45 graves.

4. Provenance

4.1 The skeletal material came from an Anglo-Saxon cemetery provisionally dated 550 to 650 AD. Three provisional phases have been identified, based on burial alignment, but no true phasing of the cemetery has been attempted. It is thought

that the burials represent a small, possibly family, group that used this site over a number of generations.

4.2 The condition of the bone was poor in 23 individuals (71.8%) and in only four burials (12.5%) was the condition regarded as good. This is surprising because the inhumations were made into chalk and a mildly alkaline environment such as this normally tends to lead to good preservation of bone mineral. Possibly the hillside situation, with rainwater channelled through the graves, acting as "soakaways", and certainly tree-root activity, has affected bone stability

4.3 Although in a minority of cases little remained of the buried body apart from a few teeth, truncation of the skeleton was not great. Thus, sixteen (50%) had 50% or more of the skeleton present and a further nine (28%) had more than 80% of the skeleton present. Accordingly there is an adequate quantity of skeletal material to be sampled for DNA analysis or carbon-14 dating.

5. Conservation

5.1 The material does not require any conservation for the purpose of long-term storage, as, under the terms of the CTRL Act 1996 all human remains are to be reburied. The material also does not require any conservation in preparation for further analysis.

6. Comparative material

6.1 Comparative material exists from Anglo-Saxon sites in the south of England comes from Dover, Portchester Castle (Hooper 1976), Alton (Evison 1988), Great Barrington (Malin & Hines 1998), Raunds Furnells (Boddington 1996), Bidford-on-Avon (Brash 1923), and North Elmham (Wells 1980).

6.2 Preliminary indications from the CTRL Saltwood Anglo-Saxon cemetery are that there will be little comparative material, due to poor survival of skeletal material.

7. Potential for further work

7.1 The human skeletal material has potential for further work, despite the generally poor condition of much of the bone, due to the rarity of burial sites of this date. This together with what is assumed to be the relatively high proportion of the original cemetery population, associated grave goods and the opportunity to study this transitional period, increases its interest.

7.2 Fieldwork event Aim:

- *Palaeo-demographic and palaeo-pathological analysis*

7.3 Despite the poor condition of much of the bone itself the individual skeletons were reasonably complete and, hence the potential for demographic analysis and palaeo-pathology is high. Detailed analysis, following reconstruction, will allow diagnosis of age, sex and pathology not evident during the original rapid-scanning of remains.

- *Consider the effect on the landscape of known historical events, eg the arrival of the Anglo-Saxons*

7.4 The burials appear to cover a tight time span and there is the strong possibility that they represent a few generations of an extended family. Despite fragmentation there is a good chance that non-metric traits registered on the bone will support close family relationship. DNA analysis could then confirm genetic relationship. It may be possible to detect if this was a 'native' Kentish family that had adopted Anglo-Saxon ways, or was a distinct colonial group.

- *Ritual and ceremonial use of the landscape*

7.5 The burial site is of great importance because of the period concerned and of the fact that the graves are relatively rich (although not especially rich by Kent standards).

Further Work

7.6 Further work on the human skeletal remains should include analysis, recording and written text to publication level. In addition DNA-profiling may allow the confirmation of family grouping among burials.

- high preservation: 3 skeletons
- medium preservation: 9 skeletons
- low preservation: 23 skeletons
- data inputting
- photography and radiography
- writing the osteological report

8. Bibliography

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Brash, JC, 1923, 'The Anglo-Saxon cemetery at Bidford-on-Avon, Warwickshire, *Archaeologia* 73: 106-110.

Evison, VI, 1987, *Dover: Buckland Anglo-Saxon Cemetery*, English Heritage.

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Table 20: Assessment of Human Bone, Inhumations ARC CXT 98

Context	Context type	Period	Preservation (high/medium/ low)	Completeness %	Age	Comments (pathology noted/sex)
164	Skeleton	EM	Low	40	adult	
166	Skeleton	EM	Low	50	adult	Osteomyelitis
168	Skeleton	EM	Low	20	adult	
172	Skeleton	EM	Low	50	child	
178	Skeleton	EM	Low	50	adult	
186	Skeleton	EM	Low	35	child	
190	Skeleton	EM	Low	50	adult	
193	Skeleton	EM	Medium	90	adult	Male
210	Skeleton	EM	Low	25	adult	
214	Skeleton	EM	High	90	adult	Female
217	Skeleton	EM	Low	20	child	
239	Grave fill	EM	Low	10	child	
240	Skeleton	EM	High	40	adult	Female
242	Skeleton	EM	Low	20	child	
246	Skeleton	EM	Low	40	adult	
249	Skeleton	EM	Medium	90	adult	Male
261	Skeleton	EM	Medium	90	adult	Male
276	Skeleton	EM	Medium	10	child	
280	Skeleton	EM	Medium	50	adult	
282	Skeleton	EM	None	00	-----	
285	Skeleton	EM	None	00	-----	
290	Skeleton	EM	None	00	-----	
293	Skeleton	EM	Low	10	child	
296	Skeleton	EM	Low	60	adult	Female
299	Skeleton	EM	High	80	adult	Male
302	Skeleton	EM	Medium	40	adult	
305	Skeleton	EM	Low	75	adult	
312	Skeleton	EM	Low	10	adult	
315	Skeleton	EM	Low	40	adult	
318	Skeleton	EM	Low	25	adult	
323	Skeleton	EM	Low	25	adult	
357	Skeleton	EM	None	00	-----	
360	Skeleton	EM	Low	40	adult	
363	Skeleton	EM	Medium	90	adult	Female
367	Skeleton	EM	None	00	-----	
372	Skeleton	EM	Medium	60	adult	
378	Skeleton	EM	Medium	75	adult	

APPENDIX 11: ASSESSMENT OF ANIMAL BONE

Alan Pipe

1. Introduction

1.1 Animal bones were recovered from hand excavation and from bulk samples taken on site.

1.2 The study of the material was carried out to study the following fieldwork event aims:

- *Recovering palaeo-environmental remains from ditches and other features;*
- *Provide information on Iron Age land use, environment and economy;*

2. Methodology

2.1 Animal bones were recovered by hand-collection on site and through wet-sieving bulk samples taken in the field. All hand-collected animal bones were washed and air-dried, then bagged and labelled as context groups. Bulk samples were washed using a modified Siraf tank fitted with 1.0mm and 0.25mm flexible nylon mesh to retain the residue and flot fractions respectively. These fractions were visually sorted for floral and faunal remains, and labelled as individual sample groups. Identifications of species were made using the MoLSS Environmental Archaeology Section reference collection.

2.2 All contexts containing faunal remains were analysed and recorded onto the MoLAS Oracle animal bone database, subsequently transferred to the RLE Datasets. No sub-sampling of contexts was carried out.

3. Quantification

3.1 A total of 0.74kg, approximately 80 fragments, of animal bones were hand recovered from five contexts, and an additional 0.09kg, or 154 fragments, were wet-sieved from five soil samples. Within the hand collected assemblage, 47 fragments were identifiable to species and body part. These included seven bones with potential for study of age-at-death, and two showing evidence of butchery. No measurable or worked bones were recovered. Nine fragments within the sieved assemblage could be identified to species and body part. The tables below show this information by context, and show overall preservation and fragmentation for each context.

3.2 The second table shows the percentage of identifiable fragments represented by all of the specified species groups. All contexts are recorded in the table, including environmental samples. It is evident that cattle and sheep/goat represent the major proportion of identifiable fragments with only a few fragments of pig present. Other species include amphibians and small mammal(s).

4. Provenance

4.1 Most of the bones were moderately well preserved, while fragmentation levels were generally moderate to high. Just two out of the 10 hand-collected and wet-sieved context assemblages contained material in good condition, while eight assemblages were in moderate condition. The latter condition describes bones with some surface abrasion. It can certainly be suggested that the majority of this material had been disturbed following deposition. Indeed, a high proportion of these bones are likely to represent disturbance, with two out of the 10 hand-collected and wet-sieved context assemblages containing material in good condition, and eight assemblages in moderate condition. The latter condition describes bones with some surface abrasion. Three assemblages provided average fragment sizes of greater than 75mm, while the remaining seven collections mainly contained smaller fragments. These results suggest that there may well have been some disturbance of the faunal material after deposition, although adverse soil conditions could also be cited as causatory agents. There was no evidence of burning or gnawing.

4.2 The material derives from the Late Bronze Age/Early Iron Age (4 fragments), Early Iron Age (80 fragments), Mid Iron Age to Roman (18 fragments) and Saxon (131 fragments) periods.

4.3 The prehistoric and ?Roman material all derived from pits; the Anglo-Saxon material was all associated with human burials.

5. Conservation

5.1 No conservation work is necessary on the animal bones. It is recommended that all material be retained for the next stage of the analysis and for any future comparative work.

6. Comparative material

6.1 The Iron Age to Roman material could be usefully compared with that from other sites on the CTRL from either side of the Medway. The Anglo-Saxon material should be compared to that from Saltwood and other contemporary sites on the CTRL and also the rather sparse Saxon London burial assemblages from the Royal Opera House and Bull Wharf.

7. Potential for further work

7.1 Post-excavation study of this material has potential to directly address Fieldwork Event Aims 5 and 6.

- *Recovering palaeo-environmental remains from ditches and other features;*
- *Provide information on Iron Age land use, environment and economy.*

7.2 Detailed recording of the material in terms of species, skeletal element, modification and age-at-death will mainly provide a degree of insight into the

nature of local meat diet and animal exploitation, together with very limited data on the local habitat.

8. Bibliography

None

Table 21: Assessment of Animal Bone – quantity of identifiable bones, age, measurements and butchery

Context	S.No	N. iden.	N. Ageable	N. Butch.
41	1	4	0	0
102	0	1	1	0
103	0	5	1	0
105	0	1	0	0
305	0	0	0	0
315	22	0	0	0
323	24	0	0	0
342	0	40	5	2
342	11	5	0	0
378	23	0	0	0

S.No - sample number.
N - approximate number of bones.
Iden - bones identifiable to species/species group

Table 22: Assessment of Animal Bone – species, quantity and interpretation

S.No Sample Number
LBA Late Bronze Age
EIA Early Iron Age
MIA Middle Iron Age
EM early medieval

Context	S.No	Interpretation	Period	% of identified fragments									Count	Weight (kg)
				Sheep/ goat	Cattle	Pig	Horse	Dog	Small mammal	Bird	Fish	Other		
41	1	pit	MIA	50	0	0	0	0	0	0	0	50	10	0.01
102	0	pit	MIA	0	100	0	0	0	0	0	0	0	3	0.02
103	0	pit	MIA	20	80	0	0	0	0	0	0	0	15	0.14
105	0	pit	LBA/ EIA	100	0	0	0	0	0	0	0	0	4	0.02
305	0	Skeleton	EM	0	0	0	0	0	0	0	0	0	2	0.01
315	22	Skeleton	EM	0	0	0	0	0	0	0	0	0	80	0.06
323	24	Skeleton	EM	0	0	0	0	0	0	0	0	0	40	0.005
342	0	Skeleton	EIA	90	5	5	0	0	0	0	0	0	55	0.55
342	11	pit	EIA	30	0	0	0	0	30	0	0	40	15	0.02
378	23	Skeleton	EM	0	0	0	0	0	0	0	0	0	9	0.001

APPENDIX 12: ASSESSMENT OF MOLLUSCS

Alan Pipe

1. Introduction

1.1 A total of 26 small groups of mollusc shells were recovered from 26 samples taken during excavation. All were assessed.

1.2 Eleven groups of molluscs were recovered from bulk samples; the remaining 15 were recovered from spit samples taken at measured depths through the dry valley. In each case, the soil was processed using a modified Siraf-type tank fitted with 1.0 mm and 0.25 mm flexible nylon meshes to retain the residue and flot fractions respectively. The flot and residue fractions were air-dried in a warm drying cabinet and then visually sorted for mollusc shell. Study of the molluscan shell was intended to assist Fieldwork Event Aims 5 and 6

- *recovering palaeo-environmental remains from ditches and other features*
- *provide information on Iron Age land-use, environment and economy*

2. Methodology

2.1 Each sample was roughly quantified and then scanned under a binocular microscope to determine the species-composition of the assemblage. Taxonomic identifications were made using the MoLSS reference collection in conjunction with Cameron & Redfern 1976; and Kerney & Cameron 1979. Allocation of identified taxa to habitat groups, as specified by the CTRL post-excavation assessment report template, followed these sources together with Kerney 1999.

2.2 All mollusc groups were examined; no sub-sampling was required.

3. Quantification

3.1 A total of 26 small groups of mollusc shells, an approximate total of 639 shells, were assessed.

3.2 This material derived entirely from terrestrial species but with occasional fragments of the marine bivalve common mussel, *Mytilus edulis.* There were no freshwater species.

3.3 Identified terrestrial taxa recovered were *Cecilioides acicula*, *Oxychilus sp., Retinella sp. Vallonia pulchella, V. costata, Cepaea nemoralis, C.hortensis, Helix aspersa, Helicella sp., Cochlicopa lubrica, Pomatias elegans, Pupilla muscorum, Clausilia sp., Discus rotundatus* and *Columella edentula.*

3.4 The table below groups this material in terms of habitat preference and relative abundance as specified by the CTRL assessment template.

4. Provenance

4.1 Mollusc shells were mainly recovered from the dry valley, with small numbers of shells also recovered from pits (undated and Early Iron Age) and Anglo-Saxon burials.

5. Conservation

5.1 Further analysis of this material would involve more detailed examination under a binocular microscope in order to ensure identification and quantification of all species present. There is no reason why such work would damage the shells or impose any restriction on long-term storage procedures.

5.2 The material is in good condition and presents no difficulty in terms of species identification. The value of the assemblage will not be affected by factors of preservation.

5.3 The shells are mainly small and fragile and therefore liable to accidental damage by crushing. They should therefore all be stored by context/sample groups in glass tubes or clear plastic boxes, each contained within labelled plastic bags. The complete assemblage should then be stored in an archive quality 'shoe-box'.

5.4 There is no reason to discard any of the mollusc assemblage as further identification and quantification may provide some degree of insight into the characteristics of local habitat(s).

6. Comparative material

6.1 The material could usefully be compared with mollusc samples from other sites along the CTRL and in the Darent valley (O'Connor 1984).

7. Potential for further work

7.1 The site lies within the 'landscape zone' of the North Downs, Medway River Valley.

7.2 The assemblage has some potential to contribute to study of each of the main categories as defined by the CTRL Archaeological Research Strategy. It derives from a range of periods and feature types including an Early Iron Age pit [342], Anglo-Saxon graves [315] and [378], together with a complete series of column samples.

- *farming communities (2000 – 100 BC); context [342]/column samples*
- *towns and rural landscapes (100bc – AD 1700); contexts [315] and [378]/column samples*
- *recent landscapes (AD 1700 – 1945); column samples*

7.3 Study of the material will produce data with reference to the Fieldwork Event Aims listed below:-

- *recovering palaeo-environmental remains from ditches and other features.*
- *provide information on Iron Age land use, environment and economy.*

7.4 The assemblage has considerable potential for further study in terms of species identification and accurate quantification. Once this work is done, it will then be possible to detect spatial and temporal variation resulting from changes in local conditions, such as shading, and to consider their implications for changes in landuse.

7.5 Detailed identification and reporting on all the mollusc groups would be required.

8. Bibliography

Cameron, R A D, & Redfern, M, 1976, 'British land snails' *Linnean Society synopses of the British fauna no.6* London

Kerney, M, 1999, *Atlas of the land and freshwater molluscs of Britain and Ireland* Colchester

Kerney, M P, & Cameron, R A D, 1979, *A field guide to the land snails of Britain and north-west Europe* London

O'Connor, T P, 1984, in Philp, B, *Excavations in the Darent Valley*

Number of sample taken (columns/spot etc.) ; number of samples assessed
+ present (0-5 items), ++ some (6-10 items), +++ many (11+).

Table 23: Assessment of Molluscs from ARC CXT 98

Sample	1	12	22	7	11	23
Context	41	156	315	342	342	378
Depth						
Date/interpretation	pit/no date	tree hole	skel/ Saxon	pit/ EIA	pit/ EIA	skel/ Saxon
Catholic species				+		+
Open country species	+++	+++	+++	+++		++
Shade-loving species	+++					+
Burrowing species	+	++	++	+++	+	+++
Aquatic species						
Approx. totals	**25**	**30**	**25**	**40**	**3**	**1**

Table 24: Assessment of mollusc shell from ARC CXT 98 – dry valley samples

Sample											
Context											
Depth	0-10 cm	10-20 cm	20-30 cm	30-40 cm	40-50 cm	50-60 cm	60-70 cm	70-80 cm	80-90 cm	90-100 cm	100-110 cm
Date/interp.	dry valley	dry valley	dry valley	dry valley	dry valley	dry valley	dry valley	dry valley	dry valley	dry valley	dry valley
Catholic species		+		+	+++						
Open country species		+++	+++	+++	++	+++			++	+	++
Shade-loving species	++	+++	+++	+++	+++	+++	+++	+++	++	+++	+++
Burrowing species	++		+	+	+	++	+	++	+	+	+
Aquatic species											
Approx. totals	**21**	**21**	**30**	**24**	**50**	**45**	**30**	**50**	**25**	**45**	**35**

Sample				
Context				
Depth	110-120 cm	120-130 cm	130-150 cm	150-160 cm
Date/interp.				
Catholic species	dry valley	dry valley	dry valley	dry valley
Open-country species	+++	+		+
Shade-loving species	+++	+	+++	+
Burrowing species	++			+
Aquatic species				
common mussel				+
Approx. totals	**45**	**10**	**20**	**15**

APPENDIX 13: ASSESSMENT OF CHARRED PLANT REMAINS & CHARCOAL

Lisa Gray-Rees

1. Introduction

1.1 This assessment reports on 13 environmental samples taken during excavations at Cuxton (ARC CXT 98) on the northern side of the River Medway in Kent. Six samples were taken for molluscan analysis and were not processed. Seven samples were processed by flotation. Four of these samples produced flots. The purpose of the study of this material was to gain further information about the environment and possible economic activities, for example, crop processing.

2. Methodology

2.1 Each sample was processed using a Siraf type flotation tank. Residues were collected in a 1mm mesh and flots were collected in a 250-micron mesh. Flots and residues were dried prior to scanning. Residues were scanned by eye. Environmental remains and artefacts (such as burnt flint, brick or tile fragments) were collected and transferred to the relevant specialists. Flots and plant remains recovered from the residues were examined in more detail using a low powered stereo microscope.

2.2 The modes of preservation, species diversity and abundance of organic remains in each sample were recorded on sheets then entered into the Oracle MoLAS/MoLSS database. Full sample details are given in the table below.

3. Quantifications

3.1 Most of the samples were poor, dominated by modern plant fragments. Sample <11> contained moderate quantities of well-preserved charred cereal grains, wild plant seeds and chaff. Full details of these samples are given in Table 1.

3.2 The quantities of remains were estimated and recorded in the following manner:

For charred remains
+ = 1-10
++ = 11-50
+++ = 51-100
++++ = 101-1000
1000+ = >1000.

For waterlogged remains
+ = 0-5
++= 6-10
+++=11+

4. Provenance

4.1 One sample, sample <11>, came from a pit provisionally dated as Iron Age. This sample contained an interesting charred assemblage including wheat (*Triticum* sp.) grains, chaff and seeds of crop weeds, for example vetch (*Lathyrus/Vicia* sp.).

4.2 Two samples, sample <22> and <23>, came from the head or stomach areas of skeletons from the Anglo-Saxon cemetery. Unfortunately neither sample produced any useful information. They were dominated by modern plant material (fragments of roots and wood, low numbers of uncharred seeds). Low numbers of charred wood fragments were noted from the residue of sample <23>.

4.3 The last sample, sample <12>, from a pit or tree bole feature was not given a provisional date. Modern plant material and charred wood flecks also dominated this sample.

5. Conservation

5.1 All but sample <11> may be discarded.

6. Comparative material

6.1 Sample <11> is the only sample recommended for further analysis. It could help to fulfil the fieldwork event aim to provide information on Iron Age landuse and economy. It will be interesting to compare it with charred remains found at the Farningham Hill (Vaughan, 1984) where low numbers of charred wheat (*Triticum* spp.) and barley (*Hordeum* sp.) grains were recovered form four pits, but no chaff or seeds as in the Cuxton sample.

7. Potential for further work

7.1 A detailed study of sample <11> will give us further information about the cultivation and consumption of cereals during the Iron Age. Identification of the chaff may clarify the species of wheat and identification of the charred seeds may add information about crop husbandry, for example; were these seeds from wild plants gathered accidentally as field weeds or were they part of a mixed crop?

7.2 The sample will be examined using a light microscope with magnifications of between 10 and 40 times. Modern seed and cereal reference collections and reference manuals (e.g. Anderberg 1994, Berijinck 1947 and Berggren 1969,1981) will be used.

7.3 Plant remains will be identified as closely as their level of preservation allows. Quantities of uncharred remains and charred wood fragments will be estimated and charred remains will be counted. This data will be recorded onto record sheets and transferred to the MoLAS/MoLSS Botanical ORACLE database.

7.4 Further work:

- Identification and recording of the contents in one dry flot
- Table creation and data analysis
- Report Writing
- Editing and Archiving

8. Bibliography

Anderberg, A-L, 1994, *Atlas of Seeds Part 4: Resedaceae - Umbelliferae.* Swedish Museum of Natural History, Stockholm

Beijerinck, W., 1947, *Zadenatlas der Nederlandsche Flora.* Veenman and Zonen, Wageningen

Berggren, G, 1969, *Atlas of Seeds Part 2: Cyperaceae.* Swedish Museum of Natural History, Stockholm

Berggren, G., 1981, *Atlas of Seeds Part 3: Saliaceae- Crucifereae.* Swedish Museum of Natural History

Vaughan, D, 1984, 'The Charred Grains from Farningham Hill' Microfiche M7 and M8 in Philp, B, *Excavations in the Darent Valley*

Table 25: Assessment of Charred Plant Remains & Charcoal

Sample Details				Flot Details						Residue
Context & type	Period	Sample no.	Sample size (l)	Flot size (ml)	Grain	Chaff	Weeds Seeds charred/ uncharred	Charcoal	Comments [presence of rootlets, uncharred straw etc.]	Size (ml)/ proportion checked
154 / fill	?	26	c10	-	-	-	-	-	-	4900
156 / pit or tree bole	?	12	10	30	-	-	+/0	-	root and stem fragments	5000
180 / dry valley	?	1	10	-	-	-	-	-	mollusc sample	-
181 / dry valley	?	2	10	-	-	-	-	-	mollusc sample	-
182 / dry valley	?	3	10	-	-	-	-	-	mollusc sample	-
183 / dry valley	?	4	10	-	-	-	-	-	mollusc sample	-
184 / dry valley	?	5	10	-	-	-	-	-	mollusc sample	-
315 / skeleton	?	22	10	20	-	-	-	+	root and wood frags	3600
323 / fill	?	24	c10	-	-	-	-	-	-	900
342 / pit fill	Iron Age	11	30	40	++	+	++/0	+++++	uncharred stems/roots	4500
378 / skeleton	Early Medieval	23	2	40	-	-	0/+	+	uncharred seeds and root fragments	2400
246/fill	?	25	c10	-	-	-	-	-	-	3000

APPENDIX 14: ASSESSMENT OF GEO-ARCHAEOLOGY

Jane Corcoran

1. Introduction

1.1 Two monolith samples were taken from the south-facing section of trench 1071TT. The section cut through a sequence of soliflucted and colluvial slope deposits, which had infilled the dry valley running through the centre of the site. The aim of the geo-archaeological assessment was to determine the potential of the samples to provide information with which the changing landscape and geo-morphological processes operating on the site might be reconstructed. This might provide a better understanding of the environment available to be exploited by people in the past and of the impact of these people on the landscape. This would be of particular relevance in the Bronze Age, Iron Age and Anglo-Saxon periods, for which there is archaeological evidence for occupation on the site and its environs.

1.2 The two overlapping monolith tins (0.50x0.5x0.5m) were hammered into the cleaned section face. The sediments and stratigraphy visible in the section were described and drawn by the excavators on site. The monolith samples were marked on the section drawing and a level, relating to ordnance datum was taken on the top of each tin. Each tin was wrapped in cling film and plastic bags, labelled and temporarily stored in the MoLAS fridge prior to and following assessment.

2. Methodology

2.1 The sediments sampled in each tin were cleaned and described using standard sedimentary criteria. This attempts to characterise the visible properties of each deposit, in particular relating to its colour, compaction, texture, structure, bedding, inclusions, clast-size and dip.

2.2 For each profile, every distinct unit was given a separate letter and the nature of the contact between each unit was noted. The units identified during description are related to the contexts described on site in the profile description and where possible the profile is discussed in terms of contexts as opposed to the units identified in the monolith tins.

3. Quantification

3.1 This section gives the results of the monolith assessment. The sequence is described below in the table below, the elevation (in m OD) is given for the contacts between the units and brackets denote the thickness of the individual units.

4. Provenance

4.1 The monolith samples were taken from the lower half of the section. The upper part of the section (which was in total about 2m high) was not sampled due to its loose and flinty nature. However field descriptions describe the sediment directly above the tins (context [32]) as comprising a flinty lens at the base of about 0.50m of bedded silt and chalky mud with a further 0.30m thick flint-rich silt [7] underlying recent topsoil, which was about 0.30m thick.

4.2 The profile exposed might be interpreted as representing 5 main events. In the first, context [10] (unit D) formed. This was possibly as a result of the *in situ* weathering of the chalk bedrock, although it is more likely that this chalky sediment is not actually *in situ*, but has moved downslope by solifluction processes during the periglacial environment of the last cold stage. Fine pellety chalk rubble and chalky mud similar to context [10] have been recorded elsewhere towards the base of dry valley fills in the Kent area and have been attributed to meltwater deposition during the Younger and Older Dryas Stadials (Kerney 1965).

4.3 In the second event, a soil appears to have developed in the surface of this weathered chalk material (context [45]: unit C). This unit can be differentiated from the upper part of the context (unit B) by a) its angular, blocky structure; b) its darker colour; c) its finer pellety chalk inclusions and lack of coarser flint and chalk; and d) by its more frequent snail shell inclusions, which are very rare in unit B. The darker colour is probably a result of both the addition of humic material and the leaching out of carbonates, which is likely to occur in a soil. The more rounded nature of the chalk granules in this unit is also probably a result of weathering within a soil. Whilst the fragmented snail shells might indicate that the soil may be redeposited soil material, this may not have moved far. The whole shell of *Pomatias elegans* may be derived from burrowing (as is characteristic of this species: Kerney & Cameron 1979, 53) however, the bands of flint that occur higher in the profile, and the depth of the context would have prevented it burrowing from the present day landsurface. Thus an earlier stable landsurface is implied, either at the surface of unit C or pre-dating the accumulation of [32].

4.4 In the third stage, sediment derived from upslope appears to have accumulated above the soil (context [45]: unit B). This is likely to be the result of devegetation and disturbance upslope, but whether this was due to human activity or natural causes such as a change to a harsher climate regime is not known. The diffuse contact between units B and C (from the lower to upper part of context [45]) suggests that the cause was not a sudden catastrophic event, causing severe erosion and sediment movement. Instead a gradual accretion of sediment seems to have taken place, as the stable soil became buried by more poorly sorted material from upslope.

4.5 The greater abundance of coarser chalk and flints in the upper part of context [45]: unit B compared to the lower part (unit C) is probably a result of the shallower topsoil developed upslope through time, due to continued erosion. This is very likely to indicate continued agricultural activity upslope (which in itself would dislodge and disturb the chalk subsoil).

4.6 This more rubbly series of colluvial deposits context [32] constitutes the fourth event represented by the profile. Severe erosion and downslope movement is represented by the lens of flints and chalk of much larger clast size, found at the

base of context [32]. This deposit is likely to represent a debris fan accumulated at the foot of temporary rill or gulley carved into the valley side.

4.7 Such fans occur today in valley edge locations on the North Downs where water aided slope processes have taken place, for example after winter storms when open fields are unvegetated. Surface flowing water will carry finer material away, but deposit coarse chalk and gravel at the foot of the slope. The decay of organic debris, accumulated in the hollows and open spaces above and between the flints may have contributed to the darker silt band observed above the flint lens in context [32].

4.8 Context [32] is therefore likely to represent an intensification of farming practices on the adjacent slopes. However it is possible that harsher weather conditions and a continuation of pre-existing land-use patterns would have the same effect.

4.9 The silty bands, with occasional flints, which form the upper part of [32] are also likely to represent sediment transported downslope, but as a result of less dramatic events, probably gradual soil creep. The chalky mud bands within the silts are probably from hillwash. They suggest that the erosion events responsible for their accumulation were not severe enough to transport coarser material this far (although flinty rubble may have accumulated further upslope). Thus context [32] appears to represent a series of erratic and episodic erosion events, some rapid and high magnitude, others more gradual.

4.10 Context [7] is also flinty and would suggest a further, more dramatic, erosion event in this locality. However, rills and gulleys do not always occur in the same place. Debris fans will accumulate at the edge of the valley floor in different places at different times during the same episode of land use upslope.

4.11 The topsoil developed at the surface of these deposits implies a stabilisation of the landscape (stage 5). This might be a result of arable farming being replaced by grassland and grazing. But it is quite likely that it is an accretionary soil, developing at the same time as sediment accumulates above it, as from the context descriptions it did not appear to be particularly well developed.

4.12 The frequent carbonate precipitations seen throughout context [45] are likely to represent carbonate dissolved by rainwater in the upper horizons of the soil, washed down through the soil profile and precipitated out at the limit of water percolation, especially in association with rooting. This may have occurred as part of the period of recent soil formation, or it may have taken place incrementally as the valley sediment accumulated. It is particularly concentrated in the upper part of context [45] possibly because this zone is directly below the looser (and very permeable) context [32].

4.13 But it is also possible that the event that deposited the flint lens at the base of context [45] also eroded a former topsoil. In this case the carbonate translocation may relate to a period of soil formation and landscape stability post-dating the accumulation by soil creep of context [45] and pre-dating the period of more intensive upslope disturbance and erosion represented by context [32]. That is, it might represent an additional stage in the sequence of events described. This would fit in between the more gradual accumulation of the upper part of context [45]: unit B in the monolith tins and the more episodic, erratic and coarser accumulation of colluvium represented by context [32].

4.14 The sediments deposited by slope process are likely to be laterally variable. As a result a specific event, such as the erosion of an arable field following a rain storm , might be represented by different sediments in different places along the valley, yet the result of a succeeding event, of similar characteristics to the first, might be to deposit different sediment in each location to that deposited by the first event. It is therefore not possible, without very good dating evidence, to correlate the sequence at any one location to that at another with any high precision. Nor would such correlation mean very much.

4.15 However the outline sequence of broad depositional events, as set out above, should be representative of the changing nature of the processes operating within the dry valley as a whole, for the timespan represented by the profile. If dating evidence was recovered from any of the contexts sampled, this sequence might therefore be linked to human activity in and upslope of the dry valley. This information would contribute to a better understanding of the character of the landscape during episodes of human occupation and abandonment. It may also enable inferences to be made regarding the impact of past human activity on the local environment.

4.16 An important division was made in the monolith description within context [45]. This was subdivided into an upper unit (B) representing unstable landscape conditions; and a lower unit (C) representing an earlier period of landscape stability and soil formation. Finds evidence is unlikely to be able to differentiate between these two units, as it was all part of context [45]. However the abundant snail shells in unit (C) might be radiocarbon dated and this would give a date for the period of landscape stability and soil formation, preceding the earliest erosion event likely to be caused by human disturbance. It would also suggest whether this soil developed in the late glacial or Holocene period. However there are limitations to the radiocarbon dating of shells.

5. Conservation

5.1 Despite careful storage, some drying out of the monolith samples has occurred. In addition, in order to reliably describe the sequence sampled, much of the sediment within the tins has been disturbed. This was unavoidable given the condition of the samples and was necessary, as accurate sediment description is the most important part of monolith assessment and analysis.

5.2 The state of the monolith samples means that soil micromorphology is no longer appropriate for these samples and there are no samples from this site to be set in resin or cut into thin sections. There will therefore be no long-term stable archive record of the sediments sampled.

5.3 Although the state of the monolith samples will constrain the techniques possible in any further analysis of the samples, the techniques recommended in Section 7 should enable further information to be extracted. This will enhance the description and interpretations given in this assessment.

5.4 As the further analysis suggested is likely to also be destructive, long term storage of these samples as monoliths would also not be appropriate. It is therefore recommended that whatever remains of the monolith samples after the analysis stage should be discarded.

6. Comparative material

6.1 Much geo-archaeological research has been undertaken on the slope deposits in the dry valleys of south-east England. This has focussed on identifying periods of instability (sediment accumulation) and stability (soil formation) and attempting to correlate these events with evidence for human activity (Burleigh & Kerney 1982; Bell 1983).

6.2 Landsnail and micromorphological analysis of colluvial sediments have been able to link periods of woodland clearance for agriculture with erosion events (Macphail *et al* 1990). Examination of deeply stratified colluvial profiles have shown that, as a result of accelerated soil erosion, the deep brown earth soils that developed in the early Holocene below woodland have been removed, to be replaced by the thin and less well-developed rendzina soils typical of chalk downland today (Bell and Boardman 1992). In a few cases, where the colluvial deposits have been well dated (mostly by pottery inclusions or the burial of dated features) the periods of accelerated erosion and stability have been directly correlated with episodes of human occupation and activity upslope (Bell & Walker 1992, 193).

6.3 The colluvial and soliflucted sediments infilling dry valleys have also been investigated by Quaternary Scientists, with the aim of reconstructing Late Glacial environments. Evidence for buried interstadial soils have sometimes been found within the chalky rubble and silt sediments that were deposited by solifluction processes in a periglacial environment towards the end of the late Glacial period (Preece 1994). Of particular importance to the present site is the work done at Upper Halling (Kerney 1963; Preece 1998). Here landsnail assemblages from the buried rendzina soil and from the chalky meltwater muds above and below it were used to reconstruct the changing climate during the Late Glacial.

6.4 Valley sediments of both the Holocene hillwash type (as in contexts [45] and [32]) and the lower periglacial soliflucted chalky rubble and silt (as context [10]) have been recorded and sampled from several of the CTRL sites (assessment currently in progress). As such they record sequences and chronologies for periods of landscape stability and instability that might be compared with each other and to other evidence for human settlement and activity across a transect of the North Downs landscape.

7. Potential for further work

7.1 The data from the monolith samples has potential to address the following landscape zone and fieldwork aim:

- *Farming communities (2000 BC-100 BC)*
- *Provide information on Iron Age landuse, environment and economy*

7.2 Information on the impact on the landscape caused by occupation on the site in the prehistoric and historic periods, particularly the Iron Age might be inferred. This will be particularly useful when compared to mollusc evidence for changing prehistoric habitats and environments (as obtained from bulk samples from cut features and snail column samples) and to ceramic evidence for the type and intensity of Iron Age occupation.

7.3 In addition the episodes of colluviation on the site might be related to other CTRL sites. In particular those where colluvial events have been interstratified with direct evidence of human occupation and activity (eg: White Horse Stone).

7.4 Episodes of landscape stability and instability are represented in the profile by evidence for soil formation and sedimentation respectively. However, in order to reconstruct this information it is necessary to date the sediments sampled.

7.5 Although no ceramic dating evidence was found in contexts ([45] and [32]) the sequence of events might be placed within a chronological framework by AMS dating of snail shells from these contexts.

7.6 The frequent snail shells in the lower part of context [45] are likely to relate to a period of soil formation, prior to the accumulation of the upper part of the context. These could be dated by AMS (on shell protein) to provide a date for this period of landscape stability, prior to the initial onset of colluviation. This would allow inferences to be made regarding the onset of colluviation: whether it was triggered by the Bronze or Iron Age activity in the area – or whether it had already begun by that time.

7.7 However, it should be noted that, owing to the fragmentary nature of the snail shells there is a strong possibility that this dating will not be possible, but without a good dating framework the techniques suggested will also be less meaningful.

7.8 The existence of soil formed in the lower part of context [45] might be tested by carrying out loss-on-ignition and (pot sensor) magnetic susceptibility determinations at regular (30mm) intervals through the profile. Together these techniques have the potential to identify trends in weathering, organic composition and carbonate content through the profile. This, combined with the descriptions already done should allow possible zones of stability, weathering and soil formation to be identified with more precision than this assessment has allowed.

Further Work

7.9 Further work should include:

- Radiocarbon (AMS) dating of the snail shells from context [45]
- Loss on ignition and magnetic susceptibility determinations at 30mm intervals through profile (30 sub-samples)
- Comparison of the sequence and chronology of events at ARC CXT 97/ARC CXT 98 with the archaeological evidence on-site and with valley sediment profiles from other CTRL sites and from the published literature for the area.

Task	**time requirement**
Radiocarbon (AMS) dating of the snail shells from context (45: unit C)	2 months Beta-analytic
Loss on ignition and magnetic susceptibility determinations at 30mm intervals through profile (30 sub-samples)	Geoarchaeologist
Comparison of the sequence and chronology of events at ARC-CXT97 with the archaeological evidence on-site and with valley sediment profiles from other CTRL sites and from the published literature for the area.	Geoarchaeologist

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Table 26: Assessment of Geo-Archaeology

Context	Unit	Elevation of contact (m OD)	Description and contacts	tin
		14.40	Top of sequence sampled	
32	A	[0.10m thick]	Loose, yellowish brown 10YR5/6 slightly sandy clay-silt. Frequent flint (<60mm) and some SA/SR chalk (<20mm) gravel. No visible bedding or clast orientation. Contact marked by increased compaction to:	1
45	B	[0.50m thick]	Compact, yellowish brown 10YR5/6 slightly sandy clay-silt. Frequent flint (<50mm) and some SA/SR chalk (<20mm) gravel. No visible bedding or clast orientation. Matrix has holey, porous structure. Frequent thread-like carbonate precipitations follow root voids in haphazard orientation, especially in upper 0.20m of unit; they become fainter and less frequent towards unit base.	1 + 2
		c.13.90	Diffuse contact over 0.10m, marked by a darkening of colour downwards.	2
45	C	[c.0.30m thick]	Compact, 10YR5/3 brown, slightly sandy clay-silt. Frequent mainly sub-rounded but also sub-angular chalk granules (<5mm: pea-grit-like or pelletty). Very occasional flint pebbles (<30mm). Frequent snail shells – mostly fragmented, but occasionally whole (*Pomatias elegans* observed). Fine angular blocky ped structure. Ped surfaces are coated by carbonate precipitations.	2
		13.58	Distinct, but irregular	
10	D	[0.08m thick]	Compact, greyish brown 10YR4/6 chalky, carbonate rich clay-silt matrix with frequent SA/SR chalk granules and fine gravel (<10mm).	2
		13.50	Base of profile sampled	