

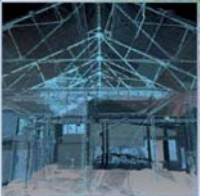
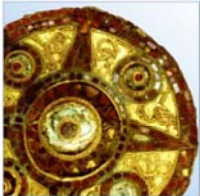
Report on the Discovery of Burials at Milnthorpe House, Sleepers Hill, Winchester

National Grid Reference Number: SU 4716, 2901

AOC Project No: 32023

Site Code: WINCM AY 479

Date: November 2011



ARCHAEOLOGY

| HERITAGE

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Report on the Discovery of Burials at Milnthorpe House, Sleepers Hill, Winchester

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National Grid Reference (NGR): SU 4716, 2901

AOC Project No: 32023

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Date: November 2011

This document has been prepared in accordance with AOC standard operating procedures.

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Summary

A programme of archaeological recording was undertaken at the site of Milnthorpe House, Sleepers Hill, Winchester. Building works carried out at the site accidentally disturbed human burials. An archaeological excavation was subsequently undertaken by AOC to record and remove the human remains and any associated finds from the development area. The archaeological works were rescue in nature and were undertaken outside of the normal planning requirements for archaeological management. No archaeological condition was imposed on the site works.

A large curvilinear ditch was observed across the site aligned broadly east-west. A total of six inhumation burials and a cremation vessel containing burnt and co-mingled human and animal bone were recovered from the site. Coffin nails demonstrated that at least one of the burials had been interred within a wooden coffin. Pottery recovered from the site indicated that the burials dated to the 2nd-3rd century AD. The burials comprised of five adult males and one adolescent and displayed a range of pathological processes, including dental diseases, minor non-specific infections, indicators of repetitive physical activity and degenerative joint changes. Two of the adult males were found with hobnails indicating they were buried wearing hobnail boots. An iron knife was also found by the feet of one burial.

No further archaeological works are recommended and no further analysis of the finds is required. The finds and physical archive will be deposited with the Winchester City Museum. The results will be published as a fieldwork round-up in the Archaeology in Hampshire journal.

1. Introduction

- 1.1 This document presents the results of a programme of archaeological excavation at Milnthorpe House, Winchester. The site is centred on National Grid Reference (NGR) SU 4716, 2901 and is located at Milnthorpe House, Sleepers Hill, Winchester, SO22 4NF (Figure 1). The archaeological works comprised of the excavation of one trench and the recording and excavation of six inhumation burials and one cremation vessel. The results of the excavation and post-excavation reporting on the burials and associated finds are presented in this report.

2. Planning Background

- 2.1 The local planning authority is Winchester County Council. Development at the site of Milnthorpe, Sleepers Hill, Winchester, accidentally discovered the presence of human bone in what appeared to be deliberate burials. The archaeological works were undertaken outside of the normal planning framework for archaeological and heritage management. Accordingly, no archaeological condition has been placed upon the development scheme. David Hopkins of Hampshire County Council undertook a site visit on the initial discovery of the burials and recommended the involvement of archaeologists in order to liaise with the Ministry of Justice to permit and undertake the removal of the burials. David was acting on behalf of Winchester County Council in this regard. AOC Archaeology attended the site and confirmed the presence of human inhumation burials and following current legislation upheld by the Ministry of Justice, recommended that the human remains be removed from the site prior to any further direct impact by the building work.
- 2.2 A licence (11-0176) authorising the exhumation of the human burials from Milnthorpe was obtained by AOC Archaeology from the Ministry of Justice and permits archiving of the remains with the Winchester City Museum (see Section 7).
- 2.3 No written scheme of investigation (WSI) was prepared for this site. A scope of work that included a rescue excavation to record *in-situ* and remove the human burials, to record any associated archaeological deposits and to record and remove any associated finds was devised by AOC Archaeology. All archaeological works were undertaken in accordance with current best archaeological practice and guidelines:
- Institute for Archaeologists – Code of Conduct (IfA 2010).
 - Institute of Archaeologists – Standards and Guidance for Archaeological Field Evaluation (IfA 2008)
 - Institute of Archaeologists – Excavation and post-excavation treatment of cremated and inhumed human remains (IfA 1993)

3. Archaeological Background

- 3.1 Winchester was settled in approximately 150 BC with the construction of Iron Age defensive ditches surrounding the together with the construction of a hillfort at St Catherine's Hill to the south-east of the modern city. Roman occupation of the town named *Venta Belgarum*, can be dated to AD 70 and continued until AD 410. The town was created as a market place with a central forum surrounded by shops and public baths.

4. Strategy

4.1 Aims of the Investigation

- 4.1.1 The specific aim of the archaeological excavation was defined as being:

- To identify, record and excavate the human burials on site.

4.1.2 The general aims of the excavation were as follows:

- To establish the presence/absence of archaeological remains within the site.
- To determine the extent, condition, nature, character, quality and date of any archaeological remains encountered.
- To record and remove from the area of impact any archaeological remains encountered.

4.1.3 The final aim of the works is to make public the results of the investigation through reporting, subject to any confidentiality restrictions.

5. Methodology

5.2.1 All work was carried out in accordance with local and national guidelines.

5.2.2 One trench was excavated at the site (Figure 2) where the building works had impacted on the human burials.

5.2.3 Prior to commencing work a unique site code (WINCM AY 479) for the project was agreed with consultation with Winchester City Museum as the site identifier.

5.2.4 The watching brief was carried out between 25th and 27th October, 2011.

5.2.5 All recording was carried out in accordance with the standards and requirements of the Archaeological Field Manual (MoLAS 1994).

5.2.5 Levels for each context were established.

5.2.6 The site work was supervised by Chris Clarke and Les Capon under the overall management of Alan Ford, Project Manager.

6. Results

6.1 Trench 1

6.1.1 Trench 1 was located adjacent to the southeast boundary of the site, orientated northeast-southwest and measured 13.50m by 10m (Figures 2 and 3). The earliest deposit recorded was a horizon of weathered natural chalk (102) present throughout the area of the trench. It was observed at its highest on the northwest side of the trench at 59.69m AOD, decreasing to 57.38m AOD on the southwest side.

6.1.2 In the eastern half of the trench two grave cuts were identified cutting into the natural chalk (102). Grave [108] was the larger of the two, which was sub-rectangular in shape 2.20m long, 0.65m wide, and 0.70m deep. Grave [108] was orientated northeast-southwest and found at a maximum height of 57.38m AOD. Skeleton (113) was found at the base of grave [108] at 56.91m AOD. Skeleton (113) was found supine with the head at the south-west. Iron nails were found surrounding the outline of skeleton (113), primarily concentrated at the head and feet, indicating that skeleton (113) had originally been interred within a coffin. No trace of the coffin wood survived. Grave fill (112) consisted of a 0.30m thick deposit of loose chalk rubble, which overlay skeleton (113). Immediately above grave fill (112) was a second skeleton (107) which appears to have been disturbed by the introduction of later grave cut [105]. Skeleton (107) was recovered at 57.17m AOD. Skeleton (107) was lying extended on the left side of the body (Plate 1). The head of skeleton (107) was at the south-west of the grave. The burial was sealed by a soft, light grey, silty chalk grave fill (106) 0.40m thick.



Plate 1. Skeleton (107) *in-situ*.

- 6.1.3 To the west of grave cut [108] was a smaller, truncated grave cut [111]. The remains of grave cut [111] were oval in shape measuring 0.50m long, 0.40m wide by a maximum of 0.10m deep. The orientation of the grave cut was approximately northwest-southeast, surviving to a height of 57.21m AOD. The partially articulated remains of skeleton (110) were found within grave cut [111], sealed by a soft, light grey, silty chalk fill (109).
- 6.1.4 Partially truncating grave fills (106) and (109) was northwest-southeast orientated grave cut [105]. Grave cut [105] was sub-rectangular in plan approximately 1.80m long, 0.60m wide, by 0.25m deep. The cut survived to a height of 57.32m AOD. Skeleton (104) was identified at the base of grave cut [105], with iron hob-nails found adjacent to the feet. Skeleton (104) was buried supine with the head at the north-west of the grave. A soft, light grey, silty chalk grave fill (103) overlay skeleton (104) and contained a residual fragment of prehistoric pottery.
- 6.1.5 In the western half of the trench the cut for a large ditch [139] was observed truncating the natural chalk (102). In section the ditch was 5.90m wide by 2.60m deep, with a concave profile. Due to ground reduction works having commenced prior to the presence of archaeologists on site, it was not possible to fully determine the course of the ditch in plan, although the very base of the ditch did extend for a distance of 4.80m across the base of the trench. Ditch [139] contained an in-depth sequence of fill deposits (Figure 4). The primary fills (129), (137) and (138), occupied the base of the ditch to a depth of 0.20m, consisted of chalk rubble, indicating several phases of slumping from the edges of the ditches. Overlying these deposits was 0.05m thick clayey silt soil horizon (136). Soil horizon (136) was subsequently buried by further chalk slump deposit (135). Above fill (135) a series of secondary ditch fills (134), (133), (132), (131) and (130) had accumulated. Six fragments of ceramic building material were recovered from ditch fill (130). Apart from fill (132), these fills represent the gradual accumulation of clayey silt soil horizons between 0.15m and 0.30m thick, with

the only fill exceeding this being fill (130) at 0.50m thick. It is probable that human interaction contributed to the increased depth of this deposit due to the presence of limited quantities of Romano-British ceramic building material. Fill (132) represents chalk slumping within this sequence.

- 6.1.6 Grave cut [116] and cut [122] for vessel (121) are thought to have been cut into ditch fill (130), but due to the rescue nature of the excavation this cannot be confirmed. Both cuts were not observed fully. Grave cut [116] was located within the line of ditch [139] towards the centre of the trench. Skeleton (115) was present within grave cut [116] at a height of 57.78m AOD and orientated east-west. Skeleton (115) was lying crouched on the right side with the head at the west of the grave. A soft, mid brown, clayey silt deposit (114), similar to the ditch fills surrounding it, had been used to seal skeleton (115). Cut [122] containing vessel (121) was located 1.20m to the east of grave cut [116]. A silty clay deposit (120) is thought to have sealed vessel (121) within cut [122].
- 5.1.7 It is likely that fills (114) and (120) were overlain by silty clay ditch fill (128), which may have formed a deliberate dump deposit due to the inclusion of what appeared to be small nodules of unfired ceramic building material. Overlying fill (128) was a further dark, silty clay fill (127), which combined had a total depth of 0.40m.
- 5.1.8 Cut into fill (127), and recorded in section, was grave cut [119] which was 1.90m long by 0.40m deep. Skeleton (118) was positioned at the base of grave cut [119] at a height of 58.00m AOD and orientated northeast-southwest, with the head at the north. Skeleton (118) appeared to be face-down in a prone position but may have been disturbed by slumping. Skeleton (118) was sealed by a soft, dark greyish brown, silty clay fill (117), which also contained two fragments of Roman pottery dating to the 1st to early/mid 2nd century. A metal knife was recovered from fill (117) at the foot of skeleton (118).
- 5.1.9 Grave fill (117) was overlain by a 0.10m thick layer of clayey silt ditch fill (126). A tertiary series of clayey silt ditch fills (125), (124) and (123) were deposited in sequence above fill (126). Fill (124) acted as a lens of material between fills (125) and (123) which were between 0.45m and 0.70m thick.
- 5.1.10 Sealing ditch fill (123), as well as grave fill (103) was a sandy silt artificial soil horizon (101) up to 0.50m covering the full area of the trench. This was overlain by a dark brown, silty clay topsoil deposit (100) 0.15m thick.

6.2 Finds

Remains of pottery, metal finds, ceramic building material (CBM) and human remains were found during the excavations at Milnthorpe House. Results of specialist analysis of the remains are presented in summary below and in detail in Appendix B.

6.2.1 Pottery

Prehistoric Pottery

- 6.2.1.1 A small prehistoric sherd was recovered from the residue of environmental sample <1>, taken from grave fill (103). The sherd is relatively thin-walled (c.6mm) and the fabric contains moderate, very ill-sorted flint, ranging from 0.2-3.5mm and sparse fine shell-inclusions of up to 2mm in length, in a relatively quartz-free matrix. Coarse flint-with-shell fabrics can be associated with a range of different periods in southern Britain, although this example is considered most likely to come from a vessel in the Late Bronze Age/ Early Iron Age post Deverel-Rimbury tradition, broadly dated to c.1150-600 BC. The sherd is assumed to be residual in this context.

Roman Pottery

- 6.2.1.2 A Roman pottery vessel (121) containing a cremation burial was found in a near-complete state with some truncation to the rim. The vessel is a small (c. 130mm diameter) wheel-thrown, everted rim jar in the 'Black burnished' tradition, certainly post-dating c. AD120. Everted rim jars remained common throughout the mid and late Roman period but this example has a relatively short rim which suggests that it is probably of 2nd or earlier 3rd century date. The fabric is a (probably locally-produced) Black-burnished style ware with a medium fine grey sandy core and black-slipped surfaces.
- 6.2.1.3 Two smaller sherds were also recovered from grave fill (117). One is a bodysherd in an undiagnostic coarse oxidised ware; the other is a reeded-rim bowl in a coarse grey ware with a grey wash or slip on its surfaces. This form dates to the late 1st to early/mid 2nd century and, having been found a deposit which is stratigraphically later than the cremation; it seems likely to have been redeposited in the grave-fill.



Plate 2. Cremation vessel (121).

6.2.2 Metal Finds

- 6.2.2.1 A total of 76 iron objects were recovered from five individually numbered contexts at Milnthorpe.

Knife

- 6.2.2.2 A single iron knife was recovered from the grave fill (117) and was found positioned at the feet of skeleton (118). The total length of the knife is 105mm with a 22mm tang. The blade is leaf shaped and measures 25mm wide at its base widening to 27mm at the widest point before tapering to a rounded point. The knife is between 3mm and 4mm thick and weighs 40g. The knife has a central tang while the blade itself is symmetrical despite probably being single edged. The knife has been identified as Manning Type 21 (Manning 1985), a typically later Roman style of blade, which is relatively unusual to Roman Britain and would have been a general purpose implement. The type of knife is not particularly common, although examples have been noted during excavations in Colchester (Richardson 1961, 27) and Richborough (Bushe-Fox 1949, 154).

Hobnails

- 6.2.2.3 Seventy-one hobnails were recovered from two individually numbered contexts. Thirty-five of the hobnails were recovered from grave fill (104) and weighed a total of 49g. Thirty-six hobnails weighing 48g were retrieved from grave fill (103). The similar number of hobnails from each fill, may suggest that the two pairs of shoes are represented.

Nails

6.2.2.4 Four nails (Small Finds 8, 9 and 10) were recovered from grave fill (112). All of the nails had lozenge-shaped heads between 19mm and 16mm wide. Two nails (SF 8), were recovered from the head end of the grave, the longer of the nails was 71mm in length, while the shorter was 54mm. They weighed 13g and 12g respectively. A single nail broken into three pieces was found in the pelvis area (SF 9), it measured 100mm in length and weighed 16g. The final nail was found at the feet of the skeleton (SF 10), it measured 78mm and weighed 15g. The nails are of a style typical of late Roman coffin nails.

6.2.3 Ceramic Building Material

6.2.3.1 Six fragments of CBM of various sizes and weighing 2.28kg, were recovered from ditch fill (130). All are Roman and are of a dull orange colour. One is a roofing tegula with shoulder surviving on one side (maximum thickness 46mm). One is a brick (possible coursing brick) with complete width of 120mm and thickness of 48mm. An unknown tile or brick has only a surviving thickness of 32mm. The other three pieces are unidentified due to their incomplete nature.

6.2.3.2 Within ditch fill (135), was a curious single piece of what looks to be a chalk clay mix that has been fired. Weighing 217g it has moderate, small chalk inclusions though one is noticeably large at 15x 20mm (as seen in the fabric). Its purpose is unclear. It is possibly a natural occurrence as no side is particularly smooth.

6.2.4 Human Bone

6.2.4.1 Six inhumation burials and one cremation burial were excavated from Milnthorpe House. Inhumation burials comprise of the interment of the body within a grave. With a cremation burial, the corpse is traditionally placed on a cremation pyre and burned. A cremation burial will therefore include charred and burnt bone fragments and frequent grave goods. A minimum of seven individuals were represented across the six excavated contexts. Co-mingled remains of an adult male and an adult female were found in skeleton context (115) with duplication of the right orbit, glabella and anterior portion of the frontal bone and identifiable sexing differences evident. The female remains did not match any of the remaining skeletons excavated from the site including skeleton (110), which had been disturbed initially by grave cut [105] and further by machine damage during the excavation.

6.2.4.2 The human bone had been affected by taphonomic agents such as root etching and erosion from the burial environment and were heavily fragmented. Despite this, it was possible to determine that five adult males and one adolescent were present on site. Evidence for dental pathologies, minor non-specific infectious disease and degenerative joint changes were evident and are reported on in detail in Appendix B. The results are discussed further in Section 7 below.

7. Discussion

7.1 The earliest activity identified at the site relates to the substantial ditch [139]. The size of ditch indicates it was most probably associated with an important boundary delineation or defensive earthworks. The full course of ditch [139] could not be defined although the position of burials (104), (107), (110) and (113) within the ditch appear to indicate ditch [139] was curvilinear and its original course continued across a south-west and north-east alignment.

7.2 Burials [113], [107] and [110] are thought to have been interred soon after ditch [139] was cut. No relationship between the ditch and the burials survive due to assumed post-medieval landscaping introducing the steep gradient in this area of site. In regards to the burials, the height at which they were discovered, approximately 2.45m below assumed Roman ground level, would place them at the base of the ditch, or close to it. Over time, a series of fills accumulated within the base of ditch [139] one of which included CBM dating to the Romano-British period. At different points within this

gradual series of soil accumulation further human remains [115], [118] and cremation burial (121) were interred within the ditch.

- 7.3 The dating of pottery found on site indicates that the burials were made at Milnthorpe House between the 2nd and 3rd centuries AD. Given the presence of significant Roman cemeteries at Winchester, such as Lankhills, further evidence of Roman burial practices in the county is not surprising. The evidence from Milnthorpe House broadens the current knowledge of the extent of Roman burial in the region. The inclusion of the burials within ditch [139] is not however clear, especially if the ditch had a previous association as a defensive earthwork.
- 7.4 There was a relatively high percentage recovery of most of the skeletons from the site. The human bone had been negatively affected by agents acting in the burial environment or taphonomic factors. Age-at-death and sex determination of the sample demonstrated that all but one of the inhumation burials were adult males, with the outlier represented by an adolescent aged 12-17 years. No significant growth disturbances were noted in the sample with adult stature matching that defined as the range for adult Roman males in Britain.
- 7.5 Pathological changes relating to lifestyle variables were present including dental diseases. Factors such as carious lesions, mineralised plaque accumulations and dental abscesses indicated a diet with factors such as carbohydrates, protein, various forms of sugars together with poor dental cleaning practices. Limited evidence for non-specific infection may indicate minor traumas such as bone bruises, and there was no evidence for specific infections such as tuberculosis.
- 7.6 Degenerative joint changes were also frequently apparent in the five adults analysed. Whilst the changes can often occur as a matter of course with increased age as an effect of the accumulation of wear and tear on the joints, it is possible that hard physical lifestyles may have a role to play in contributing to the onset of joint degeneration. Marked musculo-skeletal markers across the arms and legs of the adults surveyed and reported in Appendix B Table 1 also indicate lifestyles indicative of repetitive or physically active muscle actions. Whilst very little is known regarding the context of these burials, physically active occupations in broad terms would have included farming, which was intensified in the Roman period compared to preceding periods, or the sourcing and production of timbers for buildings, quarrying and the construction of transport routes and defenses (see Roberts and Cox, 2003:110).
- 7.7 There was very little evidence of infectious disease and trauma in the burial sample. There was evidence of maxillary sinusitis in one adult burial, which has recently been suggested could result from indoor polluted environments such as wattle and daub round huts that were heated by a central hearth together with burning lamp oils made from animal and vegetable fats. Maxillary sinus infections have been seen in the Roman period together with lesions on the ribs and have been interpreted as respiratory infections potentially stemming from such pollution (Roberts and Cox 2003, 112). Interestingly, males appear to be more affected than females (data reported in Roberts and Cox 2003, 113) and it was a male affected at Milnthorpe House, but it is to date unclear which particular factors could contribute to such a distribution. There was no evidence for rib infections in the adults from Milnthorpe House. Other additional causes of maxillary infections can be associated carious and abscesses that have penetrated into the sinus and caused infection. There was no evidence of this having occurred in the affected individual from Milnthorpe.
- 7.8 Examples of non-specific infections in the long bones of the legs may indicate localised and minor trauma. There was no evidence of systemic or specific infections in the group. This may be a factor of the small number of burials recovered from Milnthorpe. Animal husbandry practices in the period did result in frequent contact with animals and therefore the transmission of some zoonotic diseases,

particularly tuberculosis. The adults had also been fortunate to have avoided accidental injuries that can result in long bone fractures, such as falls. There was also no evidence of violent injuries indicating inter-personal tension, such as bladed weapon injuries or depressed cranial or facial fractures on the skeletal remains.

- 7.9 The analysis has demonstrated that burnt human and animal bone was deliberately placed within the cremation vessel (122) and this itself was deliberately buried in a grave cut for the vessel [123] at the site. The remains comprised of a deliberate cremation burial of an adult individual. Whilst parts of the burnt bone indicated a relatively efficient cremation had been achieved, a high intensity of burning was not consistently maintained and it is likely that burial position on the pyre caused the extremities too have been poorly cremated. It is likely that the burnt animal bone was placed on the pyre as a form of food offering as part of the funeral rite. Handfuls of the cremated bone was taken from where it had fallen into the cremation pit and deliberately placed in the ceramic vessel ready for burial. There was little evidence for the separation of the animal and human bone prior to burial.
- 7.10 The results indicate that the site at Milnthorpe House was a focus of deliberate burial activity in the 2nd-3rd centuries AD. Two modes of burial, inhumation and cremation, of adults were clearly supported at the site. Grave goods in the form of a knife were included with one burial and evidence of clothing indicated that ideas of ritual ornamentation of the deceased were an important aspect of the local Roman funerary cult.
- 7.11 Evidence of subsequent human activity at Milnthorpe was also recognised. During the post-medieval period landscaping of the grounds at Milnthorpe occurred, recognised by the steep gradient now present, in addition to post-medieval deposition of artificial soil horizon (101) overlying natural chalk (102) which demonstrates a phase of horizontal truncation. It is possible that it is this phase of truncation partially accounts for the disturbance of the Roman burials, and notably skeleton [110].

8 Further Work and Dissemination

- 8.1 The archaeological excavation removed all of the human burials that had been impacted on in the scope of the building works. As this work was not governed by an archaeological condition on the site, no further archaeological works are recommended for the development. Full reporting of the finds and human bone has been undertaken in this report. The results are of local significance. No further post-excavation work is recommended for the site.
- 8.2 This results within this report will be added to the grey literature available on the online ADS OASIS project (Appendix C). Publication of the results will also take place by inclusion within the fieldwork roundup published in *Archaeology in Hampshire*, the Journal of the Hampshire Field Club and Archaeology Society.

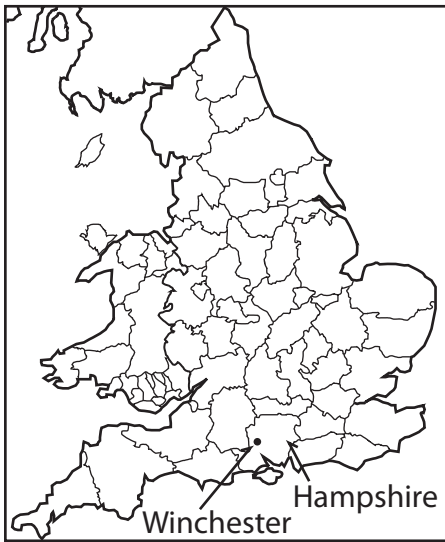
9. Archive Deposition

- 9.1 On completion of the project, the archive be prepared and deposited in the format agreed with Winchester City Museum. The excavation archive will be security copied and a copy deposited with the National Archaeological Record (NAR). The site archive will comprise all artefacts, human remains and written and drawn records. It is to be consolidated after completion of the whole project, with records and finds collated and ordered as a permanent record.

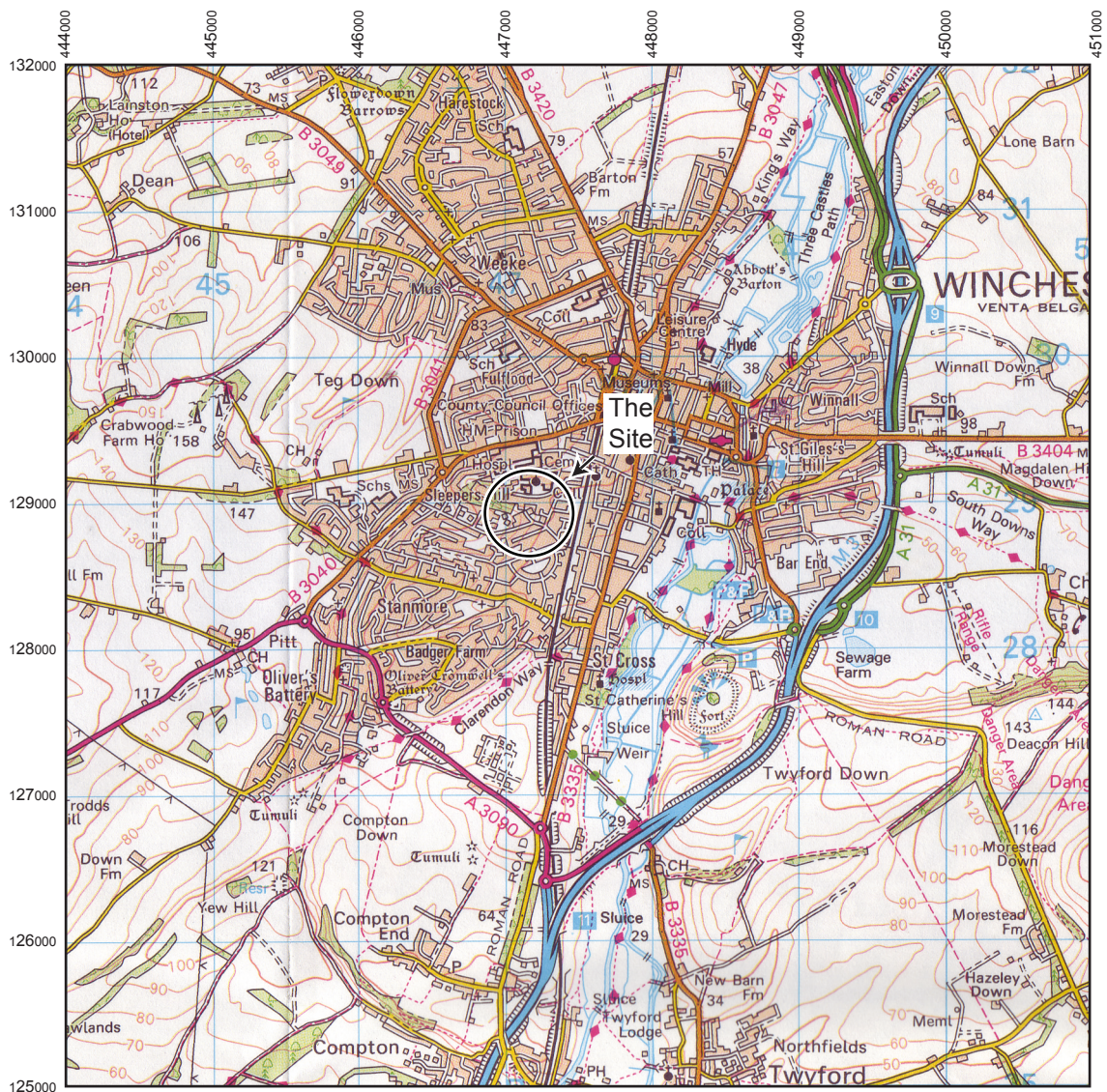
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Approximate Site Location
Within England & Wales



Based on the Ordnance Survey's 1:50 000 Landranger map of 1995 with the permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Licence No. AL 100023757

500m 0 2 km

1:50 000

Figure 1: Site Location



Figure 2: Detailed Excavation Area / Ditch Location

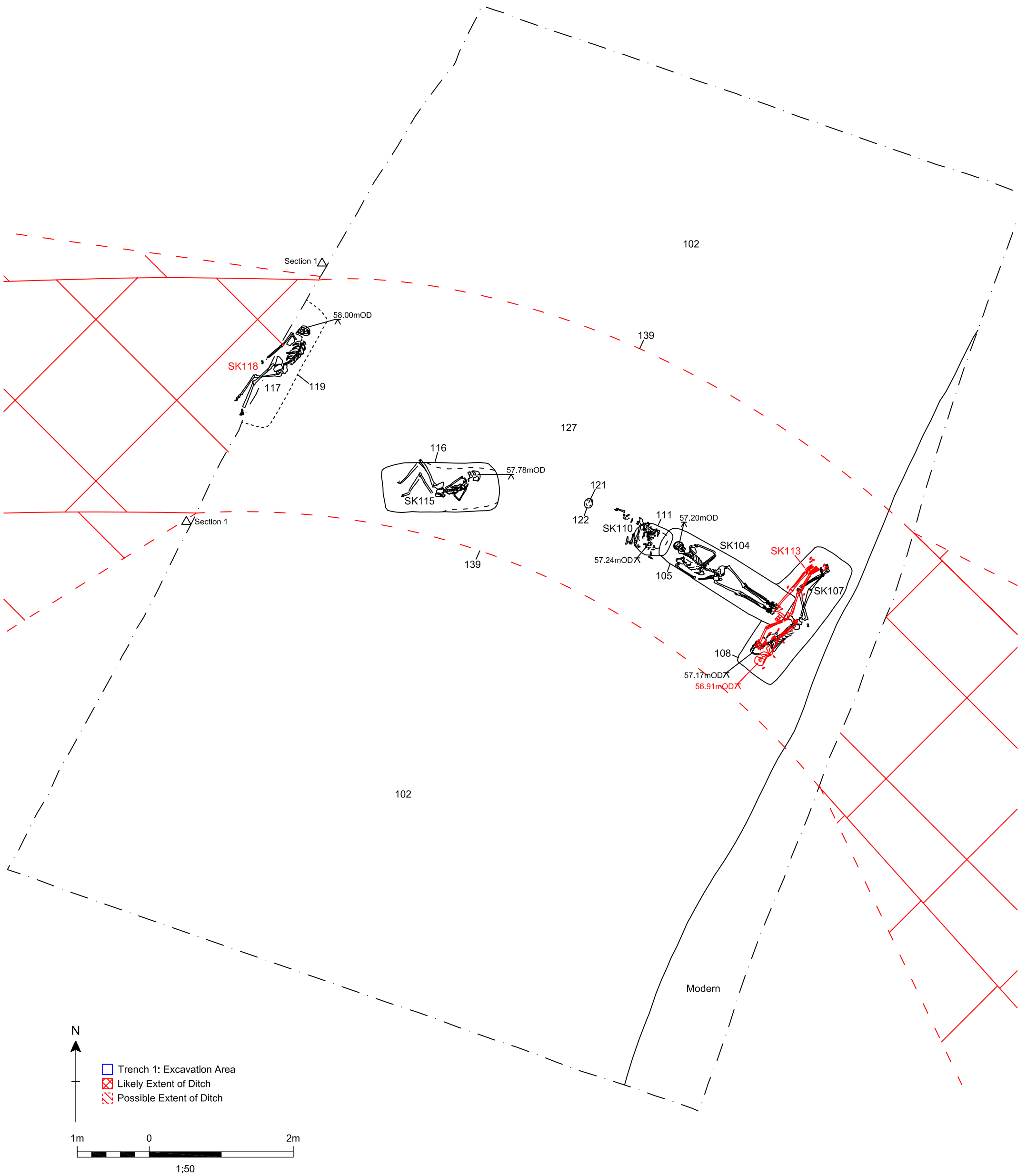


Figure 3: Detailed Excavation Area/Skeleton Location

REPORT ON THE DISCOVERY OF BURIALS AT MILNTHORPE HOUSE, SLEEPERS HILL, WINCHESTER

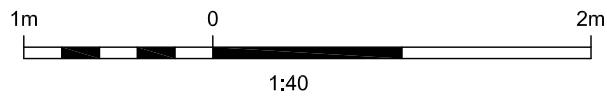
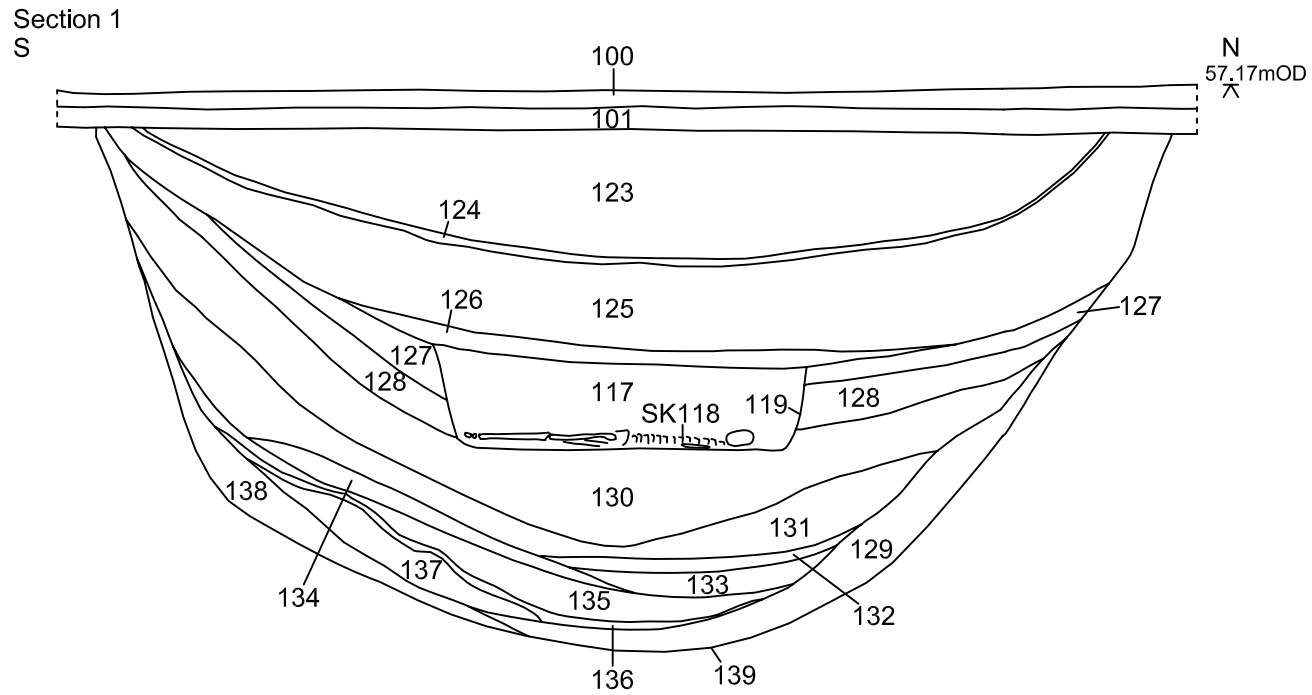


Figure 4: Section Through Ditch and Skeleton 118

Appendices

Appendix A - Context Register

Context	Type	Relationship	Length	Width	Depth	Comments
100	Deposit	Over (101)	13.5	10	0.15	Topsoil
101	Deposit	Below (100)	13.5	10	0.5	Overburden
102	Deposit	Below [139]	13.5	10	0.1+	Chalk natural
103	Deposit	Fill over (104)	1.85	0.56	0.25	Grave fill
104	Skeleton	In [105]				Skeleton
105	Cut	Cut for (104)	1.8	0.6	0.25	Cut of burial
106	Deposit	Fill over (107)	2.07	0.74		Grave fill
107	Skeleton	In [108]				Skeleton
108	Cut	Cut for [107]	2.2	0.65	0.7	Cut of burial
109	Deposit	Fill over (110)	0.75	0.54	0.1+	Grave fill
110	Skeleton	In [111]				Skeleton
111	Cut	Cut for (110)	0.6	0.5	0.12	Cut of burial
112	Deposit	Fill over (113)	2.2	0.65	0.7	Grave fill
113	Skeleton	In [108]				Skeleton
114	Deposit	Fill over (115)	1.35	0.85	0.2	Grave fill
115	Skeleton	In [116]				Skeleton
116	Cut	Cut of (115)	1.5	0.7	0.2	Cut of burial
117	Deposit	Fill over (118)	1.9	0.4	0.5	Grave fill
118	Skeleton	In [119]				Skeleton
119	Cut	Cut of (118)	1.9	0.4	0.5	Cut of burial
120	Deposit	Over (121)		0.15	0.2	Cremation fill
121	Cremation vessel	In [122]				Cremation Urn
122	Cut	Cut for (121)		0.2	0.15	Cremation Cut
123	Fill	Over (124)			0.68	Ditch Fill
124	Fill	Over (125)			0.08	Ditch Fill
125	Fill	Over (126)			0.46	Ditch Fill
126	Fill	Over (127)			0.12	Ditch Fill
127	Fill	Over (128)			0.14	Ditch Fill
128	Fill	Over (129)			0.22	Ditch Fill
129	Fill	Over (130)			0.32	Ditch Fill
130	Fill	Over (131)			0.52	Ditch Fill
131	Fill	Over (132)			0.31	Ditch Fill
132	Fill	Over (133)			0.06	Ditch Fill
133	Fill	Over (134)			0.14	Ditch Fill
134	Fill	Over (135)			0.16	Ditch Fill
135	Fill	Over (136)			0.28	Ditch Fill
136	Fill	Over (137)			0.06	Ditch Fill
137	Fill	Over (138)			0.22	Ditch Fill
138	Fill	Over [139]			0.25	Ditch Fill
139	Cut	Over (102)	10	5.95	2.6	Ditch Cut

Appendix B – Specialist Reports

Report on the Human Bone

Rachel Ives, AOC Archaeology Group

1.0 Introduction

- 1.0.1 Six inhumation burials and a ceramic vessel containing burnt bone were excavated from Milnthorpe House in October 2011. The skeletal remains and burnt bone were subjected to osteological analysis in order to inform on the age, sex, quality and preservation of the burials and to identify any indicators as to the health of the individuals buried at the site. The burnt bone was analysed in order to ascertain whether or not the remains represented a cremation burial or whether burnt animal bones had been placed as a votive deposit with the inhumation burials on the site. Specialist dating of the ceramic vessel together with the presence of hobnails at the feet of two of the burials indicates that the burials were Roman and date more specifically to the 2nd or early 3rd century AD.

2.0 Methods

- 2.0.1 Analysis of the inhumation burials followed recent guidance recommended by BABAO/IFA (Brickley & McKinley 2004) and included the production of an inventory of bones present prior to determination of individual age and, in adults, sex determination. Individual traits of normal variation (non-metric traits) together with metrical recording was undertaken. Any pathological changes were also documented and compared with reported prevalences for the period in question.

2.1 Preservation and Completeness

- 2.1.1 Bone preservation was evaluated according to the guidance suggested by McKinley (2004), which assigns grades (0-5) to the bone surface according to damage by taphonomic variables, such as root damage and bone abrasion. In addition, bone surface preservation was categorised according to the Museum of London (Connell & Rauxloh, 2003; Powers, 2007) recording schema using the following criteria:

1 = Bone surface is in good condition with no erosion, fine surface detail such as coarse woven bone deposition would be clearly visible (if present) to the naked eye.

2 = Bone surface is in moderate condition with some post-mortem erosion on long bone shafts but the margins of articular surfaces are eroded and some prominences are eroded.

3 = Bone surface is in poor condition with extensive post-mortem erosion resulting in pitted and eroded cortical surfaces and long bones with articular surfaces missing or severely eroded.

- 2.1.2 Various methods of determining skeletal completeness have been previously reported. Cranial and post-cranial skeletal regions can be considered as less than 25% complete, between 25-75% complete or over 75% complete following Buikstra & Ubelaker (1994, 7). Alternatively the percentage completeness of each skeleton can be calculated. The Museum of London (Connell & Rauxloh, 2003; Powers, 2007) recording protocol calculates skeletal completeness on the basis that that the skull equates to 20% of the skeleton, the upper limbs 20%, the torso 40%, and the lower limbs 20%. This method was adopted in the current study.

2.2 Sex Determination

- 2.2.1 Sexually dimorphic regions of the pelvis and cranium develop with the onset of puberty. Prior to puberty, it is extremely difficult to accurately determine the sex of a juvenile skeleton and accurate results would require destructive biomolecular analyses.
- 2.2.2 Various regions of the pelvis and skull were recorded in order to provide an estimation of the sex of each adult skeleton assessed. The female pelvis is typically more gracile than a male pelvis but is broader, anticipating the need to accommodate childbirth (Buikstra & Ubelaker 1994, 18; Bass 1995). Differences in soft tissue attachments in the pelvis between males and females can also be used as indicators of sex, including the ventral arc, ischio-pubic ramus ridge and sub-pubic concavity of the pubis (Phenice 1969; Sutherland & Suchey 1991). The regions of the cranium that can display sexually dimorphic features include the supra-orbital brow ridges (glabella), the supra-orbital margins, the mastoid processes, the nuchal crest and inion protuberance, as well as the shape and slope of the forehead when viewed in profile and the shape of the eye orbits. The assessment of these regions for the determination of sex followed the methods of Buikstra & Ubelaker (1994, 20). Sexually dimorphic skeletal traits were recorded using a system of codes outlined in Table 1.

Code	Sex estimate
1	Male
2	Possible male
3	Intermediate
4	Possible female
5	Female
6	Undetermined

Table 1. Sex categories used in the analysis of human remains

2.3 Age Determination

- 2.3.1 Methods of adult age-at-death determination are based on degenerative changes that occur at various joint surfaces including the pubic symphysis (Brooks & Suchey 1990) and auricular surface of the pelvis (Lovejoy *et al* 1985), as well as at the sternal rib end (İşcan & Loth 1984; İşcan *et al* 1985; see Buikstra & Ubelaker, 1994, 21-32; Bass 1995). Other means of estimating adult age at death have been utilised previously. Age determination based on the rate of tooth wear can however, be modified by the coarseness and content of the diet and can complicate or lead to erroneous estimations of individual age (Walker *et al* 1991, 169; Larsen 1999, 247-257). Methods assessing the extent of cranial suture closure (eg. Buikstra & Ubelaker 1994, 32) in relation to age are not sufficiently accurate to be meaningfully incorporated into osteological analyses (see further O'Connell 2004, 19). Methods for the determination of age-at-death from juvenile remains include assessment of the degree of tooth formation and eruption sequence (Moorees *et al* 1963; Ubelaker 1989; Gustafson & Koch 1974), together with estimates of growth derived from long bone diaphyseal lengths and additional bone size estimates (eg. width and length of the pars basilaris and ilium) (see further Sundick 1978; Scheuer & Black 2000) together with estimates of epiphyseal fusion rates (see Buikstra & Ubelaker 1994, 40; Scheuer & Black 2000).
- 2.3.2 Skeletal age estimates are not accurate enough to enable identification of individual age in years. Therefore, broad age categories are used to group individuals (Buikstra & Ubelaker 1994; O'Connell 2004). The age categories used in the current analysis followed those presented in the Museum of London recording protocol and are shown in Table 2.

Age category	Age group	Description
0	no data	-
1	Perinatal	Intra-uterine - neonate
2	1-6 months	Early post-neonatal infant
3	7-11 months	Later post-neonatal infant
4	1-5 yrs	Early childhood
5	6-11yrs	Later childhood
6	12-17yrs	Adolescence
7	18-25yrs	Young adult
8	26-35 yrs	Middle adult A
9	36-45 yrs	Middle adult B
10	46+ yrs	Mature adult
11	Adult	18+ years
12	Subadult	< 18 years

Table 2. Age at death categories used in the analysis of the human remains

2.4 Pathology

2.4.1 Pathological changes across the skeleton and dentition were recorded following reference texts including Brothwell (1981), Barnes (1994), Hillson (1996), Rogers & Waldron (1995), Aufderheide & Rodríguez-Martín (1998), Ortner (2003) and Roberts & Manchester (2005), as well as guidance issued in Roberts & Connell (2004).

2.5 Burnt Bone

2.5.1 Osteological analysis of the human bone from the cremated burial deposits followed the guidance and methods presented by McKinley (1994, 2000, 2004) as well as the standards outlined by English Heritage (1991, 2002) and BABAO/IFA (Brickley & McKinley 2004). The total weight of the cremated human bone present was determined. The bone was then passed through three sieves of 10 mm, 5 mm and 2 mm sized mesh and the bone weight at each fraction was recorded. The level of fragmentation of the cremated bone within a deposit is related to the pyre conditions, as well as any ritual activity related to burials and additional taphonomic variables acting on the burial environment.

2.5.2 The cremated bone was subsequently hand sorted and identified by regions of the skeleton such as bones of the cranium, axial skeleton, upper or lower limb, as well as identified to individual features where possible. The weight of each grouped unit was compared to the total weight of the cremation deposit to gauge an indication of the fragmentation and preservation of the skeleton following cremation and burial. The maximum size of human bone fragments within each cremation deposit was also recorded.

2.5.3 The variation in colour of the burnt human bone was recorded and correlated with the bones affected where possible. McKinley (2004:11) has stated that the colour of cremated bone can reflect on the oxidation of the organic component of bone relevant to the temperature acting on the bone, and as such can reflect the efficiency of the cremation (see also McKinley 1989; Walker & Miller 2005). The colour changes in cremated bone can be broadly interpreted as outlined in Table 3.

Colour	Implication
Brown/orange	Unburnt
Black	Charred c.300 degrees C.
Blue/grey	Incompletely oxidised, up to c.600 degrees C.
White	Fully oxidised, over 600 degrees C.

Table 3. Colour variation of cremated human bone (following McKinley 2004, 11)

3.0 Results

3.1 Minimum Number of Individuals

3.1.1 Six inhumation burials were excavated from Milnthorpe. A minimum of seven individuals were represented across the six excavated contexts. Co-mingled remains of an adult male and an adult female were found in skeleton context (115) with duplication of the right orbit, glabella and anterior portion of the frontal bone and identifiable sexing differences evident. The female remains did not match any of the remaining skeletons excavated from the site including skeleton (110), which had been disturbed initially by grave cut [105] and further by machine damage during the excavation.

3.2 Completeness and Preservation

3.2.1 The estimated percentage completeness of each articulated skeleton is shown in Appendix B Table 1. The summary completeness for the burials is shown in Figure 1. The disarticulated cranial remains of a female burial found with skeleton (115) are excluded from these data. There was a relatively high percentage recovery of most of the skeletons from the site (Figure 1) with the exception of skeleton (110), of whom only 20% of the skeleton could be recovered.

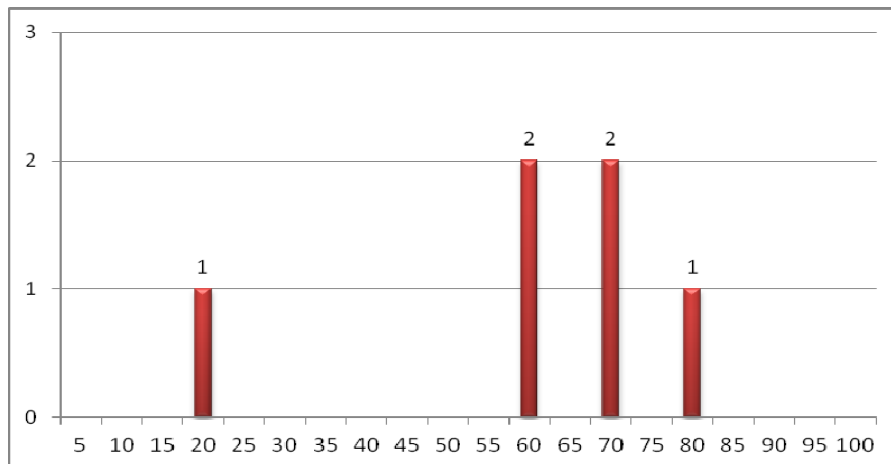


Figure 1. The percentage completeness (x-axis) of the six articulated inhumation burials excavated from Milnthorpe. The disarticulated cranial remains of a female burial have been excluded.

3.2.2 Despite the reasonable skeletal completeness, there was relatively poor recovery of complete arms and legs or complete bones of the skull or pelvis. The level of fragmentation observed across all of the skeletons limited the scope of the metrical analysis that could be undertaken on the remains.

3.2.3 The human bone from Milnthorpe had been negatively affected by agents acting in the burial environment or taphonomic factors. Consistent evidence of root etching was observed across all contexts together with striations and in some instances fissuring of the cortical bone surface, particularly noted in the cranial and post-cranial remains of skeleton 113. The skeletons were assessed as Grade 2 level of erosion or abrasion to the human bone with quite extensive root action erosion with relatively deep surface penetration following the recording schema of McKinley (2004, Figure 6). Frequent removal of portions of the external cortical bone surfaces by weathering agents had also occurred, particularly affecting the long bones such as the femur and the outer surfaces of the skull. Such loss of the integrity of the outer bone surfaces limited the extent to which pathological processes could be accurately identified as having affected the individuals. The identified evidence for diseases reported below are the minimum factors that could be ascertained as having affected

the individuals during life. No evidence of animal activity, such as rodent gnawing was observed on the remains.

3.3 Age-at-Death and Estimated Individual Sex

3.3.1 Age-at-death estimates were derived for all seven of the individuals represented at Milnthorpe. The disarticulated cranial remains of the female skeleton found mixed with skeleton (115) were of a dimension indicative of an adult, but no specific aging criteria could be applied to further refine her age-at-death owing to the incomplete remains. Burial (110) was highly fragmented (see Section 3.2) and the skeletal remains did not permit a better age determination other than an adult individual. The remaining five articulated skeletons from Milnthorpe could be assessed for detailed age-at-death determination. Individual results for the articulated burials are shown in Appendix B Table 1 and are summarised in Figure 2.

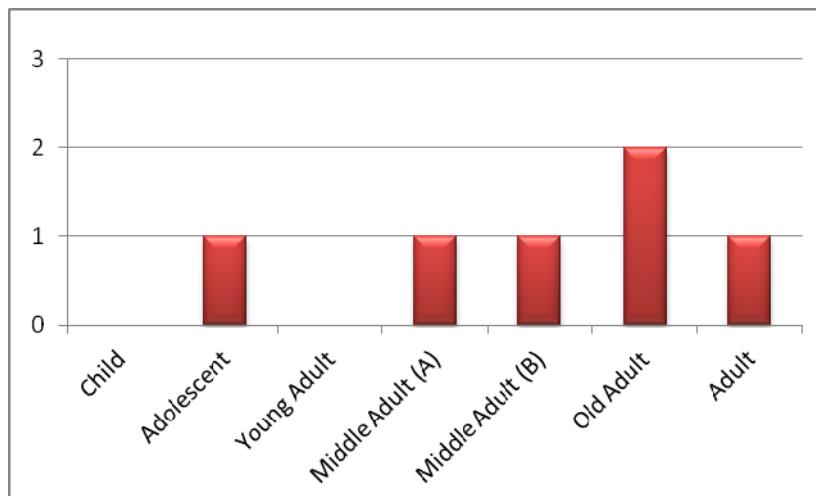


Figure 2. The number of individuals in each age-at-death category for the articulated skeletons from Milnthorpe. The following age definitions apply: Child birth-12 years (narrower juvenile age divisions were not required for the remains present), Adolescent 12-17 years, Young Adult 18-25 years, Middle Adult (A) 26-35 years, Middle Adult (B) 36-45 years, Old Adult 46+ years, Adult 18+ years no refinement possible based on bone survival.

3.3.2 The sex of all five articulated adult skeletons could be gauged from the surviving bone elements. The results are summarised in Figure 3 with the male dominance in the sex of the burials quite a striking result. Burial (113) was an adolescent aged 12-17 years. In some instances it can be possible to ascertain the sex of older adolescents who have progressed far enough through puberty that sexually dimorphic characteristics have developed in the skeleton. Skeleton (113) displayed a mixed suite of sexing features across the cranium, mandible and pelvis such that sex determination could not be accurately determined.

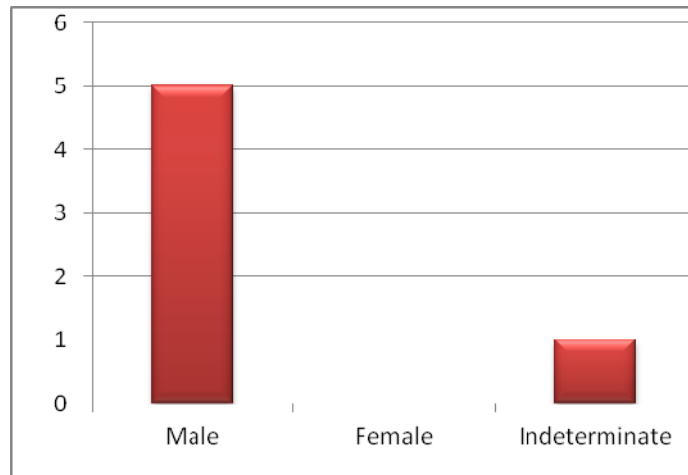


Figure 3. The estimated sex of the articulated burials from Milnthorpe. The indeterminate burial is represented by skeleton (113), an adolescent aged 12-17 years without clearly developed sexually dimorphic skeletal characteristics.

3.4 Stature

3.4.1 Three articulated adult skeletons had complete long bones capable of permitting the calculation of individual stature. The maximum length of the femur was measured and used to compute stature following the recently published summary of stature formulae recommended by Brothwell and Zakerowski (2004:Table 5). The male means and estimated stature ranges from minimum to maximum estimated heights are shown in Table 4 and are illustrated in Figure 4. The male mean individual stature for the all three adult males from studied from Milnthorpe is below the estimated mean height for males in Roman Britain as ascertained from a survey of skeletal remains compiled by Roberts and Cox (2003:142). The male mean stature estimates do however, fall within the range of individual height documented by Roberts and Cox (2003:142), indicating that there no significant growth deficiencies had affected the individuals from Milnthorpe during childhood. In addition, there was no evidence for any pathological conditions that can reduce an individual’s height, such as poorly aligned long bone fractures, collapse of the vertebrae (traumatic or due to a disease such as osteoporosis), or evidence of bowing long bones due to a vitamin D deficiency.

Context	Estimated Sex	Femur Length (cm)	Stature	Range
104	Male	43.5	164.9	161-168
107	Male	44.1	166.3	163-169.5
118	Male	43.0	163.7	160-166
-	Roman Male	-	169	159-178
-	Roman Female	-	159	150-142

Table 4. Estimated individual stature for articulated adult burials from Milnthorpe with a complete femur. Comparative stature data for males and females from a survey of sites across Roman Britain is also included (from Roberts and Cox, 2003:142).

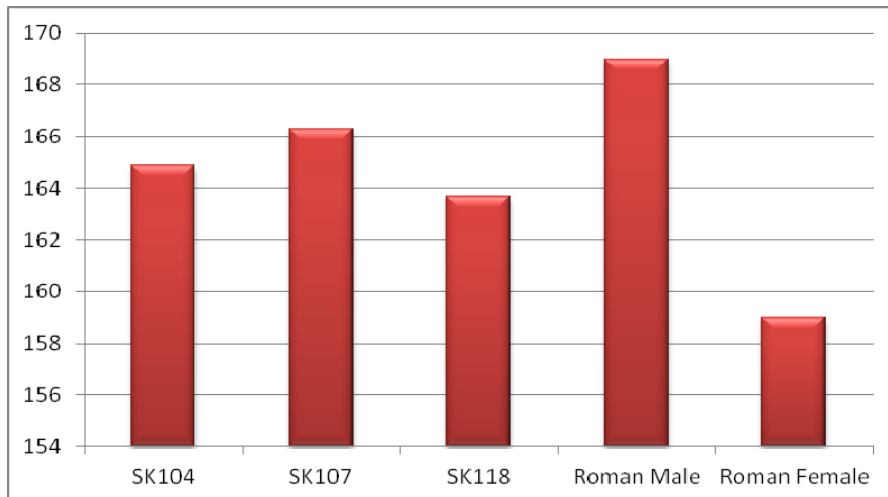


Figure 4. The mean estimated individual stature for three articulated skeletons from Milnthorpe with complete femora compared to the mean adult height for males and females in Roman Britain (from Roberts and Cox, 2003:142).

3.5 Pathology

3.5.1 A number of pathological changes were observed across the skeletal remains from Milnthorpe. Due to the small number of burials excavated (n=6) and the high level of bone fragmentation the pathological results will be considered by an individual prevalence rate rather than by true prevalence rate (per bone element present) throughout this report. No pathological changes were observed on the disarticulated cranial remains found co-mingled with skeleton (115). Accordingly, these remains are subsequently excluded from the following results section.

Dental Pathology

3.5.2 Five of the six articulated burials had dental remains present. All five individuals were affected by some degree of dental disease as shown in Figure 5. The most frequently occurring condition was the loss of one or more teeth during the lifetime of the individual. Such ante-mortem tooth loss can be distinguished from teeth that may have fallen out some time after burial and decomposition by the closure of the tooth sockets by the in-filling with new bone; a process that can only happen while the individual is alive. Four out of the five adults with teeth present exhibited the ante-mortem loss of one or more teeth (80%). The molars were the most frequently lost teeth during life across the small sample from Milnthorpe.

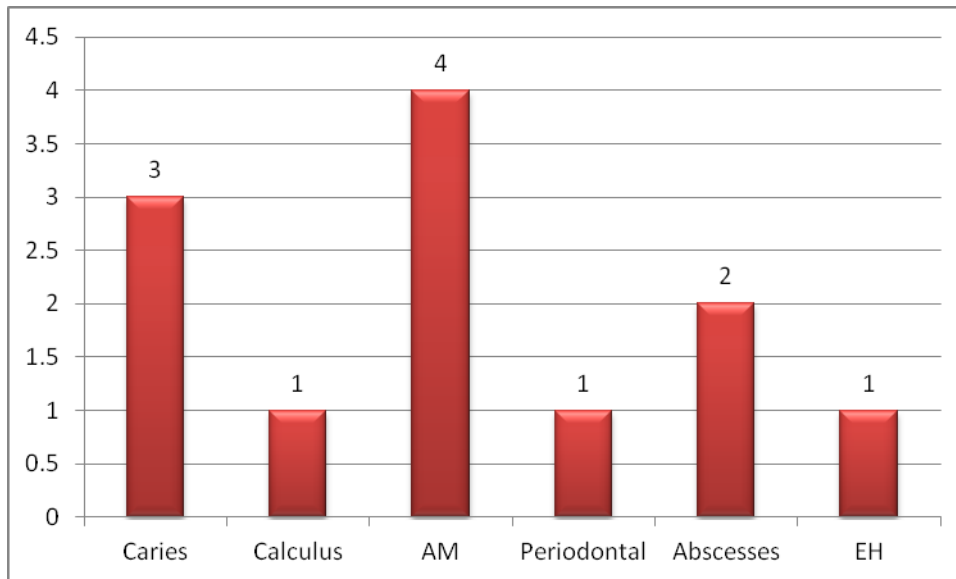


Figure 5. The number of individuals with evidence of dental disease from Milnthorpe. Five adults had dental remains present. The data shows the number of individuals with one or more teeth affected by each dental pathology (crude disease rate). AM ante-mortem tooth loss, EH dental enamel hypoplasia (see text).

- 3.5.3 Dental caries was observed to have affected three of the five adults with dental remains present. As with the rates of ante-mortem tooth loss, the molar teeth were most often affected by caries in the sample. It is possible that carious lesions had contributed to the tooth loss in some cases although the loss of the tooth prevents confirmation of this. Canines were also affected by caries in the sample. Skeleton (104) was particularly affected by gross lesions resulting in deep cavitation into the occlusal surface of the tooth with near complete removal of all of the enamel. Such decay can cause considerable pain when the nerve root of the tooth is involved. Dietary factors such as diets high in carbohydrates and sugar contribute to carious lesions by creating fermentable sugars that coat a tooth's surface. Bacterial agents are attracted to the sugars and cause focal destructive lesions through the enamel of a tooth crown or root dentine. Increased age can also contribute to the onset of caries owing to the accumulation of bacterial agents on the teeth leading to focal cavities.
- 3.5.4 The build up of bacterial agents that contribute to carious destruction can also result in periapical abscesses, whereby infectious agents accumulate and form a cyst-like cavity or a draining sinus adjacent to a tooth socket. Abscesses were observed in two of the adults surveyed (Figure 5), with molar teeth also affected. The presence of abscesses as well as caries, indicate poor dental hygiene practices were prevalent. This is also indicated by the presence of mineralized plaque adhering to the surface of a tooth or tooth root (calculus). Deposits can vary between very small, thin deposits to severe accumulations that cover the majority of the tooth surface. Only one individual showed calculus deposits in the sample (SK104), with the deposits affecting the molar teeth and were large in formation covering most of the cheek-side (buccal) surface. These factors suggest a diet sufficient to contribute to carious lesion onset, possibly high in carbohydrate intakes together with limited or poor modes of dental cleaning.
- 3.5.5 Only one individual showed evidence for dental enamel hypoplastic lesions. These lesions took the form of linear indentations in the lower (distal) portion of the crown surface of canines and premolars in individual SK(107). These lines are caused by cessation of the formation of enamel during childhood growth as a reaction to a period of ill-health, malnutrition or other poorly understood forms of "stress" that occurs whilst the tooth is developing. As enamel is not remodelled once it had been

formed, enamel defects provide a means of identifying a non-specific phase of juvenile stress. As only one adult from the Milnthorpe sample was affected, it is suggested that childhood stress sufficient to cause enamel defects was not widespread in these Roman burials.

Infection

- 3.5.6 There were five examples of infectious lesions in the Milnthorpe burials. Non-specific infectious changes had affected the endocranial (internal) aspect of the skull in two burials. In addition, one individual displayed evidence of maxillary sinusitis. Non-specific infectious lesions formed of layers of remodelling woven periosteal new bone formation on the lower leg (tibia) were observed on three individuals. The mild nature of the lesions indicated that none of those affected had suffered from a severe or systemic infection, but a minor inflammation possible secondary to a traumatic episode (bone bruise) or a minor localised infection had occurred. There was no evidence of specific infectious disease in the sample, such as tuberculosis.

Degenerative Joint Disease

- 3.5.7 Five of the six articulated burials from Milnthorpe displayed evidence of degenerative joint disease. The most frequently affected skeletal location affected by degenerative changes was the spine with both the apophyseal joints and the vertebral bodies affected (Figure 6). The pathological changes took the form of new bone formation (osteophytes) around the joint margins and centra. Degenerative changes were also recorded where marked pitting through the joint surface had occurred. In some instances, this was under-estimated in the sample owing to complicating post-mortem damage and the friability of the surviving bone elements.
- 3.5.8 The single inhumation without evidence of any degenerative joint lesions was skeleton (113), the adolescent individual. As increased age can be a significant factor leading to joint breakdown, the lack of changes in individuals who died young is expected. There was very little evidence for the severe form of degenerative joint change, osteoarthritis, which occurs when there has been complete breakdown of the protective cartilage between joint surfaces.

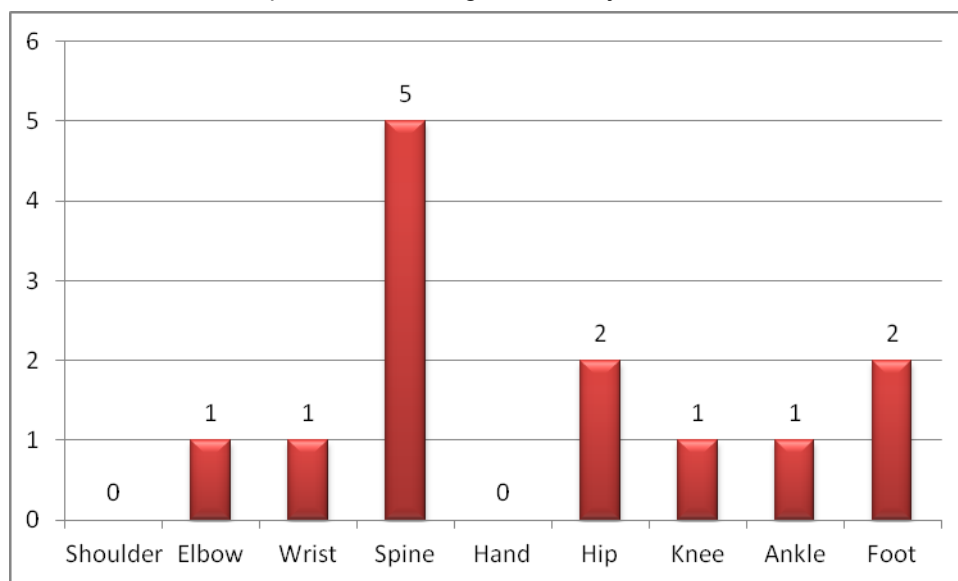


Figure 6. Number of individuals with degenerative joint changes (osteophyte formation, degenerative joint pitting) by skeletal location. Five of the six articulated adults had altered joint changes. The spine was the most frequently affected area.

3.5 Burnt Bone

- 3.5.1 The contents of the ceramic vessel were excavated in c.20mm spits throughout the vessel. Burnt bone was retrieved from all levels of spits throughout the vessel. There was no discernable patterning in view of bone fragment deposition within the vessel, by size or element composition (eg. axial bone, long bone, skull bone). The bone placement in the vessel was therefore not highly ordered. No finds were identified together with the burnt bone in the vessel.
- 3.5.2 As no depositional patterns had been identified during the vessel excavation, the burnt bone assemblage was amalgamated for analysis. The results are reported in Appendix B Table 2. The total weight of the burnt bone sample was 563g. The burnt bone was predominantly comprised of large pieces of bone (10mm+). Fragments of this fraction size formed 57.9% of the whole burnt bone assemblage and weighed 326g. The maximum length of the largest fragment was 80mm.
- 3.5.3 The burnt bone was separated into identifiable elements including cranial bone, axial bone from the vertebrae and ribs and bone fragments from the long bones. The results are shown in Appendix B Table 2. Identifiable fragments of human scapula, an adult human vertebrae, petrous portion of human temporal bone from the skull, an adult maxilla and the posterior portion of an adult human calcaneus (achilles tendon attachment site) were identified. There were also fragments suspected animal bone, in particular cranial and long bone fragments. The deposit therefore clearly represents cremated animal and human remains that had been gathered together and deposited in vessel (122). There was no clear duplication of human elements, therefore the minimum number of individuals in the burnt bone assemblage is considered to be one. The identifiable fragments listed above also indicate that the remains were of an adult individual. No evidence survived to indicate the sex of the individual (the petrous portion of the adult temporal bone did not include the mastoid process).
- 3.5.4 The quality of burning of the deposit was variable. Large fragments of long bone were both white suggesting a highly efficient and oxidised cremation with burning at a high temperature but also in some places a mottled brown, which is more indicative of warmed but unburnt bone. Further fragments of cranial bones were also highly oxidised one side but with adjacent patches of unburnt bone. The variation may imply that the cremation pyre was not uniform or that there was an uneven spread of heat reaching the surface of the pyre on which human and animal remains were placed. In one instance, the identified calcaneus forming the heel of an adult individual was brown and largely unburnt, which could indicate that the ankle and foot was further away from the centre or focus of the cremation pyre than other elements, such as the torso, may have been.

4.0 Discussion

- 4.0.1 The six articulated burials excavated from Milnthorpe showed an overall bias representing male burial at the site together with one adolescent. As only burials directly impacted on by the development works were excavated, these results must be interpreted tentatively; it cannot be determined that no females were buried within the ditch or remainder of the unexcavated portion representing a cemetery at Milnthorpe. The presence of coffin nails found with one of the adult burials suggests that formal or ordered burial had taken place at the site. The evidence for clothing remains (hobnail boots) present on two individuals suggests some degree of care or maintenance of the deceased and does not imply a form of deviant burial despite positioning within a large ditch [139].

- 4.0.2 The human burials displayed evidence of pathological changes. Dental diseases were frequently recording, including caries and abscesses. Roberts and Cox (2003:130) have demonstrated that treatments were recommended for carious lesions including the inhalation of remedies such as henbane that was thought to get rid of worms within the teeth believed to cause the tooth caries. High protein diets and sugar contained in fermented wines may have been factors within the Roman lifestyle likely to have contributed to the onset of both carious destruction and mineralised plaque accumulations on the teeth (Roberts and Cox, 2003:131).
- 4.0.3 Degenerative joint changes were also frequently apparent in the five adults surveyed. Whilst the changes can often occur as a matter of course with increased age as an effect of the accumulation of wear and tear on the joints, it is possible that hard physical lifestyles may have a role to play in contributing to the onset of joint degeneration. Marked musculo-skeletal markers across the arms and legs of the adults surveyed and reported in Appendix B Table 1 also indicate lifestyles indicative of repetitive or physically active muscle actions. Whilst very little is known regarding the context of these burials, physically active occupations in broad terms would have included farming, which was intensified in the Roman period compared to preceding periods, or the sourcing and production of timbers for buildings, quarrying and the construction of transport routes and defences (see Roberts and Cox, 2003:110).
- 4.0.4 There was very little evidence of infectious disease and trauma in the burial sample. There was evidence of maxillary sinusitis in one adult burial, which has recently been suggested could result from indoor polluted environments such as wattle and daub round huts that were heated by a central hearth together with burning lamp oils made from animal and vegetable fats. Maxillary sinus infections have been seen in the Roman period together with lesions on the ribs and have been interpreted as respiratory infections potentially stemming from such pollution (Roberts and Cox, 2003:112). Interestingly, males appear to be more affected than females (data reported in Roberts and Cox, 2003:113) and it was a male affected at Milnthorpe, but it is to date unclear which particular factors could contribute to such a distribution. There was no evidence for rib infections in the adults from Milnthorpe. Other additional causes of maxillary infections can be associated carious and abscesses that have penetrated into the sinus and caused infection. There was no evidence of this having occurred in the affected individual from Milnthorpe.
- 4.0.5 Examples of non-specific infections in the long bones of the legs may indicate localised and minor trauma. There was no evidence of systemic or specific infections in the group. This may be a factor of the small number of burials recovered from Milnthorpe. Animal husbandry practices in the period did result in frequent contact with animals and therefore the transmission of some zoonotic diseases, particularly tuberculosis. The adults had also been fortunate to have avoided accidental injuries that can result in long bone fractures, such as falls. There was also no evidence of violent injuries indicating inter-personal tension, such as bladed weapon injuries or depressed cranial or facial fractures on the skeletal remains.
- 4.0.6 The analysis has demonstrated that burnt human and animal bone was deliberately placed within the cremation vessel (122) and this itself was deliberately buried in a grave cut for the vessel [123] at the site. The remains comprised of a deliberate cremation burial of an adult individual. Whilst parts of the burnt bone indicated a relatively efficient cremation had been achieved, a high intensity of burning was not consistently maintained and it is likely that burial position on the pyre caused the extremities too have been poorly cremated. It is likely that the burnt animal bone was placed on the pyre as a form of food offering as part of the funeral rite. Handfuls of the cremated bone was taken from where

it had fallen into the cremation pit and deliberately placed in the ceramic vessel ready for burial. There was little evidence for the separation of the animal and human bone prior to burial. It is also evident that not all of the cremated remains of the adult individual were gathered and deposited in the vessel, suggesting this was of limited importance in the burial ritual.

- 4.0.8 The results indicate that the site at Milnthorpe was a focus of deliberate burial activity in the 2nd-3rd centuries AD. Two modes of burial, inhumation and cremation, of adults were clearly supported at the site.

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Appendix B Table 1

Context	Pres.	Complete.	Age	Sex	Dental Disease	Degenerative Changes	Musculoskeletal Marker	Infectious Disease	Develop.	Trauma
104	2	70	MAA	M	Severe calculus	Marked posterior angulation of the sacrum	Achilles tendon	Mild non-specific infection tibiae, remodelling woven bone formation proximal to distal		
					Severe caries	Degenerative joint changes (osteophyte formation) sacral centra, lumbar and lower thoracic centra	Cortical defect rhomboid fossa clavicle			
						Slight anterior wedging and osteophyte formation lumbar L5	Superior patella			
						Osteophyte formation wrist (distal ulna)	Tibial anterior tuberosity, soleal line			
							Femoral linea aspera			
107	2	60	MAB	M	Enamel hypoplasia canines and premolars distal crowns	Enlargement of apophyseal facets, osteophyte formation	Achilles tendon	Mild non-specific infection tibiae, remodelling woven bone formation proximal to distal	Retained metopic suture	Possible healed fracture proximal left fibula, oblique fracture complication by post-mortem damage
					Ante-mortem tooth loss	Schmorl's nodes lower thoracic and lumbar vertebrae	Deltoid enthesophytes humeri			
						Osteophyte formation lumbar vertebral centra	Tibial anterior tuberosity, soleal line			
						Ossification of inferior aspect of posterior spinous process ligament of lumbar L5, communicating with sacral S1 spinous process, no evidence of fracture	Femoral linea aspera			
						Osteophyte formation hip joints				

REPORT ON THE DISCOVERY OF BURIALS AT MILNTHORPE HOUSE, SLEEPERS HILL, WINCHESTER

Context	Pres.	Complete.	Age	Sex	Dental Disease	Degenerative Changes	Musculoskeletal Marker	Infectious Disease	Develop.	Trauma
						Osteophyte formation lateral condyle left knee (proximal tibia)				
113	2	70	Adolescent	n/a	Caries			Increased intra-cranial pressure endocranial right parietal and frontal	Double-rooted maxillary canines bilateral	
					Abscess			Conoid tubercle and deltoid enthesophyte left clavicle	Apophyseal facet hypoplasia lumbar vertebrae	
									Transitional lumbo-sacral articulation	
110	2	20	Adult	Male	n/a	Osteophyte formation lower thoracic and lumbar vertebrae centra				
						Osteophyte formation trochlea of right distal humerus, pitting capitulum exacerbated by post-mortem damage				
115	2	80	OA	Male	Ante-mortem tooth loss	Osteophyte formation hand and foot phalanges	Achilles tendon			
					Abscess	Osteophyte formation thoracic and lumbar vertebrae	Acromion process posterior aspect			
						Schmorl's nodes lower thoracic and lumbar vertebrae	Pubic tubercle			
						Degenerative joint changes sterno-calvicular joints	Femoral greater trochanter, linea aspera			
						Severe pitting apophyseal facets, exacerbated by post-mortem damage	Tibial anterior tuberosity, soleal line			
						Osteophyte formation odontoid peg of cervical vertebra C1, osteoarthritis apophyseal facets cervical vertebrae	Pectoralis major, teres major, deltoid of arms, enlarged radial tuberosity, brachialis and olecranon of ulna			

Context	Pres.	Complete.	Age	Sex	Dental Disease	Degenerative Changes	Musculoskeletal Marker	Infectious Disease	Develop.	Trauma
118	2	60	OA	Male	Ante-mortem tooth loss	Osteophyte formation lower thoracic and lumbar vertebrae centra	Achilles tendon	Mild non-specific infection tibiae, remodelling woven bone formation proximal to distal		
					Caries	Pitting apophyseal facets	Tibial anterior tuberosity, soleal line	Ectocranial infection, woven bone formation and deepened meningeal vessels		
					Rotation 45 degrees mesial of first right maxillary incisor socket only tooth missing	Osteophyte formation feet especially distal first phalanx	Femoral greater trochanter, linea aspera, ligamentum teres insertion	Maxillary sinusitis		
					Severe periodontal disease 8mm exposure tooth root					

Appendix B Table X. Summary of the articulated inhumation burials recovered from Milnthorpe, Winchester. Context denotes the number of each individual skeleton. Pres. Preservation graded 1-3, Complete. Percentage Completeness of each skeleton, Age-at-Death by age categories defined in Table XX, Develop. Skeletal or dental developmental defects that occur during childhood development.

APPENDIX B

Table 2: Milnthorpe: Cremated bone weights and percentage distribution by fraction size and skeletal area, and maximum fragment size

Context number	Total	10mm	% total	5mm	% total	2mm	% total	max frag	id. wt.	% total	skull	% id.	axial	% id.	limb	% id.
	wt. (g)	wt. (g)	wt.	wt (g)	wt.	wt. (g)	wt.	mm.	wt. (g)	wt.	wt. (g)	wt.	wt. (g)	wt.	wt. (g)	wt.
120	563	326	57.9	88	15.6	86	15.2	80mm	249	44.2	114	20.2	34	6	101	17.9

Cremated bone found in the fill (120) of cremation vessel (122) at Milnthorpe. The burnt bone comprises of both burnt animal and human bone. Weights are present as the whole sample of burnt bone.

The Prehistoric and Roman Pottery

Anna Doherty, Archaeology South-East

1.1 Prehistoric

- 1.1.1 A small prehistoric sherd was recovered from the residue of environmental sample <1>, taken from grave fill (104). The sherd is relatively thin-walled (c.6mm) and the fabric contains moderate, very ill-sorted flint, ranging from 0.2-3.5mm and sparse fine shell-inclusions of up to 2mm in length, in a relatively quartz-free matrix. Coarse flint-with-shell fabrics can be associated with a range of different periods in southern Britain, although this example is considered most likely to come from a vessel in the Late Bronze Age/ Early Iron Age post Deverel-Rimbury tradition, broadly dated to c.1150-600 BC. The sherd is assumed to be residual in this context.

1.2 Roman

- 1.2.1 A Roman pottery vessel (121) containing a cremation burial was found in a near-complete state with some truncation to the rim. The vessel is a small (c. 130mm diameter) wheel-thrown, everted rim jar in the 'Black burnished' tradition, certainly post-dating c. AD120. Everted rim jars remained common throughout the mid and late Roman period but this example has a relatively short rim which suggests that it is probably of 2nd or earlier 3rd century date. The fabric is a (probably locally-produced) Black-burnished style ware with a medium fine grey sandy core and black-slipped surfaces.
- 1.2.2 Two smaller sherds were also recovered from grave fill (118). One is a bodysherd in an undiagnostic coarse oxidised ware; the other is a reeded-rim bowl in a coarse grey ware with a grey wash or slip on its surfaces. This form dates to the late 1st to early/mid 2nd century and, having been found a deposit which is stratigraphically later than the cremation, it seems likely to have been redeposited in the grave-fill.

Metalwork

Ian Hogg, AOC Archaeology Group

1. Metal Finds

- 1.1 Seventy-six objects were recovered from five individually numbered contexts at the fieldwork at Milnthorpe, Sleepers Hill, Winchester, undertaken by AOC Archaeology. None of the finds have been cleaned. What follows is an assessment of the objects in their current condition.
- 1.2 A single iron knife was recovered from the grave fill (117) and was positioned at the feet of skeleton [118]. The knife has a total length of 105mm with a 22mm tang; the blade is leaf shaped and measures 25mm wide at its base, widening to 27mm at the widest point and then tapering to a rounded point. The knife is between 3 and 4mm thick and weighs 40g.
- 1.3 The knife has a central tang, while the blade itself is symmetrical; despite probably being single edged. The knife has been identified as Manning Type 21 (Manning, 1985), a typically later Roman style of blade, relatively unusual to Roman Britain and would have been a general purpose implement.
- 1.4 Seventy-one hobnails were recovered from two individually numbered contexts. 35 of the hobnails were recovered from grave fill (104), weighing a total of 49g. 36 hobnails weighing 48g were retrieved from grave fill (103). The similar number of hobnails from each fill, may suggest that the two pairs of shoes are represented.

- 1.5 Four nails (Small finds 8, 9 and 10) were recovered from grave fill (112);. All of the nails had lozenge-shaped heads between 19mm and 16mm wide. Two nails (SF 8), were recovered from the head end of the grave, the longer of the nails was 71mm in length, while the shorter was 54mm; they weighed 13g and 12g respectively.
- 1.6 A single nail broken into three pieces was found in the pelvis area (SF 9), it measured 100mm in length and weighed 16g. The final nail was found at the feet of the skeleton (SF 10), it measured 78mm and weighed 15g. The nails are typical of late Roman coffin nails.

2. Significance of Data

- 2.1 The assemblage is small and of only local significance. Any further analysis will require the cleaning of the objects. The type of knife retrieved is not particularly common, although examples have been noted during excavations in Colchester (Trans. Essex Archaeolo. Soc. 3rd Series, 1, 1961, 27) and Richborough (Bushe-Fox, 1949, 154).

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Building Material

Paul Fitz, AOC Archaeology Group

1. Finds

- 1.1 Six fragments of Ceramic Building Material of various sizes and weighing 2,280grams, were recovered from ditch fill (130). All are Roman and are of a dull orange colour. One is a roofing tegula with shoulder surviving on one side (maximum thickness 46mm). One is a brick (possible coursing brick) with complete width of 120mm and thickness of 48mm. An unknown tile or brick has only a surviving thickness of 32mm. The other three pieces are unidentified due to their incomplete nature.
- 1.2 Within ditch fill (135), was a curious single piece of what looks to be a chalk clay mix that has been fired. Weighing 217g it has moderate, small chalk inclusions though one is noticeably large at 15x 20mm (as seen in the fabric). Its purpose is unclear. It is possibly a natural occurrence as no side is particularly smooth.

2. Discussion/recommendations

- 2.1 Due to the small nature of the assemblage this summary should be suffice for record in the first instance. It is recommended that all fragments are submitted with the archive to the Winchester city museum store. They may be useful reference should larger assemblages be recovered from any future excavations in the area.

Appendix C - OASIS Form

OASIS ID: aocarcha1-114754

Project details

Project name Milnethorpe, Sleepers Hill

Short description of the project rescue excavation of probable roman burials and cremation

Project dates Start: 25-10-2011 End: 27-10-2011

Previous/future work No / No

Any associated project 32023 - Contracting Unit No.
reference codes

Any associated project WINCM:AY479 - Museum accession ID
reference codes

Type of project Recording project

Site status None

Current Land use Residential 1 - General Residential

Monument type BURIAL Roman

Monument type DITCH Uncertain

Significant Finds HUMAN SKELETON Roman

Significant Finds CREMATION Roman

Significant Finds POT Roman

Significant Finds KNIFE BLADE Roman

Investigation type 'Salvage Record'

Prompt rescue excavation on local council advice

Project location

Country England

Site location HAMPSHIRE WINCHESTER WINCHESTER 'Milnethorpe', Sleepers Hill

Postcode S022 4NF

Site coordinates SU 4712 2892 51.0571508659 -1.327590074680 51 03 25 N 001 19 39 W Point

Project creators

Name of Organisation AOC Archaeology Group

Project director/manager Meklissa Melikian

Project supervisor Chris Clarke

Type of sponsor/funding body Owner

Name of sponsor/funding body mrs. A. Dudgeon

Project archives

Physical Archive recipient Winchester Museum

Physical Archive ID WINCM:AY 479

Physical Contents 'Ceramics','Human Bones','Metal'

Physical Archive notes	6 skeletons,1 cremation, pottery ,iron blade,hobnails and coffin nails
Digital Archive recipient	Winchester Museum
Digital Archive ID	WINCM:AY479
Digital Contents	'Ceramics','Stratigraphic'
Digital Media available	'Images raster / digital photography'
Digital Archive notes	jpeg images
Paper Archive recipient	Winchester City Museum
Paper Archive ID	WINCM:AY479
Paper Contents	'Human Bones','Stratigraphic'
Paper Media available	'Context sheet','Microfilm','Photograph','Plan','Section','Unpublished Text'
Paper Archive notes	primary records,final grey lit report, 35mm B/W negs+contacts

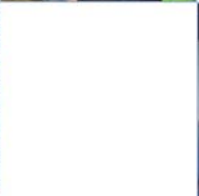
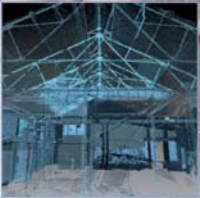
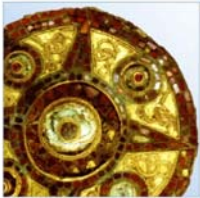
Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Report on the discovery of burials at Milnethorpe,Sleepers Hill, Winchester
Author(s)/Editor(s)	Ives,R. (Dr.)
Date	2011
Issuer or publisher	AOC Archaeology Group
Place of issue or publication	AOC South

Description A4 sized ,full colour,text, graphics

Entered by fitz (paul.fitz@aocarchaeology.com)

Entered on 29 November 2011



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