Excavation of a Bronze Age Cremation Cemetery and a Romano-British Enclosure at Glebelands, Broughton, Milton Keynes

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Excavation of a Bronze Age Cremation Cemetery and a Romano-British Enclosure at Glebelands, Broughton, Milton Keynes

By Steve Teague and Carl Champness

With contributions by Martyn Allen, Kate Brady, Alex Davies, Mike Donnelly, Mark Gibson, Julia Meen and Ian Scott

Contents

List of Figures

Summary

Excavations at Glebelands, Broughton, Milton Keynes revealed a Bronze Age cemetery comprising eight pits containing deposits of cremated bone. A variety of burial practices were evident. One burial was contained within an urn of early to middle Bronze Age type, while another appears to be a form of in situ or 'bustum' cremation burial. Two further burials each contained remains from at least three individuals – two adults and a child – suggestive of family groups. One of these individuals returned a radiocarbon date in the early part of the middle Bronze Age. During the Roman period, a small open-ended rectangular enclosure was constructed. Pottery from its ditches suggests that it was in use between c AD 170-250. The enclosure may have been associated with a settlement previously investigated at Magna Park to the south.

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The project was managed for Oxford Archaeology by Carl Champness. The fieldwork was directed by Gary Evans and Lee Sparks, who was supported by Adam Rapiejko, Caroline Souday, Jacob Spriggs and Emma Powell. Survey and digitizing were carried out by Diana Chard. Thanks are also extended to the teams of OA staff that cleaned and packaged the finds under the management of Leigh Allen and Geraldine Crann, processed the environmental remains under the management of Rebecca Nicholson, and prepared the archive under the management of Nicky Scott.

1 INTRODUCTION

1.1 Project details

1.1.1 Oxford Archaeology (OA) were commissioned by CgMs Heritage (part of the RPS Group) to undertake an archaeological excavation of the site of a proposed development at Plot 410 of the Glebelands (Magna Park) development site at Broughton, Milton Keynes. The works followed a magnetometer survey (Walford 2017) and trial-trench evaluation of the site (MOLA 2017).

1.1.2 Although the Local Planning Authority had not set a brief for the work, discussions with Nick Crank, Senior Archaeological Officer for Milton Keynes Council, established the scope of archaeological work required, which targeted a 'mitigation area' within the southern part of the site (MOLA 2017, fig. 29). The archaeological work was undertaken in accordance with a written scheme of investigation (OA 2017), and took place between September and November 2018.

1.2 Location, topography and geology

1.2.1 The site lies on the eastern side of Milton Keynes, *c* 170m south-west of the road from Broughton to Salford (NGR SP 917 392: Fig. 1). It historically lay in Salford parish in Bedfordshire, but now forms part of Broughton and Milton Keynes parish within the Borough of Milton Keynes.

1.2.2 The area of the proposed development consists of *c* 9ha of arable land lying between 65m and 70m aOD on the northern flank of the valley of the Broughton Brook, a tributary of the River Ouzel. The excavation area occupies *c* 0.4ha and is located in the southern part of the development area (Fig. 2).

1.2.3 The geology of the area is mapped as 1st (Felmersham) Terrace and 2nd (Stoke Goldington) Terrace sand and gravel deposits of the River Great Ouse. The underlying solid geology comprises the Stewartby Member of the Oxford Clay formation (BGS 2017).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Archaeological and historical background

2.1.1 Field boundaries and a pit alignment of late Bronze Age to early Iron Age date were revealed during excavations at Brooklands Area 10, 300m to the west of the site (Atkins *et al*. 2014, 25-50). Further to the west and north-west, extensive areas of Iron Age and Romano-British settlements and field systems have been excavated at Brooklands and Broughton Manor Farm (ibid, 51-127).

2.1.2 Excavations south of Broughton Brook within Magna Park revealed a small square enclosure of late Iron Age date, located 1.0km to the south-west of the site (Chapman and Chapman 2017). The site was abandoned by *c* AD 70 and a second area of settlement developed by the 1st century AD, located some 200m south-east of the site. By the early 2nd century AD, this site developed into a system of boundaries, comprising a broad NW-SE aligned droveway running into possible stock control enclosures. An adjacent domestic enclosure, containing at least two roundhouses, formed a low-status native farmstead, associated with pastoral farming. During the early 3rd century a new enclosure was constructed, containing a rectangular timber building, and the droveway was made narrower. The settlement was abandoned by the end of the 3rd century AD.

2.2 Previous archaeological works on the site

2.2.1 The magnetometer survey identified a ditch defining part of a rectangular enclosure, and some poorly resolved features thought to be traces of late prehistoric or Roman field boundaries. Remnants of medieval to early post-medieval ridge and furrow were also detected across the entire site (Walford 2017).

2.2.2 Thirty-three trenches were excavated across the development area (MOLA 2017, fig. 29). Two ditches and two pits were found straddling a hedge at the southern edge of the development area. These features produced a good assemblage of finds dated to mid 1st to the mid to late 3rd centuries AD. Results from environmental samples and artefacts suggest largely agricultural and domestic waste was being deposited. In the northern half of the evaluation area were eight undated, small ditches, two of which were closely parallel. These were severely truncated and hard to interpret but may have formed a possible trackway.

3 AIMS AND METHODOLOGY

3.1 General

3.1.1 The general aims of the project were to determine and understand the nature, function and character of any archaeological remains within their cultural and environmental setting.

3.2 Specific aims and objectives

3.2.1 The general aims and objectives of the excavation were:

i. To determine or confirm the general nature of any remains present.
ii. To determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence.
iii. To further define the extent, date and nature of the enclosure and its associated occupation that was identified by the evaluation.
iv. To compare the nature of this activity with the nearby Roman settlement at Broughton Brook, located less than 100m south of the site. Is there is any evidence for the droveway that is projected to pass through or close to the site?
v. To consider the site within its local, regional, and national context as appropriate.
vi. To produce an archive (finds and records) that will be organised and deposited in a registered museum, to facilitate access for future research and interpretation for public benefit.

3.2.2 Specific research aims of the excavation have been devised to relate to the Roman period research agenda of the Solent-Thames Research Framework (Fulford 2014). These have been designed to place the significance of the site within its wider regional context. These aims are set out as follows:

i. The Iron Age/Romano-British transition in this region is regarded as being a period of major change in the countryside. The sampling strategy will ensure that a wide range of contexts are excavated, with a particular focus on deep, well-sealed features, if present, to (a) detect the presence of any late pre-Roman Iron Age activity, and (b) to help establish a chronology for the site that will enable an understanding of change through time. Any such developments need to be considered in relation to the establishment of the possible fort and, later, town at *Magiovinium*.
ii. Current knowledge of local rural settlement types is well served by sites on the river gravels of the Great Ouse. Although the excavation may not reveal the 'whole' settlement, a consideration of its morphology should be considered and compared to other well-excavated sites in the region to better understand its relative size, function and potentially status. A broad cross-examination of finds assemblages will also be of use in this context.
iii. Given the landscape context of the site and its position on the lower terraces of the River Great Ouse, the excavation will focus on the recovery of suitable environmental assemblages to examine the agricultural character of the site. Attention will be paid to the relative importance of arable and pastoral farming,

and whether any changes in farming regime took place. Regard will be given to understanding patterns of cultivation in the valley, such as evidence for horticulture, as has been found at Wavendon Gate (Williams *et al.* 1996).

iv. Any evidence for the processing of surplus agricultural produce will be given priority during the excavation. Corn-dryers and malting ovens are important in this context, both in terms of surviving archaeobotanical remains and their archaeological context, and a sizable number of features of this type have been found in the hinterland around *Magiovinium* (e.g. Atkins 2014; Mynard 1987; Williams *et al*. 1996). Notably, there is growing evidence for the large-scale cultivation of spelt wheat and barley for brewing in the early Roman period (Lodwick 2017), and the identification of assemblages of sprouted grain should be accompanied by radiocarbon dating of these deposits.

v. 'Breed' improvement in domestic livestock is regarded as a marker of agricultural expansion in southern Britain in the 150 years following the Roman conquest. Evidence for larger cattle, for example, has previously been detected at nearby sites at Wavendon Gate and Bancroft in the early and later Roman periods (Allen 2017, 100–2). Remains of perinatal horse bones, indicative of equine breeding, have also been identified at Wavendon Gate (Dobney and Jaques 1996). Zooarchaeological analysis of an appropriately recovered and suitably sized faunal assemblage should allow for an assessment of livestock breeding and stock improvement at the site. The implications of any such evidence should be considered in a regional context.

vi. Evidence for ceremony, ritual and religion, particularly with regard to the treatment of the dead, will be given priority should such evidence arise during the excavation. Analysis of burial contexts is needed to improve understanding of the variation in local burial practices.

vii. Evidence for production and industry will be considered in light of such evidence becoming available.

viii. The previous evaluation of the site generated a pottery assemblage that suggested that the site ended in the later 3rd century AD. This will be further tested with a larger ceramic sample and the date of abandonment of the site will be considered against the latest chronologies of other local rural settlements.

3.3 Project methodology

3.3.1 The excavation targeted an area adjacent to the southern side of the development site, around the evaluation trenches that had revealed Roman features. It comprised a roughly rectangular area measuring *c* 72m x 56m, encompassing an area of *c* 0.38ha.

3.3.2 Topsoil and overburden were removed to the top of archaeological deposits by a machine using a toothless bucket operating under archaeological supervision. The area was hand-cleaned to define archaeological features sufficiently in order to produce a base plan of all features using GPS. This base plan was provided for Simon Mortimer and Nick Crank for the first monitoring meeting.

3.3.3 All archaeological deposits were excavated by hand and recorded stratigraphically in accordance with OA's recording system and the WSI.

3.3.4 All work was undertaken in accordance with the Chartered Institute for Archaeologists' Standard and Guidance for Archaeological Excavation (2014) and local and national planning policies.

4 STRATIGRAPHY

4.1 Bronze Age

4.1.1 Eight small pits containing cremated remains were identified close to the south-east corner of the excavated area (Fig. 2). Seven of these were tightly arranged in a small group, 5m across, with the eighth (203) placed 18m to the south-west. Only one of the burials was urned (144). Each pit was fully excavated and sampled, and the pits and their contents are described individually below.

Cremation burial 151

4.1.2 Flat-bottomed circular pit, *c* 0.84m in diameter and *c* 0.24m deep. The pit was filled with dark grey silty clay containing abundant charcoal and an estimated 2326.2g of cremated bone (152). The remains were derived from possibly two adults and from an infant or neonate of no more than 2 years old. At least one of the adults was a possible female. The only other finds were two flint flakes and an unworked burnt flint. At least one of the flakes is likely to predate the Bronze Age. This suggests that the flints were not deliberately placed with the cremation burial.

Cremation burial 210

4.1.3 Flat-bottomed circular pit, *c* 0.82m in diameter and *c* 0.10m deep. The pit was filled with light brown-grey silty clay containing abundant charcoal and an estimated 4979.0g of cremated bone (211). The remains were derived from possibly two adult individuals and from a juvenile/older child. At least one of the adults was a possible male. A fragment of cremated bone submitted for radiocarbon dating (SUERC-85593) returned a date of 1512-1425 cal BC (Table 1). The only other find was a fragment of unworked burnt flint.

Lab. ID	Context	Feature	Material	$\delta^{13}C$ (0/00)	Radiocarbon age (BP)	Calibrated date (95.4% confidence)
SUERC-85593	211	Cremation burial 210	Cremated human bone	-24.4	3203 ± 24	1512-1425 cal BC

Table 1: Radiocarbon date

Urned cremation burial (Group 144) (Fig. 3)

4.1.4 The base of a fragmented in-situ early to middle Bronze Age urn (146) survived within a circular pit (147) measuring *c* 0.42m in diameter and approximately 0.20m deep. The remains of the urn were block-lifted, and its contents excavated off site. The urn contained 10.8g of cremated bone (145), possibly from an adult. The fill (148) between the pit edge and the urn also contained a small amount of cremated bone (1.4g), possibly from an adult. It is unclear whether this material originated from the urn contents. No other finds were present.

Cremation burial 201 (Fig. 4)

4.1.5 Flat-bottomed circular pit, *c* 0.38m in diameter and *c* 0.10m deep. The sides of the pit had been scorched to a red colour. The pit was filled with dark brown/black silty clay containing frequent charcoal and an estimated 48.9g of cremated bone (202). The remains were possibly from an adult. No other finds were present.

Cremation burial 203

4.1.6 Circular pit with a concave base, 0.66m in diameter and 0.17m deep. It was filled with dark brown/black charcoal-rich silty clay containing an estimated 13.1g of cremated bone (204). The remains were possibly from an adult. No other finds were present.

Pit 149

4.1.7 Flat-bottomed circular pit, *c* 0.22m in diameter and *c* 0.06m deep. The pit was filled with dark brown/black silty clay containing 1.9g of burnt bone (150). It was not possible to determine whether the bone was human.

Pit 157

4.1.8 Oval pit, with sloping base, *c* 0.98m in length, 0.76m in width and up to 0.28m in depth. It contained two fills of charcoal-rich dark grey clayey silt, the earliest of which (158) contained 0.5g of burnt bone. It was not possible to determine whether the bone was human.

Pit 160

4.1.9 Sub-circular pit cut into the top of pit 157, measuring approximately 0.36m in diameter and 0.10m deep. It contained dark grey/black clayey silt and charcoal together with 2.1g of burnt bone (161). It was not possible to determine whether the bone was human.

4.2 Roman

Enclosure 116

4.2.1 Enclosure 116 was sub-rectangular in plan and open-ended on its western side, measuring internally 27.7m in width (north-south) and *c* 42m in length, and enclosing an area of approximately 0.10ha. The southern and eastern sides of the enclosure were formed by a continuous ditch. The northern ditch terminated immediately before it met the eastern ditch, though the gap of *c* 0.20m between the two seems too narrow for an entrance at this point. The western end of the northern ditch appears to have turned inwards towards the south (ditch segment 129), though its terminus lay beyond the limit of excavation. The eastern side of the enclosure cut earlier ditches 244 and 245, which followed the same alignment. It is possible that these shallower earlier ditches marked the eastern extent of an earlier version of the enclosure that had largely been removed elsewhere by a later recut.

4.2.2 The size of the ditch varied along its length and was more substantial on its north side where it was between 2.00-2.87m in width and 0.60-0.87m in depth (Figs 4-6). Along its south side it varied in width from 1.70-1.80m and was between 0.56-0.66m in depth. It tended to have a moderately steep-sided V-shaped profile with a narrow base and contained several fills. The fills were consistent, the earliest comprising light yellowish grey-brown silty clay with chalk flecks, whereas the later fills became

progressively darker, the upper fill typically mid-dark greyish brown with occasional charcoal flecks. This sequence of filling is consistent with ditch silting up over an extended period rather than being deliberately filled. Dating evidence from the pottery suggests that that the filling of the ditch dates to *c* AD 170-250. Later pottery, of 4th-century date, was only present in one fill within the upper part of the ditch on the north side of the enclosure.

Earlier ditches 244 and 245

4.2.3 Two parallel ditches predated but followed the alignment of the eastern side of enclosure 216. Although heavily truncated by the later ditch, ditch 244 (and probably ditch 245) clearly terminated to the north, corresponding with the north-east corner of the enclosure. Similarly, there was no evidence that the two earlier ditches extended southwards beyond its south-east corner. The eastern ditch (244) had a slightly concave profile, measuring 0.74m in width and up to 0.26m deep. It contained two fills of clayey silt, from which several sherds of undiagnostic Roman pottery were recovered. The second ditch (245) ran *c* 1.0m west of it and was 1.65m wide and was of similar depth and profile. The only finds recovered were a hobnail of Roman date and an iron strip fragment.

Shallow pits

4.2.4 Contained within and apparently predating the enclosure were several shallow pits or scoops. To the east and apparently predating ditch 245 was an amorphous area of soft dark grey/black silty clay (Fig. 5, Section 107, 104), apparently filling several shallow scoops up to 0.20m in depth (246). They contained a large quantity of pottery dated to AD 170-200, together with animal bone, a fragment of slag and fired clay fragments, suggesting that this deposit represents occupation debris or a midden.

4.2.5 Two further shallow pits (139 and 174, Fig. 6, Section 111) were located internally against and predated the north ditch of the enclosure. Oval pit 174 was 0.34m deep and contained a small quantity of pottery dated to AD150-250. The second pit (139) was of similar depth and contained a single sherd of undiagnostic Roman pottery.

4.3 Medieval/post-medieval

4.3.1 Later activity comprised a number of furrows aligned approximately NNW-SSE, which had caused significant truncation of the earlier remains. These were not investigated though one was recorded as being filled with yellow clay containing frequent pebbles. No finds were retrieved. A linear feature crossing the site on a ENE-WSW alignment corresponds with a modern field boundary.

5 ARTEFACTS

5.1 Flint *by Mike Donnelly*

Introduction

5.1.1 Excavation yielded 34 worked flints and two fragments of burnt unworked flint (Table 2). The flintwork was almost certainly residual and was probably mixed in date. Very few diagnostic elements were present, but some blade forms and an associated end truncation are likely to be early in date, some specialised core forms are very probably Neolithic or early Bronze Age while some of the flake debitage is likely to be later prehistoric in date. The flints were typically scattered throughout numerous ditch fills and other features but there were several flints from ditch fill 115 that included an early tool, a bladelet and a probably early awl form. This group may well indicate that this ditch had truncated an early prehistoric feature or buried soil. Otherwise, the flints are of very low importance and indicate an extremely limited flint-related presence here across much of Holocene prehistory.

Category type	Total
Flake	18
Blade	4
Bladelet	3
Blade index	28% (7/25)
Irregular waste	2
Core rejuvenation flake	1
Core other blades	1
Core single platform flakes	1
Core keeled flakes	1
Core levallois flakes	1
Awl	1
End truncation	1
Total	34

Burnt unworked	2/25g
No. burnt (%)	8% 2/25
No. broken (%) (not including waste)	32% 8/25
No. retouched (%) (not including waste)	8% 2/25

Table 2: The flint assemblage

Provenance

5.1.2 It is likely that all the flintwork was residual. Ditches accounted for exactly half of the flints while topsoil/subsoil and a charcoal spread also had a sizeable component of the assemblage. Flintwork recovered from cremation burial 152 did not appear to represent any form of placed grave good(s), and included one very early looking flake that had been lightly burnt.

Condition

5.1.3 The flintwork was heavily dispersed and in quite poor condition with just 15.6% fresh material, 43.8% lightly damaged, 34.4% moderately damaged and 6.25% heavily damaged pieces. Cortication tended to be quite prevalent with 43.8% light, 31.3% moderate and 21.9% heavy including one iron-stained example. The very mixed condition of the assemblage is a strong indication of heavy disturbance suggesting that many of the flints had moved a considerable distance from where they were knapped or deposited.

Discussion

5.1.4 The assemblage indicates very limited flint-related activity during prehistory. There were no unequivocally Mesolithic pieces but a small group of blade forms, a blade core and an end truncation could all easily be accommodated by this period. However, these objects could also be viewed of as being early Neolithic in date. In any case, the material is residual although there is a good chance that the group from context 115 has not moved far. Ditch 130 found in close proximity to 115 also had two blade forms in its fill, perhaps indicating the range of any truncated buried soil. One soft-hammer struck blade was the only flint recovered during the evaluation of this area (MOLA 2017) and was also clearly early in date.

5.1.5 Further Neolithic activity was highlighted by two cores; one levallois core from the topsoil and another levallois or keeled example from fill 166. Late prehistoric material was also indicated by a number of squat flakes and crude cores from a range of contexts. Nearly all these finds were recovered from ditches dated to the Roman period. One quite fine awl was present in ditch fill 155. This is piece represented the second of two tools recovered and while the second example was also found in ditch fill 115 and is clearly early, the date range for the awl is broader and could include anything from the late Mesolithic to earlier Bronze Age.

5.1.6 Numerous excavations in and around Milton Keynes have brought to light small, multi-period assemblages of material (eg Broughton; Atkins *et al.* 2014) and is clear that this landscape was probably quite intensively exploited by prehistoric groups, but that flint-related activity may have been less prevalent. Here, the flint exploited has often been of low quality and was likely recovered from local gravel deposits. Some of the early flintwork has been fashioned on better quality material but even then, one early blade core has been fashioned from a thermally split pebble.

Methodology

5.1.7 The artefacts were catalogued according to OA South's standard system of broad artefact/debitage type (Anderson-Whymark 2013; Bradley 1999), general condition noted and dating was attempted where possible. The assemblage was catalogued directly onto an Open Office spreadsheet. Additional information on condition (rolled, abraded, fresh and degree of cortication), and state of the artefact (burnt, broken, or visibly utilised) was also recorded. Retouched pieces were classified according to standard morphological descriptions (e.g. Bamford 1985, 72-7; Healy 1988, 48-9; Bradley 1999). Technological attribute analysis was initially undertaken and included the recording of butt and termination type (Inizan *et al*. 1999), flake type (Harding

1990), hammer mode (Onhuma and Bergman 1982), and the presence of platform edge abrasion.

5.2 Bronze Age pottery *by Alex Davies*

5.2.1 The lower part of an *in situ* Bronze Age vessel was block-lifted from cremation burial 144. The vessel was severely truncated, missing its upper and middle sections, with only the lower 140mm surviving. This lower part of the vessel was bucket-shaped, and there was no indication of a carination or change in the profile, although the full height of the pot is not known. The vessel opening was 210mm by 250mm, and the base was 200mm in diameter. Curiously, only a small part of the base was present. The contents of the pot were excavated off-site, where it crumbled into small sherds weighing a total of 503g. The fabric had voids from leached inclusions, probably from calcareous material, and is oxidised orange-brown with a grey core. The vessel should be early or middle Bronze Age in date.

5.3 Roman pottery *by Kate Brady*

5.3.1 Some 426 sherds of pottery, weighing 3865g, were recovered (Table 3). The assemblage was recorded following guidelines set out in the Standard for Pottery Studies in Archaeology (PCRG, SGRP, MPRG 2016).

5.3.2 Each context group was sorted into wares, which were assigned codes taken from Marney (1989). Forms were identified by rim and similarly assigned standard OA form codes from Oxford Archaeology's guidelines for recording Roman pottery (Booth 2016), expressed as a two-letter code, such as CK for 'cooking pot' type jar, sometimes followed by a three-digit rim code, for example JB 110, a plain-rimmed curving-sided dish. Each vessel was quantified by sherd count, weight, number of vessels (MV) based on rim, and sherd count estimated vessel equivalent (EVE), which measures the surviving percentage of the circumference of a rim. Thus, a complete rim was recorded as 100%, while half a rim was recorded as 50%. In this report, percentages have been converted to fractions of a whole, 100% becoming 1 EVE and 50% becoming 0.5 EVE. Ware codes pertaining to regionally significant fabrics were cross-referenced with the National Roman Fabric Reference Collection (Tomber and Dore 1998). A date for deposition, or spot-date, was provided for each context group on the basis of the pottery it contained.

5.3.3 The pottery was assigned to a single phase (Phase 2) and was almost all recovered from the enclosure ditch (Group 116).

5.3.4 Sandy wares made up the largest portion of the phased material, comprising 47% of the assemblage by weight and 57% by EVE. The fabrics included, fine, medium and coarse reduced fabrics (19/29 and 3) and sherds probably from the Lower Nene Valley kilns (12)

5.3.5 Of the vessels represented by rims there were at least eight medium or wide-mouthed jars and a further six jars/bowls. One jar in an oxidised sandy fabric was lid seated. There were two triangular-rimmed jars in a reduced fabric (one in Lower Nene Valley grey ware) and other with a squared fairly flat rim (L2C). Bowls included two with triangular rims in an oxidised fabric and one hemispherical bowl in a creamy orange

ware with a flat squared rim of probable 2nd century date. A single plain-rimmed bowl or dish in reduced ware was also represented. All of these forms are paralleled from sites in the region and dated by Marney to the late 2nd to early 3rd century, with the hemispherical bowl and flagon perhaps more closely dated to the mid to late 2nd century.

Fabric Code		Count	Weight (g)
12	Lower Nene Valley grey ware	6	102
17	Miscellaneous oxidised ware with quartz inclusions, possibly upper Nene Valley	1	4
18	Nene Valley white ware	8	82
19/29	Sandy oxidised ware	12	109
1a	South Midlands shell-tempered ware	123	1286
2	Soft pink grogged ware	31	424
20	Central Gaulish Samian ware	6	60
28c	Oxidised micaceous	29	221
3	Sandy greyware general code	179	1260
3a	Sandy greyware (pale core)	4	50
3c	Sandy greyware (red/brown core)	2	11
40	Sandy oxidised ware with large quartz grains	1	16
46	Coarse reduced grog-tempered ware	1	44
4g	Verulamiun region mortarium	1	22
6	Nene Valley colour-coated ware	3	55
8	Black burnished ware	12	85
9	Imitation black burnished ware	3	13

Table 3: Roman pottery. Fabric codes follow Marney (1989)

5.3.6 A total of 33% of the phased assemblage by weight and 26% by EVE was comprised of shell-tempered sherds (fabric 1a), most likely manufactured in the Harrold area from AD 150 onwards. At least 12 vessels in this fabric were represented by rims and all were jars, including at least one large storage jar and at least three were medium to large mouthed with fairly flat squared rims of late 2nd to 3rd century date.

5.3.7 A smaller proportion of the assemblage (12% by weight and 8% by EVE was made up vessels in grog-tempered wares (fabrics 2 and 46) (and at least 70% by weight of this was in soft pink grogged ware, a distinctive fabric manufactured in the region from around AD 150/160 onwards. The vessels in this fabric were all jars.

5.3.8 Other regional fabrics made a small contribution to the assemblage. Nene Valley white ware body sherds included two unusual sherds with dot type decoration perhaps where an applied decoration had not survived and the pink core of the vessel shows through. Nene Valley colour coated vessels included a bowl with a very top-heavy reeded rim of probable 4th century date (Perrin 1999), the latest form identified. A single mortarium fragment was the only sherd representing the Verulamium industry and was in a context of late 2nd century date.

5.3.9 Imports were solely represented by South Gaulish samian ware body sherds, one of which was decorated with a bead and panel design with a hare.

5.3.10 Overall, the assemblage from the enclosure ditch dates from *c* AD 170-250, with a small group from a pit within the enclosure (224) having a slightly later date (AD 250-300) due to the presence of a rim with a slight bead and flange suggesting a later 3rd century date. A single sherd from the enclosure dated to later than the middle Roman period and this was the Nene Valley colour coated sherd with a distinctive reed rim dating to the 4th century.

5.3.11 A mean sherd weight (weight divided by sherd count) of 9g suggests that the assemblage is highly fragmented and has undergone multiple episodes of redeposition. Signs of use such as wear or sooting were not identified on any of the sherds.

5.4 Metalwork *by Ian Scott*

5.4.1 There is a small number of metal finds (n=15; n frags=16) from five contexts, all assigned to the Roman period. The finds include a few nails, four hobnails, a possible bucket or barrel binding and some pieces of possible slag. Most of the finds are not datable. The hobnails are certainly Roman.

5.4.2 Fills of enclosure ditch 116 produced two incomplete nails (context 132) and six fragments of possible slag (context 133). A hobnail head and small fragment of iron strip or thin bar were recovered from fill 194 of ditch 192 (Group 245). Occupation layer 105 produced a nail, a possible barrel or bucket binding and a piece of possible slag. Occupation layer 242 produced two hobnails (sample < 8 >).

5.5 Other Roman finds

5.5.1 Two pieces of Roman tile were recovered, including a flange fragment from a tegula from the enclosure ditch (context 133). Both were in a buff-orange fabric containing fossil shell, equating to Milton Keynes Fabric 1, the commonest Roman tile fabric found in the area (Zeepvat 1987). Undiagnostic fragments of fired clay were recovered from four Roman contexts (104, 109, 110, 207).

6 OSTEOLOGICAL AND ENVIRONMENTAL EVIDENCE

6.1 Human skeletal remains *by Mark Gibson*

6.1.1 Burnt human remains were recovered from nine deposits from eight pit features, one of which was urned (145). Eight of the deposits were from a cluster of pits in the eastern corner of site (145, 148, 150, 152, 158, 161, 202, and 211) and one deposit (204) was from a pit to the east of enclosure ditch 20203. Deposits 145 and 148 were from the same pit (147) and together comprise burial group 144. All of the burnt bone deposits were dated to the Bronze Age.

Methods

6.1.2 In accordance with recommended practice (McKinley 2004a, 9), contexts comprising or containing cremated bone were subject to whole-earth recovery. The deposits were wet sieved and sorted into fractions of >10mm, 10–4mm, 4–2mm and 2–0.5mm. The bone from the >10mm and 10–4mm fractions was separated from the extraneous material (e.g. stones). Bone from large (e.g. > 100g) 4–2mm fractions (deposits 152, 202, 204 and 211) was sorted from 20g samples, then weighed and the result used to estimate the total weight of bone in the entire fraction. The estimated weights are included in the total weights reported below (and marked with a '*'). The estimated 4–2mm weights are followed by 'est.'.

6.1.3 The smallest fraction sizes (2–0.5mm) were not sorted but were rapidly scanned for identifiable skeletal remains and artefacts. Estimations of the proportions of bone present within the 2–0.5mm fractions were made visually and recorded in the archive. These were not included in the total bone weights.

6.1.4 Urned deposit 145 was block lifted and excavated under laboratory conditions in spits of 20mm, before being processed and analysed. Detailed analysis of the bone by spit (as is standard for urned cremations) was precluded by the low quantity (10.8g in total) and the fact that very little of it could be identified by bone and/or skeletal region. Thus, the bones have been examined together, as for unurned cremations which have been undergone bulk recovery.

6.1.5 All bone was analysed to record colour, weight and maximum fragment size. Each fraction was examined for identifiable bone elements and the presence of pyre and/or grave goods. The minimum number of individuals (MNI) present was estimated based on the identification of repeated elements and/or the presence of juvenile and adult bones in the same deposit. Where possible, estimation of age and sex was attempted following published methods (Buikstra and Ubelaker 1994; Scheuer and Black 2000). Bones which generally appeared to be adult but lacked diagnostic features (so older adolescent could not be ruled out) were assigned as 'probable adult' (?Adult).

Results

6.1.6 A summary of the skeletal elements represented and the weight of bone present per fraction size is given in Table 4. Three of the deposits (150, 158 and 161) did not contain any bone identifiable as human, so whilst being included in tables, will not be further commented upon.

Bone weights

6.1.7 Burnt human bone weights ranged from 1.4g to 4979g (Tables 4–5). Investigations in modern crematoria have found that the bone weight of cremated adult individuals ranges between 1000–2400g, with an average of 1650g (McKinley 2000a, 269) whilst archaeologically recovered cremations have an expected weight range of 600–900g (McKinley 2013, 154). All of the burnt bone deposits fall far below the expected archaeological range, except 152 and 211 which at 2326.2g and 4979.0g respectively far exceed even the modern range for a single individual. However, McKinley (2013, 163) has demonstrated that certain types of Bronze Age cremation burials exceed 900g.

Fragmentation

6.1.8 In general, the bone was highly fragmented, with only three deposits (145, 152 and 211) containing bone from the >10mm fraction (Table 5). The 10-4mm fraction contained the largest proportion of burnt bone from all of the deposits.

6.1.9 Where they could be identified, long bones generally comprised the largest fragments of bone observed. This is unsurprising given the general thickness of the cortex in long bone, especially those of the lower limb, which enhances survival and aids in identification. The only exception to this was deposit 148 where the largest fragment was a piece of cranial vault. Cranial vault is one of the easiest bones to identify in burnt bone deposits.

Skeletal representation (Table 4)

6.1.10 Bones are identified to skeletal region and element, where possible, in Table 4. Some of the human bone could be identified to skeletal element, but the vast majority was unidentified (including unidentified long bone and joint surface fragments) and amounted to between 71.4% (148) and 98.5% (204) of the total weights.

6.1.11 The skull was the most frequently identified skeletal region (between 1.5% and 28.6%; Table 4). Cranial vault fragments were present in five deposits (145, 148, 152, 202 and 211) and fragments of tooth roots and/or crowns were observed in 152, 202, 204 and 211. The two largest deposits, 152 and 211, had cranial vault and facial bone fragments which could be identified as those from the parietal, occipital, frontal, temporal, zygomatic, maxilla, mandible, sphenoid, and in the case of 211, nasal bones.

6.1.12 Axial elements were only identified in deposits 152 and 211 and only in small proportions (0.2% and 0.9% respectively). They included rib shaft fragments (including those from a juvenile in 152) and vertebral fragments. Some of the vertebral fragments could be identified more precisely as the head of the dens of the second cervical vertebra (152), a dens facet from the first cervical vertebra (211) and an unfused vertebral arch (both synchrondrosis and the body) from either a lower cervical or upper thoracic vertebra and an unfused pedicle (152).

6.1.13 Only 152 and 211 had fragments identified as upper limb bones. They comprised 0.5% and 0.9% respectively of the total bone weights and included parts of humerus, ulna, radius, scapula, carpal, metacarpal and phalanges. In addition, five intermediate phalanges and one proximal juvenile phalanx were observed in deposit 211 and a distal portion of juvenile left clavicle was identified in deposit 152.

6.1.14 Remains from lower limb bones were observed in three deposits, 145, 152 and 211 (1.9%, 2.9% and 2.5% of the total bone weights, respectively). In the case of 145 this comprised a single foot sesamoid only. Femoral, tibial and fibial fragments were all present in 152 and 211. Deposit 211 also contained fragments of tarsal, metatarsal, proximal and distal foot phalanges, foot sesamoids, acetabulum and iliac crest. One of the iliac crest fragments was unfused.

Colour of the cremated bone (Table 6)

6.1.15 When cremated, the organic content of bone is altered by a process called oxidation, the degree of which is reflected in the colour of the bone, which may range from brown/orange (unburnt), to black (charred: *c* 300ºC), through hues of blue and grey (incompletely oxidised, up to *c* 600ºC) to white (fully oxidised, >600ºC) (McKinley 2004a, 11). Thus, bone colour may be used as an indication of the efficiency of the cremation, in terms of such factors as the quantity of fuel used to build the pyre, the temperature attained in various parts of the pyre, and the length of time over which the cremation was undertaken (ibid, 11).

6.1.16 The colour of most of the burnt bone from the present site was white, accounting for between 80% (202 and 204) and 95% (145) of the total bone weights. This indicates that the corpses would have been placed on their pyres in such a way that a consistent high temperature and oxygen supply were available (McKinley 2013, 158), enabling a temperature in excess of 600ºc. A high proportion of fully oxidised bone is a common observation in archaeological cremation burials (McKinley 2006, 84).

6.1.17 The remaining burnt bone was mostly grey or black in colour, indicating exposure to lower temperatures. This may have been due a number of reasons. For example, the cremation process may have been inhibited in places of thicker overlying soft tissue; until these are removed, the bone is insulated from oxygen and the heat of the fire, resulting in variation in the degree of bone oxidation across the skeleton (McKinley 1989, 65; McKinley 2013, 158). The grey/black bone fragments did not suggest any such patterning, but this observation is hindered by the inability to identify all fragments to element or skeletal region.

6.1.18 Deposit 152 also had 5% of fragments which were not burnt, but were orange in colour, indicating exposure to a relatively low temperature (less than *c* 300ºC). All of the unburnt fragments were juvenile bones, including cranial vault and vertebral fragments. It is possible that if all of the individuals represented by deposit 152 had been cremated at the same time, the juvenile had been placed somewhere where temperatures had been cooler, such as in a protected location, or at the periphery of the pyre. Alternatively, if the juvenile had been cremated separately, perhaps the process had been interrupted by an external event, such as a heavy downpour (McKinley 2008).

Demography

6.1.19 Deposits 145, 148, 202 and 204 each had an MNI of one. No features survived which could be used to estimate their age or sex, but their overall appearance suggests they were probably adults. That is, the possibility that they are older adolescents (mid to late teens) cannot be ruled out.

6.1.20 Deposit 152 hand an MNI of three, including two probable adults and one juvenile. The two probable adults were indicated by two right zygomatic processes and two left fontal processes. An orbital margin gave a tentative sex estimation of possibly female for one of the probable adults, but no other sex indicators were observed. The juvenile was estimated to have been <2 years of age, based on an unfused vertebral arch (both synchrondrosis and the body) from either a lower cervical or upper thoracic vertebra and an unfused pedicle (Scheuer and Black 2000, 218).

6.1.21 Deposit 211 also had an MNI of three; two probable adults, indicated by two left frontal processes, and one juvenile. The juvenile could not be aged more precisely than less than 16.5 years of age, based on unfused proximal and intermediate hand phalanges (Scheuer and Black 2000, 338). A fragment of mandible (gonial angle) and an orbital margin had features which were possibly male for at least one of the probable adults. However, this observation is tentative.

Pathology and non-metric traits

6.1.22 Non-specific inflammation, in the form of increased ectocranial porosity, was observed on two fragments of probable adult cranial vault from deposit 211. No non-metric traits were observed.

Pyre/grave goods

6.1.23 No pyre or grave goods were observed within the burnt bone deposits, nor was any staining or residue indicative of pyre/grave goods.

Discussion

6.1.24 The assemblage comprises one urned (145) and five unurned (148, 152, 202, 204 and 211) deposits of cremated human bone and three small unurned deposits of burnt bone (150, 158 and 161) which could not be positively identified as human. Of the human bone deposits, four (145, 148, 202 and 204) were of a low weight (all less than 50g) and consisted of at least one individual each, probably adults, but sex could not be estimated. In addition, two deposits (152 and 211) had very high weights (2326.2g and 4979.0g, respectively) and contained a minimum of three individuals each. Deposit 152 comprised two probable adults, one unsexed and one possible female, and a juvenile of less than two years of age. Deposit 211 comprised two probable adults, one unsexed and one possible male, and a juvenile of less than 16.5 years of age (211). Overall the bone was well burnt, consisting of 80-95% white bone (fully oxidised) indicating pyre temperatures of >600ºC (McKinley 2004a, 11). Pathology was only observed on two fragments of cranial vault from deposit 21 in the form of ectocranial porosity. It was not possible to establish the aetiology, but it could be caused by a variety of conditions such as scurvy or mild scalp irritation.

6.1.25 Despite being only 10.8g, deposit 145 was positively identified as human. Having been recovered from an urn it probably represents a formal cremation burial. The reason for its low weight is unclear, but it had been horizontally truncated, so it is possible that a greater quantity of cremated bone was contained in the missing portion. Other factors which may have affected the weight include the size of the cremated individual and the presence of pathology. For example, small, gracile individuals (such as females or juveniles) usually have low overall bone weights, as do elderly individuals with

osteoporosis whose articular surfaces and trabecular bone has a poorer rate of survival (McKinley 2000b, 404). In addition, the thoroughness with which the bone was collected from the pyre site by mourners after the cremation had finished is another factor (McKinley 1997, 139) and was probably influenced by their beliefs in the afterlife and their perceptions of the relationship between the body and spirit after death, as well as the status of the deceased (McKinley 2000a, 270).

6.1.26 Deposit 148 was the backfill of pit 147 which contained urned deposit 145. Given the very low weight of cremated bone recovered (only 1.4g) and the lack of any fragments from the larger fraction it appears that the cremated bone in deposit 148 represents either a small quantity of bone which had spilled out of the urn or redeposited pyre debris and therefore most likely represent the same individual. Redeposited pyre debris commonly makes up the backfill of urned cremation deposits, at least in part (McKinley 2013, 154). The overall weight of cremated bone from burial group 144 (deposits 145 and 148) was only 12.2g. This far below the expected range of 600–900g for archaeologically recovered cremations, i.e. 38–50% of the bone expected from an adult cremation (McKinley 1997; 2004b; 2013, 154). Less than 100g mostly represents either a 'token' burial or cenotaph (McKinley 2013, 153–4).

6.1.27 Both 202 and 204 also contained less than 100g of cremated bone (48.9g and 13.1g respectively) so may represent 'token' burials or cenotaphs (McKinley 2013, 153–4). However, in both cases the cremated bone was mixed homogeneously in a dark black brown silty clay matrix with a high charcoal content. This indicates that these deposits are probably redeposited pyre debris, rather than a formal token burial, which would typically have both a higher weight of bone and a concentration of cremated bone (ibid. 152-4).

6.1.28 The soil matrices of 152 and 211 were lighter in colour than those of 202 and 204 and contained a lower proportion of charcoal and a greater quantity and concentration of cremated bone. In both cases, the cremated bone was found mixed throughout the deposit, which is consistent with redeposited pyre debris, but is an unlikely interpretation here, considering the shallow depth of the pits they were found in 151 and 210 (0.22m and 0.1m respectively) and high bone weights (2326.2g and 4979.0g respectively). The weight of 152 is within the expected range of 1800-2700g for an archaeologically recovered deposit of three individuals (three times the 600–900g reported by McKinley 2013, 153-4). However, considering that one of the individuals was a juvenile less than 2 years of age, this weight could be considered in excess of what would be expected archaeologically. Deposit 211 far exceeds and nearly doubles the archaeologically expected weight range. Deposits which contain high weights and have high concentrations of bone, such as these, are consistent with multiple individuals (McKinley 2013, 153) and it is possible that deposits 152 and 211 contained more than three individuals each, although this cannot be confirmed. Approximately 5% of British cremation burials are of multiple individuals, a single adult with a juvenile being the most frequently observed (ibid.)

6.1.29 Cremation was the dominant funerary rite during the Bronze Age in Britain (Roberts, 2013, 535) and as such the Glebeland assemblage is not unusual. A recent study which collates comprehensive osteological and funerary data from 3133 middle Bronze Age cremation burials from the British Isles found that cremation burials were most

frequent in the South of England with 52% being found in barrows and 27% being unurned (Caswell and Roberts 2018, 334, 337). Multiple individuals in the same burial was not uncommon (ibid. 333), though this was usually a juvenile with a single rather than multiple adults (McKinley 2013, 153) suggesting that deposits 152 and 211 are comparatively unusual in this respect.

Deposit	Skeletal region	>10mm	10-4mm	4-2mm	TOTAL (g and %)	Colour, MNI, age, sex, pathology
145	Skull	0.4 g (Parietal)	0.7g (Vault)	0.1g (Mandibular incisor root)	**1.2g 11.1%**	95% white 2.5% grey 2.5% black MNI = 1 ?Adult ? No pathology observed
	Axial	-	-	-	-	
	Upper limb	-	-	-	-	
	Lower limb	-	0.2g (Foot sesamoid)	-	**0.2g 1.9%**	
	Unid. long bone	0.9g	-	-	**0.9g 8.3%**	
	Unid. other	-	2.2g	6.3g	**8.5g 78.7%**	
	(UNID. TOTAL)	(0.9g)	(2.2g)	(6.3g)	**(9.4g 87.0%)**	
	TOTAL (g and %)	**1.3g 12.0%**	**3.1g 28.7%**	**6.4g 59.3%**	**10.8g**	
148	Skull	-	0.4g (Vault)	-	**0.4g 28.6%**	90% white 10% grey MNI = 1 ?Adult ? No pathology observed
	Axial	-	-	-	-	
	Upper limb	-	-	-	-	
	Lower limb	-	-	-	-	
	Unid. long bone	-	-	-	-	
	Unid. other	-	1.0g	-	**1.0g 71.4%**	

	(UNID. TOTAL)	-	1.0g	-	**1.0g 71.4%**	
	TOTAL (g and %)	-	**1.4g 100%**	-	**1.4g**	
150	Skull	-	-	-	-	100% white Could not positively identify as human or non-human
	Axial	-	-	-	-	
	Upper limb	-	-	-	-	
	Lower limb	-	-	-	-	
	Unid. long bone	-	-	-	-	
	Unid. other	-	1.9g	-	**1.9g 100%**	
	(UNID. TOTAL)	-	1.9g	-	**1.9g 100%**	
	TOTAL (g and %)	-	**1.9g 100%**	-	**1.9g 100%**	
152	Skull	250.6g (L mandibular condyle, R zygomatic process, orbital margin, facial bones, mandibular body, maxilla, temporal, R zygoma, sphenoid	59.4g (Vault - ?Adult and juvenile, maxillary premolar crown frag, maxillary molar root frag, tooth root frags, R zygomactic process, L frontal process x2, mandibular ramus frag, zygomatic arch, facial bones	-	**310.0g 13.3%**	85% white 5% grey 5% black 5% orange MNI = 3 ?Adult x2 Juvenile (<2years, probably neonate or infant) At least one ??F
	Axial	3.8g (Vertebral arch frag, rib frags – adult and juvenile)	1.4g (Head of dens, vertebral arch – juvenile, pedicle - juvenile	-	**5.2g 0.2%**	
	Upper limb	5.5g (Scapula frags, radius shaft, humeral head frags)	5.5g (Distal L clavicle - juvenile, scapula frags, radius shaft, ulna shaft, metacarpal frag, scaphoid, proximal or intermediate phalange frags, distal phalanx)	-	**11.0g 0.5%**	
	Lower limb	63.6g (Femoral shaft, tibial shaft, fibial shaft)	3.0g (Tibial shaft, proximal femoral shaft)	-	**66.6g 2.9%**	

	Unid. long bone	326.5g	105.9g	-	**432.4g 18.6%**	amongst adults
	Unid. joint surface	-	0.5g	-	**0.5g <0.1%**	No pathology observed
	Unid. other	266.2g	1083.3g	151.0g (est)	**1500.5g* 64.5%**	
	(UNID. TOTAL)	592.7g	1189.7g	151.0g (est)	**1933.4g* 83.1%**	
	TOTAL (g and %)	**916.2g 39.4%**	**1259.0g 54.1%**	**151.0g* 6.5%**	**2326.2g***	
158	Skull	-	-	-	-	95% white 5% grey Could not positively identify as human or non-human
	Axial	-	-	-	-	
	Upper limb	-	-	-	-	
	Lower Limb	-	-	-	-	
	Unid. Long bone	-	-	-	-	
	Unid. other	-	0.4g	0.1g	**0.5g 100%**	
	(UNID. TOTAL)	-	0.4g	0.1g	**0.5g 100%**	
	TOTAL (g and %)	-	**0.4g 80%**	**0.1g 20%**	**0.5g**	
161	Skull	-	-	-	-	100% white Could not positively identify as human or non-human
	Axial	-	-	-	-	
	Upper limb	-	-	-	-	
	Lower Limb	-	-	-	-	
	Unid. Long bone	-	-	-	-	
	Unid. other	-	0.2g	2.1g	**2.3g 100%**	
	(UNID. TOTAL)	-	0.2g	2.1g	**2.3g 100%**	
	TOTAL (g and %)	-	**0.2g 8.7%**	**2.1g 91.3%**	**2.1g**	
	Skull	-	1.9g (Vault, tooth crown frag, mandibular incisor root, anterior tooth root frags)	-	**1.9g 3.9%**	80% white 5% grey 15% black
	Axial	-	-	-	-	
	Upper limb	-	-	-	-	
	Lower Limb	-	-	-	-	

202	Unid. Long bone	-	5.6g	-	**5.6g 11.4%**	MNI = 1
	Unid. other	-	28.0g	13.4g (est)	**41.4g* 84.7%**	?Adult
	(UNID. TOTAL)	-	33.6g	13.4g (est)	**47g* 96.1%**	?
	TOTAL (g and %)	-	**35.5g 72.6%**	**13.4g* 27.4%**	**48.9g***	No pathology observed
204	Skull	-	0.2g (Tooth crown frag, canine crown frag)	-	**0.2g 1.5%**	80% white
	Axial	-	-	-	-	10% grey
	Upper limb	-	-	-	-	
	Lower Limb	-	-	-	-	10% black
	Unid. Long bone	-	-	-	-	MNI = 1
	Unid. other	-	6.4	6.5g (est)	**12.9g* 98.5%**	?Adult
	(UNID. TOTAL)	-	6.4	6.5g (est)	**12.9g* 98.5%**	?
	TOTAL (g and %)	-	**6.6g 50.4%**	**6.5g* 49.6%**	**13.1g***	No pathology observed
211	Skull	248.5g (Vault, parietal, occipital, L+R petrous portions, facial, mandible, R goneal angle, L zygoma (including frontal process), R mastoid – incomplete, maxilla, R orbital margin, R mandibular fossa)	118.6g (Vault, facial, orbit, R zygomatic process, L external angular process, R+L frontal process, maxilla, R+L nasal, pars lateralis – adult, sphenoid, mandible body, mandibular molar root, maxillary premolar crown frag, tooth crown frags, tooth root frags mandibular condyle – juvenile, mandibular body - juvenile)	-	**367.1g 7.4%**	90% white 5% grey 5% black
	Axial	9.4g (Cervical body frags, rib frags)	37.9g (Ribs frags, spinous process, pedicle, dens facet, superior and inferior articulatory facets, vertebral body fragments, cervical body frag,)	-	**47.3g 0.9%**	MNI = 3 ?Adult x2 Juvenile (<16.5years,

	Upper limb	28.8g (R capitate – partial, proximal phalanx, humeral shaft, humeral head frag, ulna shaft)	14.4g (Radial head frag, ulna shaft, scapula, R scaphoid frag, clavicle shaft, radius shaft, metacarpal head, distal phalages x3, proximal/intermediate phalange heads, proximal phalanx – juvenile, intermediate phalanges x5 – juvenile)	-	**43.2g** **0.9%**	probably older child) At least one ??M amongst adults 'orange peel' texture on x2 cranial vault fragments
	Lower limb	105.4g (1st metatarsal base, fibial shaft, tibial shaft, distal femoral articulation, first proximal phalanx base, femoral head frag, acetabulum, iliac crest – juvenile)	18.4g (Fibial shaft, tibial shaft, femoral shaft, metatarsal shaft, foot sesamoid x2, proximal phalanx shaft, distal phalages x2, right distal phahlanx base, tarsal fragment)	-	**123.8g** **2.5%**	
	Unid. long bone	292.2g	212.1g	-	**504.3g** **10.1%**	
	Unid. joint surface	16.6g	36.0g	-	**52.6g** **1.1%**	
	Unid. other	219.5g	2201.1g	1420.1g (est)	**3840.7g*** **77.1**	
	(UNID. TOTAL)	528.3g	2449.2g	1420.1g (est)	**4397.6g*** **88.3%**	
	TOTAL (g and %)	**920.4g** **18.5%**	**2638.5g** **53.0%**	**1420.1g*** **28.5%**	**4979g***	

Table 4: Summary of skeletal elements represented and weights of bone present
Key: L = left, R = right, frag = fragment, ??F = possible female, ??M = possible male, (est) = estimated bone weight, * denotes inclusion of estimated bone weights

Cremation	*Total weight*	*>10mm*	*10-4mm*	*4-2mm*	*Maximum. frag. size*
145	10.8g	1.3g	3.1g	6.4g*	21mm, unidentified long bone
148	1.4g	-	1.4g	-	14mm, cranial vault
150	1.9g	-	1.9g	-	9mm, unidentified
152	2326.2g*	916.2g	1259.0g	151.0g*	41mm, tibial shaft
158	0.5g	-	0.4g	-	14mm, unidentified
161	2.3g	-	0.2g	2.1g	11mm, unidentified
202	48.9g*	-	35.5g	13.4g	20mm, unidentified long bone
204	13.1g*	-	6.6g	6.5g*	15mm, unidentified
211	4979.0g*	920.4g	2638.5g	1420.1g*	56mm, tibial shaft

Table 5: Summary of bone weight and fragmentation. Note: Where indicated with *, includes estimated weights from the 4-2mm fractions

Deposit	Colours
145	White 95%, grey 2.5%, black 2.5%
148	White 90%, grey 10%
152	White 85%, grey 5%, black 5%, orange 5%
202	White 80%, grey 5%, black 15%
204	White 80%, grey 10%, black 10%
211	White 90%, grey 5%, black 5%

Table 6: Summary of colour of cremated bone deposits

6.2 Animal bone *by Martyn Allen*

Introduction

6.2.1 An assemblage of 204 animal bone fragments was recovered. Almost all the material was hand-collected, except for two bones recovered from an environmental sample. The preservation of assemblage was variable but in general quite poor, and many of the bones had fragmented during or after excavation. All the bones derived from Phase 2 contexts, dating to the mid–late Roman period, and the majority were excavated from ditch fills with a few coming from layers. Cattle were the most common taxon represented, while other species included sheep/goat, horse, dog, roe deer and bird (Table 7).

Cattle

6.2.2 Cattle bones consisted of 27 fragments from 11 contexts. A total of 74 specimens of large mammal-sized remains, mostly broken long bone fragments, are also likely to be mostly cattle remains, though some may be from horses. Cattle were represented by fragments of mandible, scapula, humerus, ulna, metacarpal, pelvis, femur, first and second phalanges, and a few loose teeth. All the long bones were from skeletally mature animals, and there was no sign of juveniles from the teeth or the post-cranial remains. No evidence of butchery, burning, scavenger gnawing or pathologies were observed on any of the cattle bones.

Sheep/goat

6.2.3 No distinction between sheep or goat could be made from the specimens recovered. Sheep/goat remains comprised seven fragments, including three radii and one tibia.

The remaining elements were all loose teeth, all from adult animals. No evidence of butchery, burning, scavenger gnawing or pathologies were observed on any of the sheep/goat bones.

Horse

6.2.4 A total of four horse bones were identified, including one lower third molar, two metatarsals (one each from ditch fills 122 and 207), and a complete but broken first phalanx. The post-cranial bones were all from skeletally mature animals. No evidence of butchery, burning, scavenger gnawing or pathologies were observed on any of the horse bones.

Dog

6.2.5 One dog bone was recovered from ditch fill 206. This was identified as an atlas bone – a vertebra positioned behind the skull. No skull fragments were found in the context but several other medium mammal-sized vertebrae were discovered and may also derive from the same dog.

Roe deer

6.2.6 A single fragment of roe deer antler was recovered from layer 105. This was a sizable specimen from the beam of the antler that had broken at both ends. No sign of working was observed, though roe deer antlers are comparatively rarely used for artefact manufacture.

Bird

6.2.7 A single, poorly preserved specimen was tentatively identified as bird, possibly a sternum fragment.

Taxa	**Total**
cattle	27
sheep/goat	7
horse	4
dog	1
roe deer	1
bird	1
large mammal	74
medium mammal	23
unidentified	66
Total	204

Table 7: Number of animal bone fragments per taxon from each context (includes two specimens from sieved sample)

Summary

6.2.8 The assemblage is too small and poorly preserved to get an appreciation of animal husbandry practices, though cattle and sheep are likely to have been the mainstay of the farming economy. There is a complete absence of pig bones, though this is probably due to the small sample size, though horse and dog remains suggest the presence of working animals. The discovery of a roe deer antler indicates some exploitation of wild fauna, though it is uncertain if this was from a hunted buck or a shed antler that was picked up in the surrounding countryside.

6.3 Oyster shell

6.3.1 One piece of oyster shell was recovered from a Roman context (105).

6.4 Charred plant remains and charcoal *by Julia Meen*

Introduction

6.4.1 Eighteen bulk samples were taken during the excavation. Each sample was processed by water floatation using a modified Siraf style flotation machine, to recover charred plant remains and charcoal. Flots were collected onto 250µm meshes and the heavy residues were sieved to 500µm, after which both flots and residues were dried in a heated room. The residues were sorted by eye for artefacts and ecofactual remains. A rapid preliminary assessment was made of each flot to record abundance of the main classes of ecofactual evidence, such as cereal grain, weed seeds and charcoal, as well as notes on the quality of preservation (Cook 2019).

6.4.2 Fourteen of the samples were taken from features dating to the Bronze Age: urned cremation burial 147 (sampled in seven vertical spits) and cremation burial pits 210, 160, 157, 201, 149, 151 and 203. Wood charcoal from cremation deposits usually represents the remains of the funeral pyre itself. The identification of which species are present can provide information not only about what wood resources were available to construct the pyre, but also whether there was deliberate selection of a particular wood for, for example, its aesthetic, olfactory or symbolic properties, which may have played an important role in the funeral ritual (O'Donnell 2016, 161, 168).

6.4.3 The bone from pits 149, 157 and 160 could be either human or animal (see Gibson, above). Of these, pits 149 and 160 contained only a small amount of charcoal and have not been examined further. Human bone was, however, positively identified from each of the remaining four cremation burial pits (210, 201, 151 and 203).

6.4.4 Four samples were taken from features dating to Phase 2: three from the Roman enclosure ditch and one from occupation layer 242. Assessment of the flots showed that in all cases charred plant remains were limited to rare, poorly preserved cereal grains, with most charcoal highly fragmented. There was therefore no scope for further work on the Roman charred material from the site.

Methodology

6.4.5 Assessment of the flots indicated that of the four pits containing human bone, charcoal was best preserved and most abundant in pit 203 (sample 6). One hundred fragments were identified from this sample, which is a sufficient number to reliably characterise

the range and relative abundance of wood taxa present. The charcoal from the urned cremation, representing a formal cremation burial, was also prioritised for further work. As the number of potentially identifiable charcoal fragments in each spit from the urned cremation was low, all identifiable material from each spit was examined and the results combined, to produce a total of 100 identified fragments from the urn as a whole. Both the identifications from individual spits, and the total count from the urn, are given in Table 8 alongside the results from cremation 203. For the remaining three samples containing human bone (pits 151, 201 and 210), plus the charcoal-rich sample from pit 157, a more rapid characterisation based on a smaller number of identifications was carried out to provide comparative data. Each flot was scanned and a quantification made of charcoal abundance, and then species identification was undertaken on 15 items from each sample. Results for these are given in Table 2.

6.4.6 Each charcoal fragment selected for identification was examined on the transverse, radial and tangential sections, as required, at up to x400 magnification using a Brunel Metallurgical SP-400BD microscope. Species identification was made on the basis of diagnostic anatomical characteristics, following Schweingruber (1990) and Hather (2016), and using nomenclature following Stace (2010).

Results and discussion

6.4.7 During selection of suitable material for charcoal identification, flots were scanned for any other identifiable charred plant remains. A total of six tubers of onion couch grass (*Arrhenatherum elatius* var. *bulbosum*) were recovered from urned cremation 147, being present in spits 4, 5 and 6. Such tubers are actually swollen internodes that form on the root of the plant, and they are commonly found in prehistoric cremation deposits, particularly those dating to the Bronze Age (Roehrs *et al*. 2013). Their apparent association with cremations has led to speculation that they represent a deliberate placing of the tubers into the pyre as part of the cremation ritual. However, it is more likely that their common occurrence in cremations is either a by-product of the use of turves or uprooted grasses as kindling (Robinson 1988, 102), or that these tubers become charred as part of turves exposed in the edges of a pit dug for the pyre (Campbell 2007, 30).

6.4.8 Comparison of the charcoal identified from cremations 147 and 203 shows a contrast in the wood taxa, as shown in Table 8. Charcoal was consistently present throughout all spits of the urned cremation, but ash (*Fraxinus excelsior*) is the only wood taxon to be conclusively identified. The charcoal from the urn is generally poorly preserved, with many pieces vitrified or otherwise with diagnostic features obscured. A high proportion were therefore identifiable only as being a ring porous taxon, or as indeterminate; however, it is probable that the majority of these pieces, if not all, are also ash.

6.4.9 Cremation 203 contains a mixture of oak (*Quercus* sp.), ivy (*Hedera helix*) and hazel (*Corylus avellana*). Many of the pieces are from roundwood, particularly those of ivy. Oak was commonly used in the construction of cremation pyres, and would have been an ideal fuel because it burns consistently at the high temperatures required to consume a human body (Campbell 2007, 30-2). The presence of ivy is more unusual. Ivy often grows clinging to the bark of other trees, and it may be present in the charcoal

assemblage simply because it was attached to the other wood when it was collected. Alternatively, it may have been deliberately placed on the pyre due to its symbolic associations. The leaves of ivy stay green year round, and evergreen plants have been consistently associated with death and immortality since at least the Roman period. Box in particular has been recovered from both inhumations and urned cremations of Romano-British date (Lodwick 2017) and has also been found in medieval burials (eg Hall *et al*. 2000), while yew trees are ubiquitous in church graveyards to this day. Records from medieval Europe discuss the placing of ivy in graves as a symbol of Christian life after death (Jonsson 2007, 49). The long-established association of evergreen plants with burial may, perhaps, have its roots in the prehistoric period and ivy may therefore have been deliberately placed on the Bronze Age cremation pyre at Glebe Land as part of such a tradition.

6.4.10 Although a smaller number of charcoal fragments were examined from pits 151, 157, 201 and 210 (Table 9), the results strongly hint at a division between cremations that utilised ash (cremations 151 and 201) and those that utilised oak (cremation 210 and possible cremation 157), thus reinforcing the contrast seen in the two fully analysed samples. It has been suggested that the choice of wood used in cremations may correlate to the age or gender of the individual on the pyre (eg Campbell 2007; Challinor 2010). At Glebe Land, limited information on sex or age could be recorded due to the poor preservation of much of the cremated bone (see Gibson, above). Cremations 152 and 211 are both multiple cremations, with at least three individuals in each, in both cases probably two adults and a juvenile. However, this similarity is not reflected in the charcoal, with oak predominant in pit 211 while the assemblage from 152 mostly comprises ash.

	Sample No.	**6**	12	13	14	15	16	17	**12-17 (Total)**
	Context No.	**204**	145	145	145	145	145	145	**145**
	Cut No.	**203**	147	147	147	147	147	147	**147**
	Spit No.		Spit 1	Spit 2	Spit 3	Spit 4	Spit 5	Spit 6	**Spits 1-6**
	Depth		0-20mm	20-40mm	40-60mm	60-80mm	80-100mm	100-120mm	**0-120mm**
	Flot Volume	350ml	1ml	2ml	1ml	1ml	8ml	5ml	
Maloideae	hawthorn/ whitebeam/ apple type	**2**							
Quercus sp.	oak	**39 (r)**							
Corylus avellana L.	hazel	**15 (r)**							
cf *Corylus avellana* L.	cf hazel	**2**							
Corylus/Alnus	hazel/alder	**3**							
Fraxinus excelsior L.	ash			2	5	7	8	17	**39**
cf *Fraxinus excelsior* L.	cf ash		4	4		3	9	9	**29**
Hedera helix L.	ivy	**39 (r)**							
ring porous			4	5	2		5	3	**19**
diffuse porous			1		1r				**2**
indeterminate				4			3 (r)	4	**11**
TOTAL		**100**	9	15	8	10	25	33	**100**

Table 8: Charcoal identifications from ununed cremation 203 and urned cremation 147. r = roundwood

	Sample No.	**1**	**3**	**5**	**7**
	Context No.	**152**	**158**	**202**	**211**
	Cut No.	**151**	**157**	**201**	**210**
	Charcoal >4mm	200	400	38	200
	Charcoal >2mm		1000	100	
Quercus sp.	oak	1	15 (h)		10 (h)
cf *Quercus* sp.	oak				1
Fraxinus excelsior L.	ash	8		14	1
cf *Fraxinus excelsior* L.	cf ash	2			
ring porous		2		1	3
indeterminate		2			
TOTAL		**15**	**15**	**15**	**15**

Table 9: Charcoal identifications from cremation pits 151, 157, 201 and 210. h = heartwood

7 DISCUSSION

7.1 Bronze Age cremation cemetery

7.1.1 The Bronze Age cremation cemetery was an unexpected discovery of the excavations, which had targeted the Roman enclosure. The cemetery was confined to the south-eastern part of the excavation area. Although seven of the cremation burial pits were clustered together, the eighth (203) was located 18m to the south-west of the main group. Although this could have formed an isolated feature, given its shallow depth further burials positioned between it and the main group may not have survived.

7.1.2 It is likely that this was a 'flat' cemetery, as there was no evidence for any barrow mound, ring ditch or enclosure, either from the excavation or the magnetometer survey. A radiocarbon date of 1512-1425 cal BC obtained from cremated bone from cremation pit 210 suggests that the cemetery was in use during the earlier part of the middle Bronze Age when the practice of using burial monuments was on the wane. Only one of the cremations (144) was contained within an urn, the base of bucket-shaped vessel of early-middle Bronze Age type. While none of the other burials can be dated, it is likely that the cemetery as a whole dates to the middle Bronze Age. Similar small, flat cremation cemeteries of this period have been found across much of southern Britain (Caswell and Roberts 2018), as at Loughton, Milton Keynes, where two urned and nine unurned burials were uncovered (Pine 2003).

7.1.3 Some middle Bronze Age cremation cemeteries are located on the fringes of settlements, as at Dorney in south Buckinghamshire (Allen and Moore 1992, 26), though many others have no clear spatial association with occupation sites (Caswell and Roberts 2018). At Glebelands there is no evidence for substantial settlement in the immediate vicinity of the cemetery, although there are scattered traces of middle Bronze Age activity. The Brooklands investigations uncovered a pit containing pottery broadly dated to the middle to late Bronze Age 300m to the west of the site, and a waterhole radiocarbon dated to 1420-1260 cal BC 1km to the north-west of the site (Atkins *et al*. 2014, 28-9). An isolated middle Bronze Age pit containing two complete loomweights and fragments of further eight was found 450m to the south of the site at Magna Park Site 2 (Chapman 2012); this has the appearance of a deliberate deposit rather than the casual disposal of settlement waste. A fragment of a middle Bronze Age copper alloy dagger was recovered as a residual find from Magna Park Site 1, 1km to the south-west of the site (Chapman and Chapman 2017).

7.1.4 The quantity of human remains in each cremation burial pit varied considerably with two containing an unusually high amount of cremated bone from at least three individuals, whilst the urned cremation and two others contained only small amounts of such remains. Indeed, the quantity recovered from a further two pits was not sufficient to determine whether the remains were human. Although later truncation may have been a factor in the survival of the remains, two of the pits that contained sparse remains were amongst the deepest. This would suggest some degree of variation in the funerary rituals. It has been suggested that those pits that contain few cremated remains are not burials but token deposits of pyre debris (Hey and Hind 2014, 136), perhaps distributed from a single pyre as a symbolic gesture (Caswell and Roberts 2018). It is tempting to suggest the two adjacent cremation pits (151 and 210)

with multiple individuals represent family groupings as both contained two adults, one accompanied by an infant, the other by an older child. In both pits the sex of only one of the adults could be determined, one being female, the other male. Burials containing the cremated remains of three or more individuals are rare (Caswell and Roberts 2018), and to find two in a single small cemetery is noteworthy.

7.1.5 Another notable aspect of the funerary ritual was that the sides of cremation burial pit 201 were scorched, possibly suggesting that the contents were deposited whilst still hot (Fig. 4). This has been noted for several other middle Bronze Age cremation burials in southern Britain (Dodwell 2012; Caswell and Roberts 2018). Experimental work has indicated that such features probably represent a form of *in situ* (or 'bustum') burial, with the cremation pyre constructed above the pit, and the cremated remains then allowed to fall into the pit (Dodwell 2012).

7.1.6 The charcoal evidence showed that oak was used for the funeral pyres for some of the burials, and ash for others. Cremation burial 203 was notable for containing ivy as well as lumps of roundwood from oak and hazel. Although the ivy may have been unintentionally incorporated into the pyre, it has traditionally been associated with death and immortality since Roman times, and could perhaps have had a similar significance during the Bronze Age (O'Donnell 2016).

7.2 Roman enclosure

7.2.1 The excavation confirmed the presence of a small open-ended rectangular enclosure that was first identified by the magnetometer survey. Dating evidence from the pottery suggests that its ditch was in use during *c* AD 170-250. Although no recut was evident it may have replaced a smaller ditch, of earlier Roman date, on its east side.

7.2.2 It is possible that the Glebelands enclosure was associated with the settlement complex excavated 200m to the south-east on the other side of the Broughton Brook at Magna Park Site 2 (Fig. 8), which comprised a droveway with flanking domestic and stock enclosures. This settlement developed from the early 2nd century AD with a wide droveway leading to possible stock enclosures with an adjacent enclosure that contained at least two roundhouses. During the 3rd century the drove developed into a narrow trackway, aligned on the Glebelands enclosure. However, the excavations and the earlier evaluation revealed no evidence for such a track, suggesting that it did not extend as far north as the site. An earlier geophysical survey undertaken as part of the Magna Park development (Butler 2006) shows that this track clearing extending up to Broughton Brook suggesting that the stream was extant during the Roman period on much the same course. Given that the track was formed during the 3rd century, potentially after the Glebelands enclosure had gone out of use, there may have been no need for it to extend north of the stream.

7.2.3 Given the lack of structural evidence within the Glebelands enclosure, it may have principally represented a stock enclosure for herding animals from its open west side. It would have been conveniently located near to the stream to the south and adjacent to the end of the Magna Park trackway. The paucity of charred cereal remains from the environmental samples suggests that the enclosure was not used for crop processing on any scale. However, the quantity of finds recovered from the enclosure

ditch does suggest that a nearby settlement was using it for the disposal of domestic refuse. The range of artefacts recovered from the enclosure was modest, being limited to pottery, two pieces of tile and some iron objects including hobnails and nails. A copper alloy pin was found in the enclosure ditch during the evaluation (MOLA 2017).

7.2.4 The evidence from Glebelands adds to a picture of dense Romano-British settlement and agriculture in the valley of the Broughton Brook. Aside from Magna Park, other broadly contemporary sites in the immediate local area include a late Iron Age to late Roman settlement at Broughton Manor Farm, 1.5km to the west (Atkins *et al*. 2014); a late Roman settlement identified in an evaluation at Broughton Barn Quarry, 1.5km to the north-west (Chapman 2009); a field system dated to AD 140-200 at Old Covert, 1.25km to the north (Petchey 1978); and Roman trackways at Whitsundoles Farm, 1km to the north-east (Luke and Phillips 2002).

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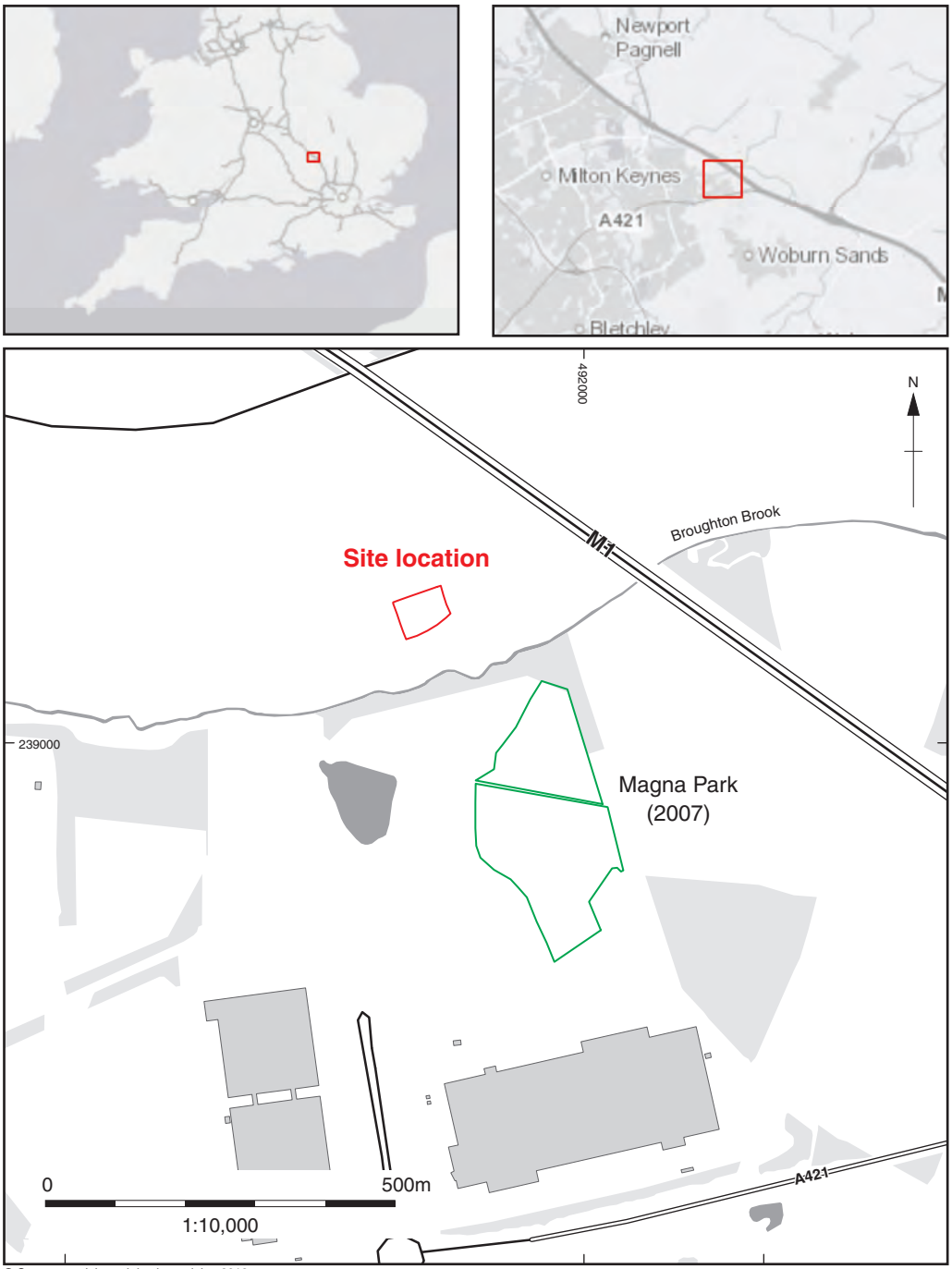

Figure 1: Site location

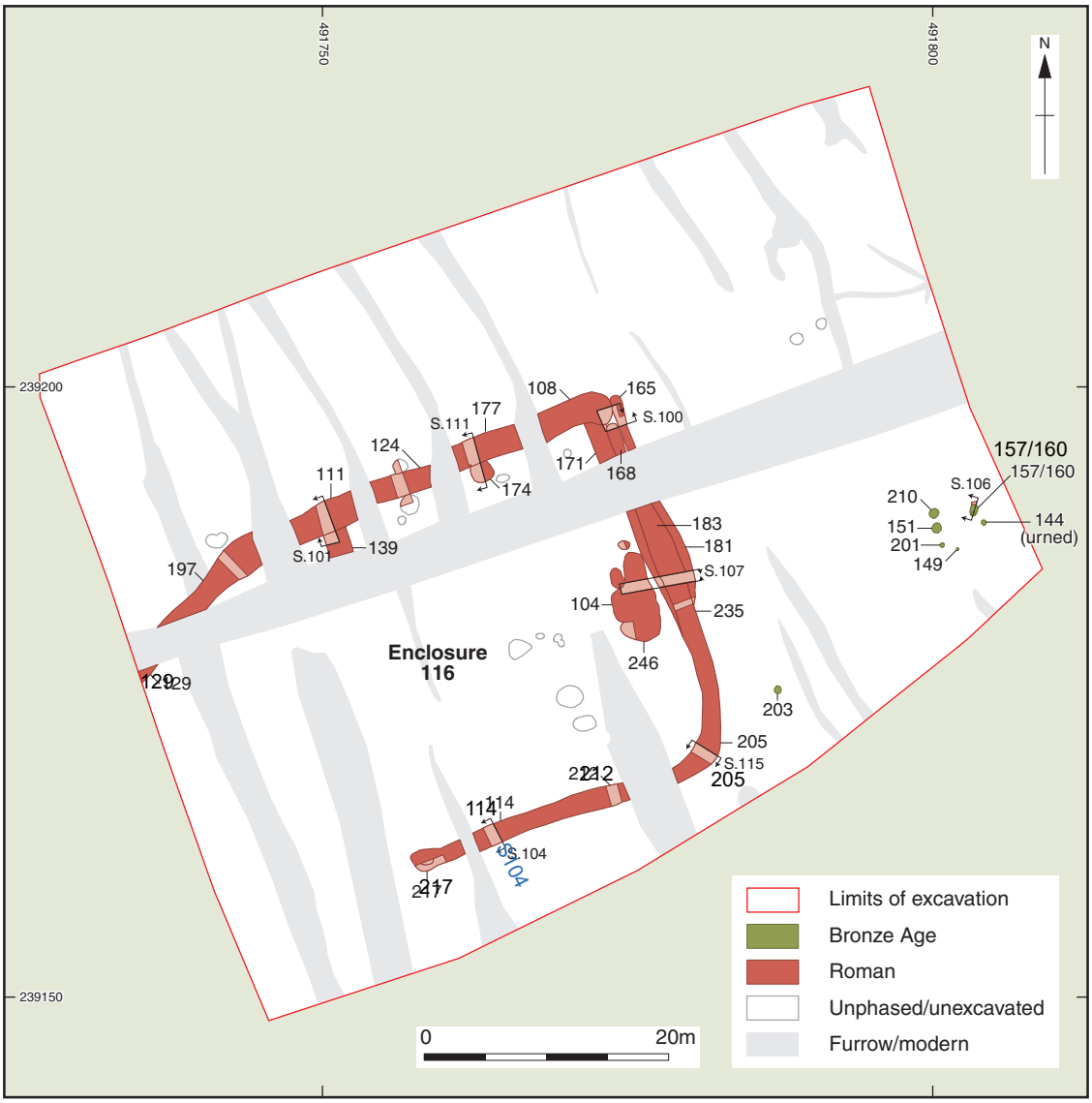

Figure 2: Plan of features

Figure 3: Cremation urn 146, after off-site excavation

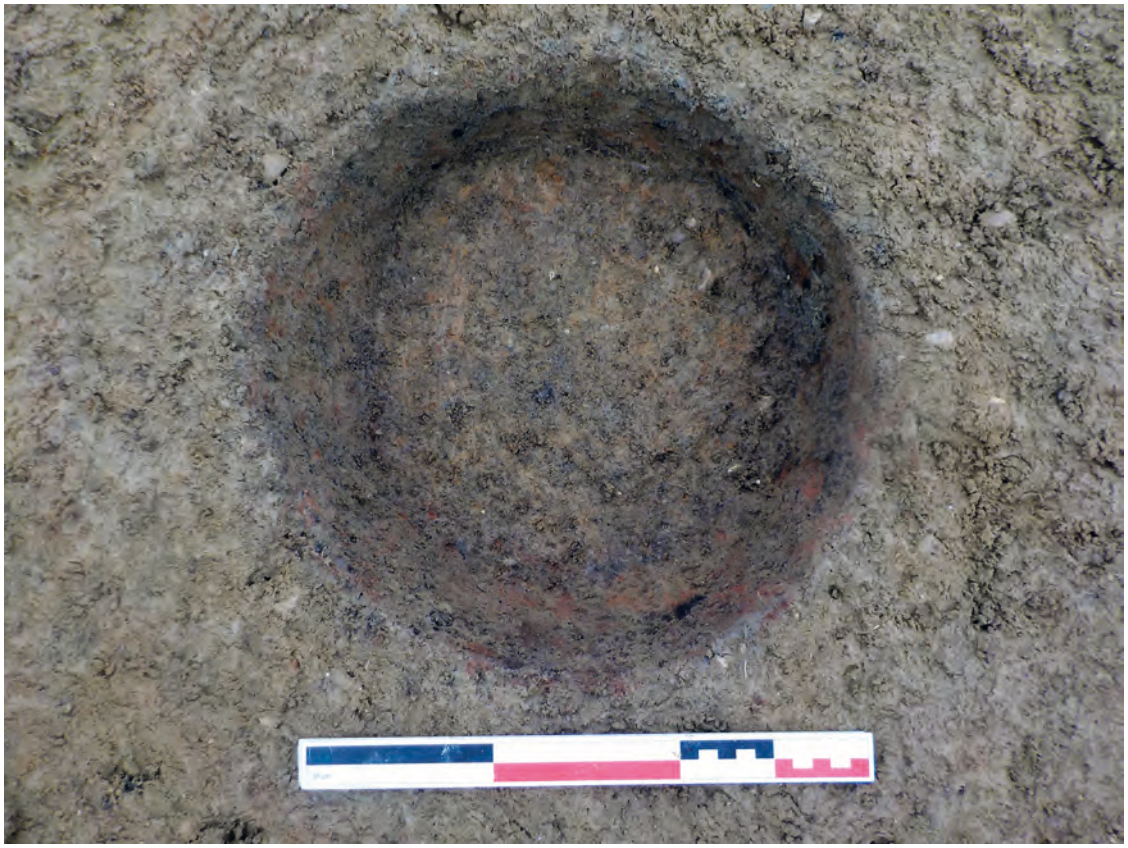

Figure 4: Cremation pit 146, view south-east

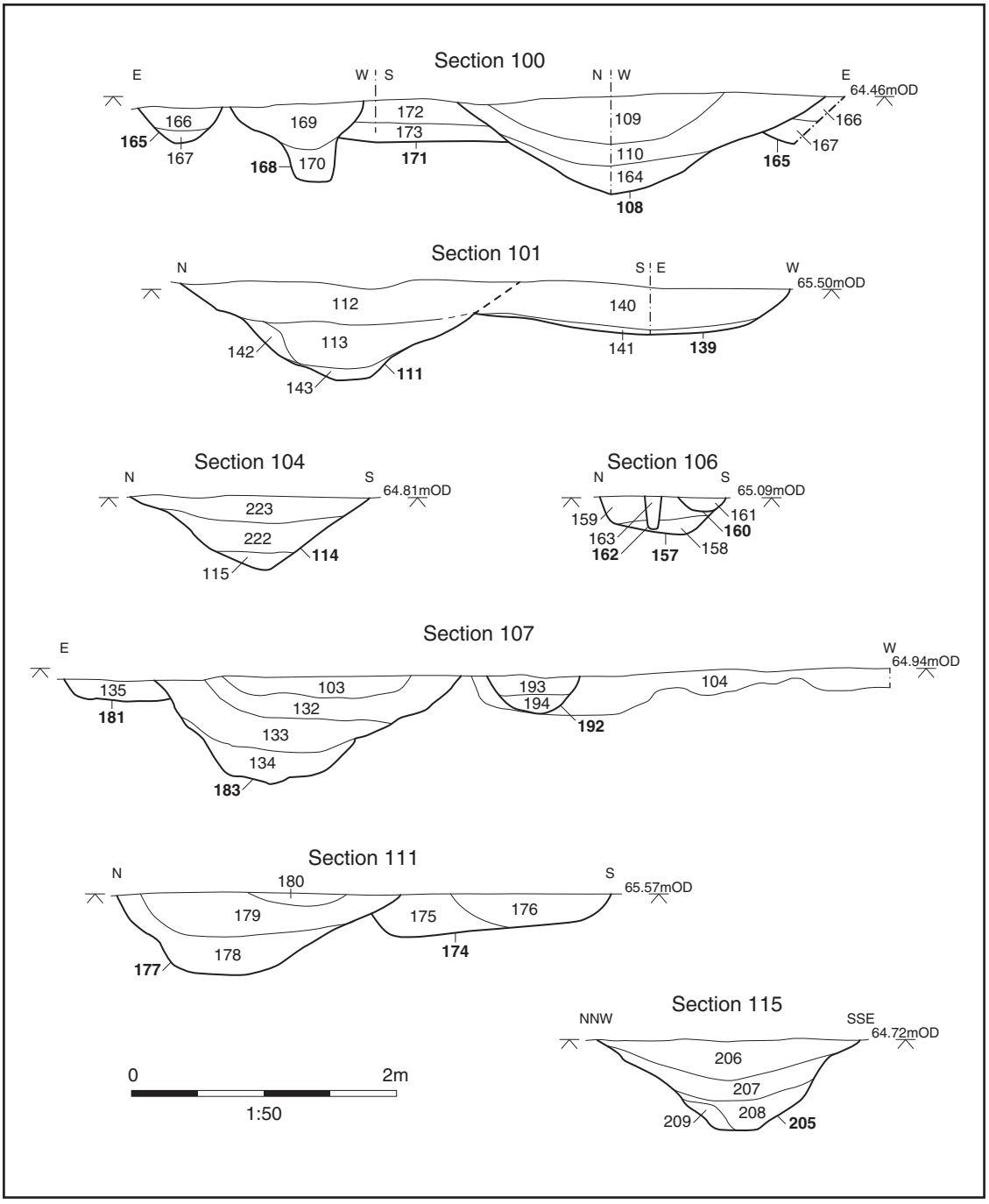

Figure 5: Selected sections

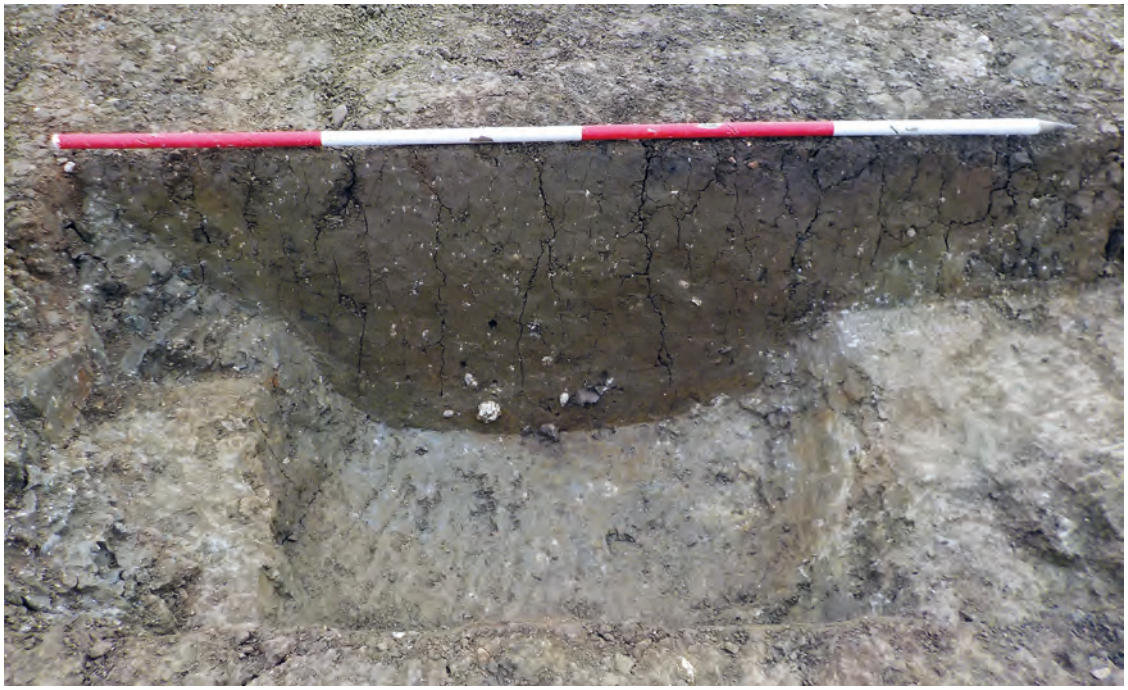

Figure 6: Ditch 177 and pit 174, view ENE

Figure 7: Ditch 205, view NE

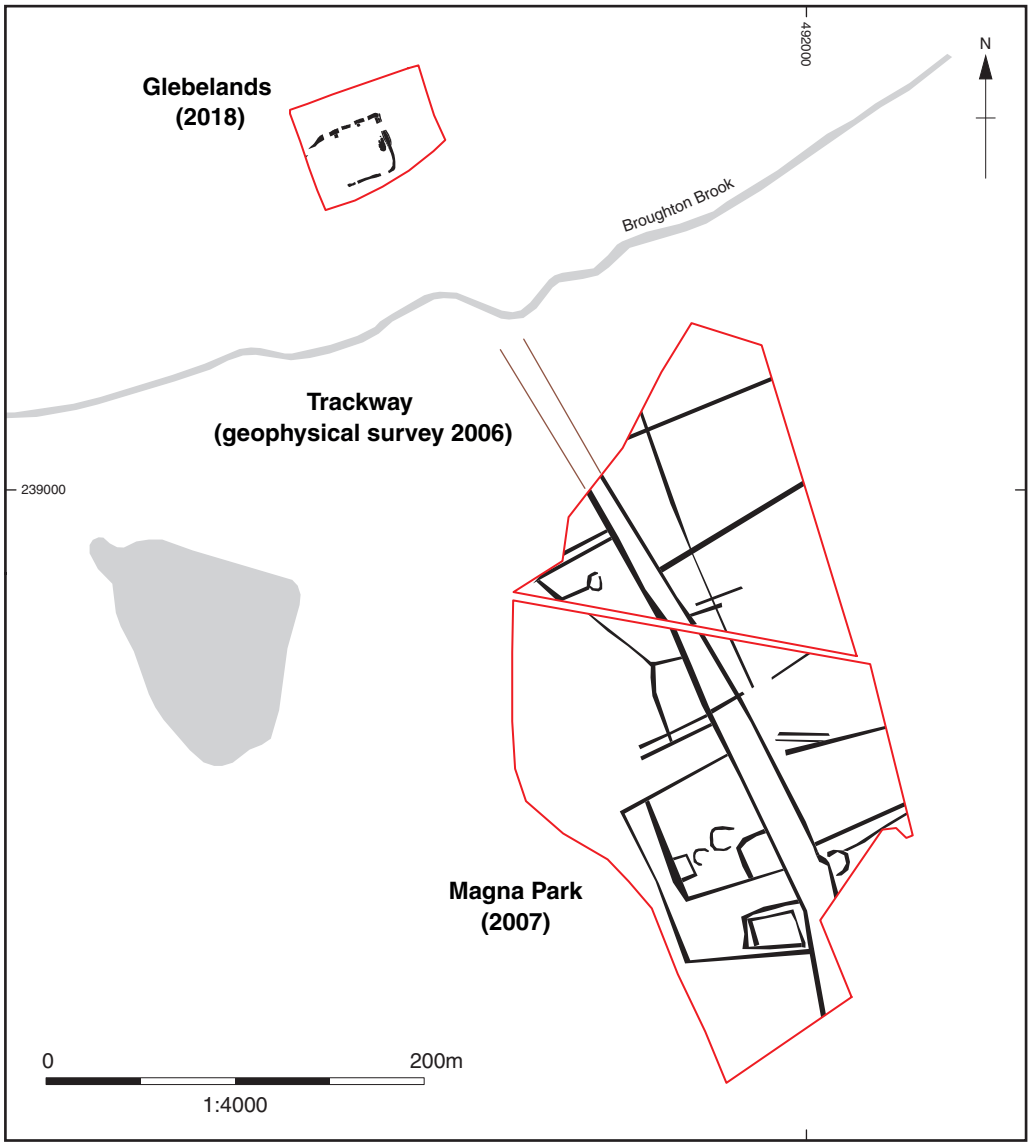

Figure 8: Roman enclosures at Glebelands and Magna Park

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