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CCC AFU Report Number 831

Bronze Age Enclosures on land at rear of 16-20 Cambridge Road, Sawston, Cambridgeshire (the Police Station site)

An Evaluation and Excavation

Richard Mortimer

With a major contribution by
Barry John Bishop

April 2006

Cambridgeshire County Council
Environment & Community Services

Commissioned by Park Hill Housing Ltd

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And contributions by Chris Faine BA MSc, Rachel Fosberry and Mark Knight BA

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Summary

An evaluation and excavation at a housing development behind Sawston Police Station revealed three elements of a large Bronze Age field or enclosure system. The enclosure had been recorded in a previous excavation immediately to the south during the first stage of development at the site in 2003, where it was interpreted as being of Roman origin.

The ditches uncovered during this second phase of development were found to contain very large quantities of struck flint in their upper fills, possibly emanating from a knapping site on or close to a clearance cairn. The material dates to the second half of the 2nd millennium BC and appears to be the result of deliberate deposition. The struck flint assemblage was part of a much larger deposition of un-worked flint nodules. The upper fills of the ditches also contained a relatively small but varied faunal assemblage, with almost half the material being red and roe deer.

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1 Introduction

This archaeological evaluation and excavation was undertaken in accordance with a Brief issued by Kasia Gdaniec of the Cambridgeshire Archaeology, Planning and Countryside Advice team (CAPCA; Planning Application S/2080/04/F), supplemented by a Specification prepared by Cambridgeshire County Council Archaeological Field Unit (CCC AFU) (Roberts 2005).

The work was designed to assist in defining the character and extent of any archaeological remains within the proposed redevelopment area, in accordance with the guidelines set out in *Planning and Policy Guidance 16 - Archaeology and Planning* (Department of the Environment 1990). The development involves the construction of a small number of homes and an extension to an access road. The land lies in the back gardens of Nos. 16-20 Cambridge Road, Sawston and is an extension to the development of the Police Station site immediately to the south. The archaeology of the site forms a part of the enclosure recorded previously to the south and the site is hereafter referred to in this report as the Police Station site. The developers are Park Hill Housing Ltd.

Following the initial trench evaluation, a second stage evaluation was carried out, doubling the investigation area. Due to the quantities of archaeological material recovered from this second stage evaluation it was agreed that no further excavation would be required and that the planning condition would be fulfilled on production of a full report on the archaeological features and finds assemblage.

The site archive is currently held by CCC AFU and will ultimately be placed in the County Archaeology Store at Landbeach..

2 Geology and Topography

The site overlies the Holywell Nodular Chalk Formation (White Chalk Subgroup) (British Geological Survey Sheet 205, 2002) and the soils within the parish are generally light and chalky (Rosen 1978, 246). The site lies at approximately 26.0m OD on the top of a narrow west to east running chalk ridge between the Rivers Granta and Cam that terminates to the west at Borough Hill Iron Age Hillfort. The site looks due north over a wide stretch of the Granta Valley towards Wandlebury.

3 Archaeological and Historical Background

Sawston lies approximately 10km south of Cambridge and the parish is bordered by the Rivers Cam (to the west) and Granta (to the north). The village is situated in the southwest of the parish on the east bank of the River Cam. The parish occupies a central position on the strip of chalk land between the Fens and the high claylands of Essex traversed by Southern England's principal west to east route way from prehistoric times – the Icknield Way (Malim 2000a). This route continued into the Romano-British period as Ashwell Street/Street Way (Browne 1978; Margary 1967; Malim 2000b). It is also located on the north to south route, passing through Sawston from London to Cambridge along the eastern side of the Cam valley – this route is almost certainly Romano-British, and probably prehistoric in origin (Rosen 1978, 246-47).

3.1 Prehistoric

Several prehistoric finds have been made within the parish. A collection of Neolithic flint tools were found near the vicarage (HER 04113) with further finds to the south at The Spike. A Late Bronze Age hoard (HER 04110) consisting of a winged or flanged axe, two socketed spearheads, two socketed axes and other pieces were found 'within the parish'.

Immediately to the south of the subject site a small quantity of Late Bronze Age/Early Iron Age pottery was recovered during recent excavations by the Cambridge Archaeological Unit (CAU) (Cessford and Mortimer 2004).

Borough Hill, an Iron Age Hillfort (or more appropriately a contour fort or ring-work) is one of the largest in Cambridgeshire and occupies a spur of land overlooking the Cam 1500m to the west of the village at the site of Spicer's paper factory. Although little is now evident above ground, the sub-surface remains are extensive and in a good state of preservation (Mortimer 2001). The banks of the Hillfort overlie deep, stratified buried soils dating to the Mesolithic - Late Bronze Age, and undated (probable Bronze Age) enclosure ditches aligned northwest to southeast.

3.2 Romano-British

Evidence for Roman occupation in the vicinity of the village is scarce. A scatter of Roman pottery was found to the southeast (HER 04115), while two probable Roman roads, and a scatter of early Roman pottery,

have recently been recorded in excavations immediately south of the site (HER ECB1464), on excavations prior to the construction of the new Police Station (Cessford and Mortimer 2004). The closest extensive Romano-British remains are *c.* 2km to the east on the east bank of the River Granta at Babraham.

3.3 Medieval and Post-Medieval

The village of Sawston is Anglo-Saxon in origin and is first mentioned in the 10th century as *Salsingetune,* either 'farm of *Salse'* or 'of *Salses* people', and later in Domesday (1086) as *Salsiton(e)* (Reaney 1943). An early Anglo-Saxon burial was found on Huckeridge Hill, on the Cambridge road to the north of the village (HER 04537). The richly furnished burial was uncovered during road widening early in the 19th century and it is likely that others are, or were, present. It is unclear whether the burial relates to settlement at Sawston itself, to an Anglo-Saxon settlement at Dernford Farm to the northwest, where there are a series of earthworks and cropmarks (HER 10958) or to Early Saxon occupation of the Iron Age Hillfort. An Anglo-Saxon brooch (HER 04112) and Saxon/Viking key (HER 04111) were found in the parish although their locations are not certain.

3.4 Previous Archaeological Work

Within the parish of Sawston further work has been carried out at Borough Hill Iron Age hillfort in 1993 and 2001 by the CCC AFU (Bray 1994) and the Cambridge Archaeological Unit (Mortimer 2001) (respectively HER ECB1086 and ECB1378). Further large-scale trenching was carried out in 2001 by John Samuels Archaeological Consultants (JSAC) (Samuels 2001).

An evaluation and watching brief was conducted by the CAU at Sawston Police station (HER ECB1464). This revealed the remains of two Bronze Age ditched enclosures and a subsequent Roman road junction dating to the 1st century AD (Cessford and Mortimer 2004). An evaluation at The Spike (HER 11720) revealed a series of undated ditches (Sutherland 1995).

4 Methodology

The objective of this evaluation was to determine as far as reasonably possible the presence/absence, location, nature, extent, date, quality, condition and significance of any surviving archaeological deposits

within the development area. Site-specific objectives were to determine whether elements of the ditch and road system identified to the southwest in 2003 (Cessford and Mortimer 2004) continued into the new development area.

The Brief required that a minimum 5% sample of the development area should be subjected to trench evaluation. Machine excavation was carried out under constant archaeological supervision with a tracked 360° excavator using a 1.80m wide toothless ditching bucket.
The development area covered approximately 1750 sqm and initially 42.50m of trench were opened (Trench 1 35m, Trench 2 7.50m) totalling 76.50 sqm, or an approximate 4.4% sample. Following on from this a further 38m of trenching (Trenches 3 – 6) were opened to confirm feature orientations and the date of the enclosures., This brought the total area excavated to 145 sqm, or an 8.3% sample of the site.

All spoil, exposed surfaces and features were scanned for artefact retrieval. All finds were retained for inspection, other than those which were obviously modern.

All archaeological features and deposits were recorded using CCC AFU's *pro-forma* sheets. Trench locations, plans and sections were recorded at appropriate scales and digital photographs were taken of all relevant features and deposits.

Environmental samples were taken from appropriate contexts for flotation.

Site conditions were mostly dry and access was good. There were standing trees on parts of the area which made machine access and trench placing difficult at times. All trenches had modern roots within topsoil and subsoil, and Trenches 2 and 3 had fairly intense root intrusion into the archaeological features beneath.

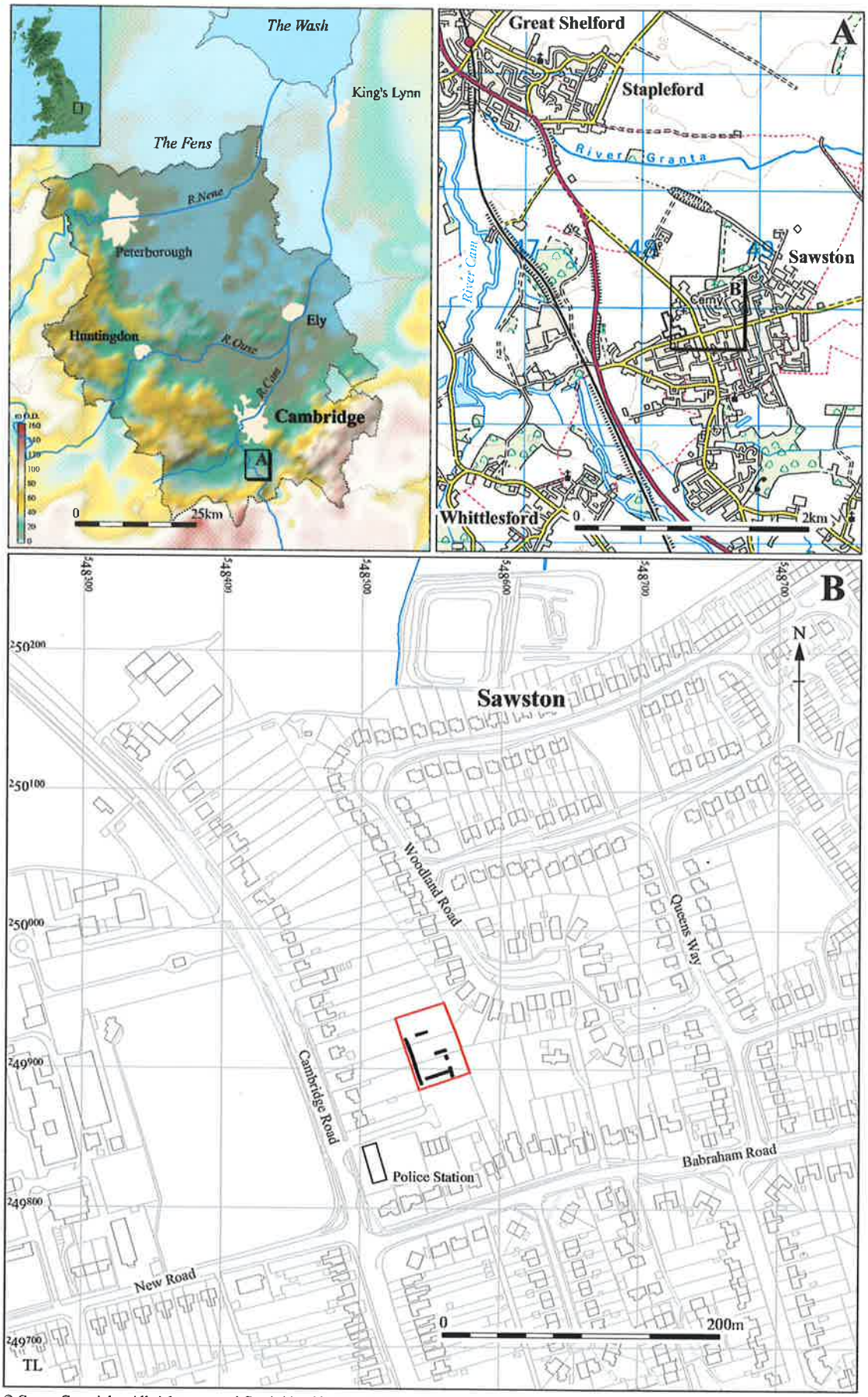

Figure 1: Site location showing position of trenches (black) and development area (red)

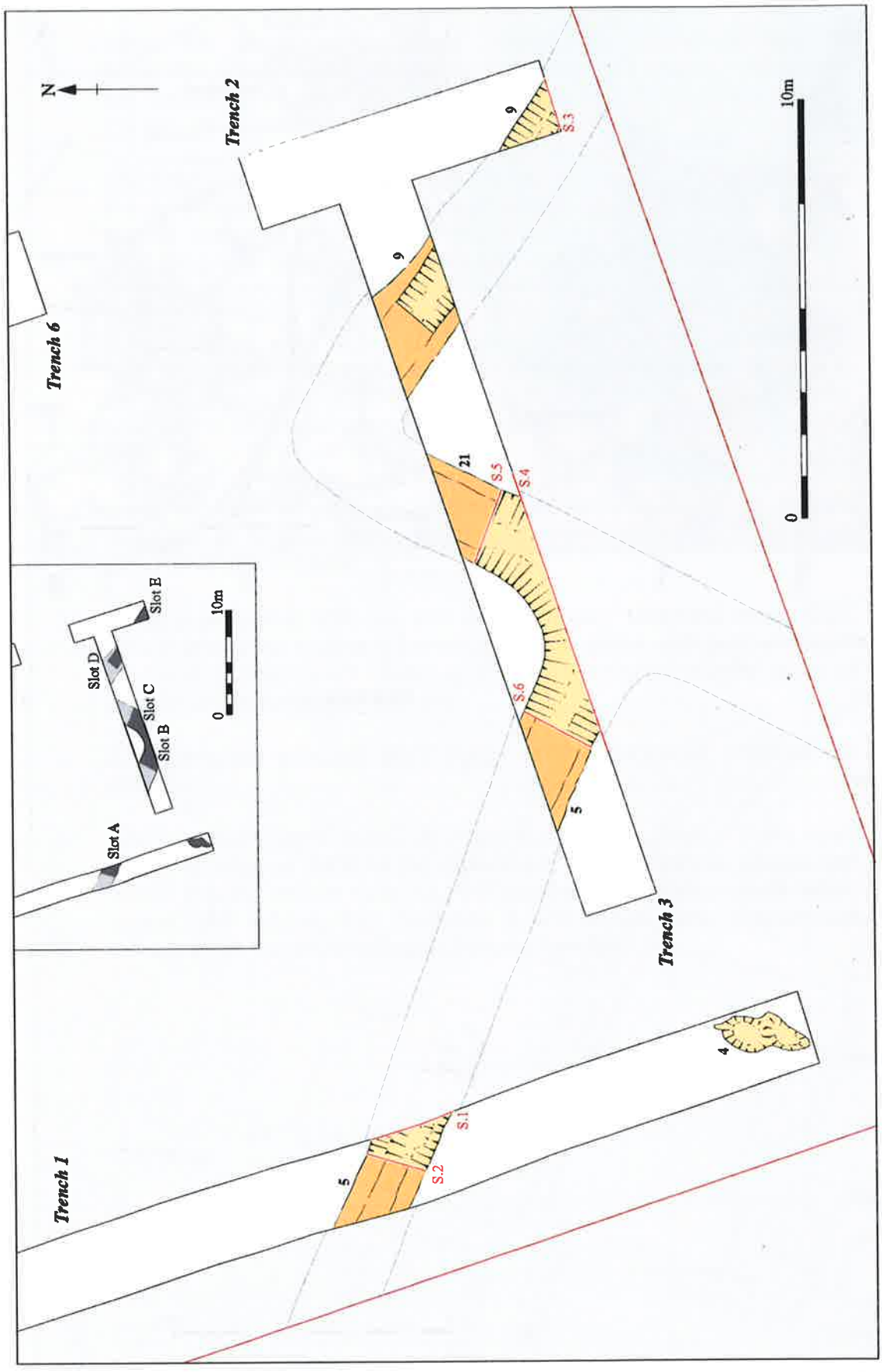

Figure 2: Trench plan

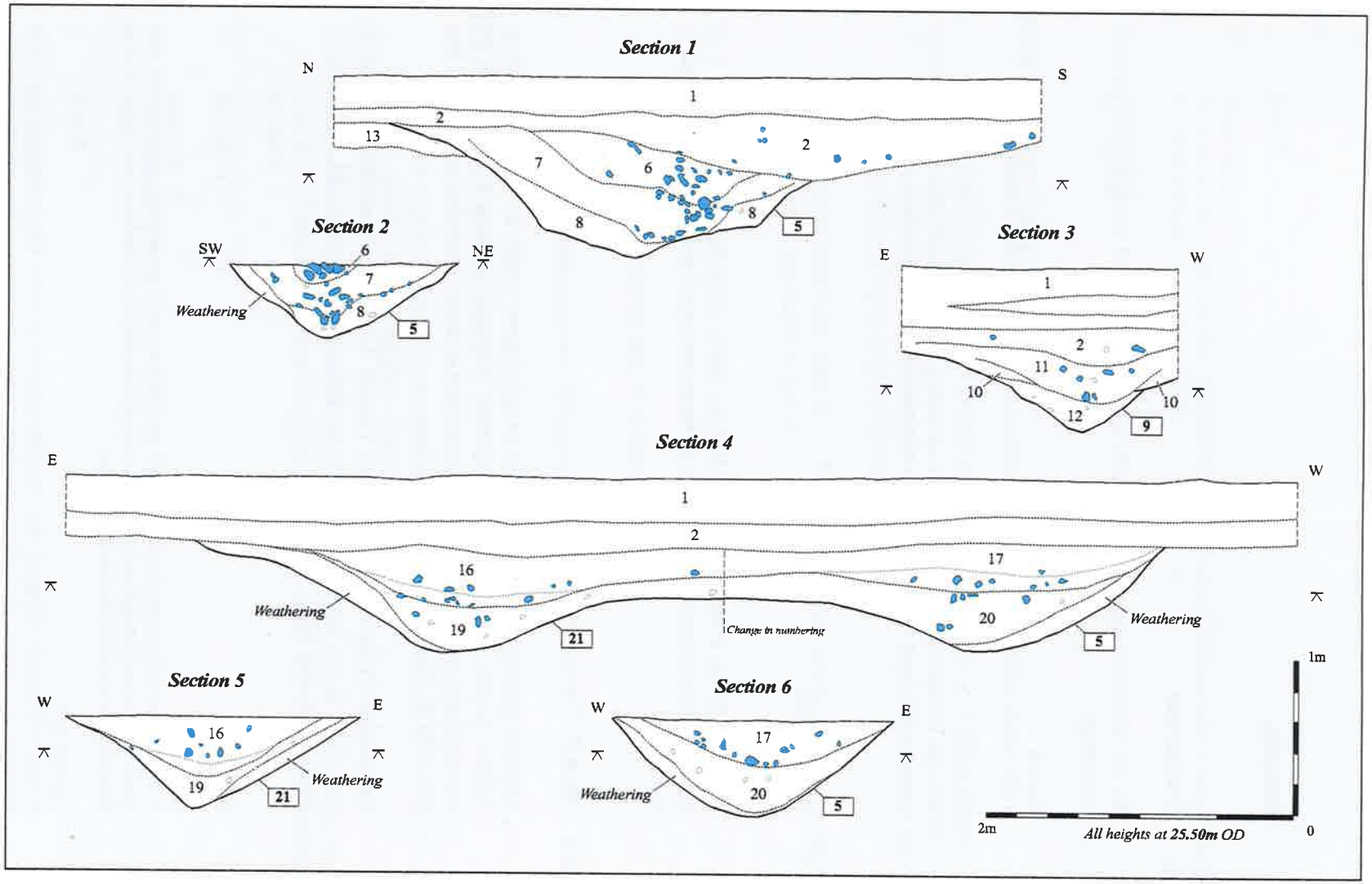

Figure 3: Section drawings

5 Results

5.1 Overburden

All six trenches exhibited broadly similar depths of topsoil and subsoil coverage.

Topsoil 1
0.25m deep, a dark brown silty loam with small gravel and chalk inclusions.

Subsoil 2
Average 0.15m deep but deeper where infilling ditch hollows. A pale brown, fairly compact silty loam with occasional small gravel and chalk inclusions.

5.2 The Ditches

Parts of three interconnected ditches were recorded in Trenches 1, 2 and 3. No archaeological finds or features were evident in Trenches 4, 5 or 6.

5.2.1 Ditch 5 Trenches 1 and 3

Aligned approximately northwest to southeast, width to 1.85m, depth to 0.85m, profile a wide slightly rounded V-shape. Where it joins ditch **21** the northern edge of the ditch describes a clear, rounded curve and the fills of both ditches were continuous.

Excavated in two slots, Slot A in Trench 1(see Fig.3: sections 1 and 2) and Slot B in Trench 3 where continuous with ditch **21** (see Fig.3: sections 4 and 6).

Slot A

Upper fill 6
A mid brown silty loam, fairly compact and friable, with occasional small gravel and chalk inclusions throughout and a dense accumulation of medium and large coarse flint cobbles towards the southern side.

Central fill 7
A pale-mid brown, compact clay silt with occasional chalk fragments and the same dense accumulation of medium and large coarse flint cobbles towards the southern side.

Lower fill 8
A pale creamy brown compact clay silt with chalk fragments.

Slot B

Upper fill 17
As 6 above but with the flint nodules throughout and combined with a large struck flint assemblage. See Plates 3 – 5.

Lower fill 20
As 8 above.

5.2.2 *Ditch 21* Trench 3

Aligned approximately northeast to southwest, width to 1.90m, depth to 0.70m, profile a wide V-shape. Trench 6 was placed to ascertain whether this ditch continued to the northeast: it did not, and must therefore form a right-angled corner with ditch **9**.

Excavated in one slot, Slot C in Trench 3 where continuous with ditch **21** (see Fig.3: sections 4 and 5).

Slot C

Upper fill 16
Same as, and continuous with, 17 above.

Lower fill 19
Same as, and continuous with, 20 above.

5.2.3 *Ditch 9* Trenches 2 and 3

Aligned approximately northwest to southeast, width to 2.00m, depth to 0.60m, profile a wide slightly rounded V-shape.

Excavated in two slots, Slot E in Trench 2 (see Fig.3: section 3) and Slot D in Trench 3 where only the upper fills were removed (no section shown).

Slot D

Upper fill 15
As 17 above.

Slot E

Upper fill 11
As 17 above.

Lower fills 10 and 12
As 8 above.

5.3 Tree Throw

An amorphous, shallow double-oval feature (**4**), length 2.00m, width to maximum 0.90m, depth to 0.15m. Fill 3, a compact pale grey-brown clay silt with occasional chalk fragments and small gravel.

5.4 The Finds

5.4.1 Struck Flint (see Appendix 1)

A total of 740 struck flints were recovered from the five excavated slots. The bulk of the material had been deliberately dumped into the enclosure ditches after they had substantially silted-up, and had the effect of sealing them - 98.4% of the assemblage was recovered from the upper fills.

The assemblage consisted of a crude and opportunistically produced flake and core tool industry, typical of those of the later 2nd and early 1st millennia BC. Within the assemblage were a very small number of earlier, recorticated pieces – 23 in all – of the Mesolithic or earlier Neolithic, and representing a general background scatter of residual material.

The material is concentrated in Slots B, C and D (Fig.5) and in that sense appears much more localised than the un-struck flint (see below) which, while not catalogued, was seen in quantity within all five slots. Plates 3 – 5 show the entire struck and un-struck assemblage from context 17, Slot B.

	Slot A	Slot B	Slot C	Slot D	Slot E
Upper Fill	2	250	294	167	15
Lower Fill		5	1	Unex.	6

Table 1: Numbers of struck flints by context

5.4.2 Un-struck Flint

All five slots contained very large quantities of un-struck, natural flint nodules and cobbles, almost overwhelmingly within their upper fills. These were collected during excavation as a comparison to the quantity of struck flint, but were then discarded on site. In Slots B, C and D the ratio of un-struck flint to struck flint was something in the region of 2:1 (by number) or 3:1 (by weight); in Slot A the ratio would have been many hundreds to one.

The un-struck flint may originally have derived from two main sources. In appearance some of the material looked relatively fresh while some appeared more weathered. Much of it was chipped and fractured other than by human hand. The material was, prior to deposition in the ditches, almost certainly within a nearby heap – it would be difficult to see this number of nodules either having been transported individually to this location, or having weathered in naturally from ditch sides or banks. The initial flint heap must have been fairly extensive and could have been constructed either through clearance of the enclosures or spaces between the ditches (a clearance cairn) or through collection of material unearthed during the excavation of the ditches themselves. The mixed, fresh and weathered appearance of the material may suggest a combination of the two – the inclusion of lumps of burnt flint and fragments of broken quern stone within the assemblage tends to suggest that at least some of the material was collected in clearance.

5.4.3 *Burnt Flint (see Appendix 1)*

Small numbers of burnt flint fragments were recovered from four of the five slots (Slots B – E). The assemblage is made up, for the most part, of large pieces of flint (up to 500g), despite being heavily fired. The size of the pieces, along with the lack of other evidence of *in situ* or nearby burning (charcoal, burnt chalk, fired clay) may suggest that these pieces were collected elsewhere and brought to this location, perhaps as part of the general field clearance.

	Slot A	Slot B	Slot C	Slot D	Slot E
Upper Fill		20 (1525g)	25 (1660g)	23 (810g)	6 (240g)
Lower Fill				Unex.	1 (37g)

Table 2: Number and weight (grams) of burnt flint by context

5.4.4 *Querns (see Appendix 1)*

Two fragments from red sandstone saddle querns were recovered:

Slot B – 51g
Slot D – 200g

These are small fragments, both with one worn surface, and they do not appear to have suffered particularly fresh breaks. It is likely that they, like the burnt flints, have been collected from a wider area and brought to this location for deposition.

5.4.5 *Pottery (see Appendix 2)*

A very small pottery assemblage of 10 sherds was recovered from the features. Three of the slots produced pottery, Slots B, C and E, but in very low numbers although most of the sherds were in fairly good condition. The average sherd weight for this assemblage is only 4.6g. Such a small quantity of material would not suggest any direct settlement activity in the immediate vicinity, nor does it suggest that vessels were being brought to this location for use or deposition – this quantity of material is more likely to be part of a general background scatter of material, and could be of quite a wide date range, perhaps covering periods both before and after the main flint deposition.

	Slot A	Slot B	Slot C	Slot D	Slot E
Upper Fill		4 (27g)	4 (13g)		2 6g)
Lower Fill				Unex.	

Table 3: Numbers and weight (grams) of pottery sherds by context

5.4.6 *Animal Bone (see Appendix 3)*

Two elements are immediately striking about the faunal assemblage from the ditches; the number of species represented in such a small sample (7 species in 46 identifiable bones) and the prevalence of deer bone (principally red deer). The make-up of the assemblage is approximately half domestic and half wild animal and comprises, cattle, sheep, pig, horse, dog, red and roe deer.

While bone was recovered from all of the slots there is perhaps a slight bias towards the area around Slots C and D. However, the condition of much of the bone is poor and localised variations in soil conditions could have severely affected survival rates among the bone assemblage rendering any density variation meaningless.

A single bone was sent for Carbon 14 dating, a large Red Deer vertebra from Slot A chosen for it's size and surviving bone density. The calibrated date is 1450 – 1260 BC at 95.4% probability, or 1350 BC $\pm$ 100 years (see Appendix 4).

	Slot A	Slot B	Slot C	Slot D	Slot E
Upper Fill	Red - 1	Red – 6 Ca – 2	Red - 7 Ca – 5 Dog – 1 Horse - 1	Ca – 10 Pig – 4 Sh/gt – 2 Roe - 1	Red – 2 Dog – 2 Ca - 1
Lower Fill		Red - 1		Unex.	

Table 4: Numbers of identifiable bones by context

(Red = Red Deer; Roe = Roe Deer; Ca = Cattle; Sh/gt = Sheep/Goat)

5.4.7 *Plant Macrofossils (see Appendix 5)*

Four bulk samples for environmental analysis were taken from Slots B, C and D, two from upper and two from lower fills. The results were very poor, the samples containing very low levels of charred grain and only a single weed seed. There was also clear evidence for the intrusion of modern seeds via the roots and rootlets of the standing trees above.

Figure 4: Trench plan with CAU excavation and ditch alignments

6 Discussion and Dating

Parts of the prehistoric enclosure system were initially recorded and excavated in 2003 (see Fig. 4) and, due to a near-complete lack of contemporary finds material, and the presence of parallel, sealing gravel surfaces, were misinterpreted as being of Early Roman origin. Though there was no clear dating evidence, some of the finds assemblages recovered from the ditches during those excavations are relevant to the current site. Significant numbers of animal bones were found within the upper fills of some of the excavated slots to the west and north of those excavations. The upper fill of the excavated feature closest to the current site contained significant quantities of un-struck flint nodules. A quantity of burnt flint was also recovered from a buried soil within a trench at the east of the site and a number (16 sherds) of later Bronze Age (or Early Iron Age) pottery came from a trench at the far southwest.

In the current excavations there was, as in the more extensive earlier excavations, very little dating evidence for the construction phase of the ditches, or for their main period of 'use'. Nowhere were any of the ditches seen to be cutting, or truncating, earlier features or datable buried soils. The few datable flints within the lower ditch fills are Mesolithic/Early Neolithic and are general background residual material. However, field systems or large enclosures on this scale in the region, and of this clearly early date, would generally be of the Middle or Late Bronze Age.

Dating for the infilling of the ditches derives from three of the finds assemblages. The largest of the assemblages, the struck flint, can only be very broadly dated to the later 2nd or early 1st millennium BC – perhaps between 1500 and 800 BC. The pottery assemblage is small and as such not definitively datable. However, the sherds are in reasonably good condition and appear to fit into the latter part of the 2nd millennium BC and to belong to both the Middle Bronze Age Deverel-Rimbury and Late Bronze Age Post Deverel-Rimbury traditions – again broadly 1500 – 800 BC. The only absolute dating available is a single C14 date which, while clearly an excellent guide, is only a single date and therefore should be treated with a degree of caution. The calibrated date, on a large red deer vertebra from the upper fill of Slot A, is 1450 – 1260 BC at 95.4% probability, or 1350 BC $\pm$ 100 years.

Taken together, the three datable assemblages would indicate that the infilling of the ditches occurred during the second half of the 2nd millennium BC, securely Middle Bronze Age. However, while ditches may take a considerable length of time to become infilled naturally, a large part of the backfilling of these features came about by deliberate

deposition and this may well have taken no more than years, days or even hours.

The way this more rapid infilling came about is unclear, though what evidence there is suggests that the material may have been moved into the upper parts of the ditches from a heap or heaps nearby. Excavations immediately to the south did not encounter any quantity of contemporary struck flint, nor contemporary pottery within the ditches themselves. When combined, the results from the two excavations do not indicate that there was, at any time, direct settlement occupation within the enclosure. While there was bone in quantity in some of the excavated slots, it was only in the upper part of the fills, and nowhere was it associated with any other settlement debris. The one slot in the earlier excavation that contained a significant quantity of un-struck flint was the closest one to the current excavations. This may suggest that the (secondary) source of this material may have lain between these two areas, in the northwestern part of the enclosure (see Fig. 5).

Any above-ground feature, such as a mound, would have been completely removed by subsequent ploughing – the area of the site lies within both the medieval and post-medieval ploughland of the village. Along the roadside at the west of the earlier excavation the ditches, and the later metalled surfaces that sealed them, were well-preserved by the build-up of a deep medieval headland that runs parallel to (and beneath) the modern Cambridge Road. The protective cover of this headland extends perhaps 20m from the eastern side of the modern road and beyond this medieval and post-medieval/modern ploughing has truncated the underlying archaeology, and natural subsoil, quite heavily. The height at the base of the ditches across the two excavations is very consistent – at the southwest of the enclosure they range from 25.20 – 25.40m OD and at the northeast from 25.00 – 25.20m. However, the surviving depths of the ditches ranges from 1.00 – 1.25m at the west to 0.60 – 0.85m at the east. This would suggest that approximately 0.40m of the top of the ditches, and of contemporary soil levels and features, has been lost to plough truncation. At the west, where sealed beneath the headland, there were not only Roman surfaces and features surviving but other, slighter ditches, sealed by the surfaces, that ran parallel to, and superseded, the main enclosure ditches. These higher features may have been broadly contemporary with the later phases of whatever occupation there was within the larger enclosures.

The hypothesis is that the northeastern corner of the enclosure contained within it a large mound of flint nodules, subsequently removed by ploughing. This mound would have been formed partly by material extracted from the excavation of the ditches themselves and partly from subsequent field clearance within the enclosure itself. This latter would therefore suggest that the area either within the enclosure, or immediately beyond it was, at least periodically, subject to ploughing. Within this mound of flint were occasional earlier pieces of

cultural material picked up during the clearance – as evidenced by the burnt flint and quern fragments. Earlier occupation of the area is attested to by the Mesolithic-Neolithic element within the flint assemblage. This mound could have served both practical and territorial or ritual/ceremonial purposes, as a dump of unwanted stone, as a store of raw material for flintworking, or as a beacon or boundary marker along the edge of the field system. The site is located on the top of a ridge overlooking a wide river valley to the north, beyond which are the Gog-Magog Hills.

When the un-struck flint nodules from the mound were dumped into the ditches they were accompanied by very large amounts of fairly roughly worked flint. Many thousands of struck pieces had been dumped into the ditches. From the excavated sections alone 740 pieces of struck flint, weighing over 40kg, were recovered and it is estimated that only a maximum of *c.* 16% of the dump was excavated. The minimum quantity of struck flint present would therefore be approximately 5000 pieces weighing some 250kg, and this in an area where perhaps 0.40m of ditch fill, and the accompanying finds assemblage, has been plough-truncated.

The struck flint had clearly been manufactured elsewhere, although not necessarily very far away, and had been dumped into the enclosure ditch, soon after manufacture. The assemblage was excavated very carefully and there was almost no small debitage within it (see Plates 3-5). In addition, there was little evidence that very much of it had been used. Very few retouched or obviously utilized pieces were present and, even by later Bronze Age standards, the assemblage was crudely produced, consisting of little more than nodules that had been randomly struck a few times.

It is possible that the material had been produced over a broad period of time, with successive visits being made to the flint mound, nodules being selected, taken to one side, worked, used and then discarded either directly into the ditches or back onto the mound. What evidence there is, however, suggests that it is equally possible that this could have occurred in a single episode and it may be that the act of flintworking itself, or the subsequent act of deposition, was considered as important as the production of the implements themselves. This aspect of the deposition is dealt with more thoroughly in the lithics report in Appendix 1.

If the assemblage was the result of successive visits, being produced for purely practical purposes, it could have accumulated over many decades. The only other significant finds assemblage is the faunal remains and it is tempting to link the assemblages together in a functional way. The faunal assemblage is indicative of general butchery and/or industrial waste and almost half the assemblage (the red and roe deer) would have been the result of hunting. Cattle formed by far the largest part of the domestic assemblage, but it appears likely

that they were kept elsewhere, along with any juvenile animals (see Appendix 3). It is possible that both hunted animals, perhaps from woods in the river valley below, and domestic animals from the surrounding fields and enclosures were brought to this location for slaughter and butchery.

It is unclear whether the struck flint assemblage was produced over time, and for purely practical reasons, or more rapidly and for possible ritual reasons. However, the act of its deposition into the enclosure ditches, along with massive quantities of un-struck flint, would appear to have had other than a purely functional purpose.

7 Conclusions

These ditches form part of a much wider field system that can be seen, by excavation and aerial photography, to extend for at least 2.5km, west to east, through the parish of Sawston.

Two further groups of enclosures, separate from those at the current site, have been identified at present. All are broadly rectangular, aligned on the same approximate northwest to southeast (or northeast to southwest) axis and the individual enclosures within the groups vary in size from 65 to 90m long and 45 to 60m wide. In the first group there are at least two enclosures visible by geophysics and partial excavation beneath the Iron Age Hillfort at The Borough, on the eastern bank of the Cam (Samuels 2001). The second group, at the Police Station site, includes a further cropmark 190m to the east (HER 09743) and is approximately 1300m to the east of Borough Hill. A third group lies approximately 400m southeast of this and consists of four or five cropmark enclosures (HER 04118) and an enclosure recently excavated by Archaeological Solutions (Williamson pers. comm.).

Possible further elements of this system have been excavated recently at Rickett Field, Great Abington a further 3km to the east (Brudenell 2004) and there are many other cropmark enclosures across the parishes to both north and south (in Babraham, Pampisford, Abington, Stapleford and Great Shelford) that lie on the same alignment and that could form part of an even wider system.

The apparently deliberate deposition of very large quantities of struck and un-struck flint into the upper fills of Middle Bronze Age monuments and enclosure ditches is becoming increasingly recognised. Three sites have now been recognised within 4km of each other, all of them lying along the southern side of the Granta Valley.

At Bourn Bridge, Pampisford around 3km to the east of the Police Station site, nearly 500 pieces of Late Bronze Age worked flint had been collected and dumped into a small ring-ditch (Pollard 1998). At Rickett Field, Great Abington, a kilometre further to the southeast, a

recut section of an enclosure ditch contained over 3000 struck flints, the material being very similar to that excavated at the Police Station.

A full discussion of the flint deposition, its parallels and its possible meanings, follows in Appendix 1 below.

Figure 5: Distribution of finds assemblages

Plate 1: Section 1, Slot A

Plate 2: Junction of ditches 5 and 21, Slots B and C

Plate 3: Context 17, Slot B: flakes and chips

Plate 4: Context 17, Slot B: cores, core tool and chunks

Plate 5: Context 17, Slot B: un-struck flint nodules

Acknowledgements

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Appendix 1: Lithics

By Barry John Bishop

1 Introduction

This report concerns the lithic material recovered during excavations at Sawston Police Station. This consisted of burnt stone, struck flint and probable quern fragments which, with the exception of a few earlier struck flints that had probably been residually deposited, had been dumped into the top of a largely silted-up ditch. The ditch has been dated by its contained pottery to the Middle or Late Bronze Age, a date commensurate with the technological style of the struck flint.

This report attempts two objectives. The first is to describe the technological aspects of a flintworking technology practiced towards the very end of structured flintworking, during the late 2nd or early 1st millennium BC. The second is to discuss the social implications of specific types of flintworking during this period, and the significance that this flintworking may have had to those practicing and witnessing it.

2 Quantification

	Upper Fills					Lower Fills		
Context	**6**	**17**	**16**	**15**	**11**	**20**	**19**	**10**
Slot	**A**	**B**	**C**	**D**	**E**	**B**	**C**	**E**
Concoidal Chunk		68	65	48	2			1
Core		40	35	35 (1)	3			
Core Tool		9	9	5	2			
Retouched		1	2					
Flake	-2	105 (7)	161 (5)	61 (3)	6 (2)	3 (2)	-1	5
Chip		20	17	14				
Total Struck	**2**	**250**	**294**	**167**	**15**	**5**	**1**	**6**
Burnt Flint (No.)		20	25	23	6			1
Burnt Flint (Wt.)		1525g	1660g	810g	240g			37g
Quern Frags (No.)		1		1				
Quern (Wt.)		51g		230g				

Table 5: Quantification of lithic material by context (NB recorticate struck flint shown in brackets)

The material all originates from a ditch complex that formed part of a field system or enclosure, excavated in several separate sections. The bulk of the material, some 740 struck pieces, 4235g of burnt flint and both quern fragments, were recovered from the upper fills, with a small quantity of struck flint and burnt flint recovered from the lower fill. The assemblage was contained within a relatively short section of the overall enclosure and appeared to represent a discrete series of dumps within that particular section, although the limits of this dumping were not precisely defined.

3 Burnt Stone

With exception of one fragment of quartzite, all of the burnt stone consisted of flint with similar characteristics as the flint nodules found in the underlying geology. It had been consistently and severely burnt and many of the fragments were large, weighing up to 500g, indicating that it may have been deliberately selected and heated. It may have functioned as 'potboilers' and used for cooking (Hedges 1974-5) although other purposes have been posited (Barfield and Hodder 1987; Barfield 1991). Despite the severe shattering observed there were relatively few smaller pieces present which, combined with an absence of charcoal or evidence of *in situ* burning, suggests that the fragments had been collected up from elsewhere and dumped into the ditches. In addition to the unmodified burnt fragments, a small quantity of burnt struck pieces was also present.

4 The Struck Assemblage

4.1 Size

The excavations produced a large assemblage of struck and burnt flint. It was estimated that around of 16% of the flintworking dump was excavated, although due to the limits of excavation it is uncertain how far the dump extended along the ditch, and this estimate should be regarded as a minimum. If the figure of 16% is not too far off then in that single dump alone over 26kg of burnt flint and nearly 5000 struck flints may have been present, and it is not inconceivable that further dumps were placed along other stretches of the enclosure's ditch.

4.2 Raw Materials

The struck assemblage utilized nodular shaped cobbles with a thick weathered cortex but which had thermally shattered into smallish angular chunks with heavily recorticated thermal plains. The flint was translucent brown or black with frequent opaque inclusions. It would have been of good knapping quality but its potential for reduction was severely limited by thermal flawing. The raw materials were identical to the angular flint 'rubble' found in the underlying deposits, consisting of glacially mass-weathered flint-rich chalk, from which it almost certainly derived.

Many of the pieces recovered from the ditches also displayed much fresher, unrecorticated thermal scars, which it is thought were likely to have occurred through mechanical damage to the cobbles during extraction and movement from sub-surface excavation, such as through the digging of the ditches, although it is also possible that some of these may represent pieces that were deliberately struck but abandoned due to their shattering.

4.3 Condition

The bulk of the struck flint was in sharp condition with only occasional milky surfaces. A small component, consisting of 22 flakes and a core, was more heavily abraded and had completely recorticated. Many of the pieces were covered with a hard calcareous concretion, akin to limescale, caused by precipitation of calcium compounds after deposition.

5 Earlier Material

The fully recorticated material consisted of a core and a number of flakes representing narrow flake and blade industry, dateable on technological grounds to the Mesolithic or Early Neolithic. Findspots of similarly dated material is not uncommon in the area; the majority of sites so far identified are confined to the lower lying river margins (eg Reynolds and Kaner 2000). The location of this site, however, on a high chalk ridge affording extensive views along the rivers Cam and Granta and overlooking their confluence, would have held obvious attractions for early populations.

6 Later Material

6.1 Technology and Typology

The raw materials were immediately available, perhaps even from the original excavation of the ditches, but were mostly badly thermally affected. There appears to have been little attempt at consciously seeking out pieces of better knapping quality, instead the pieces were simply picked up and struck.

The technological strategy consisted of maximising the use of the limited qualities of the raw material, geared towards immediate use rather than curation, employing an ad-hoc and expedient approach to obtain serviceable edges, either from broad thick flakes or on the 'cores' themselves.

The technological strategy followed was crude and opportunistic. It consisted of a simple core and flake industry based on the fortuitous production of suitable working edges on flakes or occasionally on the cores themselves, and with few attempts at producing either standardized flakes or secondarily working the edges. The unrecorticated assemblage was divided into cores, flakes, possible core-tools and concoidal chunks.

6.2 Cores

The cores were classified as those pieces of raw material that had two or more flakes removed, with clear negative flake scars and striking platforms. They consisted of thermally shattered angular chunks, mostly quite blocky in shape but with a number of relatively long and thin nodules also used. They varied considerably in size, the smallest weighing only 17g whilst the largest weighed 775g. All had been very opportunistically reduced, with no evidence for any attempts at shaping the core or platform preparation, either before or during reduction. Many had multiple incipient Hertzian cones indicating frequent failed attempts at flake removal, and there appears to have been little regard for factors such as the need for suitable angled platforms, instead the cores were more or less randomly struck with flakes only being detached fortuitously. Most had been only minimally reduced, the average number of successfully detached flakes being six, and only 25 of the 108 cores identified had ten or more removals. The striking platforms used mostly consisted of either thermal scars or previously removed flake scars, frequently utilizing a form of keeling and a few of the longer and thinner nodules appeared to have been 'snapped' in half, and the resultant fracture scar utilized as a platform. A few had 'battered' platform edges, which in some instances may have accrued

through repeated failed attempts at reduction, but as these often occurred on 'keeled' platforms or those where the edge would have been suitable for rough chopping, may indicate that some cores were subsequently reused as tools, blurring the distinction between some of cores, especially the minimally reduced ones, and the core-tools.

Most of the cores were abandoned when suitable striking platform angles prevented further flaking, as evidence by the numerous incipient Hertzian cones, although many had evidently shattered through thermal faulting, as indicated by many of the concoidal chunks.

6.3 Flakes

These consist of pieces detached from cores and having both dorsal and ventral surfaces. They varied substantially in shape and size, reflecting an ad hoc approach to their production. Striking platforms were wide with an acute core-face angle (cf Martingell 1990), and only demonstrated very cursory attempts at core-face trimming with little other evidence for platform trimming, although the use of 'keeling technique' resulted in a few flakes being reminiscent of core tablets, but these were almost certainly 'incidentally' created. Many had very prominent and often wide points of percussion and some flakes exhibited Hertzian cones from earlier, failed, attempts at detaching the flake.

Perhaps somewhat surprisingly, the majority of flakes had feathered distal terminations although frequent hinging was evident and many were stepped or 'overshot' caused by the core splitting after being struck. Many flakes had ventral surfaces that consisted of a combination of concoidal and thermal plains, indicating deliberate attempts at flake production but where the fracture plain had been diverted by thermal flaws within the flint.

Only three flakes displayed any indication of secondary working, none of these were formal types and consisted of a broken flake with scraper-type retouch along its broken edge, a flake with a blunted edge and a flake with denticulated retouch executed along its striking platform.

In an attempt to qualify the shape of the flakes, and following the standard works by Pitts (1978a and b), the shape distribution of all unrecorticated complete flakes over 15mm in dimension was established by dividing their breadths by lengths, and these were compared to samples from other dated assemblages as given in Pitts (1978b, 194) (Table 6). The system of measuring the flakes followed Saville (1980).

Pitts 1978, 194		Narrow blades	Blades	Narrow flakes	Flakes	Broad flakes
B/L	**<0.2**	**0.21-0.4**	**0.41-0.6**	**0.61-0.8**	**0.81-1.0**	**1.0+**
E. Meso	2	43	27	13	6.5	9
L. Meso	0.5	15.5	30.5	22	14.5	17
E. Neo	0	11	33	27.5	14.5	13
L. Neo	0	4	21.5	29	20	25.5
Chalcolithic	0	2.5	15	24	24	35
Bronze Age	0	3.5	14.5	23	23	35.5
SAWPOL 05	**0**	**0.8**	**8.8**	**20.8**	**24.4**	**45.2**

Table 6: Complete flake breadth/length ratios as recorded by Pitts (1978a and b) compared with those at Sawston

Table 6 demonstrates that the shape of the complete flakes of SAWPOL 05 are most compatible with the Bronze Age assemblages recorded by Pitts, although contrary to his initial interpretations of changing flake shapes (Pitts 1978a, 194), the tendency for flakes to become broader over times does appear to continue through the Bronze Age. Although there is little quantitative data available for comparison, the flakes were also remarkably thick. They averaged over 10mm in thickness, with an overall length:thickness ratio of only just over 3.5.

In summary, a lot of the flakes appeared to have been 'mishits', a result of the core shattering during percussion, but there were also, perhaps surprisingly given the general lack of care or concern exercised over the reduction process, a lot of flakes with perfectly useable sharp edges and, in terms of producing a lot of flakes with sharp edges, the technique should be regarded as successful.

6.4 Concoidal Chunks

These consisted of pieces of raw material that exhibited some concoidal fracture plains. They varied considerably and some may have been accidentally produced through activities such as the digging of the enclosure's ditches. Most, however, consisted of fragments of cores that had completely disintegrated during attempts at flake production, whilst others possibly represent 'testing' nodules or failed cores. Some had multiple Hertzian cones from unsuccessful attempts at removing flakes.

6.5 Core Tools

Several cores had flake removals which seem to indicate that modification of the core was the aim, rather than flake production. Differentiating these core tools from true cores is rather subjective, but the tools are those pieces whose flakes were considered too small for any effective use. Some of the core tools exhibited battered and worn

edges demonstrating that these were utilized for chopping, although some of the cores also exhibited similar damage along one of their edges, showing that although cores may have produced specifically for use as core-tools, core that had previously produced flakes were sometimes also utilized as tools. They were all rather irregular although three basic types may be discerned:

1. Cutting/chopping tools; these had a series of small flakes removed along one edge of the core, forming a linear, acute-angled edge and producing what could have functioned as a crude but sharp cutting or chopping tool.
2. Angular chunks with one steeply 'retouched' face form a denticulate-like scraping edge.
3. Crushed edge pieces: angular fragments and cores with battered protuberances or edges, caused by pounding which may have been responsible for detaching flakes. These may have been used as hammerstones or for crushing hard materials.

6.6 Chips

Only a relatively small number of chips and smaller flake fragments were present. Although the deposit was not systematically sieved, it was carefully examined and it was clear that there was a genuine paucity of smaller pieces. With an absence of core preparation and trimming fewer smaller flakes may be expected, nevertheless it was still evident that knapping had not occurred within the ditch or its immediate vicinity.

7 Discussion

A small proportion of the struck flint was of probable Mesolithic or Early Neolithic date and had presumably been residually deposited into the enclosure ditches.

The bulk of the material, comprising a large assemblage of both struck flint and burnt flint, had been deliberately dumped into the enclosure ditches after they had substantially silted-up, and had the effect of sealing them. This assemblage consisted of a crude and opportunistically produced flake and core tool industry, typical of those of the later 2nd and early 1st millennia BC and contemporary with some of the latest securely attested flintworking in Britain.

The reality and characteristics of flintworking during this time has been much discussed (Ford *et al.* 1984; Brown 1991; Herne 1991; Young and Humphrey 1999) although there has been less emphasis placed on exploring the social consequences of flintworking during its twilight years.

During this period there is little to suggest that efforts were made to produce prestigious, distinctive or aesthetically pleasing artefacts, and it is often argued that after the widespread adoption of Bronze during the second millennium BC, the role of flint in defining personal and social identity through the production and consumption of prestigious artefacts declines (eg. Ford et al. 1984; Edmonds 1995; Young and Humphrey 1999).

Flint tools continue to be manufactured for their practical roles, but there is a decline in the need to produce complex, labour-intensive artefacts or morphologically formalized tool types. In this context flint artefacts only need to provide suitable working edges and it becomes only necessary to produce implements when needed and for the specific purpose in mind. Equally, there is a corresponding decline in the formal deposition of implements, as flint tools slowly lose their ability to act as markers of status, wealth or proficiency; 'By the mid second millennium there is little evidence to suggest that stone tools were customarily selected for inclusion in acts of formal deposition, or that complex conventions surrounded their routine use and disposal' (Edmonds 1995, 177).

Such a model is largely confirmed by the archaeological record. Typical later Bronze Age assemblages are small, have a high utilization rate and present in low densities scattered within settlements or across the field-systems, representing opportunistic and short-lived knapping episodes. By and large, it would seem that when required, pieces of readily to-hand raw materials were struck with little overall strategy or proficiency until suitable edges were procured, once the task was completed the flint would be discarded with little formality.

Such a scenario does not appear to have been the case at Sawston. A large quantity of material was produced, far more than would have been required to perform a few simple tasks. In all many thousands of struck pieces were likely to have been dumped into the enclosure ditches, from the excavated sections alone over 40kg was recovered. It had been manufactured elsewhere, although not necessarily very far, and gathered and dumped into the enclosure ditch, probably soon after manufacture. In addition, there was little evidence that very much of it had been used at all, very few retouched or obviously utilized pieces were present and, even by later Bronze Age standards, the assemblage was crudely produced, consisting of little more than nodules that had been randomly struck a few times; it is even possible that it was the act of this flintworking or its deposition, was considered as important as the production of useful implements *per se*.

Although in most cases flintworking does appear to have been opportunistic, with flakes or simple implements produced in small numbers and only when needed, there are a growing number of sites comparable to Sawston, where much larger quantities of struck

material was produced and deposited, and where its manufacture may have served other than immediate functional requirements.

The assemblage from the Middle Bronze Age contexts at Grimes Graves provides perhaps the most striking example. There, vast quantities of midden material had been periodically dumped into partially infilled later Neolithic mineshafts; one shaft alone produced over 700kg of Middle Bronze Age struck flint (Saville 1981; Herne 1991). These deposits were essentially interpreted as representing the disposal of domestic debris generated from nearby settlements, although it was acknowledged that the material probably originated from a much larger and long established midden deposit which was probably situated at some distance from the mineshaft, as settlement would have been difficult in their vicinity (Longworth *et al.* 1991, 20, 62). In this light, quantities of flint produced, the circumstances surrounding the accumulation of the original massive midden and the selection and disposal of part of it within the ancient mineshaft would all appear to go beyond simple functional requirements of production and disposal.

More locally, although of much lesser scale, are the deposits of Late Bronze Age flintworking waste recorded at Bourn Bridge, around 3km to the east and close to the River Granta. Here nearly 500 pieces of worked flint had been collected and dumped into a small ring-ditch. The assemblage was described as 'industrial' in character with very few implements, and was contrasted with the ceremonial character of the ring-ditch, leading to the suggestion that the actual act of flintworking or its deposition may have had some special, ritualised, significance (Pollard 1998, 63-69).

A similar situation is apparent at Rickett Field, Great Abington, c.4.5km to east of Sawston and also overlooking the River Granta. There, a recut section of an enclosure ditch contained 'an exceptional number of worked flints'. The assemblage was characterized by irregular cores and other knapping waste, with only 1% of the examined assemblage consisting of tools. Like the Sawston assemblage, it was described as showing 'a lack of knowledge of, or concern over, the fracturing properties of flint or the morphology of the resulting removals' (Beadsmoore in Brudenell 2004). The ditch appeared to be part of an enclosure, although it its shape or what types of activities may have been conducted there remained undetermined. Nevertheless, like Sawston, the assemblage was large, totalling many thousands of pieces, and was unlikely to have accumulated from sporadic and *ad hoc* practical use of flint, instead, it may have been its production or deposition within the enclosure that was of greater significance.

Similar examples are apparent from within the region, including at Barleycroft Farm, near Needingworth, where large quantities of worked flint were recovered from the upper fills of a ring-ditch (Evans and

Knight 1996), or at Fordham, where a ritual shaft had been episodically filled with dumps of predominantly knapping waste (Mortimer 2005).

Further afield, other examples of large dumps of flintworking waste have been noted from similar contexts. At Micheldever Wood in Hampshire, an assemblage of over 13,000 later Bronze Age struck flints were recorded covering an earlier barrow (Fasham and Ross 1978). The assemblage appeared to be manufactured from flint nodules incorporated within the earlier mound although it was uncertain if knapping had occurred on the barrow mound or whether it accumulated from a series of dumps, either way the material did not extend beyond the confines of the barrow's ditches (*ibid.*, 61-63). It was described as 'industrial', consisting almost entirely of 'waste' pieces with few implements present (*ibid.*, 52).

At East Northdown, on the Isle of Thanet, an assemblage of nearly 3,000 Late Bronze Age struck flints large assemblage had been dumped over an earlier barrow (Smith 1987), whilst at Crowlink in Sussex an enclosure that had been used for cremations from the later Neolithic and throughout the Bronze Age was sealed by a 'cairn' of 15,000 struck flints during the Late Bronze Age (Greatorex 2001). No evidence for contemporary settlement was identified nearby and it is possible that the struck flint had been purposefully produced to 'seal' the earlier ritual centre.

The deposition of large quantities of flintworking waste is not confined to funerary monuments. At Black Patch in Sussex large quantities of 'workshop waste' consisting of unused waste flakes and crude flaked nodules were dumped onto abandoned 'hut platforms', alongside much other material waste, including bronze artefacts and quernstones (Drewett 1982). Contrary to the excavator's original interpretations, this material appeared to have been deliberately deposited after the platform was abandoned, and may represent specific 'closing' activities or ceremonies involving sealing the buildings whilst they still stood using large quantities of 'rubbish' (Seager Thomas 1999). In the case of the struck flint, it is possible that this 'rubbish' may have been deliberately created specifically for the purposes of deposition (cf Needham 1993).

The picture that is emerging from across southern and eastern Britain is that in certain circumstances during the later Bronze Age quantities of struck flint of much greater magnitude than may be expected from casual use was produced. Many of the discussed assemblages have previously been interpreted as representing utilitarian deposits, the production and disposal of flintworking waste arising from the practical needs of tool use. The frequently noted association of such assemblages with earlier monuments is often explained as the expedient use of raw materials fortuitously exposed by earlier construction. In many respects these flintworking assemblages do appear utilitarian, they are not aesthetically pleasing, complexly

produced or contain obviously prestigious items. However, there are dangers of over emphasising the distinction between rational activity and ritual intent (eg Hill 1993; Brück 1999; Bradley 2003), and closer considerations of the assemblages and their deposition may demonstrate that assuming a purely functional explanation for such assemblages may be too simplified.

The sheer size of the individual assemblages would argue against production merely for everyday casual use. Even by later Bronze Age standards, the assemblages are often very crudely produced, much of it consists of little more than randomly bashed nodules, with tools either only cursorily produced or removed for use elsewhere. This is not to suggest there were no practical reasons for working so much flint, some tools are usually present, and in some cases the flintwork is found alongside quantities of other material, such as pottery, burnt flint, animal bone and charcoal which may have accumulated as middens or possibly even from activities such as feasting episodes (eg Needham 1993; McOrmish 1996; Brück 1999). In nearly all cases the deposits seem to have accumulated elsewhere and to have been specifically dumped at the site. These are often far from known settlements, where the practical use of flint would most likely be expected. Even when found within settlements, as at Black Patch, the material appears to have been dumped after the buildings had gone out of use. Instead, these deposits are most closely associated with earlier monuments; they often constitute their final fills or physically cover them.

In this sense, the act of production and deposition appears to reference the past, possibly appealing to ancestral authority over concerns such as establishing tenurial or dynastic continuity by referencing past social practices. Alternatively, the act of deposition and sealing earlier monuments could signal and explicit attempt to refute the past, consciously 'burying the past' and establishing a new order.

A concern with the past is a frequently noted feature of the later Bronze Age, an era when the entire landscape was rapidly becoming demarcated and there appears to have been a growing emphasis on concerns such as territoriality, land ownership and inheritance rights. In such circumstances, the marking of earlier centres of cultural significance with evidence of the community's presence may have become increasingly advantageous.

The material from Sawston seems typical of many of the deposits discussed here. It represents a sustained episode(s) of knapping, rather than the *ad hoc* need for suitable tools. It had been knapped elsewhere and dumped near the top of the enclosure ditch after it had substantially silted-up, presumably close to the time when the enclosure went out of use.

The deposit appears to be referencing the earlier enclosure, perhaps acting as a kind of closing deposit, designed in perhaps to signify in

some symbolic respect the demise of the enclosure that the ditches define.

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Appendix 2: Prehistoric Pottery

By Mark Knight

The assemblage comprised ten sherds of prehistoric pottery (weighing 46g) from three separate contexts. The majority of the pieces were small (MSW 4.6g) but in good condition. A single rim fragment represented the only definite feature sherd although two slightly angular pieces may have come from a slack shouldered vessel. Four different fabrics were identified and these included opening materials such as shell, crushed quartz and grog all of which can be seen as typical Bronze Age types.

Context	Slot	Number	Weight	Fabric
11	E	2	6g	4
16	C	4	13g	1, 2 & 3
17	B	4	27g	1 & 2
Totals:		*10*	*46g*	*4*

Table 7: Pottery assemblage breakdown

The rim fragment from ditch fill 17, Slot B represented the most diagnostic piece of the whole assemblage. The fragment appeared to belong to a small diameter (*c.* 0.11m), thick-walled urn with a simple rounded rim form. The rim had a crude pinched look and probably belonged to a small or stunted bucket shaped urn of the Deverel-Rimbury tradition. The other pieces of the assemblage can best be described as of generic Bronze Age type although two sherds from context 11, Slot E were thin-walled and had a burnished/wiped exterior surface that would sit best at the later end of the Bronze Age. These pieces were also probable shoulder fragments making the later Bronze Age attribution all the more likely. Overall the assemblage would appear to fit into the latter part of the 2nd millennium BC and belong to the Deverel-Rimbury and Post Deverel-Rimbury traditions.

Context 16, Slot C also produced a lump of fired clay (Fabric: hard with abundant sand and occasional small lumps of chalk) that included a

curved outer surface suggesting that it may have come from a cylindrical loom weight.

Fabric series

Fabric 1 – Medium hard (compact) with common small shell (fossil?) and possible small grog.

Fabric 2 – Medium with common small quartz and sand.

Fabric 3 – Hard with abundant small sand.

Fabric 4 – Hard with abundant medium angular grog and quartz sand.

Appendix 3: Faunal Remains

By Chris Faine

1 Introduction

The assemblage came from 6 contexts containing some 151 fragments in total, with 30.4% (46 fragments), being identifiable to species. All fills were from a series of ditches of Middle Bronze Age date. The preservation level of the sample is poor in terms of elements surviving, with the bone surfaces being quite porous and root etched, obscuring diagnostic features on some elements, and the bones themselves being somewhat fragmented. As is discussed later, this may have played a part in the formation of the sample available for study. The assemblage was assessed in terms of elements present, species, completeness (after Dobney & Reilly, 1988) and epiphyseal fusion. When applicable, tooth wear data (after Grant, 1982), and any taphonomic data i.e. butchery, gnawing etc was recorded.

2 The Contexts

The context yielding the greatest amount of bone in the sample is context 15, Slot D. In terms of species distribution the context contained a wide range of species, in relation to the small sample size, containing the remains of at least two individual cattle, two pigs, one sheep/goat and one deer (most likely roe). In terms of surviving elements the majority of cattle remains consist of phalanges and teeth, along with one fragment of rib and one of ulna from adult animals. Teeth also form the majority of the elements from other species. This however may not indicate a specific usage strategy, as teeth and more

compact elements such as phalanges survive disproportionately well even when other elements are poorly preserved and/or fragmented. Tooth wear data shows that all individuals in this context were young adults or older. In spite of the preponderance of teeth in the context, the other elements of all species show signs of butchery. This, along with the species distribution, suggests that the context represents butchery/industrial waste. However, a larger sample would help clarify the question of body part distribution and in turn shed more light on the usage of animals on the site.

Context 16, Slot C shows a slightly different range of remains from 15, both in terms of species and body part distribution. Most striking in terms of species present are the remains of at least one red deer, along with cattle, horse and dog. The range of elements (largely thoracic vertebrae and ribs), along with butchery marks, suggest butchery waste (from both domestic animals kept for meat/breeding and wild game) in a much clearer way than context 15. Tooth wear data from cattle teeth present show that the individual was at least 1 year old (i.e. young adult).

Context 17, Slot B is again dominated by red deer (at least two individuals; one juvenile), with some adult cattle also being present. Whilst post-cranial elements such as radius and scapula from both species are present, as with context 15, teeth predominate. Again tooth wear data suggests cattle in this context were mature adults. The combination of tooth eruption and wear data suggests that the adult deer was around 2½ years old and that both adult and fawn died in late summer/early autumn. This information reinforces the idea that this context also represents butchery waste from wild and domestic animals, as hunting in autumn would guarantee the largest population of adult animals. This conclusion can also be drawn from context 11, Slot E, consisting of deer teeth from an individual at least 1 ½ years of age, one cattle astragalus and dog vertebrae, although no butchery marks were found on bones from this context. Contexts 6 and 20, Slots A and B respectively, consisted of one adult red deer atlas and rib respectively.

3 Conclusion

On the whole the contexts in the assemblage are indicative of general butchery/ industrial waste, perhaps with adult animals being kept for breeding purposes. Cattle formed by far the largest part of the domestic assemblage, although it appears likely that they were kept elsewhere on the site, along with any juvenile animals. Sheep and pigs formed a much smaller part of the assemblage, with the elements found also representing butchery waste from animals kept (and possibly slaughtered), elsewhere on the site. This domestic species distribution fits well with those seen in other sites of the period, such as

from the Fordham Bypass excavations (Baxter in Mortimer 2005), although the sample bias due to preservation and fragmentation may have been a factor in this.

One of the most interesting aspects of the faunal assemblage is the prevalence of red deer remains, largely localised in contexts 16 and 17 (Slots C and B) but occurring in five out of the six contexts. Although the site appears agricultural in nature, the immediate area around the site would have provided ample opportunity for hunting wild game. Deer in particular provide many products (meat, skin, bone, antler etc), and it appears in this case whole or partially articulated animals were brought to the area and distributed for usage. The contexts here may represent disposal of skulls, feet etc, with some meat being kept for those working in the area. This idea is reinforced by the lack of domestic evidence from the immediate area, where one would expect to find the majority of more useful elements. This, along with the sampling problems already mentioned, may explain the body part distribution seen in this assemblage. To conclude, the bone from these contexts appears to represent one small aspect of a wider animal use strategy taking place in the area. However, it is not possible to make any concrete conclusions about the wider area at the time from such a limited and fragmented sample.

Context (*Total No of frags*)	**Slot**	**Cattle (*Bos*)**	**Red Deer (*Cervus elaphus*)**	**Sheep (*Ovis Aries*)**	**Pig (*Sus scrofa*)**	**Dog (*Canis*)**	**Horse (*Equus*)**	**Roe Deer (*Cervus*
15 (*17*)	D	10 (59%)	0	2 (12%)	4 (23%)	0	0	1 (6%)
16 (*14*)	C	5 (36%)	7 (50%)	0	0	1 (7%)	1 (7%)	0
17 (*8*)	B	2 (25%)	6 (75%)	0	0	0	0	0
11 (*5*)	E	1 (20%)	2 (40%)	0	0	2 (40%)	0	0
6 (*1*)	A	0	1 (100%)	0	0	0	0	0
20 (*1*)	B	0	1 (100%)	0	0	0	0	0
Total		**18**	**17**	**2**	**4**	**3**	**1**	**1**

Table 8: Species distribution by context

Species	**NISP**	**NISP%**
Cattle (*Bos*)	18	39
Red Deer (*Cervus elaphus*)	17	37
Pig (*Sus scrofa*)	4	9
Dog (*Canis*)	3	6.5
Sheep (*Ovis aries*)	2	4.5
Roe Deer (*Capreolus Capreolus*)	1	2
Horse (*Equus*)	1	2
Total	**46**	**100**

Table 9: Relative species proportions (identifiable to species)

Species	**NISP**	**NISP%**
Cattle (*Bos*)	18	72
Pig (*Sus scrofa*)	4	16
Sheep (*Ovis aries*)	2	8
Horse (*Equus*)	1	4

Table 10: Domestic species proportions

Species	Skull	Axial Skeleton/Ribs	Front Limbs	Hind Limbs
Cattle (*Bos*)	8 (44.4%)	4 (22.2%)	6 (33.30%)	0
Red Deer (*Cervus elaphus*)	6 (35.2%)	9 (52.9%)	1 (5.8%)	1 (5.8%)
Pig (*Sus scrofa*)	4 (100%)	0	0	0
Dog (*Canis*)	1 (33.3%)	2 (66.6%)	0	0
Sheep (*Ovies aries*)	1 (50%)	0	1 (50%)	0
Roe Deer (*Capreolus Capreolus*)	0	0	0	1 (100%)
Horse (*Equus*)	0	0	0	1 (100%)

Table 11: Body part distribution by species

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APPENDIX 4: CARBON 14 DATING

By Waikato University

1 Physical and Chemical Pretreatment

A red deer vertebra was cleaned and ground, and visible contaminants were removed. The sample was decalcified in 2% HCl, rinsed and dried then gelatinised at pH=3 with HCl at 90 degrees for 4 hours, rinsed and dried again.

2 Results

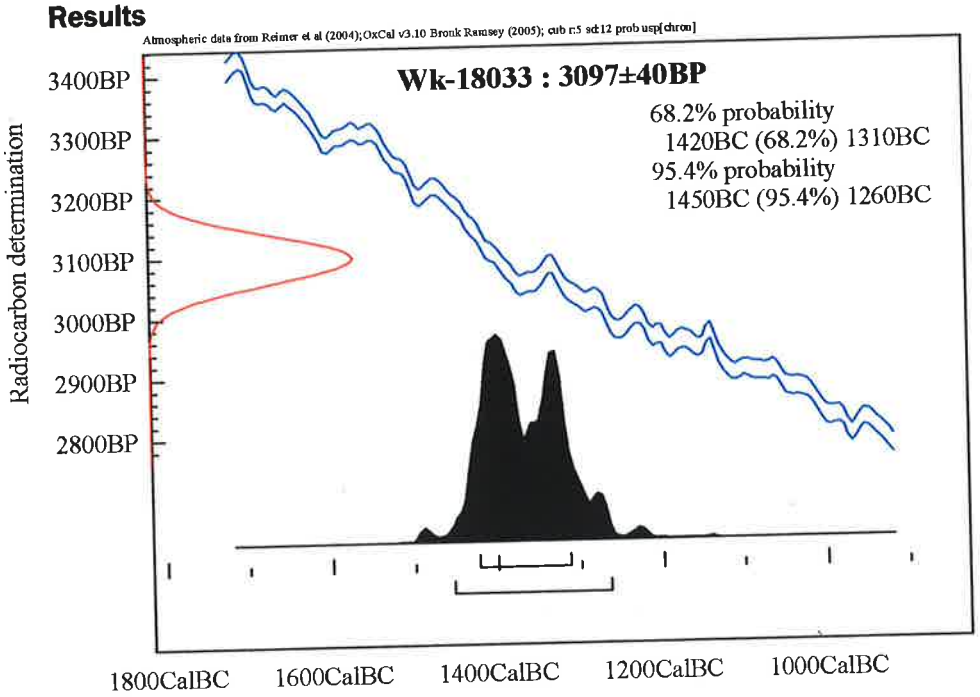

Figure 6: Carbon 14 calibration curve

Appendix 5: Environmental Appraisal

By Rachel Fosberry

1 Introduction and Methods

Four samples were taken from across the excavated area were submitted for an initial appraisal. Between twenty and thirty litres of each sample were processed by tank flotation for the recovery of charred plant remains, dating evidence and any other artefactual evidence that might be present. The flot was collected in a 0.5mm nylon mesh and the residue was washed through a 1mm sieve. Both flot and residue were allowed to air dry. Any artefacts present were noted and reintegrated with the hand-excavated finds. The flot was

examined under a binocular microscope at x16 magnification and the presence of any plant remains or other artefacts is noted in Table 12.

2 Results

Sample Number	Context Number	Cut Number	Slot	Feature Type	Sample Size (L)	Cereals	Weed Seeds	Flot comments	Large animal bones
1	17	5	B	ditch	20	+	0	nutshell fragment (Prunus sp)	+
2	15	9	D	ditch	30	+	0		+
3	19	21	C	ditch	30	+	0		+
4	20	5	B	ditch	30	+	+	Medicago/trifolium	+

Table 12: Environmental appraisal for plant macrofossils

Preservation is by charring and is poor. All the samples contain charred cereal grains in very small quantities. Sample 1 also contains a small fragment of charred nutshell (*Prunus* sp.) and Sample 4 contains a single seed of clover/medick *(Trifolium/Medicago*).

Modern contaminants in the form of rootlets and common seeds such as *Chenopodium* sp. are present in all of the samples.

3 Conclusions

The samples showed only a low abundance of charred material that is not considered worthy of further analysis.

Key to Table

+ = 1 – 10 specimens
++ = 10 – 100 specimens
+++ = 100+ specimens

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