

A MIDDLE IRON AGE SETTLEMENT AT TATTENHOE PARK, MILTON KEYNES

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Archaeological excavations at Tattenhoe Park, Milton Keynes, carried out in 2005, included most of an open settlement of the earlier middle Iron Age, radiocarbon dated to 400–200BC, with more limited activity into the 2nd and perhaps 1st centuries BC. The settlement comprised a long-lived group of principal roundhouses, surrounded by further roundhouses with some having either western entrances or western and eastern entrances, and also groups of four-post structures, some partially enclosed by small ring ditches. A substantial linear ditch formed a landscape boundary throughout, and in the later use there was a partial enclosure of the reduced settlement. The material evidence was poor, with the pottery highly fragmented and few other finds recovered, but mould fragments show copper-alloy casting had been carried out. Animal bone and charred plant remains were sparse and poorly preserved. A few larger pits and other features produced a little late Iron Age and Roman pottery, and a rectilinear field system was also of Roman origin. Some cremation deposits have been radiocarbon dated to the mid-3rd to mid-4th centuries AD, perhaps showing long-term ancestral memory of a former home.

INTRODUCTION

Archaeological excavation at Tattenhoe Park, Milton Keynes was carried out by Northamptonshire Archaeology, now MOLA (Museum of London Archaeology), between April and September 2005. The work was undertaken for EDAW on behalf of English Partnerships in accordance with a brief prepared by Milton Keynes Council (Giggins 2005).

The development site occupied 54ha of land, extending up to 1km east-west by 600m north-south, lying on the western margin of Bletchley, at the south-western corner of Milton Keynes (Fig 1: NGR SP 822 334). It is bounded to the east by VI Snelshall Street, to the north by H7 Chaffron Way, to the west by open fields, to the south by a tributary of Loughton Brook, and beyond the brook the A421, that heads west to Buckingham.

The client report was prepared by Edmund Taylor (2010): this has been edited and condensed for publication by Andy Chapman. The archive has

been deposited with Buckinghamshire Museums, Aylesbury (Accession Number 2006.14).

TOPOGRAPHY AND GEOLOGY

The Iron Age settlement lay at 122-123m aOD, on rising ground 500m to the north of Loughton Brook, which lies at 100m aOD. Loughton Brook runs north-eastwards for c.3km before turning abruptly northwards to join the river Great Ouse to the north of Milton Keynes at New Bradwell. To the west of the site the land continues to rise and 2km to the west it attains 140m aOD across Whaddon Chase, from where a number of streams flow directly northwards to join the Ouse, well to the west of Milton Keynes.

The underlying geology comprises Oxford Clay and Kellaways Beds overlain by Boulder Clay and morainic drift (<http://www.bgs.ac.uk/geoindex/index.htm>). The slowly permeable calcareous and clayey soils are of the Hanslope association (SSEW 1983). The land use was predominantly arable, with some recreational land.

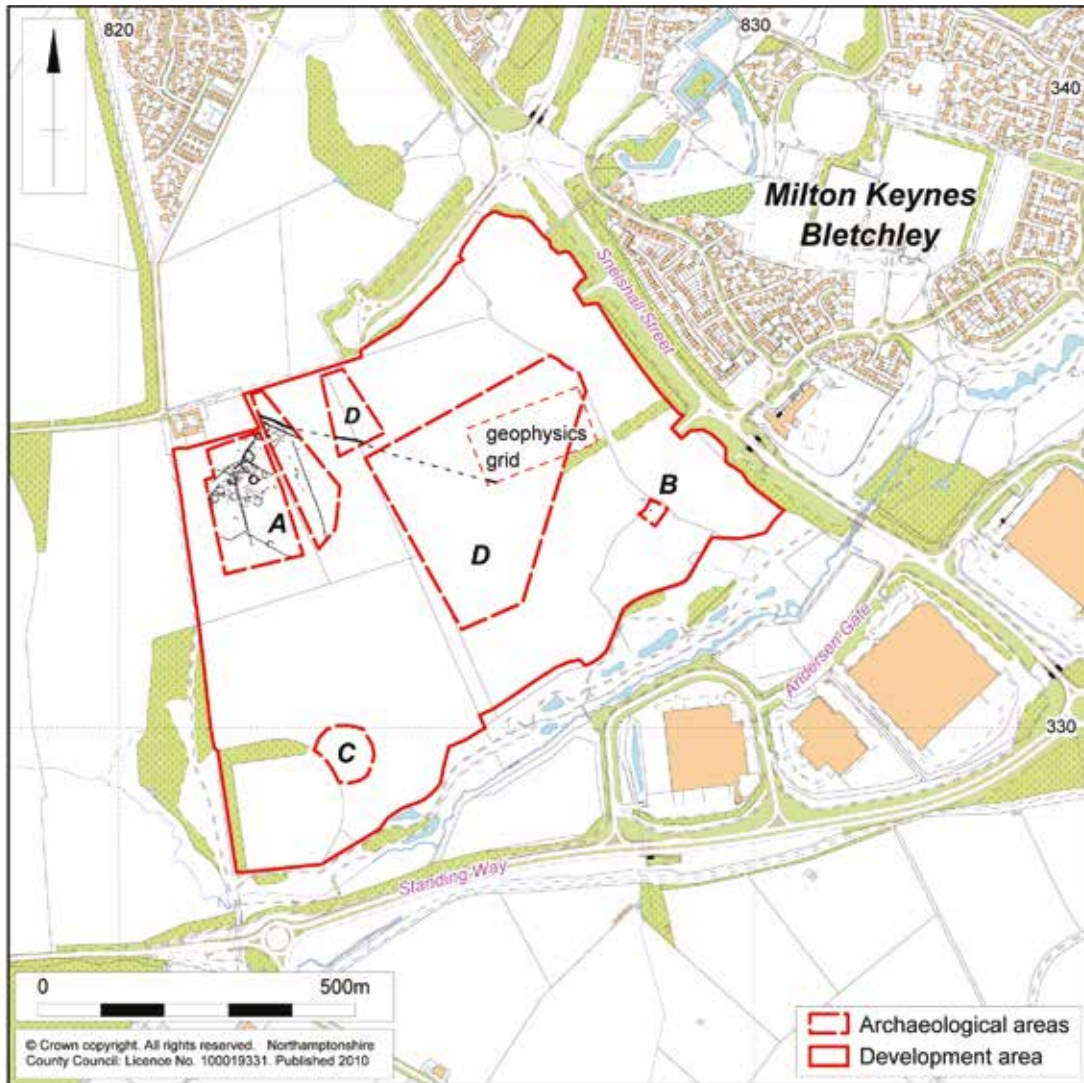


FIGURE 1 Site location, showing the development area

THE ARCHAEOLOGICAL PROGRAMME

A programme of evaluation works had been requested by Milton Keynes Council and these were undertaken by Northamptonshire Archaeology in 2005 (Brown *et al* 2005). The evaluation comprised a reconnaissance magnetic susceptibility survey to identify areas of archaeological potential, followed by several areas of detailed gradiometer survey. The geophysical survey was followed by the programme of trial trench evalu-

ation comprising 102 trenches, some 2% by area.

The evaluation identified four areas of archaeological interest (Fig 1):

- Area A: An Iron Age settlement site at Tattenhoe Bare Farm in the north-west part of the development area with some peripheral features, and occupying an area of 6ha;
- Area B: A post-medieval farmstead known as Bottle House, occupying 0.1ha in the south-east part of the development area;

Area C: Two ditches in the south-west part of the development area;

Area D: A localised scatter of features in the central part of Area D.

The middle Iron Age settlement in Area A occupied most of the field to the south of Tattenhoe Bare Farm and a portion of a field immediately to the east (Fig 1). The eastern limit of the excavation was determined by the presence of a fuel pipeline. Originally, it was intended that the north-eastern corner of this field was also to be excavated, but given the safety implications of heavy plant machinery moving across the pipeline and the expected paucity of archaeological activity in this part of the field, the area was omitted. In lieu of this, an additional area was stripped along the western extremity of the site which revealed archaeological remains not anticipated during the formation of the original strategy.

Topsoil was removed using a 360° excavator fitted with a 2.2m toothless ditching bucket, operating under archaeological supervision. Topsoil and subsoil was stripped to reveal the natural substrate. Removed soil was handled by articulated dump trucks and stacked at a safe distance from the excavation areas.

THE IRON AGE SETTLEMENT

Summary of site chronology

Phases of activity have been defined based on the sequence of stratigraphic relationships, the overall pattern of features and the radiocarbon dates.

Middle Iron Age open settlement (4th – 3rd centuries BC)

An open settlement was focused on a principal group of roundhouses, centred on RD1 and RD2, with further roundhouses to the south and south-west, and groups of four-post structures to the north-west and south.

Middle Iron Age enclosure and boundary system (4th – 3rd centuries BC)

Minor structures in the northern part of the settlement were abandoned and an open-ended rectilinear enclosure was established. A substantial linear boundary ditch marked the northern boundary of the settlement at this phase, although

it may well have been established at the first phase of settlement.

Middle to late Iron Age occupation (2nd century BC – mid-1st century BC)

New roundhouses and ring ditches appeared close to the northern boundary within the partially enclosed area, but also some of the structures to the south may have still been in use, particularly the principal roundhouse RD1. By the end of this period the settlement had been abandoned.

Late Iron Age and early Roman activity (mid-1st century BC – mid-2nd century AD)

Sparse activity comprising linear boundary ditches, scattered pits and at least two cremation burials, suggesting the area was a group of fields or paddocks over the earthworks of the Iron Age settlement.

Late Roman activity (3rd to 4th centuries)

The earlier settlement, perhaps still visible as an earthwork, was visited by the local population who occasionally interred cremated human remains at the site, often within or close to former dwellings, either by chance or through ancestral memory.

Medieval pits (10th century)

Two shallow pits were dug in the northern part of the site. The charcoal-rich fills came from oak, which may have been burnt *in situ*.

A post-medieval animal burial

In the corner of the field, parallel to the hedge which marked the modern boundary, there was a large pit which contained the articulated skeleton of a cow.

Radiocarbon dating

The chronology for the Iron Age settlement and activity during the Roman period is provided by a group of seven radiocarbon dates, along with the pottery assemblage and a single Iron Age coin. As with all sites occupied in the middle Iron Age, the ‘wobble’ in the calibration curve produces double dates at the 68% confidence level and broad, sometimes still double, date ranges, spanning as much as 300 years, at the 98% confidence level, making interpretation problematical.

However, four of the five dates lying within the Iron Age are consistent in indicating that the settle-

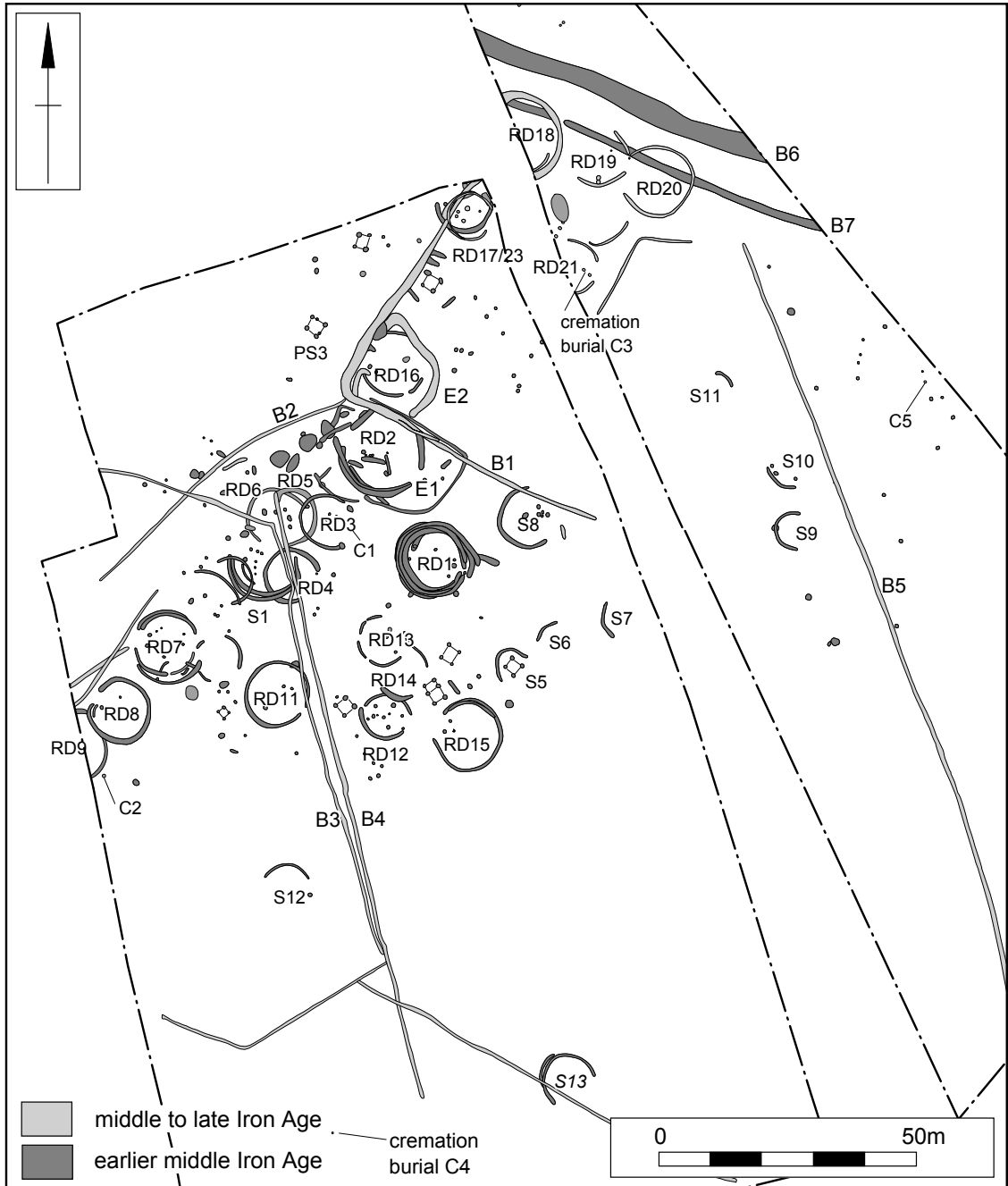
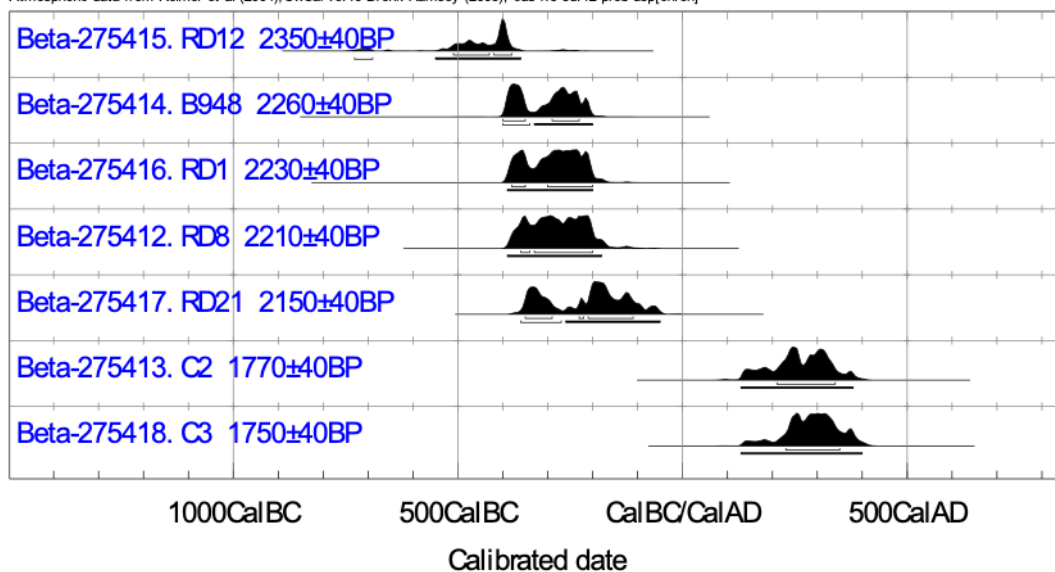


FIGURE 2 The Iron Age settlement, general plan

TABLE 1 Radiocarbon determinations

Sample/ Lab no	context/ feature/ structure	Sample type	Conventional Date (BP)	$^{13}\text{C}/^{12}\text{C}$ ratio	Calibrated date intercept 68% confidence 95% confidence
TP05/978 Beta-275415	RD12 E side, S terminal	Charcoal <i>Prunus</i> (blackthorn)	2350+/-40-	-23.6	Cal BC 400 Cal BC 410-360 Cal BC 510-380
TP05/946 Beta-275414	Western boundary ditch 948	Charcoal <i>Pomoideae</i> (hawthorn)	2260+/-40	-24.2	Cal BC 370 Cal BC 390-360 & 290-240 Cal BC 400-340 (36%) & 330-220 (60%)
TP05/1265 Beta-275416	RD1 N terminal 3rd phase	Charcoal <i>Prunus</i> (blackthorn)	2230+/-40	-24.8	Cal BC 360 & 280 & 260 Cal BC 380-340 & 320-210 Cal BC 390-190
TP05/741 Beta-275412	RD8 S terminal	Charcoal <i>Pomoideae</i> (hawthorn)	2210+/-40	-5.7	Cal BC 350 & 290 & 220 Cal BC 370-200 Cal BC 390-170
TP05/1285 Beta-275417	RD21 Ditch terminals	Charcoal <i>Pomoideae</i> (hawthorn)	2150+/-40	-24.7	Cal BC 190 Cal BC 340-320 & 210-160 Cal BC 360-280 (30%) & 260-60 (62%)
TP05/944 Beta-275413	Cremation burial C2	Charcoal <i>Pomoideae</i> (hawthorn)	1770+/-40	-25.3	Cal AD 250 Cal AD 230-260 & 280-330 Cal AD 140-380
TP05/1426 Beta-275418	Cremation burial C3	Charcoal <i>Pomoideae</i> (hawthorn)	1750+/-40	-25.7	Cal AD 260 & 300 & 310 Cal AD 240-340 Cal AD 210-390

Atmospheric data from Reimer et al (2004); OxCal v3.10 Bronk Ramsey (2005); cub r:5 sd:12 prob usp[chron]



ment was occupied through the earlier part of the middle Iron Age. A single date, from roundhouse RD12, suggests that occupation might have begun in the late 5th century BC, but the central group of dates, from a boundary ditch and roundhouses RD1 and RD8, are consistent with a period of occupation spanning the 4th and 3rd centuries BC.

The latest radiocarbon date in the Iron Age, from roundhouse RD21 towards the northern end of the site, is consistent with the site phasing, which also indicates that the northern roundhouses were later in date than those to the south, suggesting that occupation at this end of the site continued through the 2nd century BC and perhaps even as late as the mid-1st century BC. A *potin* coin, a Thurrock-type, recovered from a late phase of the principal roundhouse, RD1, would be consistent with occupation continuing at least to the late 2nd century and perhaps into the early to mid-1st century BC.

Late Iron Age pottery was recovered from a single pit in the northern part of the settlement, and small quantities of Roman pottery came from other pits and boundary ditches, not roundhouses. It would appear, therefore, that occupation of the settlement had ceased by the early to mid-1st century BC, but with some occasional activity over the following decades. This may have included the deposition of at least two cremation deposits, perhaps burials close to a former home. Further cremation deposits have been radiocarbon dated to the late Roman period, the 3rd-4th centuries AD, when the deposition at this location may have been either fortuitous or a deliberate reuse of a known ancestral home.

THE MIDDLE IRON AGE OPEN SETTLEMENT

There appears to have been no occupation on the site until an open settlement was established during the earlier middle Iron Age (Figs 2 and 3). This may have had its origins in a principal roundhouse group, RD1, RD2 and RD16, along with further structures to the immediate west, RD3, RD4, RD5 and RD6, and structures S1, S2, S3 and S4 (Fig 7) which all displayed a prolonged sequence of maintenance and replacement. There were also further roundhouses to both the south-west, RD7, RD8, RD9 and RD22, and to the south RD12, RD13, RD14 and RD15, along with other minor structures both circular and rectilinear. To the north there was perhaps little early activity, with

a single isolated roundhouse, RD17. It cannot be established whether the linear land boundary ditch to the north was a primary feature, beside which the settlement was established, or whether it was a later addition, respecting the location of an established settlement, but it is suspected that it was a primary landscape feature.

Given the generally low incidence of ring gully intercutting, other than within discrete groups, and the paucity of closely dateable pottery, it is difficult to interpret how the settlement developed during this initial phase. Analysis of the stratigraphic data and the spatial layout of the site would suggest that up to 13 of the roundhouses and 11 of the other structures could have stood at any one time. The settlement appeared to have been limited to the west by a boundary that is archaeologically invisible, possibly a hedge, which was later realised by the provision of a linear boundary ditch.

The principal house group

Two large roundhouse ring ditches, RD1 and RD2, and their less substantial ancillary buildings, roundhouse RD16 and an open-sided semi-circular structure S8, lay in the central part of the settlement (Fig 3). The ring ditches of roundhouses RD1 (Fig 4) and RD2 displayed multiple recuts suggesting a prolonged process of respect and maintenance. The ring ditches were both large and RD2 may have enclosed the largest roundhouse in the settlement, with a rectilinear ditch system, E1, forming an enclosed forecourt beyond the south-eastern entrance.

Ring ditch RD1 had an internal diameter of 15m and was defined by a sequence of four intercutting ditches (Figs 4 and 5). The earliest form comprised two arcs of gully with narrow entrances, 1.50m and 1.00m wide, at the western and the eastern sides respectively. The gullies were 0.60-0.70m wide and 0.20-0.30m deep, and although truncated by later re-cutting, the complete profiles at the terminals displayed steep sides and narrow bases. Charcoal from one of the terminals indicates that ash, hawthorn and blackthorn were used for domestic fuel. A fragment of possible saddle quern was retrieved from the western side of the earliest ring ditch. Fragments of a fired clay loom-weight were retrieved from the surviving terminal of the western entrance. Subsequent recuts maintained the eastern entrance while the opening to the west was a feature of only the primary ring ditch.



FIGURE 3 The principal roundhouses and the southern roundhouses

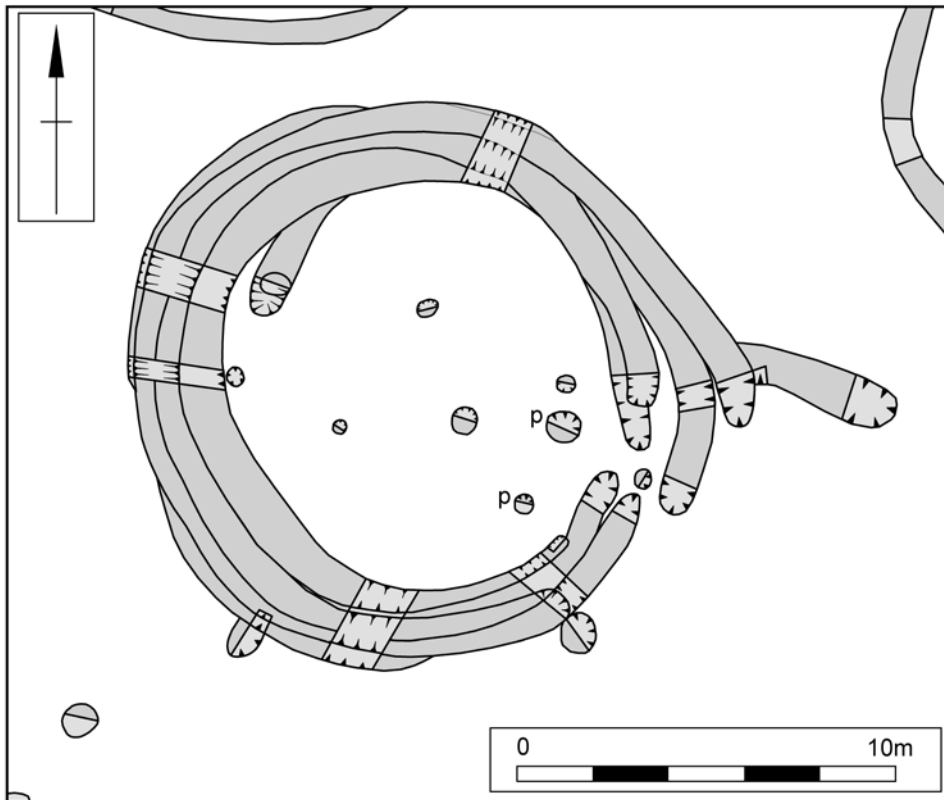


FIGURE 4 The principal roundhouse RD1

In the final recut the internal diameter of the ring ditch was 13.5-15.0m, and the eastern entrance was 3.0m wide, with the northern terminal offset to the east. The ditch was 0.15-0.30m deep, generally narrower than the earlier cuts but widening at the terminals to 0.80m, indicating that much of this circuit was allowed to silt up while the terminals were probably scoured out at regular interval. A coin, a *potin*, attributed to the Cantiaci tribe and dated to the later 2nd to early 1st century BC was retrieved from near the southern terminal of the penultimate gully.

Two internal postholes, 0.40m and 0.60m in diameter by 0.25m and 0.38m deep, probably held the posts of a doorway at least 1.7m wide. Their position suggests that the roundhouse was *c.*9.0m in diameter, with the doorposts contemporary with the penultimate recut. Two fragments from a broken saddle quern came from the northern door post, and a small posthole to the north might have

been a doorpost at a different phase of use.

The other postholes within the ring ditch formed no recognisable pattern and are likely to relate to internal structures or partitions. They were 0.30-0.70m in diameter and 0.10-0.70m deep. Two external postholes or pits along the southern margin of the ring ditch were cut by the earliest gully and the penultimate recut respectively. They were both at least 1.0m in diameter and 0.20m and 0.30m deep.

Ring ditch RD2 had an internal diameter of 15.0m, and was defined by two arcs of gully each with multiple recuts (Fig 3). There were openings a little north of west and south of east, 3.50m and 3.00m wide respectively, on an alignment similar to that of the original entrances to RD1. The primary gully on the southern side was relatively linear and 0.40-0.50m wide by 0.15-0.20m deep, with the profile varying from V-shaped to broad and flat based. There were no postholes to



FIGURE 5 Roundhouse RD1 before excavation, looking north, showing the multiple recuts around the entrance, right

denote the provision of substantial doorposts, but nine postholes towards the centre of the ring ditch may be remains of internal structures or partitions, together with three short and shallow linear gullies.

Surrounding RD2 was a sub-rectangular ditched enclosure, E1, 26m long by 20m wide. The defining gully was 0.40-1.00m wide by 0.12-0.35m deep, generally with steep straight edges and a narrow concave base, perhaps suggesting that it held a timber palisade. The eastern end of the enclosure was closed, and formed a 'forecourt' of approximately 100m² around the eastern entrance of RD2. The western end of the enclosure was largely open, but a length of gully restricted access to the western entrance. A curvilinear gully to the south of RD2 together with a short spur at right angles, created a small sub-enclosure of approximately 30m² on the southern side of the roundhouse. In the forecourt to the east there were two postholes 0.50m and 0.63m in diameter and 0.30-0.42m deep, and a short linear gully 2.50m long by 0.47m wide and 0.20m deep. To the west of roundhouse RD2 there

was a group of seven pits. The largest of these were between 2.65m and 3.60m in diameter by 0.48m deep with steep sloping sides and broad flat bases.

Structure S8 to the north-east of RD1 was defined by a semi-circular arc of gully 10.5m in diameter (Fig 3). The gully was 0.40-0.85m wide and 0.27-0.40m deep with a uniform bowl-shaped profile. The northern side of the gully was cut by a later boundary ditch B1. A group of five postholes lay in the centre of the opening on the eastern side, and to the west of this group there was a single small pit, 1.20m in diameter and 0.15m deep. A short linear gully, 2.70m long by 0.50-0.80m wide and 0.30m deep, lay to the east of the southern terminal of the ring gully.

Ring ditch RD16 lay to the north of RD2 (Figs 3 and 6). It had an internal diameter of 11.5m and was defined by an incomplete and truncated gully, 0.55-0.70m wide and 0.30m deep, with steep straight sides and a narrow base. Two internal postholes may have formed the southern side of a western doorway. Burnt pebbles were found in the

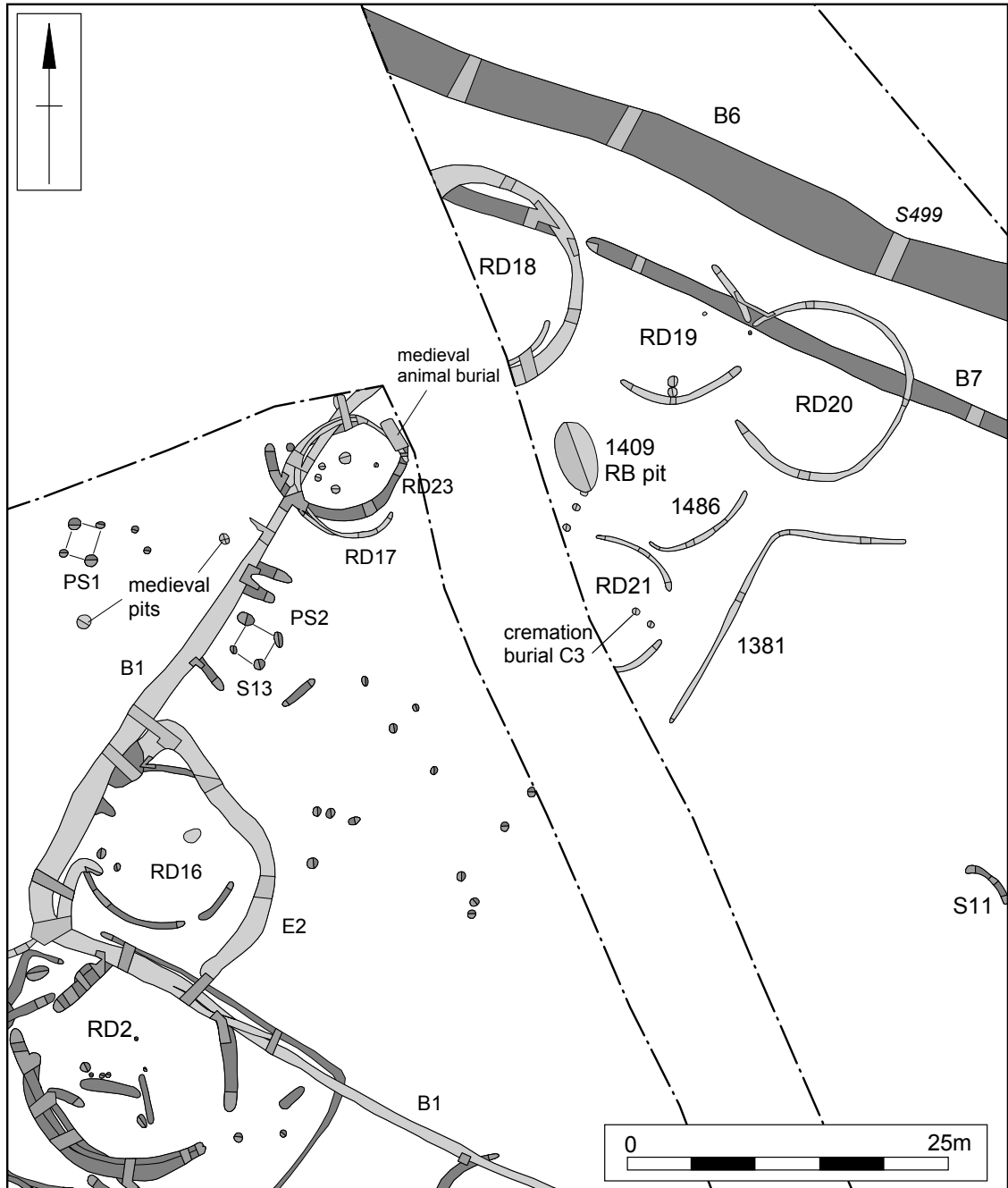


FIGURE 6 The northern enclosures and roundhouses

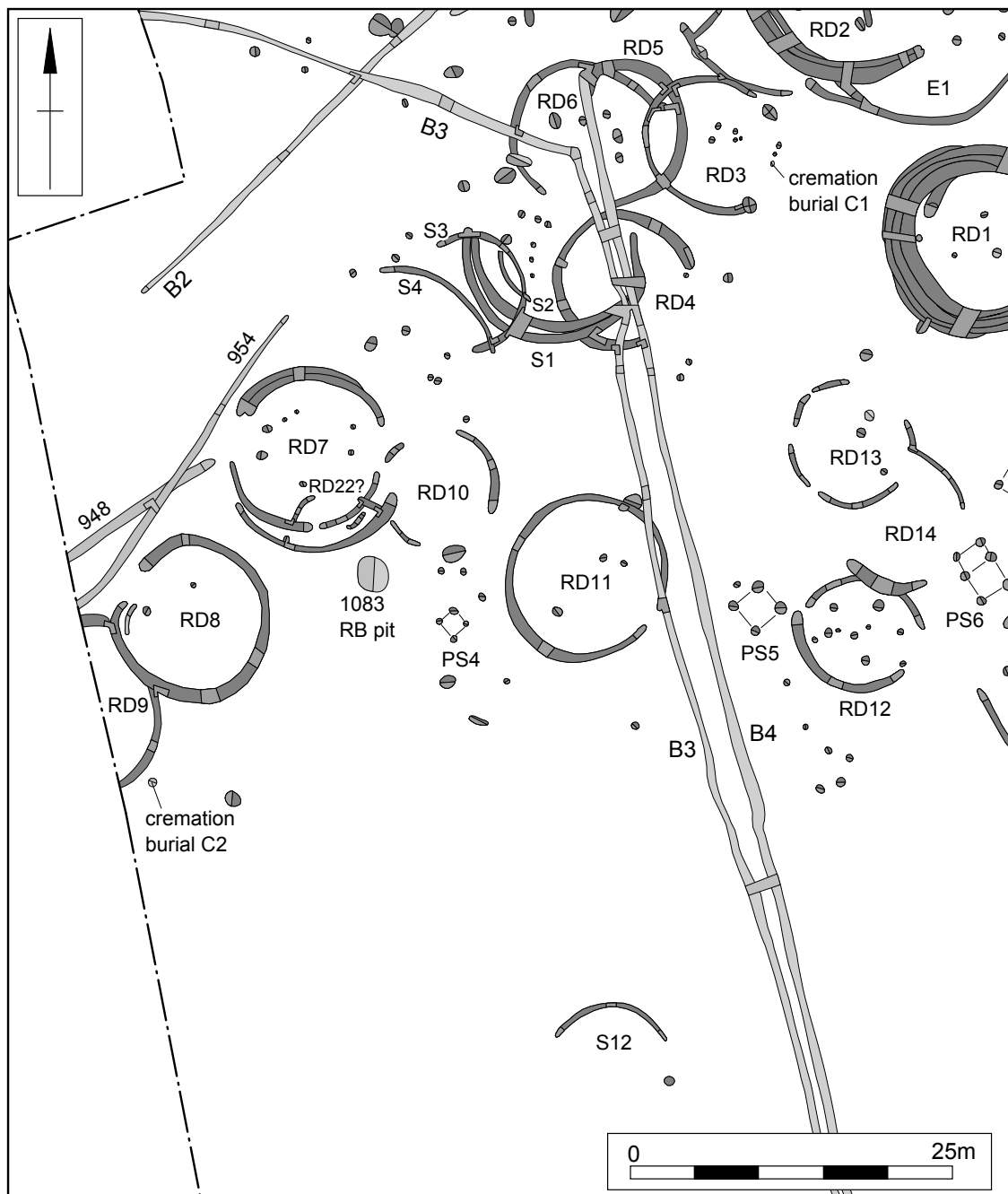


FIGURE 7 The south-western roundhouses

gully near the postholes. A pit to the east was up to 3.2m in diameter and 0.60m deep, but the fills of orange-grey silty clay contained burnt stones and a single sherd of Roman pottery, suggesting this may have been a later feature.

The southern roundhouses and other post-built structures

This group was located to the south of RD1 and comprised five ring ditches, RD11-RD15, three small structures defined by curvilinear gullies, S5-S7, and five rectangular and square post-built structures, PS4-PS8 (Fig 3). The form and function of rectangular post-built structures has been discussed in depth elsewhere (Cunliffe 1984), but they are generally thought to be grain storage platforms. Alternative interpretations include food/hide drying racks or animal pens. At Salford, Bedfordshire one of the four-post structures may have been a shrine (Dawson 2005).

Ring ditch RD11 had an internal diameter of 12.0m and a south-eastern entrance 1.5m wide. It was defined by a gully 0.46-0.67m wide and 0.20-0.37m deep, with the sides sloping steeply to a narrow concave base. The northern edge of the gully was disturbed by a tree hole. Within the roundhouse there were three sub-circular postholes.

Ring ditch RD12 lay to the east of RD11, and was defined by two arcs of curvilinear gully with an internal diameter of 8.2m, slightly elongated east to west between the opposing entrances (Figs 3 and 7). The south-eastern entrance was 3.50m wide but the western entrance was only 0.50m wide. The profile of both gullies varied from U-shaped to gradually sloping edges and flat base, they were up to 0.30m deep. In the south-east terminal the mid greyish-brown silty fill contained concentrations of Iron Age pottery, burnt animal bone and fire-cracked flint. Charcoal from the terminal has been radiocarbon dated to 510–380 cal BC (98% confidence, 2350+/-40 BP, Beta-275415). Two postholes to the west, set 1.50m apart, may have been doorposts at a western entrance, and to the east there is a single possible doorpost. A posthole adjacent to the southern ring ditch terminal to the east might suggest the provision of a gate across the ring ditch opening. The distance between the doorposts and the ring ditch indicate that the roundhouse had been only 5.5m in diameter. Other postholes within the ring ditch

probably represent internal partitions and structures.

Ring ditch RD13, at the northern end of the group, had an internal diameter of 9.5m, defined by a partially eroded ring gully with a south-east facing entrance 2.50m wide. The gully had an average width of 0.37m and was no deeper than 0.21m, with steep sides and a narrow concave base. A posthole inside the southern terminal may have held a doorpost, indicating that the roundhouse was *c.*7.0m in diameter.

Ring ditch RD14 cut both RD12 and RD13, but only marginally, suggesting it was a later addition to the group (Figs 3 and 7). It had an internal diameter of 9.50m and was defined by northern and southern arcs of gully, no more than 0.30m deep and often less.

Ring ditch RD15, at the eastern edge of the group, was also the largest ring ditch in the southern group, at 13.0m in diameter with a western entrance 5.0m wide (Fig 3). The northern arm at least had been recut, with the later cut up to 0.33m deep, generally with a broad V-shaped profile. The mid to dark grey-brown silty clay fill contained concentrations of Iron Age pottery, animal bone and burnt flint in the southern terminal. The doorway of the roundhouse was defined by a pair of postholes set 2.0m apart and 1.0m inside the ring ditch, indicating that the roundhouse was 9.0m in diameter. The postholes were between 0.50m and 0.66m in diameter and from 0.21m to 0.33m deep with steep sides.

Structure S5, to the north-east of RD15, was defined by a small horseshoe-shaped gully, 7.0m in diameter, open to the south-east (Figs 3 and 9). The gully was 0.27-0.46m wide and 0.08-0.14m deep, with the profile varying from gradually sloping to almost vertical. Within S5 there was a four-post structure, PS8, measuring 2.5m by 2.2m, with the sub-circular and oval postholes 0.64-0.68m in diameter and 0.26-0.38m deep. The arc of gully is on the upslope side of the structure, which would have helped to prevent surface water gathering around the posts.

Structures S6 and S7, to the north east of S5/PS8, were arcs of curvilinear gully with no other surviving associated features.

Post-built structure PS4, to the west of RD11, was a small four-post structure, measuring only 1.6m by 1.4m, with circular or oval postholes, 0.40-0.67m in diameter and 0.13-0.29m deep (Fig 3).



FIGURE 8 Roundhouse RD13, after excavation, looking west

Post-built structure PS5, to the immediate west of RD12, was a four-poster measuring 2.5m by 2.5m, with sub-circular postholes, 0.60-0.85m in diameter and 0.20-0.45m deep. A fifth posthole to the north may have been part of the structure.

Post-built structure PS6 was a four-poster, 2.4m square, with a further pair of slightly smaller postholes former an extension to the north, giving a total length of 4.0m. The postholes were 0.28-0.78m in diameter and 0.20-0.36m deep. There were possible packing stones in two of the postholes.

Post-built structure PS7, to the north of PS6, was a four-post structure measuring 2.50m to 2.70m (Fig 3). The postholes were 0.50-0.65m in diameter and 0.23-0.45m deep. They were steep-sided and one contained possible packing stones.

Apart from the structures described above, a further 21 postholes and pits were mostly located near to roundhouses or post-built structures. To the south and south-west of ring ditch RD12, a scatter of six sub-circular postholes and pits included one containing a concentration of charcoal, animal

bone and pottery, presumably domestic waste from ring ditch RD12. To north of ring ditch RD15, two similar pits or large steep-sided postholes, 0.78-0.90m in diameter and 0.49m deep, and *c.*2.0m apart may have held a two-post timber frame, with the linear gully to the south-west of them perhaps holding a wind-break.

The western roundhouses and other structures

The western limit of settlement comprised a line of buildings aligned north-east to south-west along an archaeologically invisible boundary (Fig 7), possibly a hedge or fence which was at right angles to the major long-lived land boundary, ditch B6, at the northern end of the settlement (Fig 2).

At the northern end of the line the complete or near complete ring ditches RD3-RD6 and a series of partial arcs S1-S4 form a complex grouping with the multiple intersections indicating an extended period of use and replacement, with perhaps a succession of three pairs of adjacent structures: possibly RD6 and RD4; RD5 and S1/S2 (also S4) and RD3 with S3 (Fig 7).



FIGURE 9 Four-post structure PS8 within ring ditch S5

Ring ditch RD3 was defined by a horseshoe-shaped gully with an internal diameter of 10.0m and an 8.0m-wide opening a little south of east. The gully was 0.21-0.55m wide by 0.21-0.55m deep with a varying profile. This structure produced the only spindle whorl from the site. Sub-circular pits or large post-pits, at or near the northern and southern terminals, were 0.70m and 1.40m in diameter and 0.18m and 0.40m deep. They may have held substantial posts marking the entrance. Between the two there was a line of three smaller pits/postholes, and the southernmost pit contained an urned human cremation, C1, dated to the middle Iron Age (discussed in detail below).

Ring ditch RD4 was similar to RD3, defined by a horseshoe-shaped gully with an internal diameter of 9.0m and a broad opening 6.0m wide facing south of east (Fig 7). The gully was 0.50-1.10m wide and 0.13-0.27m deep, showing no evidence of re-cutting. A single posthole, 0.20m from the northern terminal, was 0.50m in diameter and 0.07m deep. Approximately 4m east of the southern terminal, a pair of postholes set 1.2m apart may have formed an external timber frame.

Ring ditch RD5 was semi-circular, open to the west, 9.0m in diameter, with the gully 0.50-1.00m wide by 0.30m deep (Fig 7). Within the opening, a line of three sub-circular and oval postholes were approximately 1m apart. The southern posthole contained large angular stone fragments possibly used as packing. A further posthole and a larger pit lay to the west. It is unclear which of the structures, RD5 or RD6, these features were related to.

Ring ditch RD6 was semi-circular, with a maximum diameter of 10.5m across its open south to south-eastern side, and was defined by a semi-circular V-shaped gully, 0.46-0.56m wide by 0.17-0.30m deep (Fig 7).

Structure S1 was defined by two near concentric semi-circular arcs of gully, 12.5m in diameter and open to the north. The eastern arm of the gully was a flattened arc, and both of the gullies generally had steep sides and a concave base, up to 0.4-0.6m deep. Structure S2, probably contemporary with S1, was an inner concentric arc of gully, up to 0.22m deep. It could have been interpreted as a possible remnant of the wall line, however, the absence of a matching northern half

to the potential structure makes this unlikely, but what may have stood within such a prominent half a double ring ditch is unclear.

Structure S3 was a semi-circular arc of gully, 8.0m in diameter and open to the west. The gully was 0.33–0.39m wide and 0.22m deep, with steep sides and a flat base (Fig 9).

Structure S4, probably contemporary with S1/S2, was a large-diameter arc of gully, 0.15–0.30m wide and 0.19–0.23m deep, with steep sides and a narrow concave base.

Thirteen postholes associated with structures S1 to S4, included two lines of three posts, one aligned north-south and the other east-west, lying to the east of S3 and within S1/S2.

The group of ring ditches at the southern end of the western group, RD7 to RD10 and RD22, show less intensive usage and re-use and all could have functioned contemporaneously.

Ring ditch RD7 was defined by pairs of concentric gullies, with internal diameters of 11.00m and 12.50m, with the northern arms overlapping, and both western and eastern entrances, initially 7.00m wide and reduced to 3.50m when the southern arm was relocated to the north. The outer, earlier gully to the south was 0.43–0.75m wide by 0.15–0.33m deep. The fill of dark brown silty clay at both the western and eastern terminals contained concentrations of Iron Age pottery, charcoal and fire-cracked flint. The inner southern gully was 0.27–1.00m wide and up to 0.35m deep, and there was a similar concentration of pottery, animal bone, charcoal (from hawthorn, blackthorn, oak and field maple) and a fragment of fired clay loom-weight in the western terminal. On the northern side the inner gully cut the outer gully. A short length of a further gully lay between the inner and outer gullies on the southern side. Within the ring ditch, pairs of postholes, 1.50m apart and 2.0m inside the ring ditch, defined roundhouse doorways at both the western and eastern entrances. The doorposts indicate that the roundhouse was 7.0m in diameter. It was unclear if two curvilinear spurs of gully and a posthole, on the southern side of RD7, were part of RD7 or a remnant of a separate structure, RD22 (Fig 7).

Ring ditch RD8, with an internal diameter of 11.0m, was defined by a sub-circular gully with an entrance, 2.70m wide, slightly north of west, diametrically opposite the most common eastern entrance alignment (Fig 7). The gully was

0.28–1.05m wide and 0.15–0.65m deep, and only a single section showed a possible recut. Charcoal from the southern terminal has been radiocarbon dated to 390–170 cal BC (98% confidence, 2210+/-40 BP, Beta 275412). Near the southern terminal there was a short section of internal gully, 0.35m wide by 0.17m deep, and inside this a post-hole, 0.70m in diameter by 0.28m deep. The gully might be a remnant of wall trench, although the arrangement of the posthole would then suggest that the doorway was recessed within the wall line, forming a sunken, rather than projecting, porch.

To the west and north of RD8, there was a linear ditch 948, 0.80m wide by 0.40m deep, aligned north-east to south-west, which terminated close to the western entrance of ring ditch RD7 (Fig 7). This was later replaced by a similar ditch, 954, which appeared to restrict access to the western doorways of both RD8 and RD7. Charcoal from the terminal of ditch 948, possibly domestic fuel waste from RD7, has been radiocarbon dated to 400–340/330–220 cal BC (98% confidence, 2260+/-40 BP, Beta 275414).

Ring ditch RD9 lay largely beyond the excavated area, but the arcs of curvilinear gully that defined it were 0.68m–0.90m wide by 0.13m deep and intersected the western side of RD8 (Fig 7). The projected ring ditch would have been *c.*12.50m in diameter.

Ring ditch RD10, to the east of RD7, and defined by a fragmentary gully, was one of the smallest ring ditches, with an internal diameter of 8.5m. The gully was 0.25–0.68m wide and 0.07–0.39m deep, with a deep southern terminal on the surviving eastern arm probably defining the northern side of an eastern entrance, with the southern terminal perhaps lost.

The southernmost structures

Structure S12 lay to the south of the main grouping of the ring ditches (Fig 7). It was defined only by an arc of curvilinear gully, 0.25m wide and up to 0.18m deep. South of the eastern terminal, an isolated circular pit, 0.67m in diameter by 0.20m deep with steep straight edges and a flat base, might have been part of an eastern doorway for a roundhouse.

Structure S13 lay 50m to the south of the focus of domestic activity (Fig 2). It comprised a three-quarter circle of curvilinear gully, 9.0m in diameter and open to the south-east, with a partial

concentric ring of similar dimensions on the north-western side.

The eastern structures, pits and postholes

To the east of the main settlement area there were three structures defined only by arcs of curvilinear gully, S9, S10 and S11, and eight pits and postholes (Fig 2). The fills of the curvilinear gullies and the pits and postholes frequently contained charcoal and fire-cracked stone which may be related to copper-alloy casting, a craft activity demonstrated by crucible fragments from ditch B7 to the north of these features.

Structure S9 was defined by a semi-circular gully with an internal diameter of 7.0m, open on its eastern side. The gully was 0.25-0.45m wide and 0.12-0.27m deep, generally steep-sided with a concave base. The gully cut an earlier pit, 1.20m in diameter by 0.30m deep, and the dark greyish-brown silty clay fill contained large amounts of charcoal. To the south of structure S9 were three sub-circular and oval pits, 0.70m and 1.05m in diameter and 0.15m to 0.30m deep. The fills varied but all contained charcoal staining or burnt stone. The larger pit produced large amounts of oak charcoal.

Structure S10 was an arc of curvilinear gully, 0.31-0.40m wide by 0.19-0.26m deep, with the fill of charcoal-flecked mid grey silty clay containing occasional burnt stones. On the eastern side of the gully were three circular or oval pits, 0.67-1.0m in diameter and 0.18-0.42m deep, with fills containing frequent inclusions of charcoal and burnt stone.

Structure S11 was a short arc of curvilinear gully, 4.0m long by 0.33-0.72m wide and 0.17-0.30m deep.

To the east and north-east of both S9 to S11 and ditch B5, there was a dispersed group of seventeen circular or oval pits and postholes, with one pit containing a human cremation burial, C5, discussed below (Fig 2).

The northern post-built structures, round-house, pits and postholes

Post-built structure PS1, to the west of ditch B1, was a four-post structure measuring 2.5m by 3.0m (Fig 6). The circular or oval postholes were 0.72-1.19m in diameter, 0.30-0.41m deep. To the west of PS1 was a pair of postholes 1.3m apart, which may have been a simple two-post structure (Fig 2), with a further similar arrangement to the east of PS1 (Fig 6).

Post-built structure PS2, to the south-east of PS1, was a four-post structure measuring 2.5m by 2.5m. The circular and oval postholes were 0.55-0.85m in diameter and 0.10-0.26m deep. At the northern corner the posthole had been recut at least once. Short arcs of gully to the north, east and south of PS2, and cut by ditch B1, may have been remnants of a largely eroded ring gully, 10.0m in diameter, surrounding PS2 (Fig 6). If so, they indicate that PS2 pre-dated ditch B1. To the south-east of PS2 and north-east of E2, a dispersed group of 13 postholes formed no discernible pattern.

Ring ditch RD23, to the north-east of PS2, also pre-dated boundary ditch B1 (Fig 6). It was 10.0m in diameter, defined by a semi-circular gully, open to the north.

The middle Iron Age enclosure and boundary system

A substantial boundary ditch, B6, with a narrow ditch, B7, 7m to the south and running parallel, probably formed the northern boundary of the settlement (Figs 2 and 6).

To the south of this boundary there was a square enclosure, open to the east, defined to the west and south by an L-shaped ditch B1 (Figs 2 and 6). Structures RD16, RD23 and PS2, all lying north of RD2 were abandoned at this time, although occupation of the dwellings to the south of the enclosure continued during this period. Although the enclosure ditch truncated the ring gully surrounding RD2 it is likely that the dwelling was still in use during this time. The new rectilinear ditch would have adequately replaced the functions of drainage and protection afforded by the ring gully.

A possible interpretation is that the grain storage area represented by post-built structures PS1 to PS3 may have gone out of use, with the area to the south of RD1 becoming the new focus of this activity, with the creation of four-posters PS5-PS8.

Boundary ditch B6 was the most substantial of all the boundary features on the site, at 3.60m wide and up to 1.25m deep (Figs 6, 10 and 11). The original broad, U-shaped ditch, 1437, had accumulated primary and secondary silting, before it was recut along its southern margin by a narrower and shallower more V-shaped ditch, up to 0.9m deep. This ditch silted to a stable level, leaving a broad hollow, up to 0.4m deep, which would have left a prominent earthwork that silted up slowly over subsequent centuries.

This ditch system probably defined the northern limit of the settlement throughout its lifetime. It also formed part of a more extensive system of land boundary, as the ditch was located in survey areas further east, indicating a length in excess of 400m (Fig 1). It was aligned at near right angles to the contours, with the ground rising steadily from the eastern corner of the development area, where the stream is at slightly under 100m aOD, to a high point in the north-west, adjacent to the Iron Age settlement, at 123m aOD.

The location of middle to late Iron Age open settlements at such landscape boundaries has been seen at a number of Midland sites. At Newport Pagnell a linear boundary ditch of possible late Iron Age origins was traced for a length of 163m, and this too ran near perpendicular to the contours (Morris & Carlyle 2011). In neighbouring Northamptonshire similar long boundaries have been seen at Swan Valley, Northampton (Holmes & Chapman 2005), at the Daventry International Rail Freight Terminal (Masefield *et al* 2015), and just across the county border in Warwickshire at Coton Park, Rugby (A Chapman forthcoming).

The L-shaped ditch B1, which had been recut at least twice, was up to 2.10m wide by 1.0m deep. Enclosure E2 in the angle of ditch B1 and enclosing RD16, was sub-square, measuring 14m by 16m. It was cut at its northern end by a large pit, which was truncated by the latest recut of ditch B1.

To the north, boundary ditch B7 lay 7m south of ditch B6, and was far less substantial, at

0.90-1.50m wide and 0.40-0.60m deep. The fills were indicative of natural silting and displayed no evidence of recutting. At the south-east end of the ditch, fragments of crucibles used for copper alloy casting suggest that a workshop area devoted to this activity had been established nearby, well to the north of the main occupation area. Towards the north-west end of ditch B7 there was an opening at least 1.0m wide. The surviving eastern terminal was shallow and rounded. Boundary B7 was probably part of the long boundary system, running parallel to B6, and perhaps even defining the provision of a broad track or driveway set between flanking ditches. While in use through the main period of settlement, it had been abandoned when the northern ring ditches were introduced, in the later middle to late Iron Age.

Later middle to late Iron Age settlement at the northern boundary

At least five roundhouses were established along and over the silted boundary ditch B7 and the western arm of the L-shaped ditch, B1 (Fig 6). Ditch B6 still marked the northern boundary of the settlement during this period. Some of the dwellings in and around the settlement nucleus were likely to have still been occupied, in particular the long-lived roundhouses RD1 and RD2. Although the L-shaped ditch, B1, had fallen out of use, the section of ditch which passed close to RD2 was recut a number of times, suggesting it was at least partially retained.

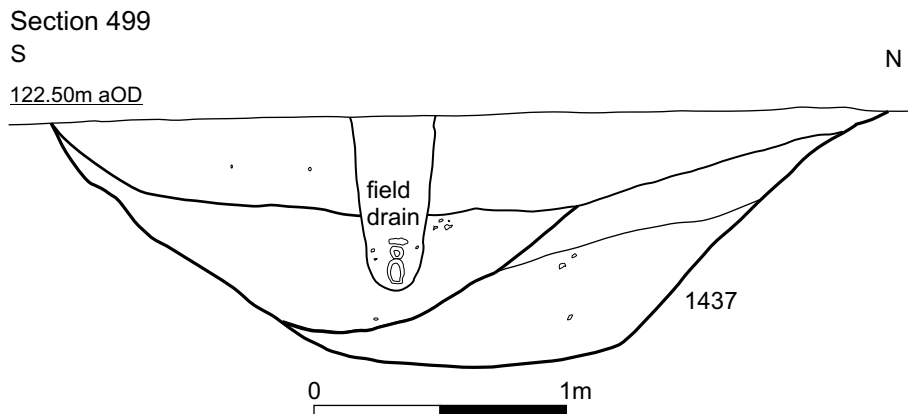


FIGURE 10 Section of boundary ditch B6, showing recut



FIGURE 11 The linear boundary ditch, B6, looking south-east

The northern roundhouses probably represent a relocation of settlement towards the northern boundary, as the paucity of associated finds suggests that the settlement was in decline. It seems likely that most of the roundhouses to the south and south-west of the principal house RD1, which showed little evidence for multiple re-cutting, had been abandoned by this time, and by the end of this new phase, either towards the end of the 2nd century or into the 1st century BC, the settlement had been abandoned.

A substantial oval pit, 1409, to the north of RD21 (Fig 6), 5.50m long by 1.17m deep, with steep sides and a slightly concave base, contained the only significant late Iron Age pottery assemblage, likely to date to the 1st century BC, and may be associated with the use of the surrounding structures, perhaps even a terminal clearance deposit.

The group of five ring ditches in the northern part of the site post-date both the linear boundary ditch B7 and the partial enclosure ditch B1. Ring ditches RD18, RD19 and RD20 were aligned parallel to the large boundary ditch B6, supporting the idea that this was a long-lived landscape feature, respected through the life of the settlement.

Ring ditch RD17, which overlay an earlier ring ditch, RD23, as well as ditch B1, had an internal diameter of 8.5m with a south-eastern entrance 4.5m wide. The gully was 0.21-0.51m wide and 0.08-0.21m deep with steep sides.

Ring ditch RD18 had an estimated internal

diameter of *c.*14.0m, and any entrance must have been on the western side. The ditch was the most substantial of all the ring ditches, at up to 1.58m wide by 0.73m deep with steeply sloping sides. On the inner edge of the ditch to the south there was a short concentric arc of gully. This may have been a circular enclosure rather than a roundhouse ring ditch.

Ring ditch RD19, to the east of RD18, was defined by a partially eroded ring gully, 11.5m in diameter, with an eastern entrance 3.4m wide. Ring ditch RD20 had an internal diameter of 13.5m and a broad entrance, 7.5m wide, facing to the west.

Ring ditch RD21, to the south of RD19, was defined by a partly eroded ring with an internal diameter of 10.0m, and an eastern entrance, 4.0m wide (Fig 6). Within RD21, adjacent to the entrance was a probable door posthole, 0.59m in diameter and 0.26m deep. The fills of both ditch terminals contained concentrations of Iron Age pottery. Charcoal from the terminals indicates hawthorn, blackthorn and possibly field maple were used as domestic fuel. Radiocarbon analysis of the charcoal returned a date of 360–280 (30%)/260–60 (62%) cal BC (95% confidence, 2150+/-40 BP, Beta-275417), suggesting that it was in use through the later middle Iron Age and perhaps even post-100BC, into the late Iron Age, providing the best evidence for the chronology of the northern roundhouses, apart from the pottery assemblage from pit 1409.

To the east of RD21, an L-shaped gully, 1381, marks the south-eastern limit of the northern house group (Fig 6). The gap between the east-west arm of the gully and ring ditch RD20 may have formed an entrance into this group of buildings. An arc of curvilinear gully, 1486, to the west may also have controlled access within this area.

LATER IRON AGE AND ROMAN ACTIVITY

Pits

Sparse activity continued at the site for hundreds of years after the abandonment of the middle Iron Age settlement. Sherds of later Iron Age and Roman pottery were deposited in some of the more substantial earlier pits which were still partially open. The corner of the enclosure ditch B1 was respected by the later boundary ditch B2 (Fig 2), indicating that the earlier ditch was still visible and

TABLE 2 Quantification of pottery by structural groups

Structural group	Sherd count	% by sherd	Total weight (g)	% by weight
Roundhouse Ring ditches (RD)	2146	52.4	11895	57.0
Other structures (S)	338	8.3	1158	5.6
Four-post structures (PS)	93	2.3	388	1.9
Enclosures and boundaries (E & B)	382	9.3	1599	7.7
Unassigned (scattered pits)	1134	27.8	5821	27.9
Total	4093		20861	

was perhaps even incorporated into the later field system.

In the southern part of the settlement, south of RD7, a sub-circular pit, 1083, 2.55m in diameter and 0.68m deep, contained both Iron Age and Roman pottery (Fig 7).

Pits within RD16 and RD13 may either be later features or contemporary with the roundhouses, with scatters of Roman pottery deposited in the upper fills.

Linear boundary ditches B2-B5

Linear ditches on varying alignments were established after the abandonment of the main settlement area (Fig 2). Ditch B2 appears to follow the archaeologically invisible boundary along which the western ring ditches were aligned. The ditch was slight, between 0.44m and 0.50m wide and 0.12m to 0.17m deep. A rim from a wheel-thrown bowl from the terminal of ditch B2 suggests that the final silting occurred during the late Iron Age or Roman period.

Also worthy of mention are two parallel ditch systems B3/B4 to the west and B5 to the east, which lay 110m apart (Fig 2). Their alignment disregards the pattern of the earlier boundary and settlement features, and probably marks the imposition of a new field system in the early Roman period, largely ignoring whatever earthworks marked the Iron Age settlement. However, the boundary to the north, B6, was respected, indicating that it still formed a meaningful boundary in the broader landscape.

THE IRON AGE POTTERY

by Andy Chapman

A total of 4093 sherds of hand-built pottery, weighing 20.9kg, attributable to the middle to late Iron Age, was recovered (Table 2).

This material comes from 306 individual contexts, with an average of only 68g per context and, given the presence of some larger groups, the typical small assemblage weighs even less than this, with over two-thirds of the contexts containing only 10-50g of pottery, somewhere between 1 and 10 sherds. These small groups, about which little can be said, make up nearly 20% of the total assemblage by weight.

In contrast, 13 contexts produced 39% of the total assemblage by weight. The majority of these larger groups come from or near the terminals of several of the roundhouse ring ditches, particularly RD1, RD2, RD7, RD8, RD12 and RD21.

The average sherd weight is only 5.1g, showing that the material is highly fragmented, indicating that much of it is a product of at least secondary deposition. Even in some of the larger primary groups, where only a single or a limited number of vessels are present, it has still not been possible to take reconstruction far due to the small size of so many of the sherds.

The fabrics

The proportion of the assemblage assigned to individual structures or structure groups was quantified to fabric type, while the small groups from isolated contexts were only scanned to confirm that they had the same broad characteristics as the rest of the assemblage. The fabric types have

been examined by visual examination and a simple five-fold typology has been provided. Fabric quantification is based on the examination of 2981 sherds, 73% of the total assemblage.

1. Sandy: containing dense rounded quartz giving a coarse surface texture, typically hard and well fired. 83.4% by sherd count.
2. Shelly: containing varying quantities of crushed shell, and lesser quantities of fine quartz. 6.1%.
3. Grog: containing sparse to frequent pellets of soft red or hard dark grey grog, and also either fine quartz grains to give a coarse surface or some crushed shell. 2.5%.
4. Calcareous: generally sandy but also containing scattered larger rounded calcareous inclusions and rounded grit, up to 4mm, and some smaller angular flint. 3.7%.
5. Fine sandy: with few visible mineral or other inclusions, often with smoothed or burnished outer surface. 4.4%.

Nearly 90% of the assemblage is in a coarse sandy fabric, but with a proportion of these vessels also containing other inclusions, such as grog or calcareous minerals, in varying quantities. It is suggested that the occurrence of various other inclusions is not indicative of the presence of a range of deliberately created fabrics, but the very opposite: a lack of interest in the precise nature of the mix of inclusions beyond the preference for sandy fabrics. The other inclusions may be general detritus that happened to be included during the working of the clay prior to manufacturing.

Another fabric group, 5: fine sandy ware, provides a further variation, but in this case it is certainly a deliberate creation as it correlates with vessel type. These vessels, 4.4% of the assemblage, are in a fine fabric containing few if any visible inclusions, although in some fine quartz grains are visible, and are almost invariably uniformly dark grey in colour with the surfaces smoothed or burnished. The fine mineral inclusions are therefore a direct result of a conscious desire to create vessels with smoothed or burnished surfaces; in our terms, better quality vessels; what would be called tableware in later periods. The presence of some of these vessels, particularly globular bowls with bead rims, does have a chronological bias to the later Iron Age, but a few finer sherds occur throughout the assemblage.

A small proportion of the assemblage, 6.1%, is in fabrics containing quantities of crushed shell, varying from large and dense shell fragments to finer and sparser shell inclusions, group 2. Such shelly fabrics typically dominate assemblages to the north of Milton Keynes, in the Nene and Welland valleys across Northamptonshire and south Leicestershire. In the Milton Keynes area they are often present, but at a low level, perhaps as the occasional import of vessel containing traded goods.

The predominance of sandy fabrics in Iron Age assemblages from the Milton Keynes area has long been noted, with this being seen at the Hartigans Iron Age enclosure excavated at the end of the 1970s (Knight 1993b, 230–231). A more recently published site, a middle Iron Age settlement at Kingsmead South, shows a similarly high proportion of sandy fabrics, and a similar overall breakdown of fabric types, including a low level of shelly wares (Blinkhorn 2009, 82). At Oxley Park West there was a similar dominance of sandy fabrics over shelly ware, although here the dominant fabric was apparently a ‘soapy’ fabric containing mudstone (Webley 2009, 53). This pattern is not invariable, however, as the assemblage from the Pennyland Iron Age settlement, excavated in the 1970s, was dominated by shelly ware (Knight 1993a, 219–220).

Decoration and vessel form

No estimate has been made through rim sherd analysis of the number of vessels represented in the assemblage, estimated vessel equivalent (EVE), as the majority of the rims present are too short to enable the rim diameters to be accurately calculated.

Most of the sherds are 7–10mm thick, and the hand-built nature of these vessels is often evident in the oblique edges of sherds, where vessels had broken along weak joins. The use of open firing is evident in the surface colourations. The sherds typically have dark grey cores, while both the inner and outer surfaces are highly variable, ranging from bright orange, through red-brown and brown to grey-brown and dark grey, with the external surfaces showing the greatest variation.

While the balance of colour ranges has not been quantified, the frequent occurrence of oxidised colours, from orange to red-brown, is a probable indication that the assemblage belongs to the

earlier middle Iron Age, as work on Northamptonshire assemblages has shown that there was a broad trend away from oxidised surfaces to darker colours through the middle Iron Age (Dennis Jackson, pers. com).

Rim forms are typically simple, with flat-topped rims predominating, 30 out of 50 examples (Fig 12, 2, 4 & 5), followed by simple rounded rims, 14 out of 50 (Fig 12, 1 & 3). In addition, there are four rounded rims from small and exceptionally thin-walled vessels, 3-4mm thick, a single rim with an external chamfer and a single bead rim. There is also a single thickened, T-shaped rim, with a concave top, which comes from a distinctive open bowl form (Fig 12, 8). This form is unusual, but very similar vessels have been seen elsewhere, suggesting that they may have had a specific function, possibly open bowls used for dairying (Chapman 2001, 22–23, fig 13, 15; Chapman 2015, 45 & fig 2.30, 3). Four flat-topped rims are decorated; two with fingernail impressions and two with shallow fingertip impressions.

The figures for rim forms quoted above exclude the assemblage from pit 1409, at the northern end of the site, where the pottery assemblage dates to the late Iron Age. In this group there was a single flat-topped rim, eight rounded rims and a bead rim.

The bases are typically flat and plain, with the body rising directly from the base with no elaboration, although in a few instances there are slight finger marks from the moulding of the external angle of base and wall. The measurable bases are between 110-140mm in diameter, and they are always thicker than the body, at 10-15mm thick.

There are only five scored ware sherds, and these are all small single body sherds within larger groups, indicating the presence of a very small number of such vessels. Scored ware always forms a much lower percentage of any middle Iron Age assemblage in the Ouse valley around Milton Keynes than it does in the scored ware 'homeland' of the Nene and Welland valleys of Northamptonshire and south Leicestershire, to the north and north-east. There are individual scored ware sherds from three roundhouses, RD1, RD2 and RD6, while the other two sherds come from two pits dated to the late Iron Age or later.

Pit 1409, at the northern end of the site, has a distinctive assemblage dated to the 1st century BC, including a sherd of scored ware, and the group is quite different to the material from the rest of the

site. Pit 1083, towards the south-western end of the site, produced both a scored ware sherd and the handle of a Roman flagon from its upper fill. While the numbers are small, this suggests a bias to the late Iron Age in the occurrence and deposition of scored ware. It is possible to speculate that while scored ware vessels were common in the Nene and Welland valleys by the 3rd century BC, it was perhaps only reaching or being manufactured in the Milton Keynes areas later in the later middle Iron Age, perhaps only from the 2nd century BC or even later. The main occupation at Tattenhoe Park may therefore largely pre-date the occurrence of scored ware in the Ouse valley.

Apart from the few decorated rims and the scored ware, all other vessels are plain and undecorated, as is typical of most middle Iron Age assemblages. There are four lugs or fragments of lugs within the assemblage, with one from roundhouse RD1, two from roundhouse RD7 (Fig 12, 6) and one from roundhouse RD8.

Given the small sherd size and the small pottery groups, there are no complete vessel profiles. The few partially reconstructed vessels are small to medium-sized vessels. Sherds from large thick-walled storage jars are rare, indicating that few such vessels were in use. It is also evident that in the majority of cases the vessels are closed forms, jars, with the diameter of body exceeding the diameter of the rim and with the base diameter a little less than that of the rim.

The jars are in a range of shouldered and slack-shouldered forms, with rim diameters of 160-180mm. There are several with a pronounced shoulder, forming a distinct and concave neck, with a neck height of 30-35mm, from the shoulder to the top of the rim (Fig 12, 1). In others, the shoulder is less pronounced, although in one particularly well-preserved vessel there is a transition from a pronounced shoulder and neck to a neckless profile within an angle of 90 degrees (Fig 12, 2).

There are a few vessels with significantly larger diameters of 250-280mm diameter. These all appear to be bowl forms, either with near vertical sides (Fig 12, 5) or fully open bowls, as in the unusual example with a thickened, T-shaped rim (Fig 12, 8).

A small number of vessels are in the fine sandy fabric, and these are dark grey to grey-black throughout and have smoothed and sometimes burnished surfaces. In only one example can the

profile be even partially reconstructed, and this has an upper profile that is more rounded than most of the jar forms, although it is not complete enough to indicate whether this was a fully globular form.

Chronology

The radiocarbon dates indicate that the main period of settlement belongs to the earlier middle Iron Age, 400–200 BC (Table 1). The broad characteristics of the pottery assemblage are consistent with this date range. There are a few exceptionally thin-walled small bowls, which are characteristic of the early Iron Age to middle Iron Age transition, 500–400 BC. The vessels with pronounced shoulders and well-defined necks belong in the earlier middle Iron Age, with neckless vessels predominating in later assemblages; and the high frequency of vessels with orange to brown surfaces is also an early characteristic.

Generally, vessels in finer fabrics, dark grey throughout are characteristic of the late Iron Age, 2nd into 1st centuries BC, although there are a few such sherds widely spread through the assemblage, suggesting that such vessels are not exclusively late Iron Age in date. However, a vessel of this form with a bead rim within one of the few groups that can be shown to be late in date, suggests that the specific bead rim and globular bowl form does date to the late Iron Age.

The large group of pottery from pit 1409 (Fig 6), 168 sherds, weighing 1.3kg, is quite distinct from the rest of the assemblage. It contains a higher than average proportion of shelly fabrics, a predominance of rounded rims, plus one of only two bead rims from the site, and one of only five sherds of scored ware. On the basis of the bead rim and the presence of another vessel in a fine black fabric with a burnished surface, this group is considered most likely to date to the late Iron Age, the 1st century BC.

Activity on the site in the Roman period is indicated by the sparse scatter of Roman pottery, mainly from pits. A large pit 1083 towards the south-western end of the site contained a small assemblage of Iron Age pottery and a handle from a Roman flagon. Single Roman sherds also came from small pits within roundhouses RD13 and RD16, a pit cutting the terminal of ditch RD10, and from the terminal of linear ditch B2. This complements the evidence from two cremation deposits that have been radiocarbon dated to the late Roman

period, in indicating continuing low-level activity at this site long after the abandonment of the middle Iron Age settlement.

The presence of Roman pottery in part of the boundary ditch system, B2, indicates that at least parts of this system were still open after the abandonment of the settlement, and perhaps imply that the creation of many of these linear boundaries also occurred late in the lifetime of the settlement. At the northern end of the site, pit 1409 is dated to the late Iron Age, but there is too little pottery from the roundhouse ring ditches in this area to determine whether the northern group of roundhouses were similarly late Iron Age in date, although the radiocarbon date from RD21 suggests that these roundhouses were in use as late as the 2nd century BC and perhaps through to the mid-1st century BC.

Catalogue of illustrated vessels (Fig 12)

- 1) Shouldered jar, with rounded rim: Rim diameter *c.*180mm. Grey core, grey-brown inner surface, orange-brown external surface; grog and sandy fabric.
RD1, west side.
- 2) High shouldered jar with flat-topped rim: Rim diameter 160mm; maximum diameter 190mm; flat base 110mm diameter; *c.*180mm high. Grey core, grey to brown inner surface orange-brown exterior with grey patches towards base. Sandy calcareous fabric.
RD1, south side west of terminals.
- 3) High shouldered jar with a simple rounded rim and rounded body, perhaps quite a squat jar: Rim diameter *c.*170, max diameter *c.*190mm, base *c.*140mm, estimated height *c.*120–150mm. Grey throughout Sandy fabric, uniform grey.
RD2, northern terminal eastern side.
- 4) Open bowl with flat-topped rim: Rim diameter *c.* 250mm; Base (not certainly same vessel) *c.*130mm diameter. Grey core, grey-brown internal (burnished below rim), and buff to orange brown external surface; sandy calcareous fabric.
RD2, northern terminal eastern side.
- 5) Large diameter, slack shouldered bowl/jar with a simple flattened rim: Rim diameter 280mm; maximum diameter 300mm. Grey core and internal surface, orange external surface; sandy fabric.
RD7, northern terminal west side.

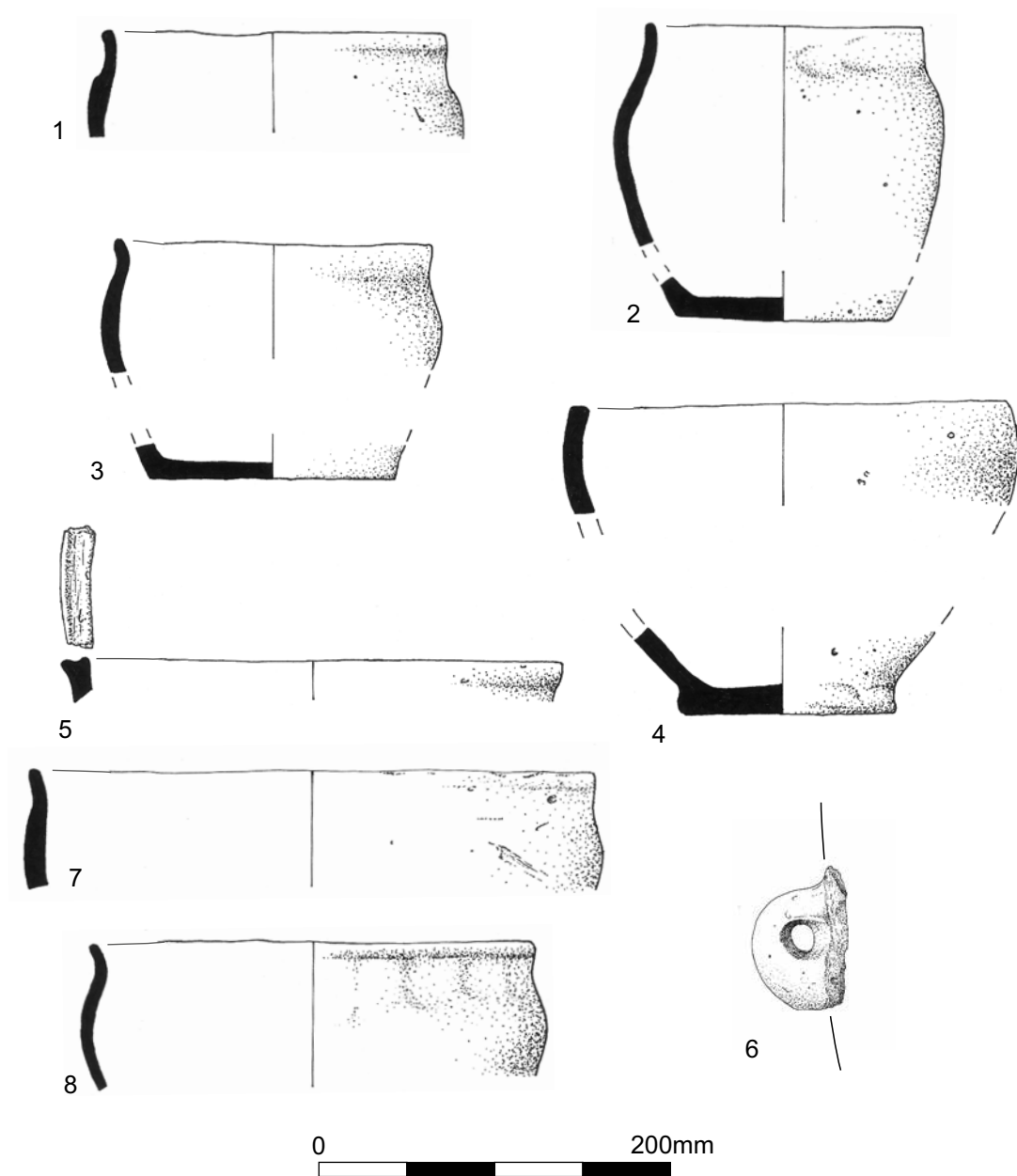


FIGURE 12 The Iron Age pottery (1-8)

TABLE 3 Pottery quantification by roundhouse (RD)

Ring ditch	Sherds	Weight (g)
RD1	386	2548
RD2	310	2559
RD7	367	1892
RD8	285	1577
RD12	108	772
RD21	114	667
RD15	124	394
RD11	73	298
RD9	57	247
RD18	68	243
RD19	91	240
RD5	36	217
RD17	39	107
RD16	5	50
RD4	6	44
RD20	9	42
Totals	2146	11895

- 6) Lug. Body of lug 30mm thick, 16mm diameter aperture. Dark grey core and inner surface, orange brown external surface; sandy fabric. RD7, northern terminal west side.
- 7) Slack shouldered jar/bowl with a flat-topped rim. Rim diameter *c.*250mm. Dark grey core and inner surface, outer surface smoothed and brown to dark grey; sandy fabric. RD21, southern terminal.
- 8) T-shaped rim, with concave top, on open bowl form. Rim diameter 250mm. Dark grey core and external surface, brown internal; sandy. RD5.

Pottery distribution

The roundhouse ring ditches produced more than a half of the pottery from the site. Much of this was as small groups of sherds, not significantly larger than the groups coming from the minor structures (S1-S14), the four-post buildings (PS1-PS8) or the ditch systems (B1-B7 and E1-E2). However, the totals for the roundhouses are boosted by several

instances of deposition in or near the ring ditch terminals that comprised larger assemblages, typically of larger sherds from limited numbers of vessels (Table 3).

Deposition in ring ditch terminals

The totals for the ring ditch terminals for seven roundhouses, including the six instances of exceptional deposition, have been catalogued in detail in order to examine the nature of the deposition and whether there was any special selectivity in the choice of location beyond a general preference for ring ditch terminals (Table 4).

To the west of the southern terminal of RD1, 87 sherds, weighing 926g, largely came from about a third of a single vessel that has been partly reconstructed (Fig 12, 2). About a quarter of the rim survives and around half of the base. It was probably deposited in the ditch as an intact portion of the vessel, later crushed *in situ*.

The northern terminal on the eastern side of RD2 contained numerous sherds, 195 weighing 1946g, from a limited number of vessels, largely in a single compact deposit with an adjacent deposit of animal bone. There are perhaps four vessels, but the material is too fragmented for reconstruction. In particular, there are the rims, one flat-topped and one rounded, and the flat bases of two vessels in sandy fabrics (Fig 12, 3 & 4). There are also a few sherds from a vessel that was black throughout, in a fine fabric with a burnished external surface, and a single sherd of scored ware in a shelly fabric.

The northern terminal on the western side of RD7 contained an assemblage, comprising 59 sherds weighing 795g, which includes parts of several vessels, but with insufficient sherds from any one vessel to provide a full profile. There is a flat-topped rim from a shouldered jar (Fig 12, 5), a complete lug (Fig 12, 6) and a fragment of a second lug, and a flat base, 90mm in diameter. There was also animal bone from this deposit.

Most of the 171 sherds, weighing 925g, at the terminal of RD8 came from perhaps only two vessels, although as they were both highly fragmented it is not possible to determine how much of each is present, although it cannot be as much as a half in either case, given the limited presence of rim and base sherds. In addition, there are smaller numbers of sherds from perhaps a further four vessels. The assemblage includes three flat-topped rims, one with oblique fingernail decoration, one

rounded rim, a flat base and the stump of a lug on a large body sherd. One of the flat-topped rims comes from a small globular bowl in an oxidised fabric, with a rim diameter of only 100mm.

The southern terminal of RD12 contained 89 sherds, weighing 685g, from the body of a single vessel. It is in a hard sandy fabric with a brown core and orange to light brown surfaces. It was probably a large diameter open bowl but there is only a single small rim sherd, thinner than the body, only 5mm thick, with an expanded flat-topped rim, and no base sherds.

The southern terminal of RD21 contained 93 sherds, weighing 632g, from a single vessel, a slack-shouldered jar with a flat-topped rim, which had been crushed *in situ*. The deposited portion comprised part of the rim and body, but none of the base (Fig 12, 7).

From the six instances of exceptional deposition a clear pattern emerges. In three examples, RD1, RD12 and RD21, the deposit comprised numerous sherds from a single vessel; while in a fourth, RD8, the pottery appears to come from two vessels. In each of these examples only a part of the vessel is present perhaps around a quarter to a third, but this is difficult to estimate as it has only been possible to partially reconstruct one vessel. This is not, therefore, the burial of complete pots but the burial or disposal of a proportion of a vessel or vessels broken elsewhere. It is likely that these were all deposited as one or more large pieces that became

further fragmented whilst in the ground.

In the other two examples, RD2 and RD3, there are a number of vessels, perhaps between four and six, which are each represented by a few sherds. In one instance, RD2, there is a complete lug and a partial lug from a thick-walled jar, but no other sherds from the same vessel, and in both groups there are examples of rim and base sherds. It may, therefore, be tentatively suggested that in the more mixed groups there was a preference for selecting rim, base or other characteristic sherds for deposition. In these two more mixed deposits there were also quantities of animal bone from the same contexts.

The location of special deposits

The tabulated data (Table 4) shows the presence of pottery concentrations in two northern terminals, RD2 and RD7, one of which was on the western side of a roundhouse with both western and eastern entrances, RD7. There are three instances of pottery concentrations in southern ditch terminals, RD8, RD12 and RD 21, with one of these on the western side of a roundhouse with only a western facing entrance, RD8, while in RD1 the pottery concentration lay within the ditch a little to the west of the southern terminal. The values for RD15 have been provided to show an example of a ring ditch that had not attracted any exceptional deposition of pottery, which is typical for most of the other roundhouses as well.

TABLE 4 Weight of pottery (g) from Ring Ditch terminals

Ring ditch	Northern terminal		Southern terminal	
RD1	494g		23g	W of terminal 926g
RD2	1946g		0	
RD7	(E side) 39g	(W side) 902g	(E side) 137g	(W side) 57g
RD8	(W side) 153g		(W side) 925g	
RD12	(E side) 3g	(W side) 9g	(E side) 685g	(West) 3g
RD15	(W side) 53g		(E side) 49g	
RD21	16g		632g	

These figures show that there was no particular preference for either the northern or southern terminal or even for the eastern side in the occasional instance when there was also a western entrance, RD7.

Conclusion

The evidence from Tattenhoe Park shows that the deposition of pottery from parts of single vessels at or near the terminals of the roundhouse ring ditches was a frequent occurrence. It occurs in the two examples of roundhouse ring ditches where the size and the degree of re-cutting is itself indicative that these contained structures of particular importance, RD1 and RD2, and a third example, RD7, is also one of the larger and more complex ring ditch systems. In the other examples, RD8, RD12 and RD21, there are other structures of similar size that have not produced significant groups of pottery. In these instances we may only speculate that the acts of pottery deposition may mark these structures as also being houses of special importance or function.

Whether these acts of pottery deposition had a ritualistic element or were merely acts of disposal of waste is open to question. However, there are now extensively documented examples of special deposition on Iron Age sites of a wide range of materials, encompassing inhumation burials in pits, the deposition of animal carcasses or parts of animal carcasses, and the deposition of certain material items, certainly including querns and loom-weights. There is, therefore, no reason to doubt that pottery could also be subject to similar structured acts of disposal.

However, while attention has been drawn to the particularly large pottery groups associated with the larger roundhouse ring ditches, there are also a number of other small-scale instances of the deposition of parts of single vessels, with little or no mixing with sherds from other vessels. The southern terminal of a C-shaped ring ditch, S8, contained eight sherds, weighing 133g, from the base and wall of a single vessel, while the fill of a posthole in a four-post structure, PS7, contained 13 sherds weighing 102g, from the body and rim of a small bowl. In addition, there was part of a base, 40 sherds weighing 200g, from a pit at the northern end of structure S2, although in this instance there were also a few sherds from other vessels.

While the motives underlying these instances

may continue to be a subject for debate, the evidence from Tattenhoe Park provides a body of data that may be considered alongside similar studies of pottery deposition at other sites.

OTHER FINDS

The Iron Age coin

by Steve Critchley and Andy Chapman

A single coin came from the third of the sequence of four ring-ditches surrounding the principal roundhouse RD1. It is a *potin*, a cast high tin bronze coin, known as a Thurrock-type after a large hoard of over 2000 coins found near Thurrock, Essex. The obverse comprises an abstract design of a left facing head with a charging bull on the reverse. Over time these features became more degraded with a loss of definition of key elements of the design, probably through the use of existing coins to form the mould for new ones.

The Thurrock-type is attributed to the *Cantiaci*, a Celtic tribe whose territory lay in the south-east of England centred on Kent. Analysis by Haselgrove (1995, and see Fox 2013) has suggested an origin no later than the early 1st century BC and probably the later 2nd century BC, which would make them the earliest coins in the country.

Roundhouse RD1 was probably in use for most of the lifetime of the settlement, and charcoal from the penultimate recut has given a radiocarbon date of 390–190 cal BC (Beta-275416), which would be too early for the coin. However, the house probably continued in use through the 2nd century and perhaps even into the 1st century BC, contemporary with features at the northern end of the settlement.

The Thurrock-type are degraded copies of the struck bronze coinage of Greek *Massalia* (modern Marseille, France), issued during the late 3rd to early 2nd centuries BC, and either copied directly or perhaps copied from central Gaulish copies of the originals. Some early British examples even still feature the letters MA above the bull of the reverse.

The principal distribution is centred on the lower Thames basin, the Essex coast and east Hertfordshire, though the systematic recording of find spots of metal-detector-found examples via the Portable Antiquities Scheme and the Celtic Coin Index has significantly modified this distribution.

Recent examples have been recovered from as far away as Lincolnshire and East Anglia, so the location of the Tattenhoe example is no longer unusual. There is also an example from Coton Park, Rugby, Warwickshire (Chapman forthcoming).

The copper-alloy casting crucibles

by Andy Chapman

The fill of the most south-easterly section across the inner and lesser linear boundary ditch B7 (Fig 2), produced five sherds weighing 44g from crucibles used for copper-alloy casting. The sandy fabric contains fine quartz grains and the sherds are light to medium grey in colour and quite soft. They contain frequent small voids derived from gases given off during heating. On one sherd the inner surface is encrusted with a blob of vesicular residue, presumably derived from impurities within the molten copper alloy. Four of the fragments are body sherds 7-9mm thick and the other fragment is a rim sherd from a thinner crucible, 4-7mm thick. This suggests that the fragments come from a minimum of three separate crucibles.

Whilst fragmentary, the recovered sherds are all consistent with having come from the typical Iron Age crucible of triangular plan with a conical base (English Heritage 2001, fig 22.1). They can be compared to the classic assemblage from Gussage All Saints, Dorset (Spratling in Wainwright 1979, fig 99) and a similar smaller assemblage from Coton Park, Rugby, Warwickshire (Chapman forthcoming).

Such crucibles were used in the lost-wax casting process, where objects, often horse-harness fittings, were modelled in wax with a clay investment mould formed around the wax model, then dried and heated to solidify the mould and remove the wax. The copper alloy was heated in the crucible and poured into the mould through a shaped-cup at the top. On cooling, the moulds would be broken open to retrieve the cast objects. As a result, fragments of mould are more rarely found or recognised than crucibles: none were retrieved at Tattenhoe.

The material comes from the eastern side of the site, some distance from the main focus of activity. This indicates that there may have been a distinct and marginal area of the site devoted to this activity, as seen at Coton Park, Rugby (Chapman forthcoming).

The querns

by Andy Chapman

There are five pieces of quern, all very fragmentary. Three are large naturally worn pebbles, probably glacial erratics, which have been opportunistically fashioned as saddle querns. Of the two small fragments of sandstone, one piece has probably come from a beehive rotary quern, but too little survives to further characterise this stone.

Two fragments from a broken-up saddle quern had been deposited in the northern doorpost of the principal roundhouse RD1, either as a foundation deposit or as packing stones (or perhaps fulfilling both functions), while the only fragment from a rotary quern was also from RD1. Further fragments of saddle quern came from ring ditch RD18, and the fill of a posthole in four-poster PS3. A small irregular fragment of fine-grained sandstone came from a pit within RD6.

The predominance of saddle querns, with only a single piece from a rotary quern, is consistent with the radiocarbon dating of the site to the 4th-3rd centuries BC, as in the Midland counties rotary querns appear to have been introduced sometime during the middle Iron Age. A claimed date of introduction as early as the 5th-4th centuries BC at Fairfield Park, Bedfordshire (Shaffrey 2007), should be treated with caution as the date is derived from the dating of the pottery assemblage while the radiocarbon dates indicate that the occupation was centred on the 4th to mid-1st centuries BC (Webley *et al* 2007, 56-59). This would be in better accord with the evidence from the majority of middle Iron Age sites in the Midlands, which suggest a date of introduction no earlier than the later 3rd century BC. The lack of larger storage jars within the pottery assemblage at Tattenhoe Park is another indication that much of the activity here pre-dates the introduction of the rotary quern, as explored in more detail for Coton Park, Rugby, Warwickshire (Chapman forthcoming).

Other worked stone

by Andy Chapman

An elongated rod of micaceous stone, possibly schist, 210mm long by 55mm and 45mm thick, from a ditch terminal of RD7, has three of its surfaces and one end worn smooth, most probably

through use as a sharpening stone or large whetstone.

A large squared block of limestone, 340mm long by 290mm wide and 120mm thick, came from the secondary fill of a large pit, 1083, south of RD7. This pit produced a handle from a Roman flagon, as well as residual Iron Age pottery, so the worked stone could be either Iron Age or Roman in date. The other surfaces are uneven but smoothed and rounded, and the complex fluted structure evident within the natural rock indicates that this is probably part of a fossilised tree trunk, and it may have been selected for use because of this distinctive geology. The top surface of the stone is almost exactly square in plan, measuring 260mm in each direction, and has been heavily worn to form an almost perfectly flat surface. This would seem to be an unusual achievement for a stone in use for grinding or sharpening, which would create the necessary smoothing and wear but not the perfectly flat surface. The function of this stone is therefore unclear.

Fired clay

by Pat Chapman

A corner from a loom-weight with a partial impression of a perforation, 15mm in diameter, came from a ditch terminal of RD1. Another very small possible corner fragment and 34 fragments from the same context are probably part of the same artefact.

A ceramic spindle-whorl (SF2) from roundhouse RD3 is black with an orange oxidised surface. It is 39-42mm in diameter and 17-18mm thick, with an uneven surface, and the spindle hole is 6mm in diameter and slightly off centre.

THE ANIMAL BONE

by Matilda Holmes

The bones are fragmentary and very friable. The high number of loose teeth and tooth fragments (21% of assemblage) suggests that soil conditions were not conducive to good bone preservation. Teeth show the highest rate of preservation in the skeleton, and factors affecting them may be inferred to have destroyed bone to an even higher degree, therefore a good part of the faunal assemblage may have been lost post-deposition due to poor soil

TABLE 5 Animal species representation

Species	No	%
Cattle	231	67
Sheep/Goat	63	18
Sheep	4	1
Pig	23	7
Horse	23	7
Dog	2	1
Articulated fragments	435	–
Total Identified	781	–
Unidentified mammal	503	–
Unidentified large mammal	232	–
Unidentified medium mammal	80	–
Total	1596	–

conditions. Other taphonomic factors affecting the material were recorded including burnt, gnawed, butchered and recently broken bones, of which less than 1% of the fragments recorded had been butchered, gnawed or showed signs of fresh breaks and 5% had been burnt. A total of 183 fragments were conjoined to make a total of 21 refitted fragments.

Despite the inclusion of fragments from sieved deposits, no bird or fish bones were recovered, suggesting they were not an important part of the diet and were not present in the immediate environment.

The fragment count by species shows that cattle were found in greatest numbers (Table 5). Sheep/goat are the next most common, with a small proportion positively identified as sheep. Pig and horse bones are present in smaller quantities and dogs are also present both from bones and indirectly as gnaw marks.

Due to the friable nature of the material, there were no bones complete enough to be used for calculating wither heights. A small amount of fusion, tooth-wear and eruption data was recorded from the assemblage, and may be of limited use for ageing the animal populations on site.

THE CHARRED PLANT REMAINS

by Val Fryer

Ninety-six soil samples of between 10 and 60 litres in volume were submitted for analysis. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the charred plant macrofossils and other remains noted. Nomenclature follows Stace (1997). Of the 96 assemblages assessed, 72 contained only charcoal/charred wood fragments and other materials. Modern contaminants including seeds, moss fronds and arthropods were present throughout and fibrous roots formed the major component of most of the assemblages.

Cereal grains and seeds were recorded at an exceedingly low density, rarely occurring as more than one specimen within an assemblage. Preservation was generally poor, with many of the grains and seeds being puffed and distorted, possibly as a result of combustion at high temperatures.

Barley (*Hordeum* sp.) and wheat (*Triticum* sp.) grains were recorded along with a small number of grains which were too poorly preserved for close identification. Cereal chaff was entirely absent. A low density of seeds of common field weeds and grassland herbs was also recorded, with taxa noted including brome (*Bromus* sp.), fat hen (*Chenopodium album*), black bindweed (*Fallopia convolvulus*), goosegrass type (*Galium* sp.), persicaria (*Persicaria maculosa/lapathifolia*), dock (*Rumex* sp.) and vetch/vetchling (*Vicia/Lathyrus* sp.). Hazel (*Corylus avellana*) nutshell fragments were recorded from a posthole within RD3 and a pit within S10.

Although charcoal fragments were present throughout, the density of material recorded was rarely high, with a large number of assemblages containing only one or two minute pieces. Other plant macrofossils were exceedingly scarce.

The assemblages were from ditches/gullies, roundhouse ring gullies, pits and postholes. Given the range of contexts sampled, the assemblages are very uniform in composition, possibly indicating that the material within them has a common source, in this instance probably low-density scatters of domestic hearth waste. Similar low-density deposits have been noted at a number of contemporary settlements situated on clay soils within eastern England and the Midlands, for example at Stansted, Essex (Murphy 1990). The occupants of these sites were probably principally engaged

in a pastoral economy, as effective agricultural production would have been difficult on such heavy ground. Their cereal requirements would have been met by batches of imported prime grain, which needed little or no further processing prior to consumption.

THE CHARCOAL

by Rowena Gale

Samples of charcoal from three roundhouses and a single pit, attributed to fuel debris, were selected for full analysis, although the condition of the charcoal was generally poor and friable, and only four samples produced significant assemblages (Table 6). The samples were prepared using standard methods (Gale & Cutler 2000).

The taxa identified for the Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964–80). As anatomical differences between members of the Pomoideae (*Crataegus*, *Malus*, *Pyrus* and *Sorbus*) are too slight to secure identification to genus level, these are included as a group.

When a genus is represented by a single species in the British flora, it is named as the most likely origin of the wood, given the provenance and period (Godwin 1956; Mitchell 1974). The anatomical structure of the charcoal was consistent with the following taxa or groups of taxa:

cf. Aceraceae. *Acer campestre* L., field maple

Fagaceae. *Quercus* sp., oak

Oleaceae. *Fraxinus excelsior* L., ash

Rosaceae. Subfamilies:

Pomoideae, which includes *Crataegus* sp.,

hawthorn; *Malus* sp., apple;

Pyrus sp., pear; *Sorbus* spp., rowan, service tree

and whitebeam. These taxa are anatomically similar; one or more taxa may be represented in the charcoal.

Prunoideae. *Prunus spinosa* L., blackthorn.

Discussion

The economy of the settlement, which consisted of at least 21 roundhouses, appears to have been mainly rural and pastoral, although an industrial element, albeit probably small-scale, is suggested by fragmentary remains of crucibles for copper-alloy casting.

Most organic remains had been adversely

affected by the poor conditions for preservation. In view of the difficulty of cultivating the heavy clay soils and the overall paucity of charred grain residues, it is suggested that ready-processed cereals were bought into the settlement (Fryer above). Four-post structures, possibly granaries, may have been used for storage.

Roundhouses

Small amounts of charcoal were examined from the gully terminals of RD1 (the principal roundhouse), from RD7 (the western roundhouses) and from RD21 (the northern roundhouses), which may have been a later addition to the settlement). The charcoal almost certainly represents domestic fuel debris, either dumped or accumulated in the terminals of the ring ditches. RD1, RD7 and RD21 indicated the use of multiple species, predominantly blackthorn (*Prunus spinosa*) and the hawthorn/*Sorbus* group (Pomoideae) but also oak (*Quercus* sp.), ash (*Fraxinus excelsior*) and possibly field maple (*Acer campestre*). Although difficult to confirm, much of this probably originated from narrow roundwood.

Pits

Iron Age pits yielded insignificant deposits of charcoal, apart from a large pit at the eastern extremity of the site, south of S9 (Fig 2), with charcoal exclusively of oak. However, it should be noted that several pits of medieval date also produced quantities of charcoal almost exclusively from oak, so this stray pit may have been medieval rather than Iron Age in date.

Environmental evidence

The site was based on heavy clay soils with a tributary of Loughton Brook flowing to the south. Agriculture at the settlement focused on pastoral

farming and since there is little evidence to suggest that cereal crops were grown, it is probable that local woodland did not succumb to land clearance to the same extent as that on lighter and more easily cultivated soils.

Environmental evidence from the charcoal was limited, and it is probable that a much wider range of woody taxa was present than that identified. In addition, the woods named are likely to reflect the economic aspect of species selection.

Large woodland trees included ash (*Fraxinus excelsior*) and field maple (*Acer campestre*), with oak represented in small quantities. Marginal woodland and scrub may have been colonized by members of the hawthorn/*Sorbus* group (Pomoideae) and blackthorn (*Prunus spinosa*), although both hawthorn and blackthorn may also have grown in stock-proof hedgerows. The presence of hazel (*Corylus avellana*) was indicated by charred nutshell (see Fryer, above).

Woodland resources

Woodland must have been sufficiently abundant in the locality to enable the community to construct and maintain the roundhouses. Provision of firewood would also have been essential and, as demonstrated by charcoal deposits associated with ring ditches, domestic fuel included roundwood from various species, but particularly the hawthorn/*Sorbus* group (Pomoideae) and blackthorn (*Prunus spinosa*). These together with oak, *Quercus*; ash, *Fraxinus excelsior*; and field maple, *Acer campestre*, all produce high quality firewood. The advantage of using narrow roundwood is that the high ratio of atmospheric oxygen to wood surface quickly produces a hot, fast-burning fire.

During the ensuing centuries of occupation the settlement would have made considerable demands on woodland resources and it could be argued that

TABLE 6 Charcoal quantification by species and context

Description	<i>Acer</i>	<i>Fraxinus</i>	Pomoideae	<i>Prunus</i>	<i>Quercus</i>
Ring ditch RD7 terminal,	cf. 1	–	6	6	1
Ring ditch RD21 terminal	cf. 1	–	14	1	–
Ring ditch RD1 terminal	–	2	23	14	–
Pit, south of S9, NE area	–	–	–	–	95h

Key: h = heartwood; r = roundwood (diameter <20mm); s = sapwood (diameter unknown).

The number of fragments identified is indicated

supplies could only have been sustained through woodland management. Unfortunately, owing to its poor condition and gross fragmentation, the charcoal did not provide sufficient evidence to support this suggestion. It was apparent, however, that growth rates in oak varied from medium to slow, which infers that some trees were growing in stressed conditions and were therefore unlikely to have originated from coppice.

Comparable sites

Environmental evidence from Tattenhoe Park is roughly comparable to that from Magna Park, Milton Keynes, a Roman site from which a small assemblage of charcoal collected from ditches included the hawthorn/*Sorbus* group (Pomoideae), oak (*Quercus* sp.) and willow (*Salix* sp.) or poplar (*Populus* sp.) (Gale in Chapman & Chapman 2017, 47–48).

THE LATE IRON AGE AND ROMAN CREMATION BURIALS

Five cremation burials were interred within or close to Iron Age roundhouses (Fig 2). The earliest may have occurred within years or a few decades of abandonment, perhaps at the former family home, but others date to the late Roman period, some three or four hundred years after abandonment, suggesting either coincidence or a long social memory of the ancestral home. The descriptions of cremated bone are abstracted from the report prepared by Sarah Inskip and Mike Lall, which is available in the original client report (Taylor 2010).

Cremation burial C1

This was located within the open side of roundhouse RD3 and comprised an urned deposit of cremated bone in a small circular pit, 0.44m in diameter by 0.18m deep with steep sides and a flat base. The urn was incomplete but was probably a late Iron Age open bowl which had stood upright within the pit. It contained only 13g of cremated human bone, approximately 80 fragments, which could not be aged or sexed. The cremation contained some human bone skull fragments, and long bone fragments, together with a large animal rib fragment.

The urn had fragmented into some 259 sherds, weighing 1.3kg. The fabric is soft with a high density of large pieces of crushed shell, the majority

of which have been lost to leaching, leaving large flat voids. The fragmented state of this vessel leaves its form undefined, but the quantity of body sherds and their flat curvature indicate that it had a large diameter, perhaps an open bowl. The only two rim sherds are flat-topped and expanded externally, indicating that the urn stood upright and had been truncated. A late Iron Age date seems most likely.

Cremation burial C2

This unurned cremation was south of RD9 within a bowl-shaped circular pit, 0.50m in diameter and 0.22m deep. The small quantity of cremated bone (1g, 24 small fragments) was highly fragmented and could not be positively identified as human. Radiocarbon analysis has dated this material to cal AD 140–380 (95% confidence, 1770+/- 40 BP, Beta-275413). A total of 210g of nails and nail fragments was recovered and a count of evident nail heads indicates the presence of at least 110 nails. The group includes a range of sizes from small tacks up to larger nails. The smaller nails are likely to be hobnails while the larger nails may have been used to secure the substantial planks of a coffin. However, the charcoal mostly comprised hawthorn/*Sorbus* group, a species from which planks are unlikely to have been cut. Overlying the cremated material there was a layer of redeposited natural clay probably upcast from the digging of the pit.

Cremation burial C3

This lay within roundhouse RD21 as an unurned cremation within a sub-circular pit, 0.45m in diameter and 0.18m deep with steep sides and a flat base. This contained by far the largest amount of cremated bone (528g), coming from an individual of at least 15 years of age, as a fused distal humeral indicates 15 years in girls and 17 years in boys (Scheuer and Black 2000). Skull elements included the frontal, occipital, temporal, zygomatic and the mandible, all white in colour. The many long bone shafts included the humerus, radius, femur, tibia and fibula, all white on the external surface, but the femoral fragments in particular were grey on the inside. There are also fragments of cervical and thoracic vertebrae, fragments of rib and the coracoid of the scapula, also white in colour. Some teeth fragments included tooth roots and a 1st lower permanent incisor. Charcoal consisting of

roundwood from hawthorn/*Sorbus* group retrieved from the cremated material has been dated to cal AD 210–390 (95% confidence, 1750 \pm 40 BP, Beta-274418).

Cremation burial C4

This isolated, unurned cremation was located some 80m to south of the main settlement. The pit was 0.35m in diameter, 0.10m deep steep concave sides and broad concave base. The cremated bone, from a probable adult, weighed 81.5g. Among the skull fragments are pieces of occipital and temporal, which are white. There are also three root fragments, which appear to be permanent tooth roots and two have cross sections that are suggestive of a canine or a premolar. A total of 150g of nails and nail fragments was recovered and a count of evident nail heads indicates the presence of at least 80 nails. The group includes a range of sizes from small tacks up to larger nails.

Cremation burial C5

Located to the east of ditch B5, this burial comprised a small quantity of cremated bone within an urn placed in a small pit, 0.45m in diameter by 0.11m deep with gently sloping concave sides and a flat base. The fragmentary urn, 136 sherds weighing 217g, was a medium-sized jar or bowl with a flat bottom and no rim sherds, indicating that it had stood upright and had been truncated. It was broadly comparable to much of the pottery from the middle Iron Age settlement. The cremated bone, weighing 1g, comprised eight fragments; seven are cream/white and one black. They include the proximal joint surface of a first hand-phalanx, suggesting an age of at least 14 if female and 16 if male (Scheuer & Black 2000). Some long bone fragments are also included. Sparse charcoal from

the cremated material indicated the use of oak (*Quercus* sp.).

The human remains

by Sarah Inskip & Mike Lally

Studies of modern cremations have demonstrated that bone weight for an adult falls between 1000g and 3600g (McKinley 2000, 404). Cremation deposits C4 and C3 have the greatest quantity of material (81.5g and 534g respectively) which seems low for the ages of the individuals. Considering that three of the individuals have less than 20g, it seems highly likely that all of the cremated deposits are incomplete. Selective deposition of the remains may explain the low cremation weight, with the rest of the material being placed elsewhere.

Cremation dehydrates and oxidises the organic portion of the human body, and this includes 30% of the organic skeleton (McKinley 2000). The macroscopic colour of cremated bone reflects the level of oxidation and may be an indicator of pyre conditions including temperature. The colours change from unburnt, charring/black (<300°C) to blue-grey, grey (<600°C) and fully oxidised white (>600°C) (Brickley & McKinley 2004). The vast majority of the bone that was analysed was white, suggesting temperatures of 600°C and above.

Wood charcoal from cremation burials

by Rowena Gale

Charcoal was examined from unurned cremation burials C2 and C3, and from C5, which was probably urned (Table 7).

Cremation burial C2 contained only a minimal amount of bone and associated charcoal was also

TABLE 7 Charcoal from the cremation burials: quantification by species

Description	<i>Fraxinus</i>	Pomoideae	<i>Quercus</i>
Burial C2	2s	27	–
Burial C3	–	103	–
Burial C5	–	–	3h

Key: h = heartwood; r = roundwood (diameter <20mm);

s = sapwood (diameter unknown).

The number of fragments identified is indicated

TABLE 8 Plant macrofossil data, cremation burials

Cremation burial	C4	C2	C5
Cereal indet. (grains)	–	–	x
Fabaceae indet.	–	x	–
Fallopia convolvulus (L.) A.Love	x	–	–
Medicago/Trifolium/Lotus sp.	xcf	–	–
Rumex sp.	–	x	–
Vicia/Lathyrus sp.	–	x	–
Volume of flot (litres)	<0.1	<0.1	<0.1
% flot sorted	100%	100%	100%

sparse, but included the hawthorn/*Sorbus* group (Pomoideae) and ash (*Fraxinus excelsior*) sapwood. Numerous nails were recovered, but it is unlikely that members of the hawthorn/*Sorbus* group would attain large enough dimensions for planks, so the origin of the nails remains unexplained.

Cremation burial C3, the remains of a young or mature adult, also contained charcoal-rich soil including some relatively large fragments. The 50% subsample examined appeared to consist entirely of roundwood (some probably fairly wide in diameter) from the hawthorn/*Sorbus* group (Pomoideae).

For cremation burial C5, in common with C2, deposited pyre remains were minimal, and charcoal was also very sparse, less than 10 fragments, but indicated the use of oak (*Quercus* sp.).

Little is known of Iron Age/Romano-British funerary customs, although there is some evidence to suggest that certain rituals pertained in Europe, as indicated, for example, by Tacitus (*Germania* 27), writing in the 1st century AD, who noted that the Gauls used particular fuel woods for high-status cremations (although he did not specify which species). Thus the apparent selection of a single species for the pyre construction of C3 may be significant and perhaps related to gender, age or status. It may also be relevant to note that, in folklore, both hawthorn (*Crateagus*) and rowan (*Sorbus aucuparia*) were considered protective against evil, and rowan, in particular, to prevent the dead from rising (Grigson 1958).

Charred plant remains from cremation burials by Val Fryer

Samples from three cremation deposits, C2, C4 and C5, contained some charred weed seeds that may derive from plants burnt *in situ* beneath the pyres, although contemporary evidence from a number of other sites within lowland Britain would suggest that dried plant materials may have been used as kindling to ignite the pyres, or as supplementary fuels (Table 8).

DISCUSSION

Settlement chronology

There would appear to have been little or no earlier activity on the site, although residual Neolithic and Bronze Age flints found at the Kingsmead South site, 200m to the north, attest to human presence in the area during these periods. Radiocarbon dates and the pottery assemblage suggest that the main period of settlement fell between 400BC and 200BC, the earlier middle Iron Age. This period of around 200 years would seem appropriate given the size of the settlement and the degree of repair and replacement displayed by many of the round-house groups.

The pottery was highly fragmented and comprises mainly plain locally made wares with a proportion from diagnostically earlier middle Iron Age forms. It seems likely that the site had been partially abandoned by around 200BC, the later middle Iron Age, after which activity was probably restricted to a partially enclosed area close to the northern boundary ditch, and perhaps the principal

roundhouse and associated structures. A single pit in the northern part of the site was the only feature that produced enough diagnostic sherds to be confidently assigned to the late Iron Age.

Total abandonment in the late Iron Age is consistent with the local pattern of middle to late Iron Age abandonment. None of the six middle to late Iron Age sites excavated within a 3.5km radius of Tattenhoe Park: Cranbourne Avenue, Westcroft (Anthony 2003), Westcroft District Centre (Ford 2000), North Furzton Sites A and B (Williams 1988), Kingsmead South (Taylor 2009) and Oxley Park (Brown *et al* 2009) showed evidence of occupation into the Roman period. As Webley points out (Brown *et al* 2009), this would suggest a radical reorganisation of the local landscape during the 1st century AD, or even slightly earlier given the evidence from Tattenhoe Park. At sites such as Wavendon Gate (Williams *et al* 1995) and Fenny Lock (Ford & Taylor 2001) where there was no break in the sequence of occupation, there was still an apparent need to re-site the settlement on new ground during early Roman times.

Continuity of occupation at Tattenhoe Park from its origin to abandonment is inferred by the re-siting of buildings on or slightly to the side of their predecessor's footprint. The small enclosure E2 surrounds the area once occupied by roundhouse RD16, and RD17 was built on the footprint of RD22, perhaps a generation after its abandonment and the introduction of a linear boundary over the earlier structure.

Settlement development and morphology

A lack of stratigraphic relationships, other than within small groups of structures, makes unravelling the site development problematic. With most of the roundhouse groups it is possible to identify a sequence of successive reconstructions, but there is no way of determining which elements of separate roundhouses were contemporary.

The principal roundhouses RD1 and RD2 are likely to be the earliest and most long-lived structures. Assuming the settlement did not extend much further to the south-west of the excavation area; these buildings were central and show a long sequence of maintenance and rebuilding in the same location. This would suggest they were of some importance and their function perhaps was more than that of domestic occupation alone. From these origins the settlement grew and developed a

linear arrangement similar to that seen at Oxley Park West (Brown *et al* 2009), Bancroft (Williams & Zeevat 1994) and Salford (Dawson 2005). It is impossible to be certain if linearity was a result of settlement drift, two or three houses moving across the landscape, as has been suggested for Kingsmead South (Taylor 2009) or the zonal distribution of chronologically successive buildings. It is most likely that the principal house group remained the nucleus of the settlement, much like the enclosures at Pennylands (Williams 1993a), which formed the dominant focus of the settlement, around which the occupation may have periodically shifted as buildings fell into disrepair and new ones were built, initially focussed to the south and south-west, and later to the north.

The settlement appears to have been unenclosed, with an archaeologically invisible boundary containing it to the north-west, while a significant landscape boundary ditch B6 formed the northern limit. Although later pottery was retrieved from this ditch it is likely that it was a long-lived feature, present in one form or another through the lifetime of the settlement. Respecting and aligned with this ditch, the establishment of the open-ended enclosure formed by ditches B1 and B7, saw the abandonment of structures RD16, RD17, RD24 and more than likely the four-post structures PS1, PS2 and PS3. It is possible that the residential and storage functions of this part of the site were relocated to the south of RD1.

Outside the main settlement core there were a number of outlying features. Charcoal found in pits associated with structure S9 and fragments of copper-alloy casting crucibles found in the eastern end of ditch B7 would suggest small-scale industrial activities were carried out in structures at the periphery of the settlement.

Settlement architecture

The large collection of ring ditches (RD) and smaller and usually partial rings (S), probably mainly represent ring ditches associated with either roundhouses or with some of the smaller rings and arcs four-post structures. The palimpsest of these roofed structures would have fulfilled the needs for domestic occupation, craft activities and storage of perhaps both food stuffs, including grain, and equipment. Stock enclosures or other enclosed spaces, such as Enclosure E1 surrounding ring ditch RD2, certainly one of the main domestic

roundhouses, are usually sub-rectangular and therefore quite distinct, but the large diameter ring ditches at the northern end of the site, RD18 and RD20, at *c.*15m diameter, may have been open enclosures rather than enclosing roundhouses. If so, this strengthens the argument that the site was in decline at this time.

The site shows a wide diversity of ring ditch forms. A few were classic roundhouse ring ditches, with a narrow entrance opening to the east, particularly RD1, RD2, RD16 (although not a complete ring) and the smaller diameter RD11, but of these only RD1 had a convincing pair of doorway post-pits, set around 1.0m or so inside the ring ditch circumference, and this pair could only have functioned in association with one of the multiple phases of ditch recut.

There were other paired doorway post-pits or postholes, but in the case of RD15 this was a ring ditch with a western entrance, with another further west, RD8. The other example, RD7, was even more unusual in having pairs of posts within both eastern and western entrances, indicating the presence of a roundhouse with two opposed doorways, a rare arrangement, although a smaller ring, RD12, also had both eastern and western entrances, and also has a probable pair of doorposts inside the western entrance. The southern half of structure S1 looks a similar arrangement to RD7, apart from the absence of a northern half to the ring ditch system.

At the next level down, there are smaller diameter ring ditches, sometimes only partial, which all seem likely to have had eastern entrances, e.g. RD3, RD4, RD13, RD21 and S8, which probably all contained smaller roundhouses serving as ancillary buildings.

At an even lower level are arcs of gully, e.g. S6, S7, S10 and S11. These are usually of relatively small diameter and very shallow, and sometimes shallow enough to suggest that a former more complete ring ditch had been largely lost. If they surrounded structures, these were also probably lightly built, forming minor ancillary buildings. In one example, S5, such a small diameter partial ring enclosed a four-post structure, while several other four-post structures were not enclosed. These are generally interpreted as raised platforms for the storage of grain but their use as drying racks, small pens, shrines and excarnation platforms have all been suggested elsewhere.

The construction of the roundhouses appears

to have been typical for the period, as has been suggested for buildings at Bancroft and Pennylands, this probably involved a mass construction technique, using turf, cob or wattle which left no surviving subsurface trace. The large Bronze Age circular structure comprising three concentric rings of postholes at Bancroft (Williams & Zeepvat 1994) demonstrates that if substantial wooden posts had been used in the construction of later buildings there is no reason why traces of them would not have survived.

Settlement organisation

What the various sizes and forms of structure may tell us about how the settlement was organised is always problematic, given the lack of material evidence for specific practical functions. However, the presence of a large and long-lived roundhouse at the centre of the settlement, RD1, and close by a second large roundhouse, RD2, later enclosed within a sub-rectangular enclosure, is a pattern seen elsewhere, such as Coton Park, Rugby (Chapman forthcoming) and also at DIRFT Long Dole (Chapman 2015) where it has been suggested that rather than a village structure, with multiple families clustering around the house group of the leading family, the model may well be one of a more communal arrangement, with the principal roundhouses being perhaps a men's house and a women's house, while smaller roundhouses were possibly for the young men and the young women with others serving specific practical functions, such as a weaving house.

Unfortunately, beyond the presence of the principal houses, RD1 and RD2, identified on the basis of size and duration of use as seen through the presence of multiple recuts for one and the addition of an surrounding enclosure for the other, there is no material evidence to tell us the specific significance of, say, the houses with westerly facing doorways, such as RD15 and RD8, or of the examples with paired eastern and western doorways, such as RD7 and RD12, and even principal house RD2, had paired doorways, a feature appearing quite frequently at Tattenhoe Park.

Landscape and economy

The evidence suggests a relatively densely populated settlement. Situated on a boulder clay ridge, overlooking a tributary of Loughton Brook, the site conforms to the pattern of middle to late Iron Age

colonisation of the heavy clay soils which is likely to have occurred due to population pressures, the introduction of hardier cereal crops and developments in ploughshare technology (Williams 1993a: 1993b). Webley (2009) points out developments in settlement patterns are also likely to have been the result of a range of social and cultural factors.

The charred plant remains were scarce, however, clay soils have been shown to seriously hinder the recovery of charred plant remains (De Moulins 1996) and fluctuating wet and dry conditions in clay soils are likely to lead to the decomposition of fragile plant remains such as chaff (Webley 2009).

Although Fryer infers that low density assemblages suggests that the occupants of the settlement were principally engaged in a pastoral economy, the poorly preserved faunal assemblage and the general site morphology would not support this. At Oxley Park West (Brown *et al* 2009) a mixed farming economy was suggested by the charred plant remains, the faunal assemblage and the presence of a series of large enclosures. At Pennylands (Williams 1993a), the predominantly arable economy of the earlier phase is represented by a number of grain storage pits combined with three rectilinear enclosures interpreted as having defined areas of cultivated land. This later gave way to a more pastoral economy as suggested by the establishment of a number of stock enclosures and a droveway. Tattenhoe Park's neighbouring settlement, Kingsmead South, 200m to the north was characterised by a number of roundhouses and stock management enclosures (Taylor 2009). The complete lack of identifiable stock enclosures at Tattenhoe Park would suggest that pastoral farming was not at the centre of the settlement's economy, while the clusters of four-post structures suggest that grain may have been stored, perhaps as seed corn, on a considerable scale.

It has been suggested that linear settlements may have been laid out along landscape boundaries of some kind. Lambrick and Allan (2004) have suggested that a group of linear early and middle Iron Age settlements were located at a division between areas of the landscape under arable and pastoral use (Webley 2009). This may apply to Tattenhoe Park but the settlement immediately to the north, Kingsmead South, appears to have been largely designed for stock management.

There was sparse evidence of specialist activities on the site. A spindle-whorl and loom-weight

fragments attest to textile production; evidence of food preparation is represented by quern fragments and the occasional incidence of animal bones with butchery marks. Fragments of crucible found in ditch B7 indicate that small-scale copper-alloy casting was being carried out, but probably away from the main area of domestic occupation.

The cremation burials

The seemingly intentional placement of cremations during Roman times within a former Iron Age settlement is unparalleled in Buckinghamshire. Too widely spaced to be considered a formal cemetery, it would appear that some centuries after the middle Iron Age settlement was abandoned, people felt impelled to visit to deposit cremated remains. It seems unlikely, but not impossible, that the five cremations represent a chronological sequence of individual interments, perhaps of an ancestral line, each separated by one or two generations. The earliest were cremations C1 and C4, contained in broadly dateable Iron Age vessels. The latest were cremations C2 and C3, which were radiocarbon dated to the 2nd-4th centuries AD. Cremation C5 was unurned, not subject to radiocarbon analysis and so remains undated.

Three of the cremation burials, C1, C2 and C3, were placed within or adjacent to former dwellings, suggesting these structures were still identifiable as such long after abandonment. Given the perishable construction materials used in these buildings, the surrounding gully must have been the recognisable feature, or perhaps the substantial timber doorposts which could have survived for many decades. That the site was recognisable for centuries after abandonment would suggest the land had not been ploughed but was retained under grass.

There is no known Roman successor settlement, but the presence of Roman cremation burials suggests it was not far away, and people may have returned to the site to make cremation deposits as a statement of ancestral rights to the land.

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