# PREHISTORIC AND ROMANO-BRITISH ACTIVITY ALONG THE A355 BEACONSFIELD EASTERN RELIEF ROAD

TIM ALLEN, MARIUSZ GORNIAK AND KIRSTY SMITH

With contributions by KATE BRADY, DAVID DUNGWORTH, JULIA MEEN and REBECCA NICHOLSON

*Archaeological investigations along the A355 Beaconsfield Eastern Relief Road in 2018 revealed archaeological remains dating between the late Neolithic/early Bronze Age and the Roman period. Following extensive trial-trench evaluation, three areas were subject to open-area excavation. Scattered early prehistoric flintwork was discovered in each of the excavated areas, as were possibly contemporary quarries/shafts or sinkholes. One Early Iron Age pit with in situ burning was found. The principal occupation consisted of ditches and pits of probable late Iron Age date in one area, and others of late Iron Age and of Roman date in a second area. Evidence of a possible change in the local woodland in later prehistory, and of a shift from pastoral to arable agriculture in the early Roman period, is also presented and discussed.*

## Introduction

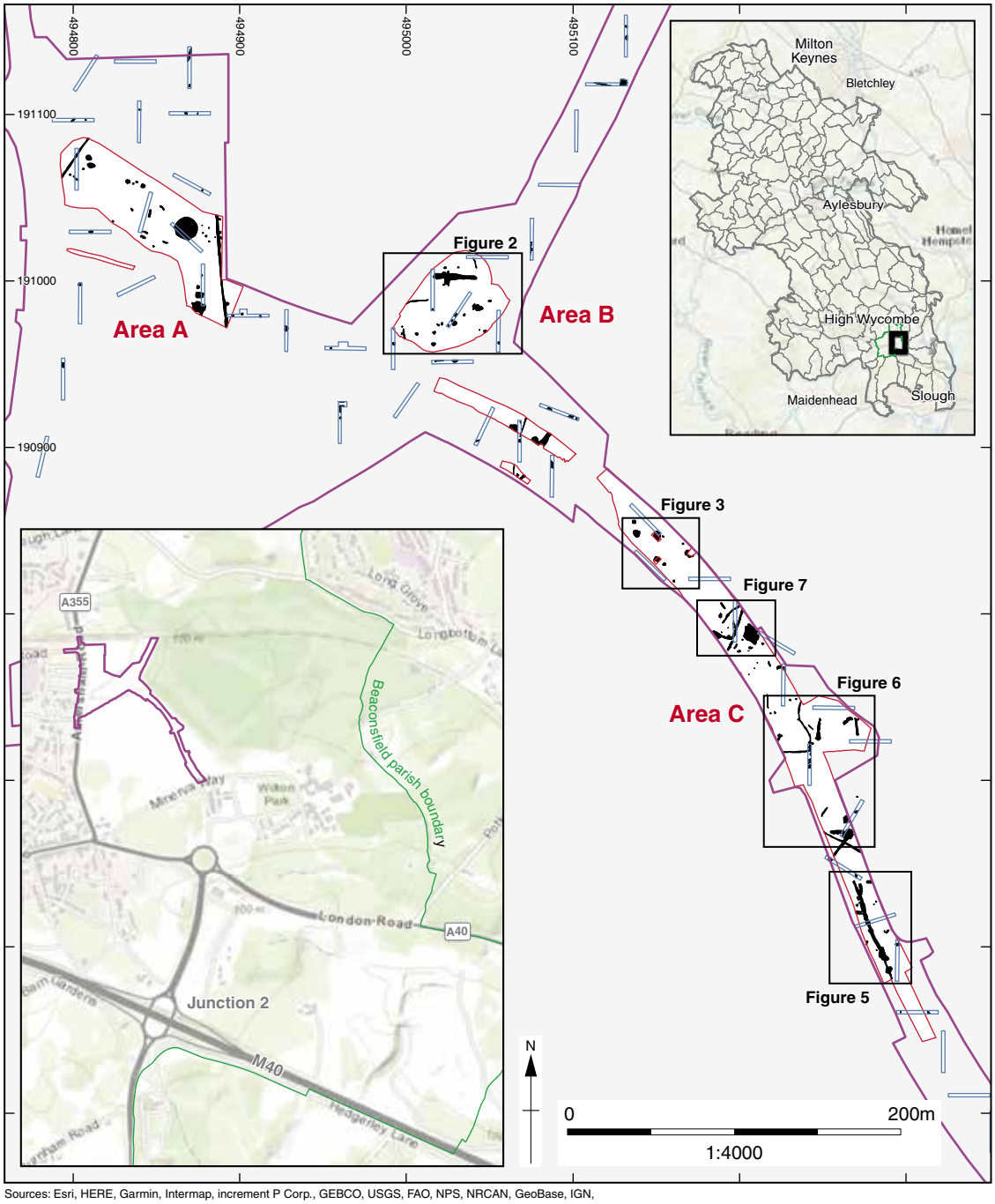
In 2018, Oxford Archaeology (OA) undertook archaeological investigations in advance of the construction of the A355 Beaconsfield Eastern Relief Road. The development extended south-eastwards from the A355 Amersham Road (NGR SU 9479 9102) on the north-west to Minerva Way (NGR SU 9538 9045) (Fig. 1). Following geophysical survey and trial-trench evaluation, three areas (A, B and C) were identified for open-area excavation, and were followed by a watching brief (but no excavation) on two strips between B and C.

This article summarises the discoveries, and accompanies two grey literature reports for the site (OA 2019a; 2019b), which provide a more detailed account of the stratigraphy and the full specialist reports, and are available both in the Buckinghamshire HER and as digital downloads from OA's online library (https://library.thehumanjourney.net/).

## Archaeological Background

A geophysical magnetometer survey along the line of the route revealed only one distinct feature towards the north-west end, interpreted as a small ring ditch (Jacobs 2016, Appendix 6B). A subsequent trial-trench evaluation (OA 2017) found that the possible circular ring ditch was a large pit or quarry infilled in the late 18th or early 19th century, and there were several post-medieval field boundaries in this area. In contrast, several pits and ditches containing pottery of late Iron Age/early Roman date were discovered in the central and southern parts of the site. Trenching also recovered a few Neolithic/early Bronze Age struck flints from features across the site, including two found in shallow pits with no later finds. One particularly deep pit containing two flints was not bottomed and was interpreted as a possible shaft.

Prior to the current work, no previous archaeology was known within the scheme area. The HER records the finding of a fragment of Neolithic polished axe, a Neolithic flake and two Neolithic or Bronze Age scrapers within 1km of the site. A possible Bronze Age barrow (Scheduled Monument 1013932) lies 700m to the north-east. A Roman coin was found in the vicinity, and an early medieval settlement is believed to lie 500m to the south-west.




Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN,

FIGURE 1 Site location

## The 2018 excavations

The trial-trench evaluation identified Areas A, B and C, together covering 3.72ha, as being of archaeological potential. These areas were stripped and excavated from June to September 2018, and watching brief was later carried out on stripping between Areas B and C (Fig. 1). Area A did not contain features meriting further post-excavation work, and the results were written up and included in a grey literature report (2019a). The following stratigraphic narrative details the results from Areas B and C and the watching-brief.

The drift geology of the site is Beaconsfield Gravel, underlain at the north-west end by the Seaford and Newhaven Chalk Formations, and elsewhere by the Lambeth Group Formation comprising silty and sandy clays with sands and gravels (BGS 2019). Area C overlay sandy gravel at shallow depth throughout, but while the north-western part of Area B had natural gravel at shallow depth, the south-eastern part overlay a hollow filled with colluvium (Fig. 2, deposit 387).

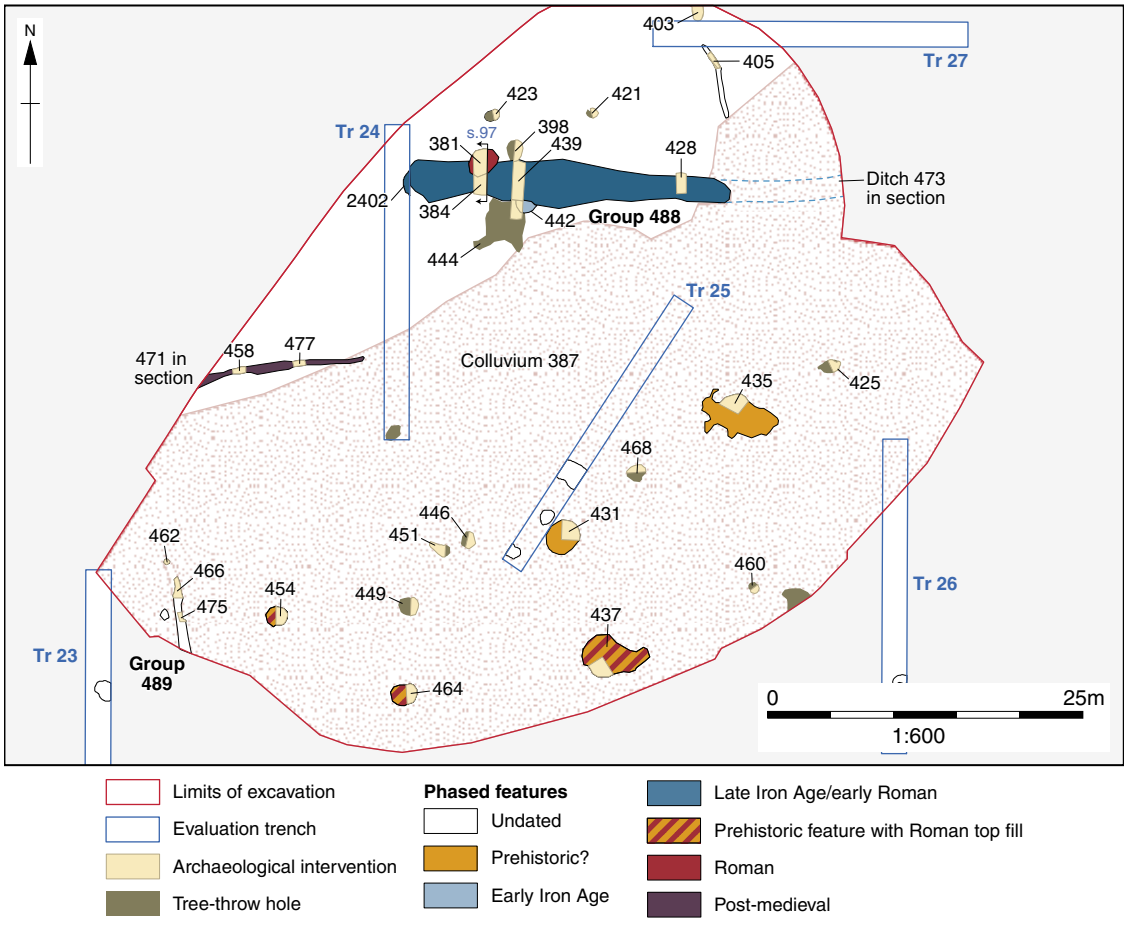



Figure 2 Detailed plan of Area B

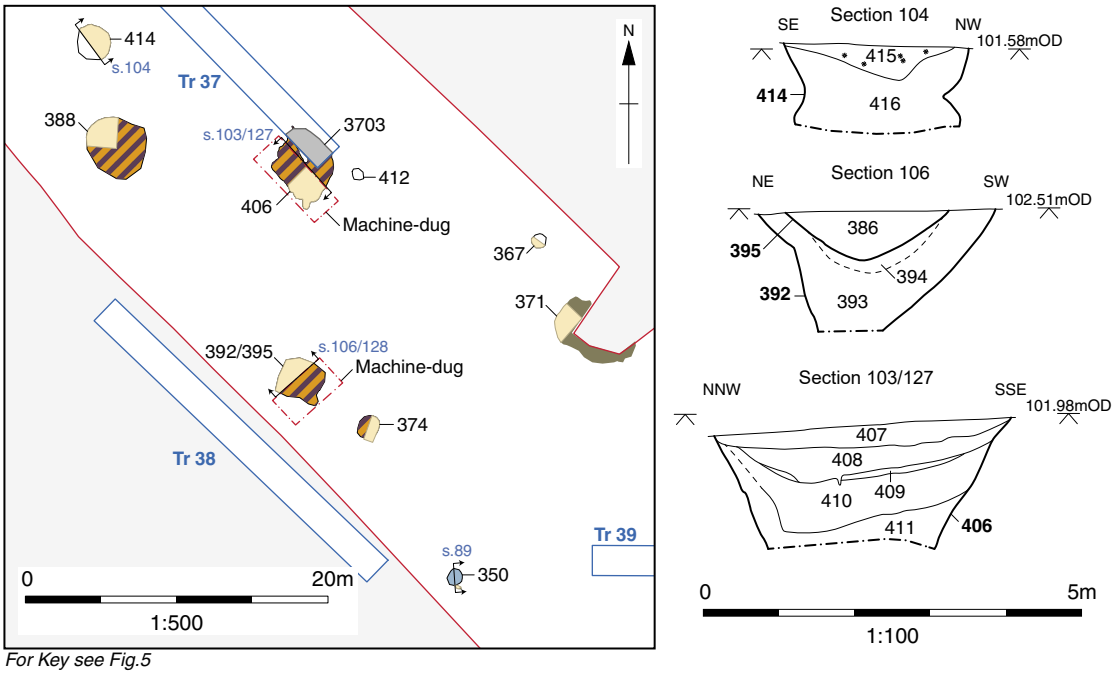



FIGURE 3 Detailed plan and sections of Area C north

## EARLIER PREHISTORIC ACTIVITY

Five deep quarries/shafts or sinkholes in the northern part of Area C were investigated (Fig. 3: 374, 388, 392, 406, 414), and a further nine in Area B (Fig. 2: 431, 435,437, 446, 449, 451, 454, 464 and 468). Several were also found in the watching-brief areas, and in evaluation. Some of those in Area B were sealed by colluvium, while others cut it. Most of these features were excavated to a depth of 1m, two to 2m, and none was bottomed. Their profiles were generally steeply sloping at the top and vertical lower down; some were vertical-sided from the very top, and one had an hour-glass profile (Fig. 3). The fills were mostly composed of sterile clayey or sandy silts of light colour, with natural flint nodules, and some had occasional charcoal flecks. Features 388 and 406 in Area C and 431, 435 and 451 in Area B each contained 1-3 struck flints, as did watching-brief feature 3405 (tested in evaluation). They may have been quarries or shafts originally dug for flint, or geological sinkholes that remained open and had collected struck flints at a later date. The uppermost fills of these features in both areas contained later material; 437, 454 and 464 in Area B contained one or two sherds of late Iron Age/early Roman pottery, and 374, 388, 392 and 406 in Area C had post-medieval tile or brick (see Figs 2 and 3), suggesting that some remained as hollows until quite recently.

Most of the remaining Neolithic or early Bronze Age struck flints were residual in later features, but small, shallow pit 136 in Area C (Figs 6 and 4, section 44) contained four undiagnostic struck flints and no other finds, so may have been earlier prehistoric.

## EARLY IRON AGE FEATURES

Towards the north-west end of Area C (Fig. 3) was a vertical-sided and flat-bottomed pit (350) with reddened base containing oak charcoal from *in situ* burning (Fig. 4, section 89). Further episodes of burning and cleaning of the pit sides were evident. A charred sloe or cherry (*Prunus* sp.) stone from the second burnt layer was radiocarbon dated to 770–430 cal BC at 2σ 95% confidence (SUERC-87950; 2471 ±*30BP*), *i.e.* the early Iron Age.

Pit 442 in Area B measured 1.2m wide and

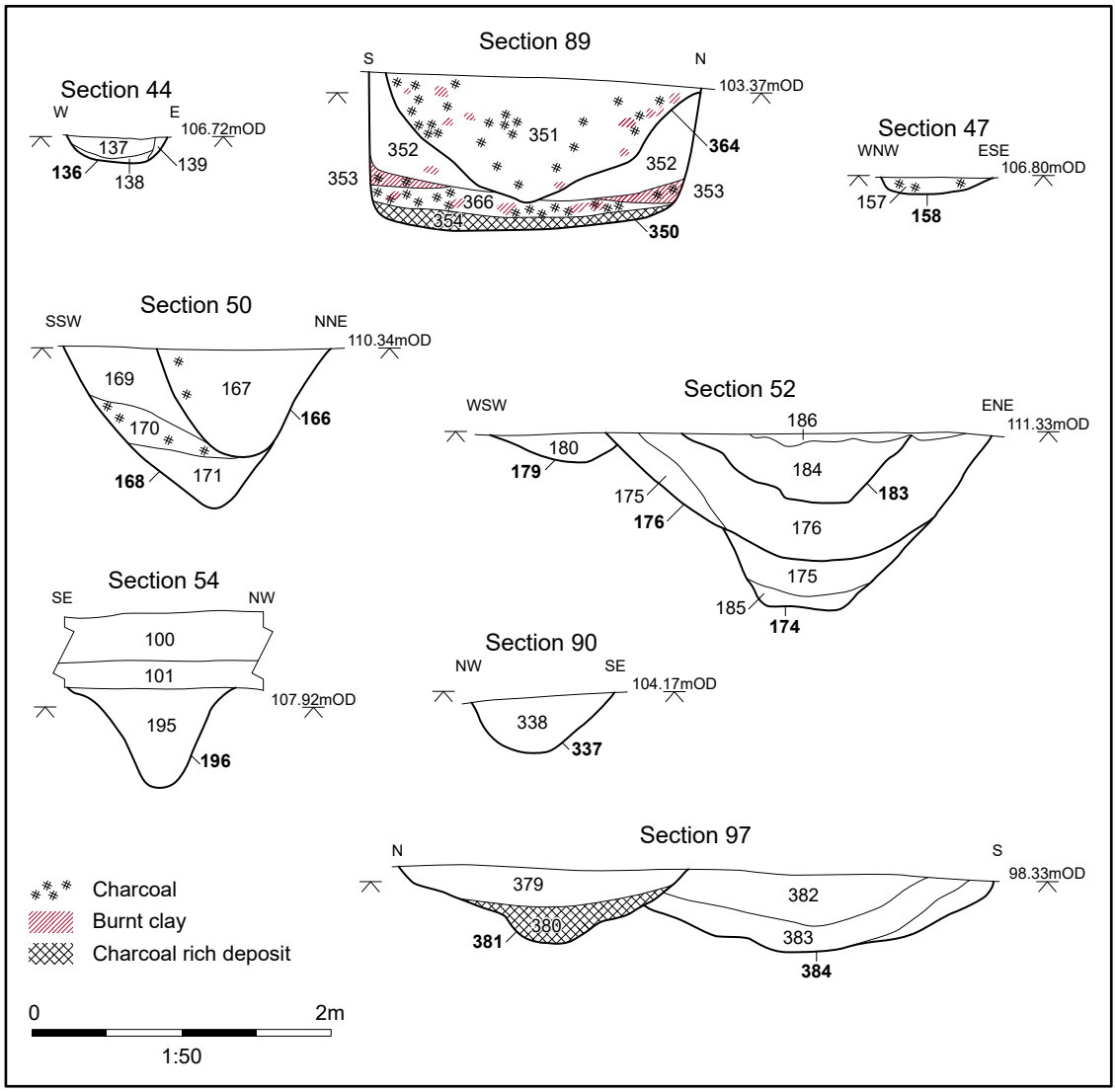



FIGURE 4 Sections of selected earlier prehistoric, late Iron Age and Roman features

0.58m deep and had near-vertical sides and a flat base. It was cut by late Iron Age/early Roman ditch 488 and although it did not contain finds, is likely to be prehistoric, and may also have been early Iron Age (Fig. 2).

## LATE IRON AGE AND ROMAN FEATURES

### *Area C*

Area C had a series of widely-spaced ditches. At the southern end of the site, a 50m-long ditch (group 484) was aligned NNW–SSE following a ridge of slightly higher ground (Fig. 5). The northern ditch terminus cut an ovoid pit 263, which contained 11 sherds of late Iron Age/earliest Roman pottery and mainly beech charcoal (sample 2). The ditch was up to 1.2m deep and between 1.7m and 2.3m wide (Fig. 4, section 52). Its fills produced 70 sherds of late Iron Age/early Roman pottery. The basal fill at the southern end (270) was assessed for pollen (sample 8) but contained only sparse pollen grains, although

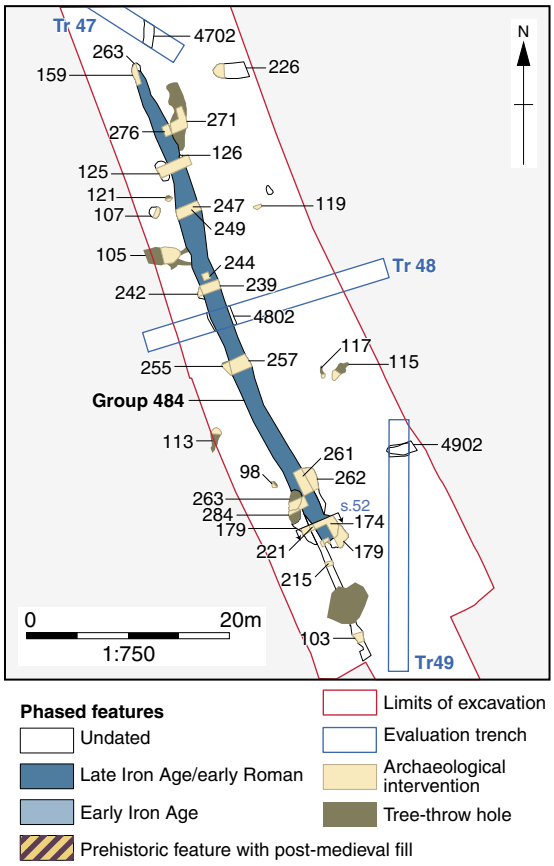



FIGURE 5 Detailed plan of Area C south

grasses, dandelion-type, ribwort plantain and tree pollen of alder, hazel and the common polypody fern were present. Two undated ditch termini on either side (226 and 4902) may represent further boundaries roughly at right angles.

A short but deep ditch (group 480, recut as 479), aligned east–west, was located some 30m north of ditch 484 (Fig. 6). It was up to 1.7m wide and 1.2m deep (Fig. 4, section 50). The three fills of the original cut contained charcoal, 239 sherds of pottery of late Iron Age character and a fragment of a triangular bronze-working crucible of Iron Age type. Beechwood charcoal from middle fill 170 gave a radiocarbon date of 100 cal BC–60 cal AD at 2σ 95% confidence (SUERC-90346; 2025±26BP). The recut was up to 1.18m wide and 0.72m deep, with only one fill and no finds.

About 50m further north, ditch group 481 was S-shaped in plan and may have formed the south-east corner of an enclosure (Fig. 6). All interventions into the ditch produced pottery, and additional concentrations were retrieved from the surface of the upper fill. In total, 411 sherds of late Iron Age/early Roman pottery (50 BC–AD 50) were found, of which 18 sherds from the upper fill in cut 288 are dated to AD 1–50. This narrower date range is probably applicable to all the pottery from this ditch. The ditch was generally 0.7m wide and varied in depth from 0.32 to 0.67m, and it had a steep-sided profile with a generally concave base (Fig. 4, section 54). The fills comprised variations of grey or brown sandy silt and almost all contained charcoal. Environmental samples 14–17 were taken from the top fill, and sample 7 from lower fill 201. None contained charred plant remains other than charcoal, usually a mixture of beech, oak and hazel, even though preservation was variable. A charred beech twig from sample 7 was radiocarbon dated to 40 cal BC–90 cal AD at 2σ 95% confidence (SUERC-90347; 1967 ± 26 BP). The absence of Romanised wares suggests a date early within the range.

Pit 4510 lay just inside the angle of ditch 481. This was sub-circular and *c.*1m across, but only 0.17m deep. It had a fill rich in oak charcoal with a little beech, but no finds. Due to the charcoal-rich fills of both the pit and adjacent ditch, no clear relationship between them was established. Just to the east of ditch 481 were two roughly parallel slots *c.*10m long and 22–23m apart. These were without finds, and it is unclear whether they were natural or man-made. Shallow pit 158 was also located within the boundary of ditch 481 (Figs 6 and 4, section 47). Its single fill (157) contained charcoal and burnt flint, and a roundwood *Prunus* charcoal sample was radiocarbon dated to 180 cal BC–cal AD 10 at 2σ 95% confidence (SUERC-87949; 2059 ±30 BP).

No evidence of a western return to the enclosure was observed in the geophysical survey data. Some 26m to the north, an undated ditch (4202) of similar dimensions was found in an evaluation trench, terminating just within the edge of Area C. Another possible return was ditch group 483, located nearly 70m further north, which ran north–east to south–west, (Figs 7 and 4, section 90). This was up to 0.95m across, 0.37m deep, and contained four sherds of late Iron Age/early Roman pottery.

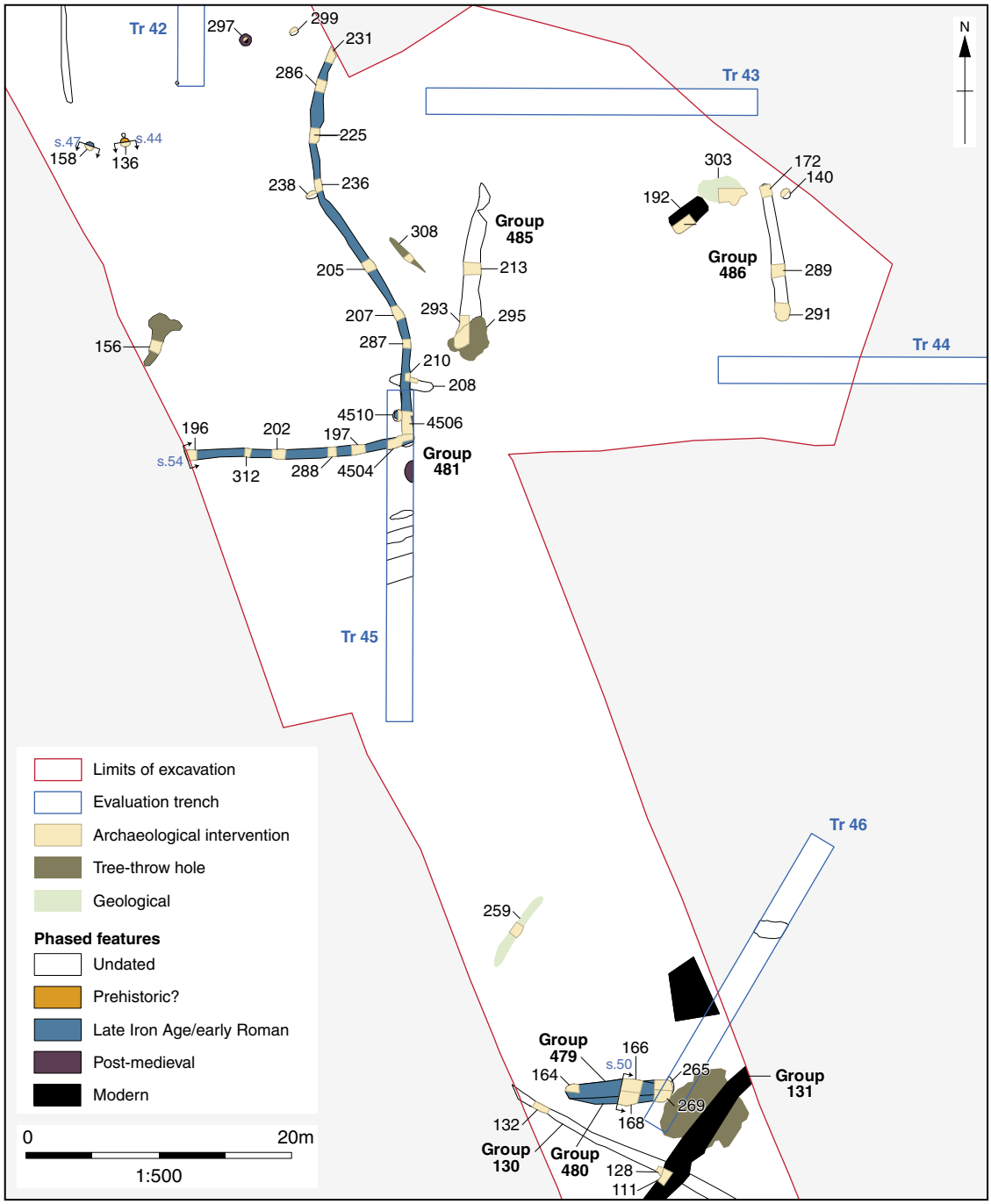



FIGURE 6 Detailed plan of Area C central

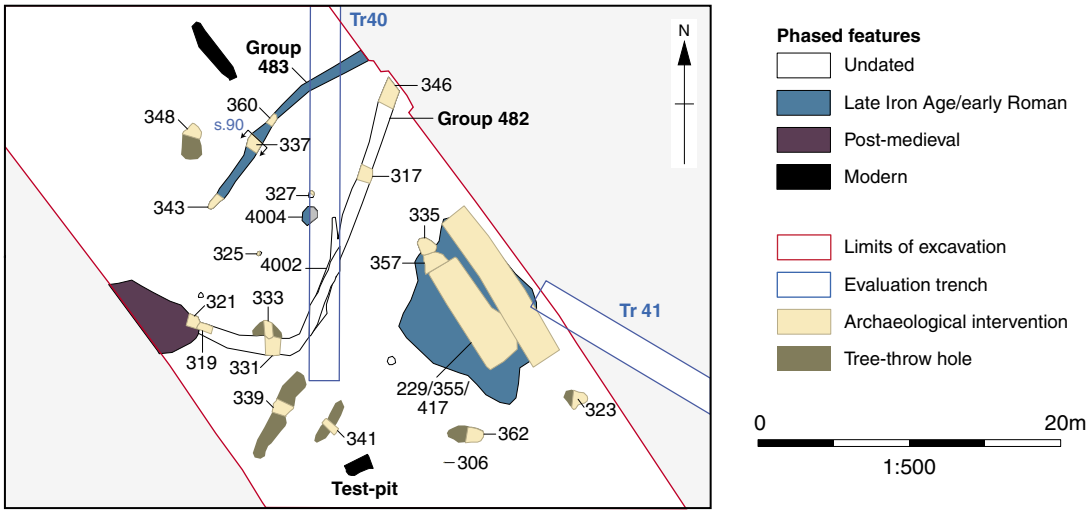



FIGURE 7 Detailed plan of Area C north

A large quarry or natural sinkhole numbered variously 229/355/417 lay south-east of ditch group 483 (Fig. 7). It was not bottomed, but its two uppermost fills contained six sherds of late Iron Age/earliest Roman pottery. The north-west edge was cut by pit 357, which was cut in turn by oval pit 355. The last was 0.7m long and 0.28m deep, containing a single fill with 50 sherds from a single late Iron Age/early Roman vessel and much oak charcoal. Midway between 355 and 483 was pit 4004, which was nearly 3.5m in diameter and 0.81m deep, with sloping sides and a flat base (OA 2017, fig. 9). The third of its four fills contained much burnt flint, beech heartwood charcoal and a little fragmentary fired clay, and the final fill (4005) produced two sherds of late Iron Age/early Roman pottery. Between pits 4004 and 355 was an undated L-shaped ditch (group 482). It was up to 1.28m wide and 0.42m deep with a concave base. The ditch did not contain any finds but was cut on the west by large pit 321, which produced early post-medieval roof tile.

### *Area B*

East–west ditch (group 488) was at least 35m long and 1.7–3.5m wide, terminating at the western end, but continuing beyond Area B to the east (Fig. 2). Four slots were dug across it, showing that it was up to 0.8m deep and contained up to three fills (Fig. 4, section 97). A total of 71 sherds of pottery came from the feature, 55 of them from lower fill 441 within slot 439. Most were of late Iron Age/early Roman date, though two sherds from upper fill 382 were clearly early Roman. Upper fill 440 was charcoal-rich and included cereals (sample 27). North and south of the ditch were small undated gullies at right angles that may have been associated. Ditch 488 was cut by pit 381, which contained a hobnail and Roman pottery dated broadly to AD 100–410, and a substantial assemblage of charred plant remains (sample 29).

### Watching-brief area

Stripping of two parallel lengths between Areas B and C revealed two ditches in each, which were planned but not excavated. Wider ditch 500 was a continuation of ditch 3507 in evaluation trench 35, which contained early Roman pottery (OA 2017). Ditch 510 was offset from ditch 500, so may be a separate feature, and a sherd recovered from its top may be Roman or medieval. A further early Roman ditch was found at right angles to 500 in evaluation Trench 36.

### Post-Roman activity

Activity in the 16th–17th century is indicated by quarry 321 in Area B and a pit (not numbered) in Area C, and by ceramic building material in the tops of several of the quarries/shafts in Area C. Postholes and field boundaries of probable 19th-century date were also found (e.g. ditch 458/477 in Area B). In the watching-brief areas

ditch 504=508 produced post-medieval roof tile and a residual flint.

## Late Iron Age and Roman pottery
by Kate Brady

In total, 924 sherds of pottery weighing *circa* 8.7kg were recovered from the excavation. The minimum number of vessels (MV) – that is, the count of individual vessels identified by rim – is 44. The total estimated vessels from rim percentages (EVE) – that is, the total percentage of surviving rims, where a complete vessel rim (100%) is 1.00 EVE, is 4.65. The pottery is mostly of late Iron Age to early Roman date, while later pottery comprised only eight undiagnostic body sherds. The assemblage was recorded following PCRG guidelines (PCRG *et al*. 2016). For further details of the methodology see the online report.

**Assemblage, composition and supply**

E wares (E20, E30, E60 and E80) constituted 91% by weight, reduced and oxidised wares 7.3%, the latter occurring in few features (Table 1). E wares are mostly solely grog-tempered (E80) but include small quantities of sand-tempered (E30) and flint-tempered (E60) fabrics with occasional grog inclusions. Sand could have been obtained from the Beaconsfield Gravel underlying the site and flint from the Seaford Chalk 1km to the north.

E-ware rims have been cross-referenced with Thompson's (1982) typology (Table 2). The most common jar forms are bead-rimmed and high shouldered/necked jars, followed by medium-mouthed jars, barrel-shaped jars and storage jars, plus two jars of unspecified type. Horizontal and vertical rilling was noted on body and rim sherds; this external surface treatment is common on jars in the region in the middle to late Iron Age, and corresponds to the East Midlands scored tradition elsewhere (Jones & Brown 2011, after Elsdon 1992).

There were also six bowls (H), but too little of the rims to specify types; one large body sherd was clearly from a necked bowl (HD). Other forms were butt beakers, a carinated beaker, two platters and one lid. A selection of the vessels is illustrated in Fig. 8. No. 1 is the only sherd from Area A, and Nos 21 and 22 the only illustrated vessels from Area B.

Fabric E80 occurred in handmade and wheel-made oxidised and reduced variants, and the colour varied on some coarser handmade vessels.

Table 1 Quantification by fabric

| | | *Sherd Nos* | *Wt (g)* | *MV* | *EVE* |
|---|---|---|---|---|---|
| **C Shell-tempered wares** | | | | | |
| C11 | South Midlands shell-tempered ware | 3 | 70 | 0 | 0 |
| **E Late Iron Age/early Roman wares** | | | | | |
| E30 | Medium to coarse sand tempered fabrics | 48 | 370 | 5 | 0.4 |
| E40 | Medium to coarse limestone tempered fabrics | 1 | 3 | 0 | 0 |
| E60 | Medium to coarse Flint tempered fabrics | 54 | 981 | 10 | 0.88 |
| E80 | Grog tempered fabrics **(SOB GT)** | 745 | 6749 | 27 | 3.1 |
| E810 | Grog and sand tempered fabrics | 68 | 474 | 3 | 0.46 |
| **O Oxidised wares** | | | | | |
| O20 | Sandy oxidised ware | 1 | 7 | 0 | 0 |
| **Q White-slipped wares** | | | | | |
| Q10 | Fine reduced white-slipped ware | 1 | 11 | 1 | 0.07 |
| Q30 | Medium sandy reduced white-slipped ware | 2 | 25 | 0 | 0 |
| **R Reduced wares** | | | | | |
| R30 | Medium to fine sandy reduced wares | 1 | 6 | 0 | 0 |

TABLE 2 Quantification by form

| TYPE (OA code in brackets) | *Thompson type (1982)* | MV | EVE |
|---|---|---|---|
| **Jars** | | | |
| Bead-rimmed jar (CH) | C1-2 | 4 | 41 |
| Wide-mouthed jar (CM) | C1-3 | 1 | 20 |
| Medium-mouthed jar (CD) | C7-1 | 2 | 23 |
| Medium-mouthed jar (CD) | | 1 | 7 |
| Medium-mouthed jar (CD) | B2-1 | 1 | 3 |
| Squat, high shouldered or 'necked' jar (CE) | B1-1 | 7 | 72 |
| Bead-rimmed jar (CH) | C1-4 | 2 | 11 |
| Storage jar (CN) | C6-1 | 4 | 26 |
| **Jar/bowl** | | | |
| Jar or bowl (D) | | 7 | 38 |
| Beakers | | | |
| Butt beaker (EA) | G5-6 | 2 | 50 |
| Butt beaker (EA) | G5-1 | 2 | 53 |
| Carinated beaker (EG) | E3-1 | 1 | 5 |
| **Cups** | | | |
| Carinated Cup (FD) | E1-4 (body only) | 0 | 0 |
| **Bowls** | | | |
| Bowl of unknown type (H) | | 6 | 54 |
| **Dishes/platters** | | | |
| Platter (JC) | G1-1 | 1 | 6 |
| Platter (JC) | G1-10 | 1 | 5 |
| **Lids** | | | |
| L | | 1 | 0 |

There was no correlation between surface colour and form. Assessment indicated that more-detailed fabric analysis would not refine the site chronology, so no sub-division of fabric group E80 was attempted.

The E-ware pottery is presumed to be of local origin (Thompson 1982, 20). The fabrics and forms at A355 are well represented within Thompson's Zone 7 (Hertfordshire and The Chilterns) typology. All of the common forms occur in this zone, but regional preferences include the C7 storage jars, examples of which occur at the site and rarely outside the region (*ibid,* 15).

No kilns producing E-wares are known nearby (Swan 1984 and SGRP 2019) but such shallow structures or surface clamp kilns are prone to removal by later ploughing (Thompson 1982, 23). Production centres have been suggested along the Colne Valley (Crouch & Shanks 1984). A mid-1st-century kiln at The Grove, north-west of Watford is one of the earliest known examples (Le Quesne *et al.* 2001; SGRP 2019). Other kilns producing grog-tempered wares at Prae Wood, Hertfordshire, and Cholesbury Camp, Tring, are dated to AD 25–50 at the earliest (SGRP 2019).

The flint-tempered material (fabric E60: 56 sherds, 981g) included two bead rim jars of Thompson type C1-2 (one thickened internally (Fig. 8 No. 8), one everted), three bowls of uncertain form and three jars or bowls. All were fairly coarse and handmade in the 'Silchester-ware' tradition, which dominates assemblages around Silchester (*Calleva Atrebatum*) to the south-west from the middle Iron Age to the early Flavian period (Timby 2018). Silchester-ware forms are restricted to beaded, everted and thickened rim jars, all types represented at this site, but the flint inclusions in sherds here were notably sparser than in the Silchester fabrics, and the presence of several flint-tempered bowls also suggests the presence of products from a more-local source experimenting with a wider repertoire of forms.

### *Ditch 480*

Ditch 480 yielded 239 sherds (3.16kg) from at least 19 vessels, including seven jars, four bowls, three beakers, a cup, a dish/platter and a lid. Context 170 contained two butt-beaker rims (EA; Fig. 8 Nos 6 and 7) and body sherds of another with crude, incised lattice decoration and a very short stubby everted rim (No. 12). The group also included a

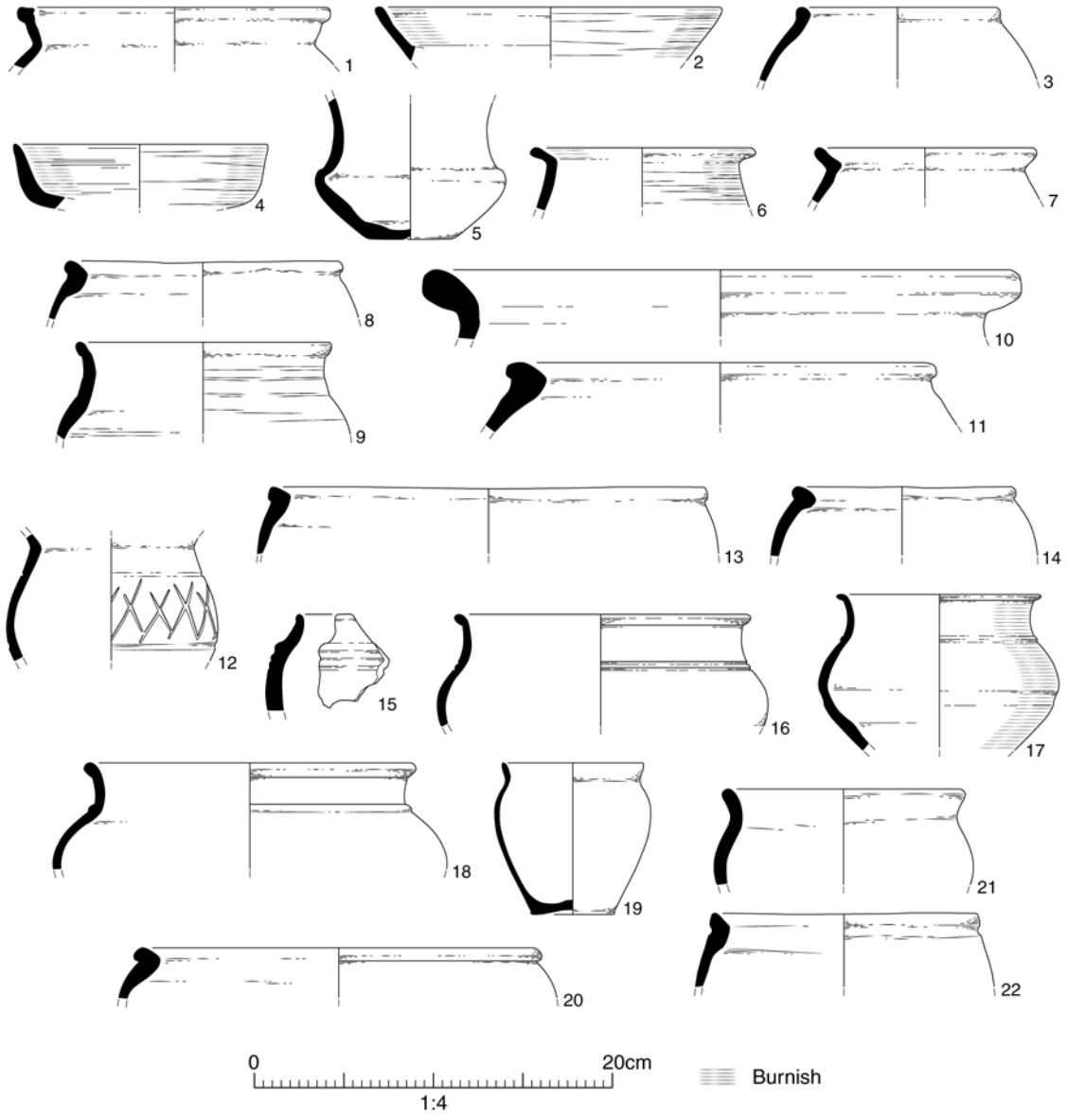



FIGURE 8 Illustrated pottery *(scale 1:4)*

copy of a Gallo-Belgic, curving-sided platter (No. 4) in fabric E80 and a plain carinated cup (Thompson type E1-4; Fig. 8 No. 5), all suggesting a date range of AD 1–50. The other identifiable vessels in this group could only be dated to 50 BC–AD 100. These included three jars (fabrics E80 and E60) with internally thickened bead rims (Nos 8, 11 and 14), a large wide-mouthed storage jar with a bead rim (Thompson C1-2) and a very large storage jar (CN) of Thompson type C6-1, the last two (Fig. 8 Nos 13 and 10) both very common utilitarian vessels.

***Enclosure ditch 481***

Ditch 481 contained 411 sherds (3.86kg) from at least 13 vessels, including five high-shouldered

'necked' jars (CE) and two with a cordon at the base of the neck (No. 16). These were all Thompson type B1-1, the most common necked jar in the region. There was also a medium-mouthed, handmade, ripple-shouldered jar (CD) with an upright, slightly beaded rim (No. 15), one storage jar (CN), three bead rim jars (CH), and a barrel-shaped butt beaker (EA, Thompson type G5-1; Fig. 8 No. 19) of 1st-century AD date. The group of necked jars and the otherwise smaller range of vessel types is in contrast to ditch group 480, but the significance of this is unclear.

***Ditch 484***

Ditch 484 contained 78 sherds (345g) from at least three vessels. These included a globular jar (No. 20), a bead-rim jar and a jar/bowl of indeterminate type. None could be dated more closely than to 50 BC–AD 100.

***Pit 336***

Pit 336 contained 50 sherds (229g), all in fabric E810 (sand and grog), and although they did not refit, are very probably from one coarse, handmade vessel. The rim suggested a simple butt- or barrel-shaped beaker (Fig. 8 No. 3), with slight, irregular vertical rilling on the body, and can only be dated to the late Iron Age/early Roman period.

**Chronology**

Despite the wide date range for the E wares from the site, and the acknowledged difficulties in understanding the late Iron Age ceramic chronology in the region (Every & Mepham 2006; Jones & Brown 2011), some forms can be more closely dated (see Figure 9 for sites referred to in this section with comparative assemblages).

As well as simple S-profiles (Nos 9 and 21), the jars in plain, everted rim necked form (Thompson type B1-1) included some with a cordon at the base of the neck (Nos 16–18); all three came from ditch 481. Similar jars were found at Prae Wood, Hertfordshire (Thompson 1982, 92), in assemblages dated AD 5–40/45. The rippled jar in ditch 481 (No. 15) is also of a type unlikely to be post-conquest (*ibid,* 117). Rippled jar forms are typologically earlier than the cordoned jars but are commonly found together, as they have here (Thompson 1982, 20).

Neckless bead rim jars in coarse grog-tempered handmade fabrics (Nos 11, 13, 14, 20 and 22), often with internally thickened rims, are a type that dates back to the middle Iron Age (Jones & Brown 2011). The platters include a Cam 16-inspired, curving sided vessel in ditch 480 (No. 4) dated to AD 1–50 and a straight-sided, Cam 1-inspired vessel in pit 163 (No. 2) manufactured from *c*. 20 BC–AD 50 (Hawkes & Hull 1947). The butt beakers 'do not survive long after the conquest' (Thompson 1982, 507), and tend to date to AD 1–50. The decorated form on vessels in ditch 480 (e.g. No. 12) is almost certainly a Thompson type G5-2, some of which were made in kilns around Milton Keynes (Thompson 1982, 511). Carinated cups like the plain example from ditch 480 (Thompson E1-4) are mainly dated to the first half of the 1st century AD (*ibid*, 369).

All these forms suggest a late Iron Age date (*i.e.* before AD 50), and, barring the few clearly Roman sherds (see below), this is not contradicted by the rest of the assemblage. The late Iron Age to early Roman transition in the area is marked ceramically by products of the Colne Valley kilns, dated at Staines to *c*.AD 50/60 (Lyne 2012a, 31). The absence of material from this local industry, and of other Romanised wares such as South Gaulish samian, from the assemblage, supports this date range. Despite the problems that must be considered when using evidence of absence for dating, the presence of a known early Romanised production centre nearby, whose greyware products occur in early Roman assemblages at Heathrow T5, Eton Rowing Course (Brown *et al*. forthcoming) and All Souls Farm Quarry, Wexham (Lyne 2012b), may indicate that their absence at the A355 is chronologically valid.

Pottery from groups spot-dated to the early Roman period (*c*.AD43–120), all deriving from Area B, amounted to just 0.86% by sherd count. Two sherds and two scraps of Roman pottery came from shafts/solution holes 437, 454 and 464. A sherd of fine reduced micaceous ware with traces of white slip from 454 probably dates to the late 1st to 2nd century AD. In ditch 488, all the pottery was late Iron Age to early Roman, except for two Roman sherds in 384, giving a date of AD 40–100 overall. Fill 379 in pit 381 contained three Romanised shell-tempered sherds (C11) and a sherd of Roman greyware (R30), the group dating to the 2nd century AD or later.

**Preservation, distribution and use**

The overall mean sherd weight (MSW) of the

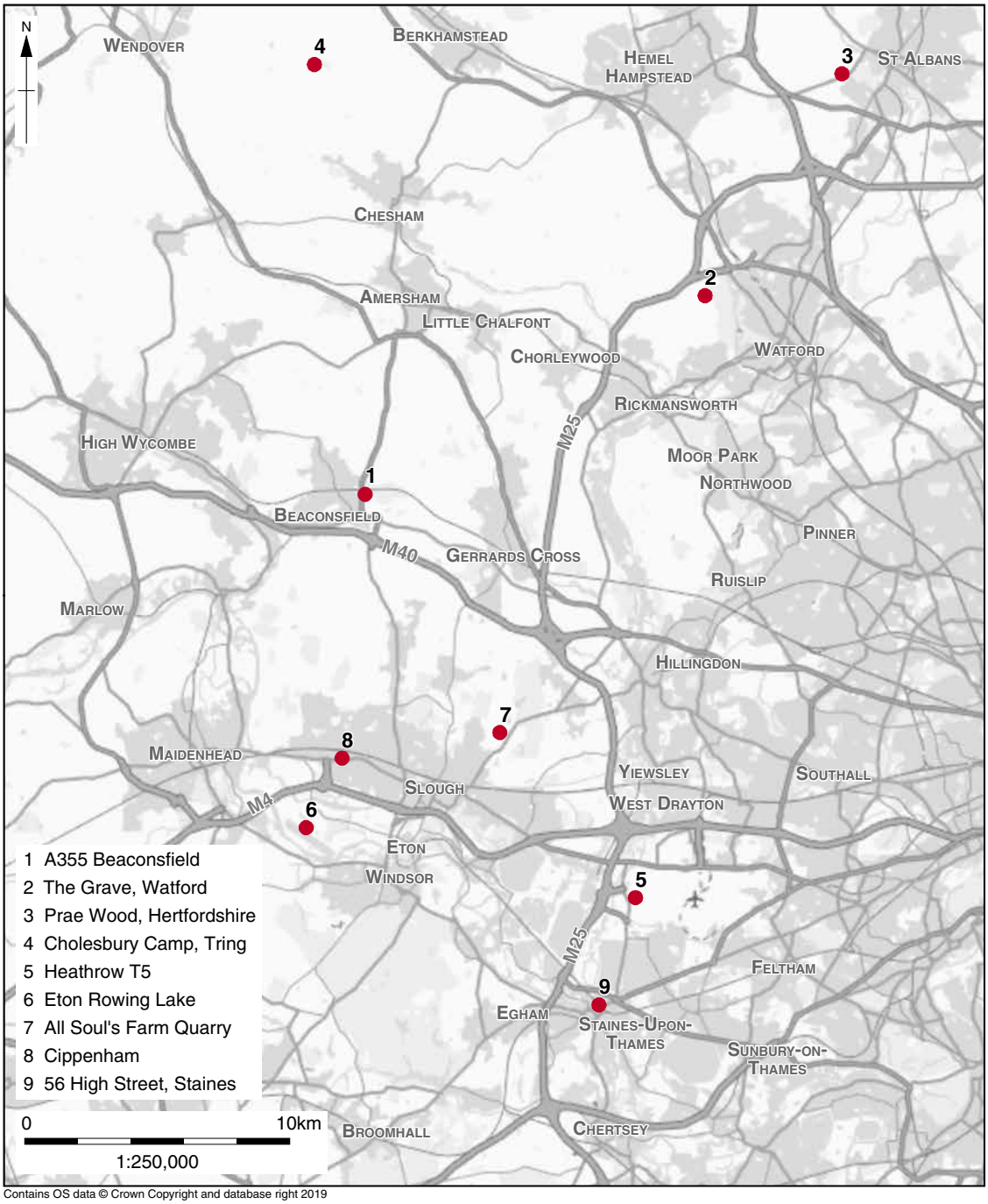




FIGURE 9 Late Iron Age and Roman sites in the region discussed in the text

TABLE 3 MSW of context groups of above average size

| *CTXT* | *Feature type or group* | *Count Total* | *Weight total* | *MSW* |
|---|---|---|---|---|
| 175 | Ditch Gp 484 | 23 | 97 | 4.2 |
| 270 | Ditch Gp 484 | 39 | 117 | 3 |
| 336 | Pit/quarry 335 | 50 | 229 | 4.5 |
| 165 | Ditch Gp 480 | 51 | 161 | 3.1 |
| 441 | Ditch Gp 488 (Area B) | 55 | 334 | 6 |
| 170 | Ditch Gp 480 | 66 | 949 | 14.3 |
| 266 | Ditch Gp 480 | 116 | 2013 | 17.3 |
| 286 | Ditch Gp 481 | 123 | 2430 | 19.7 |
| 287 | Ditch Gp 481 | 192 | 733 | 3.8 |

assemblage is 9.4g, and the mean EVE of 0.1 (10% completeness) also demonstrates a high level of fragmentation. This is in part due to the fragile nature of the handmade coarse fabrics. The surfaces of the sherds were, however, well preserved and not significantly abraded, suggesting that they had not been moved around and disturbed before their final deposition.

The average group size is 20.53 sherds and only nine contexts contained more than this (Table 3). The MSW for the above-average sized groups was only high (well-preserved) in three groups from Area C: fills 266 (MSW 14.3) and 170 (MSW 17.3) from ditch 480, and fill 286 (MSW 19.7) from ditch 481 further north.

Pottery from ditches accounted for 89.17% of the assemblage by sherd count and 93.33% by EVE, while pits contained 9.19% by sherd count and 8.38% by EVE. This reflects the proportions of each feature type within the excavated areas. Only 0.43% of the assemblage by sherd count (0.15% by EVE) came from the tops of quarries/shafts or sinkholes, indicating stray accumulations rather than deliberately deposited material.

Sherds from six contexts showed evidence of use. All were sooted body sherds in fabrics E80 or E60, and only an E80 lid sherd from fill 266 of ditch 480 was sooted on the edge, *i.e.* post-breakage. Seven sooted body sherds from a rilled jar in fabric E80 also came from 266, and perhaps the jar and lid were used together.

**Status**

The range of fabrics and forms is restricted, although the continental-inspired platters do suggest some desire for finer dining vessels. There are no pre-Roman continental imports, but these are rarely found outside larger settlements, nor any South Gaulish samian ware, though this may be because the group pre-dates these imports. On balance, the forms and fabrics recorded overall suggest a lower-status rural settlement, only influenced to a limited degree by Roman practices of food preparation and dining.

## SLAG AND A CRUCIBLE
by David Dungworth

All the metal-working-waste material was washed, dried and sorted using largely visual criteria (cf. HE 2015) into different categories based on colour and surface morphology, and occasionally on an assessment of density and/or magnetic response. Just under 0.3kg of ironworking slag was present, consisting of two slag cakes (283g), one each from contexts 118 in Area A and 281 from cut 261 in ditch 484, and a small amount of non-diagnostic ironworking slag (12.4g) from context 118. A single crucible fragment (6.8g) was recovered from context 266 in ditch 280.

The slag cakes are small and derive from smithing rather than smelting activities. This quantity of iron-smithing debris could have been produced in


FIGURE 10 Crucible from ditch 480

just a few days, representing only occasional blacksmithing.

The crucible fragment (Fig. 10) has a profile consistent with other Iron Age crucibles (Wainwright 1979). These are small, shallow vessels with three corners pulled out to form a triangular bowl. The fabric of this crucible is very sandy and has a buff colour, with darker grey fabric and some vitrification on the interior surface. Such crucibles were probably placed at the base of a charcoal fire and heated from above. The vitrified surface of the crucible contains a few patches stained green by copper corrosion products, presumably from the melting of copper alloys.

**Scanning Electron Microscope (SEM) examination and analysis of the crucible**

The technical methodology of the SEM analysis, and the detailed results, are presented in the online report. Examination of the crucible revealed a fabric comprising abundant quartz grains (mostly 0.15–0.25mm) cemented together by a ceramic groundmass but including numerous voids (cf. Howard 1983). Naturally quartz-rich clays were not common, so the quartz inclusions probably included deliberate temper to improve the heat-resistance (refractoriness) of the clay.

The quartz grains are euhedral and mostly rounded, probably from geological weathering, but also possibly due to high-temperature erosion when the crucible was in use. They show highly variable degrees of cracking, which is usually the result of thermal stresses, implying that the heating of the crucible was not uniform. In some areas the voids between the grains are small, irregular and angular, suggesting limited exposure to high temperatures, in others there is vitrification and fewer but larger voids, which tend to be rounded. Such vitrification is typical of temperatures required to melt copper alloys (1000–1200°C). Areas without vitrification are unlikely to have been exposed to temperatures above 800°C.

Chemical composition was determined using an energy dispersive X-ray spectrometer (EDS) attached to the SEM. This confirmed that there were also potassium-rich feldspars in the fabric. These decompose at 1150°C to form leucite and quartz, and their survival suggests that parts of the crucible were not heated to such temperatures.

Vitrification of the crucible was limited to the interior surface (Fig. 10). The vitrified surface is in two fairly distinct layers. Layer 1 (closest to the ceramic) contains numerous relict quartz grains in a glassy matrix, together with some copper-alloy droplets and a variety of metal oxides. It is porous, but less so than the underlying ceramic. Layer 2 contains a high proportion of metal oxides (especially cassiterite, $SnO_2$, and cuprite, $Cu_2O$), and has undergone post-depositional corrosion and weathering. The SEM-EDS analyses were therefore directed to discrete better-preserved areas, discrete droplets or crystals, and showed that the crucible is silica-rich and that the vitrified layers contain elevated levels of copper and tin.

The high levels of silica ($SiO_2$) would have provided the refractory (heat-resistant) properties noted above, a technological approach associated with Iron Age practise. Howard's (*ibid*.) examination of prehistoric ceramic crucibles using optical petrology shows them to be rich in quartz inclusions, whereas the limited data on Roman crucibles (*eg* Dungworth & Starley 2009) suggests that these contained less silica (60–70wt% $SiO_2$) and more aluminium oxide (20–30wt% $Al_2O_3$).

The tin to copper ratio is very high in the two metallic droplets analysed, and far exceeds that usually found in later prehistoric copper alloys (Dungworth 1996). It may not accurately reflect the alloy cast in the crucible, as metal droplets trapped in vitreous layers could be subject to several period of heating (with associated metal loss due to oxidation), changing their composition.

Layer 2 represents oxidised metallic residue from melting copper-alloys under imperfect conditions (insufficiently reducing). It is likely that layer 1 incorporates some charcoal ash and some vitreous material infiltrated from layer 2. Together,

layers 1 and 2 constitute almost a third of the thickness of the crucible wall, which suggests prolonged and/or repeated heating (or possibly poor refractoriness). The virtual absence of zinc is significant, as this metal is particularly volatile, and is often present at high levels even in crucibles used to melt copper alloys containing only modest levels of zinc (Dungworth 1996; Kearns *et al.* 2010). It suggests that the copper alloys melted in this crucible contained no more than traces of zinc, evidence consistent with the melting of tin bronze (cf. Dungworth 1996).

## Other Finds

Among the 14 fragments of fired clay weighing 167g, all from late Iron Age ditches, the only objects were the corner of a flat rectangular slab, 38mm thick (context 160) and a poorly fired piece over 32mm thick with one smooth flat moulded surface and a curving edge, possibly from a hearth (context 165). Square or rectangular oven bricks of similar thickness are known from other late Iron Age sites, for example at the A2 in Kent (Stansbie with Allen in Allen *et al.* 2012, 248), and clay hearths at sites such as Owslebury, Hampshire.

Metal finds comprised eight fragments of iron nails (six from context 389), a single Roman hobnail in pit 381, and a fragment of iron strip with possible nail heads fused to it in pit 163.

An assemblage of 44 struck flints was recovered from the evaluation trenches and all three excavation areas. Other than a backed knife and another knife, the assemblage was limited to two cores, flakes and chips, and was of late Neolithic or early Bronze Age character. The largest assemblages were four pieces from a shallow pit and three pieces from a quarry or solution hole, and it is possible that all the struck flint was redeposited from surface activity.

Animal bones were extremely poorly preserved owing to the acidic nature of the soils. Only 45 fragments were recovered and most of were burnt, making identification difficult.

## Wood Charcoal
by Julia Meen

Three samples from the evaluation and 22 samples from the excavations were assessed for wood charcoal and five samples were selected for analysis. These were from early Iron Age storage pit 350 (sample 22, radiocarbon dated to 2471 ±30BP (SUERC-87950)), late Iron Age ditch 480 (sample 4, radiocarbon dated to 2025 ±26BP (SUERC-90346)), late Iron Age/early Roman ditch 481 (sample 7, radiocarbon dated to 1967 ±26BP (SUERC-90347)), Romano-British pit 381 (sample 29), and late Iron Age/Roman pit 4004 (sample 2 from evaluation Trench 40). For each sample, the analysis comprised the identification of 100 charcoal fragments to wood taxon and recording the presence of heartwood or roundwood. Details of the methodology are presented in the online report.

### Results

The range of wood taxa identified are shown in Table 4, and the relative proportions of each is illustrated in Figure 11. Presence/absence data for the taxa identified from a further nine samples examined during assessment are shown in Table 5. They

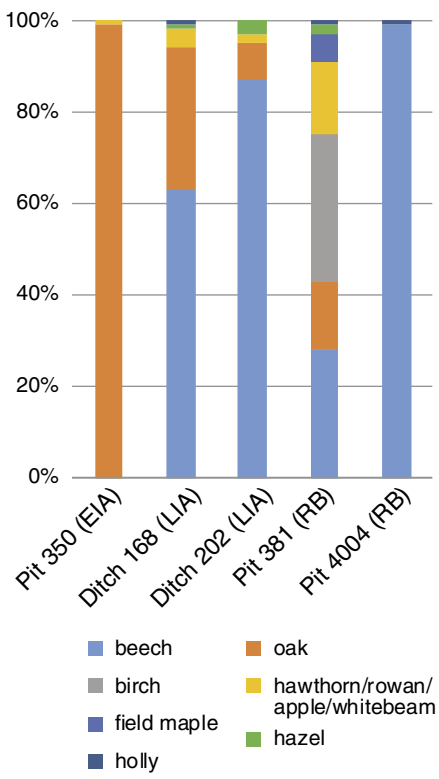



Figure 11 Graph showing proportions of charcoal by species per sample

TABLE 4 Charcoal identifications

| | | *Sample no* | 22 | 4 | 7 | 29 | 2 |
|---|---|---|---|---|---|---|---|
| | | *Context no* | 366 | 170 | 201 | 380 | 4006 |
| | | *Cut no* | 350 | 168 | 202 | 381 | 4004 |
| | | *Feature type* | Pit | Ditch | Ditch | Pit | Pit |
| | | *Date* | EIA | LIA | LIA/ER | RB | RB |
| Maloideae | hawthorn/rowan/ apple/whitebeam | | 1 | 4 | | 16 | |
| cf Maloideae | cf hawthorn/rowan/ apple/whitebeam | | | | 2 | | |
| *Fagus sylvatica* L. | Beech | | | 63 (r) | 86 (r) | 28 | 97 |
| cf *Fagus sylvatica* L. | cf beech | | | | 1 | | 2 |
| *Quercus* sp. | Oak | | 99 (h) | 31 (h) | 8 (h) | 15 (h) | |
| *Betula* sp. | Birch | | | | | 32 | |
| *Corylus avellana* L. | Hazel | | | 1 | 3 (r) | 1 | |
| *Corylus/Alnus* | hazel/alder | | | | | 1 | |
| *Acer campestre* L. | field maple | | | | | 6 | |
| *Ilex aquifolium* L. | holly | | | 1 | | 1 | 1 |
| **TOTAL** | | | **100** | **100** | **100** | **100** | **100** |

TABLE 5 Presence/absence of wood taxa in assessment samples

| *Sample No* | *Context* | *Cut No* | *Feature Type* | *Date* | *Charcoal >4mm* | *Charcoal 2-4mm* | *Quercus* | *Fraxinus* | *Fagus* | *cf Prunus* | *Betula* | *Corylus* | *Maloideae* | *diffuse porous* | *indet* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **20** | **354** | **350** | **pit fill** | **E / MIA** | 1100 | 10000 | X | | | | | | | | |
| **18** | **357** | **364** | **pit fill** | **IA** | 113 | 1000 | X | | | | | | | | |
| **23** | **396** | **395** | **pit fill** | **LIA** | 124 | 300 | | | X | | | | | | |
| **2** | **160** | **163** | **pit fill** | **LIA/ ER** | 13 | 93 | | X | X | | | X | | X | |
| **12** | **176** | **174** | **Ditch fill** | **LIA/ ER** | 200 | 500 | | | X | | | X | | X | |
| **14** | **286** | | **Ditch fill** | **LIA/ ER** | 70 | 100 | X | | X | | | | | | |
| **16** | **288** | | **Ditch fill** | **LIA/ ER** | 130 | 500 | X | | X | X | | X | | | |
| **27** | **440** | | **Ditch fill** | **LIA/ ER** | 48 | 200 | X | | X | | X | X | X | | |

show that while all three samples from early Iron Age pit 350 (and its recut 364) are almost entirely composed of mature oak, beech (*Fagus sylvatica*) forms a significant part of all the examined samples dating to the late Iron Age and Romano-British period. These later samples are generally mixed, with taxa including hazel (*Corylus avellana*), Maloideae type, oak (*Quercus* sp.) and birch (*Betula* sp.) occurring alongside the more strongly represented beech. The Maloideae are species in the Rosaceae family which cannot be distinguished using anatomical characteristics and include hawthorn (*Crataegus* sp.) apple (*Malus* sp.) and whitebeam (*Sorbus* sp.). Three of the analysed samples contain single fragments of holly (*Ilex aquifolium*).

***Discussion***

There has been debate as to whether beech is native to Britain. Caesar remarked in his *Commentaries on the Gallic War* that "there… is timber of every description, except beech and fir" (trans. McDevitte & Bohn 1869). However, beech has been found in much earlier deposits, such as a late Neolithic deposit at the Eton Rowing Course (Challinor 2013), and a late Bronze Age/early Iron Age pit in Hertfordshire (Druce 2012, 185).

Peaks in the abundance of beech pollen recorded from the Weald in the Saxon period (Waller & Schofield 2007, 381) and Epping Forest in the Roman period (Dark 2017), representing an apparent shift from oak-dominated woods to those with a predominance of beech, have been attributed to human activity and specifically an increase in wood pasturage. The charcoal evidence here might suggest that a similar shift occurred locally between the early and late Iron Age. However, with only two samples from one feature analysed and dated to the early Iron Age, and without well-preserved pollen from the site (Rutherford 2019b, 50), it is possible that the results instead reflect preferential selection of oak in earlier times.

There is evidence for small-scale metalworking at the site in the late Iron Age (Dungworth, *supra*), which required charcoal as fuel to reach high temperatures. Charcoal recovered from the same ditch as the crucible was mostly beech (including roundwood) followed by oak (including heartwood), and these taxa dominated most of the late Iron Age and early Roman assemblages examined. Both beech and oak are dense woods that will burn at high temperatures. Beech burns rapidly (Warren 2006, 46), and the use of roundwood especially would have rapidly increased the temperature of a hearth (Gale 2003, 36). In contrast, oak produces a more sustained heat (ibid.), particularly when burnt as heartwood from large branches or trunkwood. It is, however, difficult to distinguish the remnants of fuel from metalworking from that from domestic hearths. Industrial and domestic debris were often dumped together (*ibid.*) and oak in particular was favoured for many purposes due to its high calorific value. It is not therefore possible to show conclusively that the charcoal examined is associated with the contemporary metalworking activity.

## Charred Plant Remains
by Julia Meen

Thirty bulk samples were taken, of which 22 representative samples (mostly from ditches and pits) were processed and the flots assessed (OA 2019b). The samples ranged in date from the prehistoric to the Romano-British period. The assessment demonstrated that charred plant remains were mostly sparse, and only two samples, both from Area B, contained sufficient remains to justify further analysis. These included sample 27 from the upper fill of late Iron Age/early Roman ditch 488, and sample 29 from the lower fill of Romano-British pit 381.

**Methodology**

Samples were processed using the standard Oxford Archaeology methodology (for details see the online report). Following assessment, the two samples selected for analysis were fully sorted and all extracted plant macrofossils identified using the modern reference collection held at OAS, and with reference to published guides (e.g. Cappers *et al.* 2006). Plant nomenclature follows Stace (2010).

**Results**

Low quantities of charred plant remains were present in sample 27, many too poorly preserved to be identifiable. The assemblage is dominated by cereal grains of both wheat and barley. There is very little cereal chaff, but a single glume base is identifiable as spelt wheat (*Triticum spelta*). Small seeds of the grass family (Poaceae) dominate the small and fairly non-diverse weed assemblage.

The flot from sample 29 also has a high propor-

TABLE 6 Results of the radiocarbon dating

| *Lab. Number* | *Sample* | *Context* | *Feature Type & location* | *Material* | *$\delta^{13}C$ (‰)* | *Radio-carbon Age (BP)* | *Calibrated date (at 95.4%)* |
|---|---|---|---|---|---|---|---|
| SUERC-90346 (GU53218) | 4 | 170 | Fill of ditch [168] | Charcoal: beech (*Fagus*) roundwood | –29.8 | 2025 ± 26 | 110 cal. BC – cal. AD 60 |
| SUERC-90347 (GU53219) | 7 | 201 | Fill of ditch [202] | Charcoal : beech (*Fagus*) twig, 4 rings | –23.6 | 1967 ± 26 | 40 cal. BC – cal. AD 90 |
| SUERC-87950 (GU52101) | 2 | 366 | Fill of fire pit [350] | Charred nut: cf. *Prunus* sp. | –26.1 | 2471 ± 30 | 770–430 cal. BC |
| SUERC-87949 (GU52100) | 6 | 157 | Fill of pit [158] | Charcoal: *Prunus* sp. twig, 1 ring | –28.7 | 2059 ± 30 | 180 cal. BC – cal. AD 10 |

tion of unidentifiable grains but is again dominated by wheat and barley cereal grains with very little chaff. The barley grain includes examples of both hulled type and lateral grains of 6-row barley. A few grains have a blunt apical end and steeply angled embryo and may be rye (*Secale cereale*), although as the morphologies of rye and wheat grains overlap, they have been recorded as *Triticum/Secale*. All of the glume bases identifiable to species are of spelt wheat, with many others recorded only as *Triticum dicoccum/spelta* (emmer/spelt). As with sample 27, the weed assemblage contains a high proportion of small grasses, but also includes numerous caryopses of oat (*Avena* sp) and brome (*Bromus* sp), fragments of hazel (*Corylus avellana*) nutshell, and seeds including eyebright/bartsia (*Euphrasia/Odontites*), cleavers (*Galium aparine*), dock (*Rumex* sp) as well as frequent vetch/tare type small legumes (*Vicia/Lathyrus*). A charred sloe (*Prunus spinosa*) stone is also present.

Several other samples include a few charred plant remains in addition to charcoal. These include sample 22 from one of the fills of pit 350 in Area C, which included a sloe/cherry (*Prunus* sp) stone. A second fill from this feature contained a stone of hawthorn (*Crataegus monogyna*).

**Discussion**

None of the late Iron Age features from Area C contained plant remains except for pit 163, sample 2, which contained just one grain each of wheat and barley. Sample 27 from Area B contains a larger assemblage, again including both wheat and barley, but discounting fragments of grain and goosefoot (*Chenopodium* sp) seeds, which are difficult to distinguish from modern examples, the overall number of items is fewer than 100, or less than three items per litre of processed soil. However, samples with low numbers of plant remains may suggest small-scale crop-processing activities, which is significant and worth recording (Lodwick 2017b).

By contrast, the lower fill of Romano-British pit 381 (sample 29) is rich in plant remains (over 30 items per litre) with abundant cereal grains. The mix of wheat (including spelt) and barley (hulled, probably including six-row) seen in earlier deposits continues. There are a few possible rye grains, which is thought to have been only a minor crop at this time, although often recorded in small quantities (Lodwick 2017a, 20–1). The numerous seeds of oat cannot, without diagnostic floret bases, be proven to be of cultivated type, and may be part of the weed component. Fragments of hazelnut shell (over 40) may represent debris from a collected wild food, although hazel is also present in the charcoal from the same context, and the nuts could have been collected attached to this wood.

## Radiocarbon dating
*by Rebecca Nicholson*

Four samples, three of charcoal and one a charred fruit stone, were submitted to the Scottish Universities Environmental Research Centre (SUERC) for radiocarbon dating by Accelerator Mass Spectrometry (AMS). The results are shown in Table 6. Further details of the presentation of the dates and calibrations can be found in the online report.

## Discussion

The local geology does not lend itself to geophysical survey, and an understanding of the wider context of the discoveries made in this narrow transect cannot therefore be obtained easily. The evidence obtained may therefore be unrepresentative of the overall pattern of activity in any period, and the best that can be offered is a consideration of some of the questions these results have raised, in the hope that further excavation will provide the opportunity to resolve them.

### Early prehistory

It is uncertain whether the large deep features were prehistoric shafts/quarries or natural sinkholes. Several man-made shafts of Neolithic date were found at Cannon Hill, Maidenhead (Bradley *et al.* 1975–6), the largest of which was over 3.5m deep. These shafts were discussed in the context of ritual shafts, which are known from late Neolithic sites such as Maumbury Rings, Dorset, and as possible wells like those at Fengate (*ibid,* 16-17). The quantity and quality of finds recovered at these other sites was, however, significantly greater than on this site. Flint quarries elsewhere (for instance at Grimes Graves, Norfolk) are surrounded by large quantities of debitage, and although later ploughing may well have dispersed such material, the small numbers of struck flints found within these features argues against any substantial working of flints on site. Occasional and opportunistic use of an area known to contain flint nodules for raw materials to be worked elsewhere might, however, result in the observed pattern of multiple deep quarries/shafts.

The flints could alternatively represent material that had washed in during later silting of solution holes. Areas of dense natural sinkholes have been noted elsewhere in Buckinghamshire (Farley 2018). Against this, the proportion of struck flints from this category of feature is greater than that from ditches, of which at least an equal volume was excavated. Whether late glacial sinkholes would remain open to significant depth is presumably dependent upon the subsequent use of the surrounding area, and the likelihood of subsidence of earlier fills. The low level of prehistoric activity apparent here would have assisted in the survival of such open features.

### Early Iron Age

One early Iron Age pit was found in Area C. As the site constituted a fairly narrow transect, it is possible that other pits of this period lie not far beyond the excavated area, of which pit 350 was simply an outlier. Early Iron Age pits in relative isolation are known locally at sites such as Lake End Road West, Dorney (Allen *et al.* forthcoming), where three pits in a line were spaced 30m and 15m apart, and Moore's Farm, Berkshire (Brossler *et al.* 2013, fig. 4.13) where other than one pit cluster, pits were scattered singly from 10m to 40m apart. Isolated pits are a relatively common feature of the dispersed settlement sites known from the Upper Thames Valley, and have been interpreted as evidence of mobile, and possibly seasonal, pastoral settlement (Lambrick & Robinson 2009, 94–8). The charcoal evidence hinting at a change in woodland in the surrounding landscape between the Early and late Iron Ages is an intriguing one, but requires more evidence to substantiate it.

### Late Iron Age/early Roman

The late Iron Age features consisted largely of ditches of varying sizes with significant gaps between them. None of these obviously formed enclosures, though ditch 481 was at the least L-shaped. Most contained occupation material, implying that keeping them open was not important, although some were recut, indicating redefinition and reuse. They may have been the discontinuous below-ground elements of a system of boundary banks with hedges above ground that divided up the landscape more effectively. Discontinuous lengths of ditch are, however, also found occasionally on dispersed open settlements of the late Iron Age in the Thames Valley, and may have been dug opportunistically for a variety of purposes such as stock management, temporary

windbreaks or demarcations of space to divide specific activities (Lambrick and Robinson 2009, 91–115).

The quantities of pottery and of charcoal within most of the late Iron Age/early Roman features suggest that contemporary settlement lay close by. The metallurgical evidence indicates occasional smithing and copper-alloy working, such as is found on many rural sites, possibly resulting from visits by itinerant smiths. The thick dark deposits in some of the ditches suggest rapid accumulation, and the consistent date of the pottery within individual features would support a relatively short-lived phase of activity in each. The different forms in the assemblages from ditch groups 479/480 and 481 might imply a chronological distinction between them, and so indicate repeated visits to this location, but could alternatively represent different family groups or a division of functions within the wider community. The scarcity of cereal remains may indicate a predominantly pastoral settlement, as was the case at Coldharbour Farm, Stoke Hammond Bypass and Furzton (Kidd 2006, 7), but the limited area exposed makes any conclusions about the nature of activity here only tentative.

Early Roman activity is slight, though a shift in the focus of activity within the site is suggested on the limited evidence. The increase in charred plant remains, and particularly cereals, in this period is tantalising, as the enclosed late Iron Age and Roman settlement at the Eton Rowing Course has good evidence for a significant increase in cereal production in the early Roman period, probably due to increased demand from London and other Roman settlements (Allen *et al.* forthcoming). More evidence from the site is needed to determine whether this was genuinely also the case at Beaconsfield.

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