
Proceedings of the Cambridge Antiquarian Society

(incorporating the Cambs and Hunts Archaeological Society)

Volume XCVI
for 2007



**Proceedings of the
Cambridge Antiquarian Society**

(incorporating the Cambs and Hunts Archaeological Society)

**Volume XCVI
for 2007**

Editor Sarah Bendall

Published by the Cambridge Antiquarian Society 2007

ISSN 0309-3606

Contents

A Late Bronze Age enclosure at Lynton Way, Sawston, Cambridgeshire Phil Weston, Andrew A. S. Newton and Kate Nicholson	7
The Chronicle Hills, Whittlesford, Cambridgeshire Christopher Taylor and Ashley Arbon	21
Iron Age settlement and Romanisation on the Isle of Ely: the Hurst Lane Reservoir site Christopher Evans, Mark Knight and Leo Webley	41
Prehistoric, Roman and Saxon activity on the Fen hinterland at Parnwell, Peterborough Leo Webley	79
Anglo-Saxon and medieval boundaries and burials at the former Oblic Engineering site, Church Street, Litlington Thomas Woolhouse	115
Mid-Saxon burials at Barnwell Road, Cambridge Andrew A. S. Newton	127
Early Saxon and medieval remains adjacent to the round moat, Fowlmere Paul Spoerry and Mark Hinman	135
The East Fields of Cambridge Mary Hesse	143
Ely Cathedral and environs: recent investigations Craig Cessford with Alison Dickens	161
Re-assessing the navigation impact of draining the Fens in the seventeenth century Michael Chisholm	175
West Cambridge 1870–1914: building the bicycle suburb Philomena Guillebaud	193
Fieldwork in Cambridgeshire 2006 Elizabeth Shepherd Popescu and Sarah Poppy	211
Obituary: David Wilson	227
Reviews Malcolm Underwood, Paul Spoerry, Debby Banham	231
<i>Index</i>	235
<i>Abbreviations</i>	241
Recent Accessions to the Cambridgeshire Collection Chris Jakes	243
<i>Publication Policy and Format of articles and submissions</i>	256

Prehistoric, Roman and Saxon activity on the Fen hinterland at Parnwell, Peterborough

Leo Webley

with contributions by Paul Booth, Dana Challinor, Sharon Clough, Kate Cramp, John Crowther, Denise Druce, Emily Edwards, Emma-Jayne Evans, Hugo Lamdin-Whymark, Richard Macphail, Diana Mahoney, Rebecca Nicholson, Sylvia Peglar, Cynthia Poole, Kristopher Poole, Ruth Shaffrey, Alex Smith and Dan Stansbie; illustrations by Helen Crossman, Sarah Lucas, Julia Moxham and Magda Wachnik

In the winter of 2004–5, Oxford Archaeology carried out an excavation and watching brief on a 12.2-hectare site at Parnwell, Peterborough. This provided a rare opportunity to investigate an extensive area of the clay hinterland adjacent to the gravel terraces surrounding Flag Fen. The earliest occupation took the form of a cluster of Early Neolithic pits. Subsequent activity in the Early Bronze Age was represented by a looser scatter of pits, which contained Collared and Biconical Urn pottery. A small area of later Iron Age settlement was found at the southern edge of the site, with occupation probably continuing without a break into the Roman period, when a more substantial enclosed settlement was established. Features associated with the Romano-British settlement included a corn-drier, which had been used for roasting malt. The settlement lay within an extensive field system, which also contained a small cremation cemetery. Pollen evidence suggests that there was some regeneration of scrub or woodland following the abandonment of the settlement in the third century AD. Anglo-Saxon features consisted of 57 pits with burnt fills scattered across the site, radiocarbon dated to the seventh to ninth centuries cal AD. These were probably associated with charcoal production, with no evidence of contemporary settlement in the immediate area. Cropmarks indicating ridge-and-furrow cultivation show that the site was cleared and put under arable use at some point in the medieval or early post-medieval periods.

The gravel terraces surrounding Flag Fen form one of the most important archaeological landscapes in southern Britain. A series of excavations on the western edge of the Flag Fen basin, in the Fengate area of Peterborough, has produced extensive evidence for the development of the prehistoric and Romano-British landscape. Sites investigated have included Neolithic and Bronze Age ritual monuments, Bronze Age field systems and Iron Age and Romano-British settlements (Pryor 1974, 1978, 1980, 1984, 1993, 2001). In contrast, much less fieldwork has taken place on the higher ground adjacent to the gravel terraces. In this

context, excavations by Oxford Archaeology (OA) at a site at Parnwell, Peterborough, are of particular interest as they provided a rare opportunity to investigate an extensive area of the clay 'hinterland' adjacent to the fen-edge gravels. Extensive multi-period remains were uncovered, including Early Neolithic, Early Bronze Age and later Iron Age occupation, a Romano-British settlement and field system, and evidence for probable charcoal production in the Anglo-Saxon period. This paper will explore the significance of the 'hinterland' evidence from Parnwell to our understanding of long-term landscape development around the Flag Fen basin. The key issue to be addressed is the relationship between the use of the fen-edge terraces and the adjacent higher ground, and how this changed through time. A longer version of this report, containing more details of the stratigraphic sequence, artefacts and environmental evidence from the site, will be published on the OA website (www.thehumanjourney.net).

The site: location, topography and archaeological background

The excavations at Parnwell were carried out between December 2004 and April 2005, for CgMs Consulting on behalf of Raven Group Developments Ltd, in advance of warehouse construction. The 12.2-hectare site is located at the north-eastern edge of the city of Peterborough, on land immediately to the east of Parnwell Way (centred on TF 220 011: Fig. 1). It is situated on a low rise, lying slightly above Flag Fen to the south. From the centre of the site, which lies at 6.6 metres OD, the ground slopes down gently in all directions to a minimum of 4.0 metres OD (Fig. 2). The superficial geology consists mainly of Oxford Clay, although this is overlain by second terrace gravel at the south-eastern edge of the site. Prior to excavation the site was under arable cultivation.

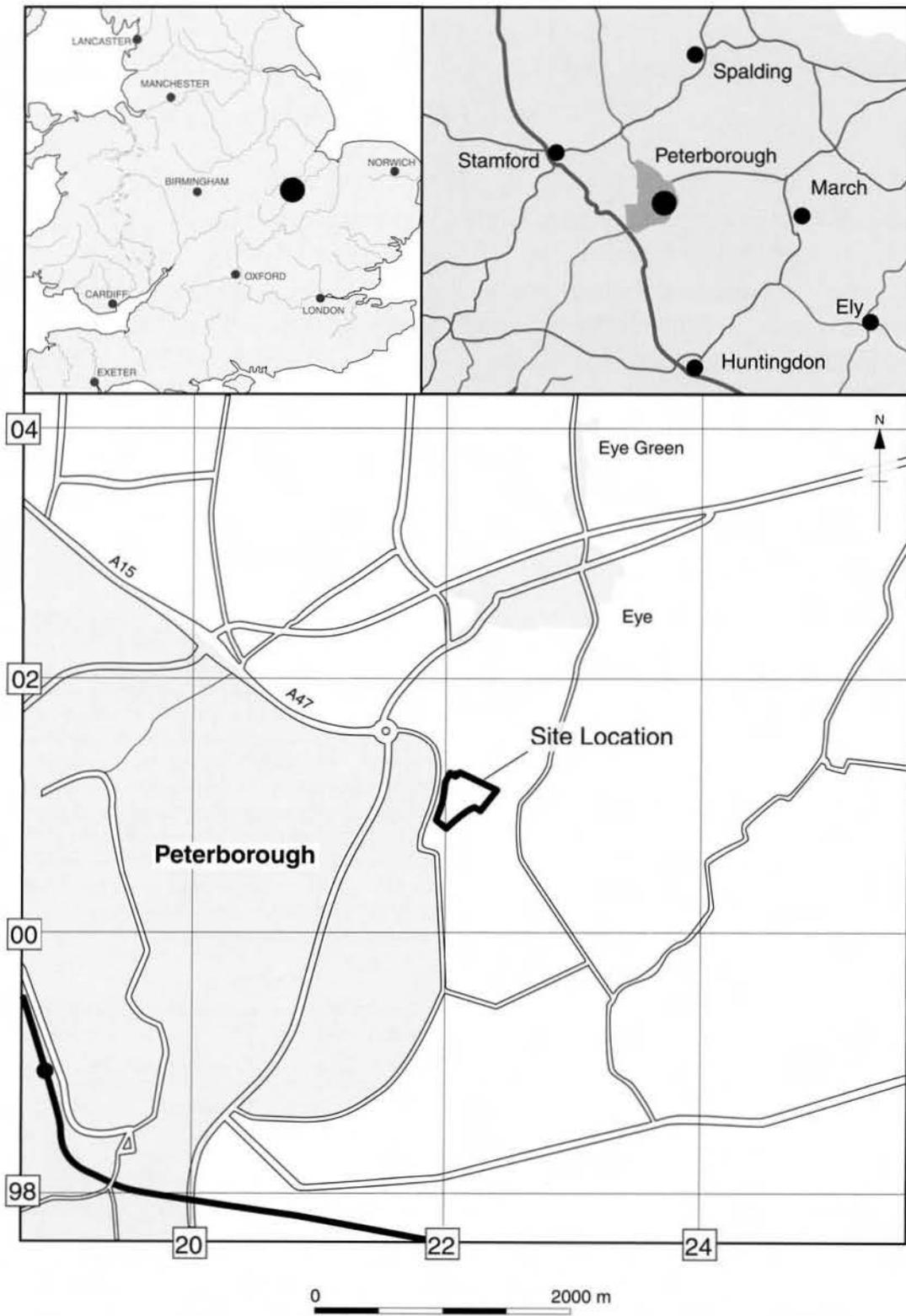


Figure 1. Site location.

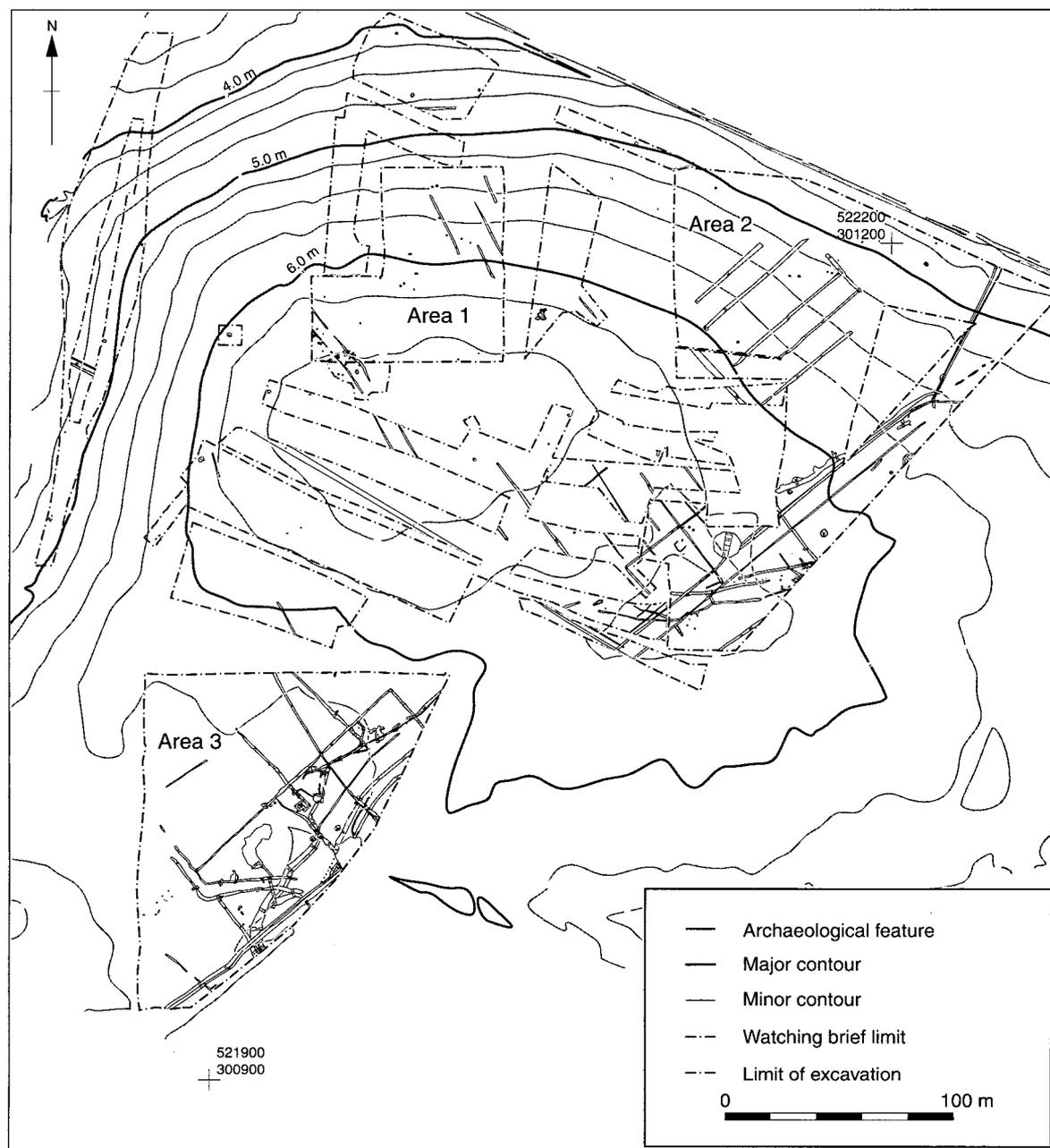


Figure 2. Plan of all features.

The environmental history of the local area has seen intensive study (eg Waller 1994), showing that the edge of Flag Fen advanced closer to the site over time. Thus it lay at least 2.5 kilometres to the south-west during the Neolithic period, but had reached to within 500 metres of the site by the later Iron Age (Hall 1987, figs 42–4). It is thought that a narrow fen inlet only about 150 metres from the northern edge of the site then developed during the Romano-British period, which persisted until the drainage works of recent centuries (Hall 1987, figs 45–6).

The site lies 2.5 kilometres to the north of the renowned excavations in the Fengate area referred to above. In addition, a number of developer-funded

excavations have recently taken place further to the north along the gravel terrace, within one kilometre of the site. At Oxney Road, 500 metres to the south-east, Bronze Age ditches and pits have been uncovered (Britchfield 2002). At Edgerley Drain Road, 800 metres to the south, Neolithic and Bronze Age pits and a Middle Bronze Age field system have been found (Beadsmoore 2005). Successive field systems from the Bronze Age and Late Iron Age/Romano-British period have been found at the Broadlands, 800 metres to the south-south-west (Vaughn & Last 1999; Hounsell 2002; Wotherspoon 2003). There has been less work in the areas immediately to the west and north-west of the site, although a small Romano-

British settlement has been excavated at Paston, 3 kilometres to the north-west (Coates, Hancock & Ellis 2001). The Roman canal or drainage work known as the Car Dyke passes 700 metres to the west (RCHM 1969, pp. 40–3).

The archaeological background of the site itself has been examined in an unpublished 'desk-based assessment' (CgMs 2004). This showed that cropmarks of ridge-and-furrow cultivation cover the site (Cambridgeshire Sites and Monuments Record, now the Historic Environment Record HER 03022), masking any evidence of pre-medieval activity. However, cropmarks suggestive of later prehistoric or Romano-British settlement could be identified directly adjacent to the southern edge of the site. Further evidence for Romano-British activity in the vicinity of the site was provided by eight copper alloy coins or coin fragments found by a metal detectorist in an area centred around TF 2199 0095 (HER 51244). The coins included a pierced sestertius of Marcus Aurelius (AD 161–80), two probable late third-century radiates, and a pierced coin of Constantine I (AD 306–36).

Evaluation trenching was carried out on the site in 2004 by the Cambridge Archaeological Unit (CAU). Although a residual Early Neolithic leaf-shaped arrowhead was found, the earliest features encountered were pits and gullies grouped along the south-eastern edge of the site, containing worked flint and undiagnostic sherds of prehistoric pottery. A concentration of Romano-British settlement features was uncovered in the southern part of the site, producing pottery of the second to third centuries AD. Features were much sparser in the central and northern parts of the site, although some linear ditches were encountered, and were interpreted as part of a Romano-British field system fanning out from the settlement (Williams & Webley 2004). A second evaluation by the CAU in the field immediately to the south of the site has shown that the Romano-British settlement continued in this direction, which corresponds with the evidence from cropmarks. Ceramics again dated the site to the second to third centuries AD, although two Middle to Late Iron Age pits were also found (Williams 2004).

Excavation methodology

Based on the results of the evaluation fieldwork, three discrete areas totalling 5.14 hectares were targeted for excavation (Areas 1–3: Fig. 2). The topsoil overburden, which had a depth of 0.45–0.60 metres, was machine-stripped under archaeological supervision. Discrete features were half-sectioned (and some completely excavated), while a minimum of 10% of all linear ditches and gullies were excavated. The features within Area 3 were subjected to survey by a metal detector, although this only produced finds from post-medieval contexts. A watching brief was simultaneously maintained over most of the remainder of the development area.

Site sequence

Archaeological features were exposed across most of the site, although these had clearly suffered from significant truncation by medieval and post-medieval agriculture.

Phase 1: Early Neolithic

The Early Neolithic occupation consisted of a discrete group of 11 pits at the south-eastern edge of Area 2, extending over an area of 35 metres by 12 metres (Fig. 3). It is likely that these features form part of a larger area of occupation continuing beyond the limit of excavation. Finds associated with the pits included worked flint and pottery in the decorated bowl tradition ('Mildenhall Ware').

By far the largest of these features was pit 2289, which produced a substantial finds assemblage (Table 1). The first three fills of the pit appear likely to have been deposited largely through natural processes of silting and erosion, and contained few finds. The pit was then back-filled with a series of dumped deposits, which contained pottery, animal bone and worked flint; environmental samples produced moderate amounts of charcoal, charred cereals and hazelnut shell. Micromorphological analysis by John Crowther and Richard Macphail has identified hearth debris and possible butchery waste, and suggests that these fills were deposited fairly rapidly, with no

*Table 1. Early Neolithic pits. * = Pit group 2315.*

Feature	Diameter (m)	Depth (m)	% Excavated	Pottery (g)	Worked flint (no.)	Animal bone (g)
2289	3.25	1.18	100	1517	105	3587
2365	0.52	0.10	50	15	-	-
2374	1.18	0.40	50	8	-	-
2399	0.90	0.35	50	19	5	-
2283*	0.71	0.16	100	20	26	2
2285*	1.06	0.20	100	95	3	11
2287*	0.74	0.18	100	31	9	4
2303*	1.00	0.11	100	17	-	-
2305*	0.86	0.12	100	-	-	-
2307*	0.60	0.19	100	-	3	-
2309*	0.76	0.14	100	-	-	-

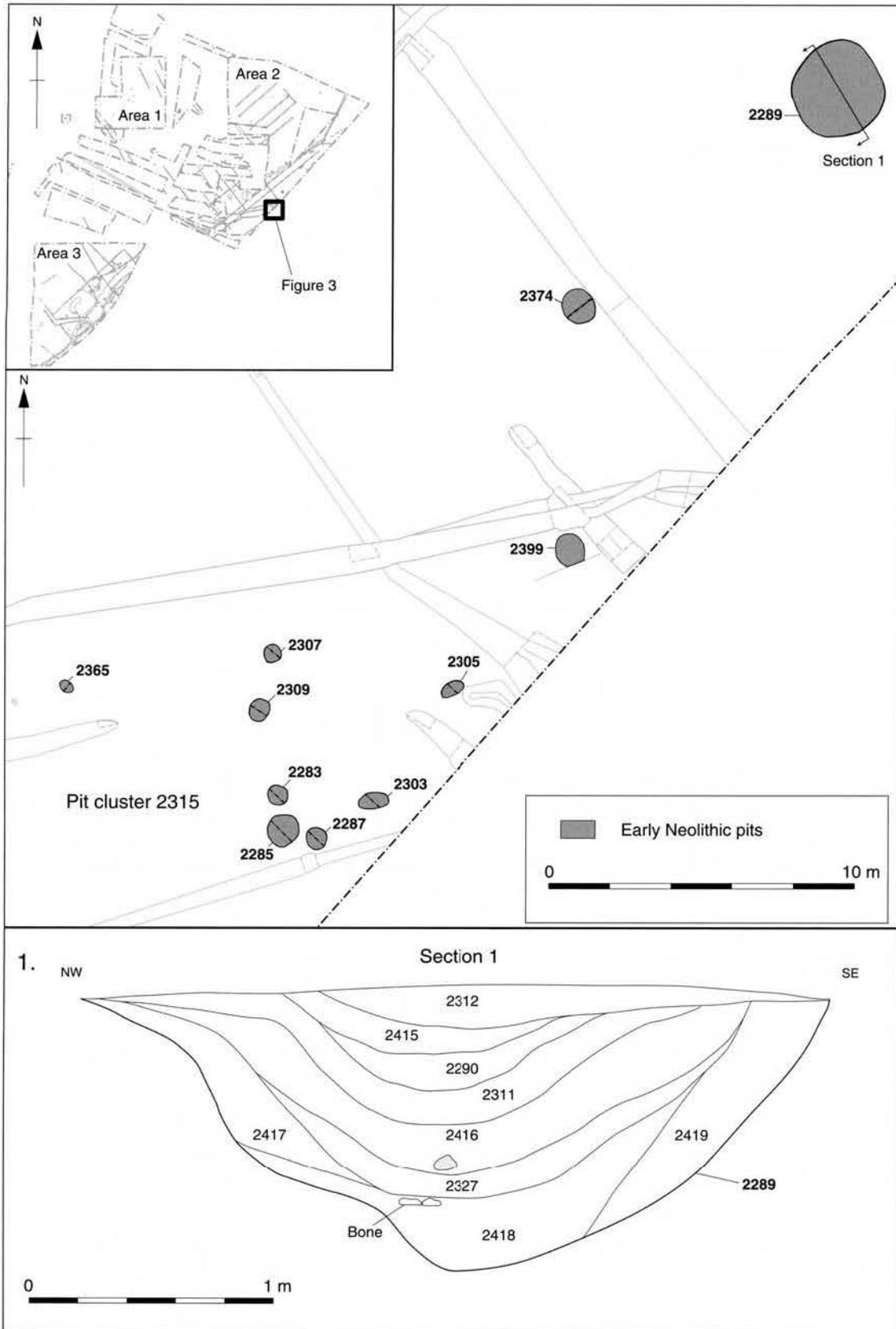


Figure 3. Early Neolithic pit group.

significant hiatuses between them (see web report for full data). This latter point is supported by the presence of pottery refits between some of the upper layers. Radiocarbon determinations on charred hazelnut shell from middle layer 2311 and lower layer 2418 produced almost identical date ranges of 3635–3375 cal BC (NZA 24077: 4736 ± 35 BP) and 3632–3375 cal BC (NZA 24076: 4728 ± 30 BP) respectively (Table 2).

Lying to the south-west of pit 2289 was a V-shaped arrangement of seven smaller pits (pit cluster 2315), which had each been back-filled with a single charcoal-rich deposit, sometimes containing pottery and worked flint. Three further pits (2365, 2374 and 2399) with paler back-fill deposits lay to the north and west. A small quantity of residual Early Neolithic pottery and worked flint was also recovered from Area 3, perhaps deriving from features obliterated by the Romano-British settlement.

Phase 2: Early Bronze Age

Early Bronze Age activity took the form of a group of six irregular pits and hollows, dispersed across the high ground in the north-western part of the site (Fig. 4). These produced modest quantities of worked flint and pottery in the Collared Urn and Biconical Urn traditions. The largest of these features was a shallow hollow or possible tree-throw hole, 1086, measuring 4.4 metres across and 0.20 metres deep. A radiocarbon determination on charcoal from the upper fill of this feature produced a date range of 2009–1776 cal BC (NZA 24073: 3558 ± 30 BP).

Phase 3: Middle to Late Iron Age

Three features clustered together at the south-western edge of Area 3 were associated with handmade Scored Ware pottery, and can thus be dated to the Middle to Late Iron Age (Fig. 5). These consisted of a shallow, concave pit (3218), and two short gullies (3221 and 3223), which might have formed part of a single feature, conceivably the southern side of a truncated eaves-gully to a roundhouse. Small quantities of pottery and animal bone were the only finds recovered.

A four-post structure, 3294 (3.0 metres x 3.5 metres), was located immediately to the north-east of these features, but produced no finds. A short distance to the south, ditch 3985 contained a single sherd of grog-tempered Late Iron Age pottery. It could thus either be contemporary with, or slightly later than, the features to its north.

Further evidence for activity in this period is provided by a few sherds of residual Middle and Late Iron Age pottery recovered from Romano-British features in Area 3. It is in fact possible that the earliest phase of the Romano-British settlement enclosure had a pre-Conquest origin; this issue will be discussed below.

Phase 4: Romano-British period

Romano-British features extended across most of the excavated area (Fig. 6), with a concentration of activity in Area 3 where an enclosed settlement was partially uncovered. Cropmark evidence shows the continuation of the settlement beyond the limits of excavation to the south-east (Fig. 7). A field system extended across the areas to the north and north-east of the settlement. A small cremation cemetery was located within this field system. There might also have been a second, subsidiary area of occupation to the north of the settlement in Area 1, represented by a trackway (III) and a group of pits. Dating evidence from both the settlement features and the cemetery indicates that the main period of activity was in the second and early third centuries AD.

Settlement Enclosure A

Stratigraphic evidence indicates that the settlement enclosure underwent two distinct phases with differing layouts (Figs 8–9). The earlier Enclosure A was curvilinear in form, and defined by ditches up to 1.00 metre deep (Fig. 8). The internal area was divided into sub-compounds by ditches 3719 and 3854. The only artefacts recovered consisted of small amounts of pottery and fired clay, most of which came from the middle and upper fills. This pottery largely dates to the second century AD, although the absence of

Table 2. Radiocarbon determinations.

Lab no.	Context	Radiocarbon age BP	$\delta^{13}\text{C}$ (‰)	Material	Context type	Calibrated date range (68% confidence)	Calibrated date range (95% confidence)
NZA 24073	1084	3558 ± 30	-26.6	Charcoal (Betulaceae)	Upper fill of Phase 2 hollow 1086	1941–1882 cal BC	2009–2000 cal BC/ 1974–1870 cal BC/ 1844–1812 cal BC/ 1801–1776 cal BC
NZA 24074	1028	1220 ± 30	-27.1	Charcoal (non- <i>Quercus</i>)	Sole fill of Phase 5 pit 1027	cal AD 726–737/ cal AD 771–874	cal AD 689–890
NZA 24075	2010	1288 ± 30	-25.6	Charcoal (non- <i>Quercus</i>)	Upper fill of Phase 5 pit 2008	cal AD 672–724/ cal AD 739–771	cal AD 661–778
NZA 24076	2418	4728 ± 30	-24.3	Charred hazelnut shell	Second fill of nine, Phase 1 pit 2289	3627–3582 cal BC/ 3530–3509 cal BC/ 3423–3381 cal BC	3632–3494 cal BC/ 3457–3375 cal BC
NZA 24077	2311	4736 ± 35	-24.1	Charred hazelnut shell	Sixth fill of nine, Phase 1 pit 2289	3629–3562 cal BC/ 3534–3511 cal BC/ 3420–3382 cal BC	3635–3494 cal BC/ 3458–3375 cal BC

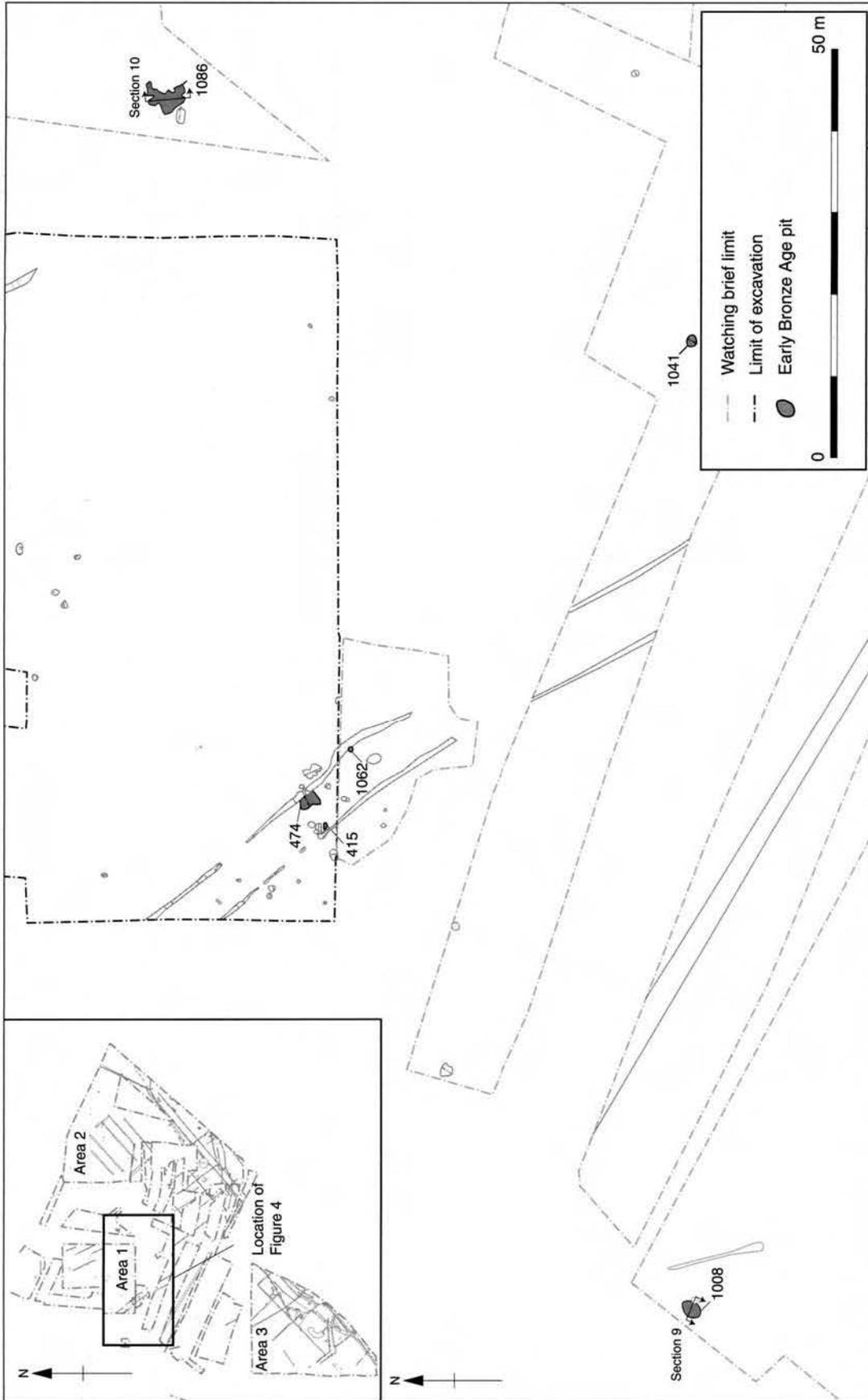


Figure 4. Early Bronze Age pit group.

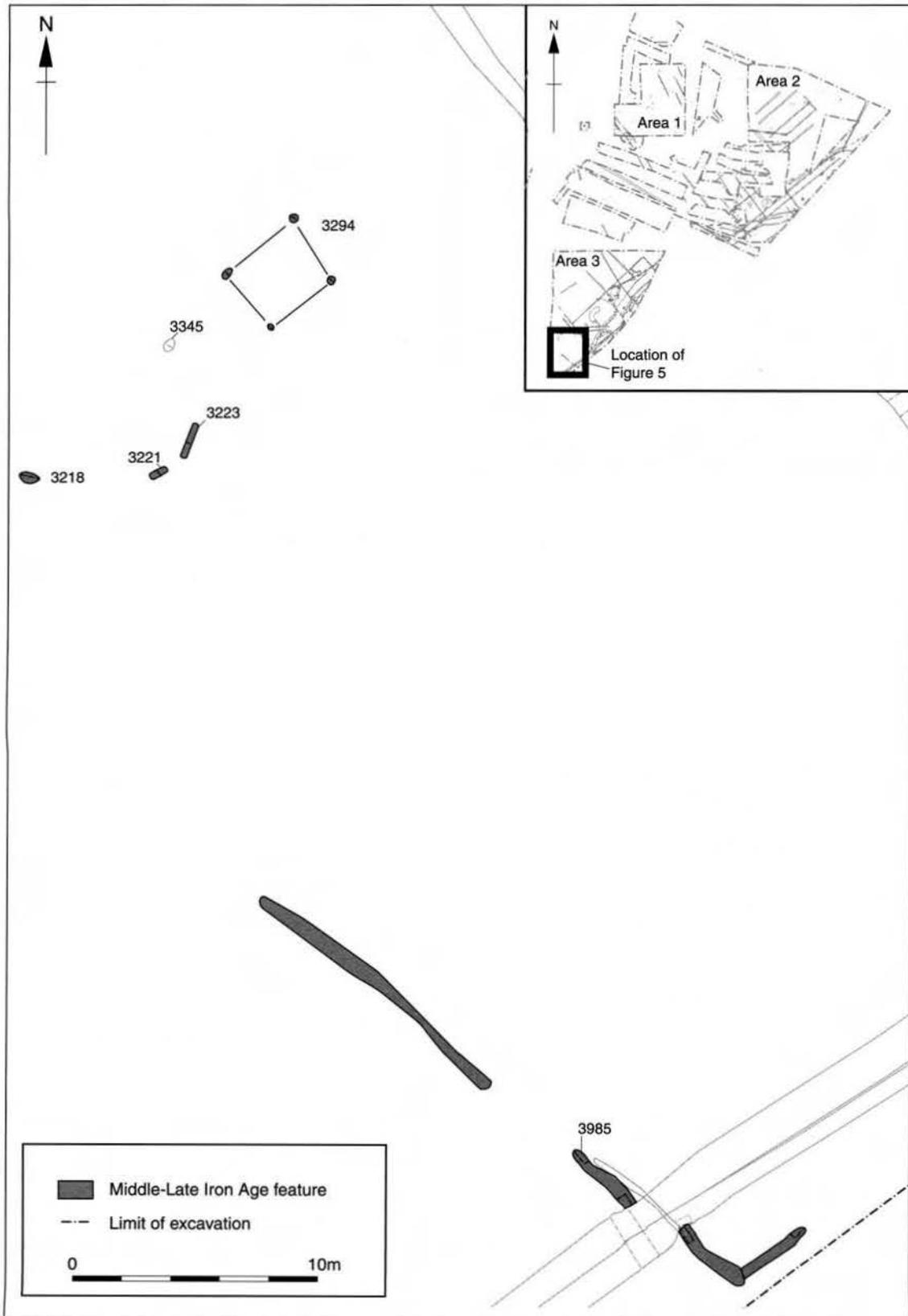


Figure 5. Middle-Late Iron Age features.



Figure 6. Romano-British features.

closely datable finds from the lower fills of the enclosure ditches means that a pre-Conquest origin for the enclosure system remains possible.

Significant amounts of animal bone were recovered from ditches in Enclosure A, particularly at the western end of the enclosure circuit. In addition, adult human cranium fragments were recovered from the upper fill of ditch 3854. These might derive from an inhumation burial placed within the ditch and later disturbed, as fragments of adult human pelvis and ulna were found in pit 3897, which cut this section of

the ditch. No other features can be demonstrated to have been contemporary with Enclosure A.

Settlement Enclosure B

Enclosure A was subsequently overlain by Enclosure B (Fig. 9), which formed a rectangle, measuring 120 metres long north-east to south-west by at least 45 metres wide from north-west to south-east (ditches 3170 and 3713, up to 0.64 metres deep). The south-eastwards continuation of this enclosure is clearly visible in the cropmark plot (Fig. 7). Access to the

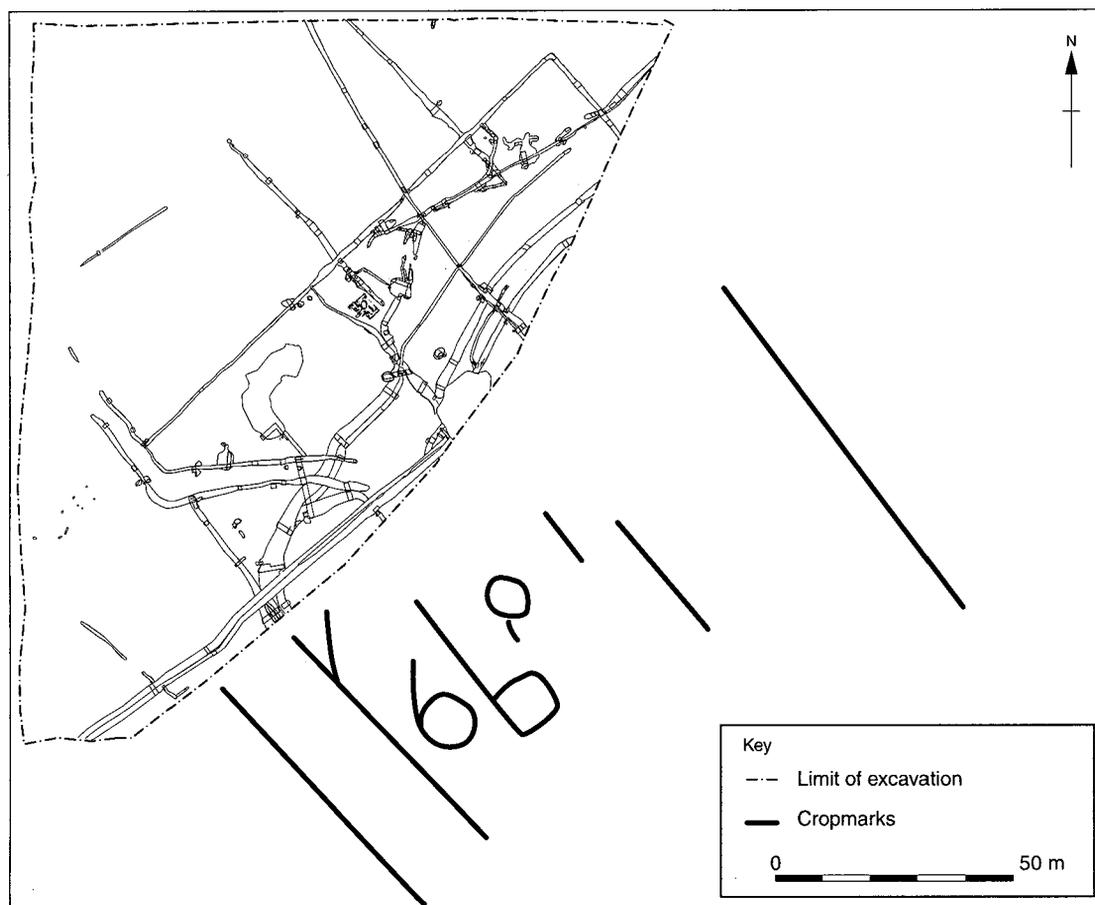


Figure 7. Romano-British settlement: cropmark evidence.

interior of the enclosure was provided by a pair of double-ditched trackways (I and II). Further ditches served to sub-divide the enclosure into a series of irregularly-shaped compounds. Features within the enclosure included a corn-drier (3548; see below), two inhumation burials (3412 and 3523; see below), a large waterhole (3716) and a few shallow pits.

Finds from Enclosure B and its associated features included pottery of the second and (to a lesser extent) third centuries AD, animal bone, a few pieces of brick and tile, and an iron ladle. Two ditches within the enclosure contained possible 'placed' or 'ritual' deposits. The southern terminus of ditch 3852 contained a complete jar-beaker placed at its base, while the upper fill of the southern end of ditch 3710 contained a partial dog skeleton.

Corn-drier

Corn-drier 3548 was a substantial structure, with sunken stone-lined flues (Fig. 10). Although the corn-drier had suffered from later truncation, its overall layout is clear. The two flues (I and II) were placed at right angles to each other, sharing a common stoking area at the southern end of the structure. Both flues had walls made from rough limestone slabs, laid flat in some parts of the structure and pitched in herring-bone fashion in others. Flue I was also paved with

limestone slabs laid flat. The area where the two flues met was heavily scorched, demonstrating that this was the fireplace of the structure. Adjacent to the fireplace was a concave pit (3539), 0.20 metres deep, with an ashy fill. This could represent the truncated base of a stoking pit, although it was eccentrically placed in relation to Flue I. Samples taken from Flue I and the possible stoking pit were both rich in sprouted wheat, demonstrating that the structure was used for roasting malt.

Dating evidence from the corn-drier was limited to a few pottery sherds from the fill of Flue I, broadly datable to the late second to fourth centuries AD. However, the structure was almost certainly contemporary with Enclosure B, on the grounds of its alignment and the fact that large amounts of charred sprouted wheat grain had been dumped into the terminus of adjacent ditch 3852. This grain layer contained a small amount of mid-second-century pottery, providing some indirect dating evidence for the use of the corn-drier. After the corn-drier had gone out of use, part of Flue I was truncated by a large, irregular pit (3530).

Inhumation burials

The two inhumation graves (3412 and 3523) were located close together at the western edge of the

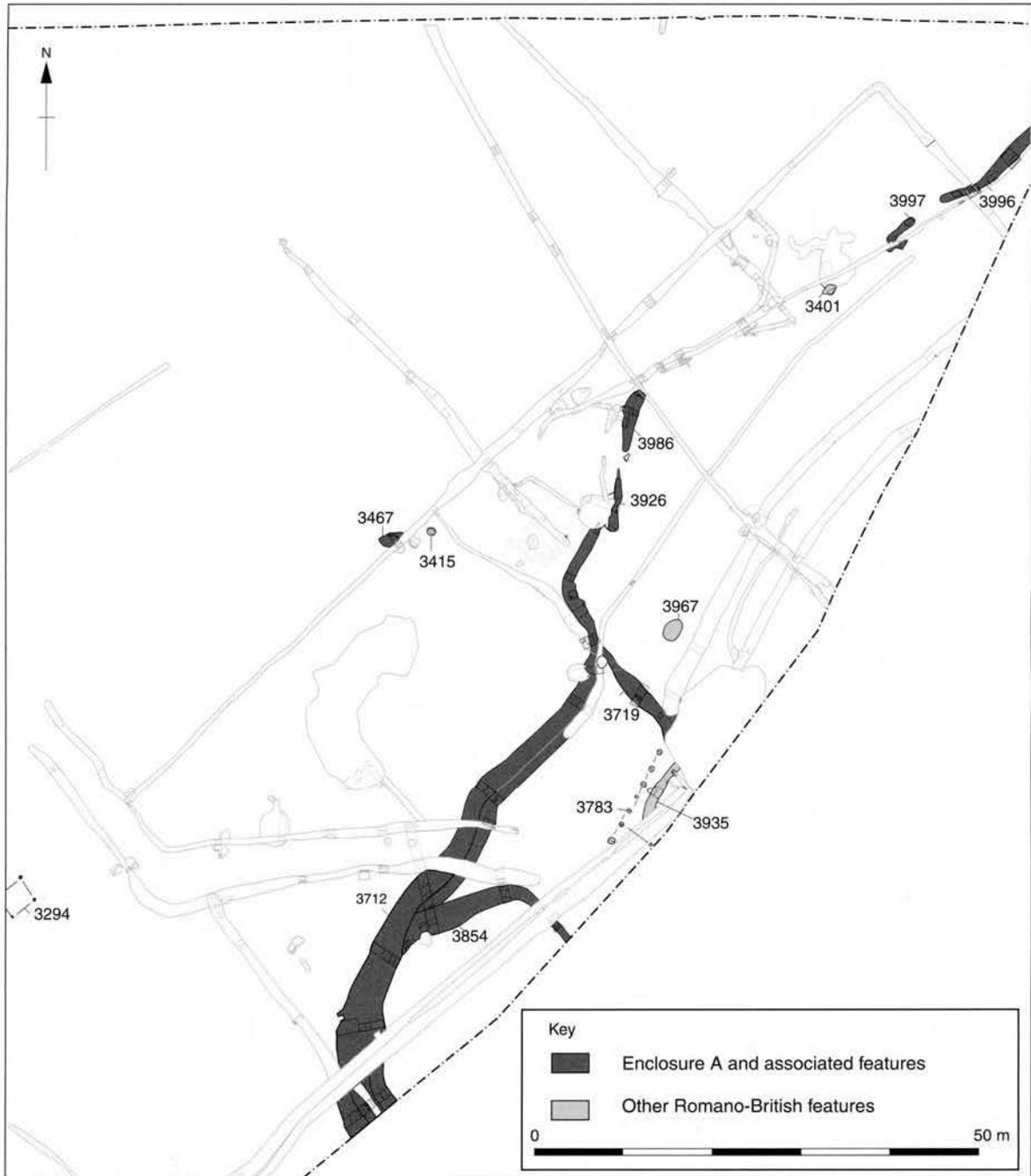


Figure 8. Enclosure A and associated features.

settlement (Fig. 9). Although the burials cannot be closely dated, their placing alongside and aligned with ditch 3713 suggests that they were interred while Enclosure B was in use, or was at least still visible as an earthwork. Both of the individuals were adults of undetermined sex, placed in a supine position. Burial 3523 can be more precisely aged to 26–40 years, and showed evidence for dental enamel hypoplasia, suggesting poor nutrition or disease during childhood (see web report for full osteological data). A few sherds of generic Roman pottery were recovered from both burials, although these were probably

incidental inclusions rather than the remains of grave goods. A sample taken from grave 3412 produced an unusual charred plant assemblage, including rose charcoal and possible ears of wheat.

Structure 3783

Post-built structure 3783 was located within the area of the Romano-British settlement, although the absence of associated finds means that its dating is uncertain. The layout of the structure had been confused by later truncation. The main surviving element was a row of seven postholes, 11.5 metres long, on a north-east to

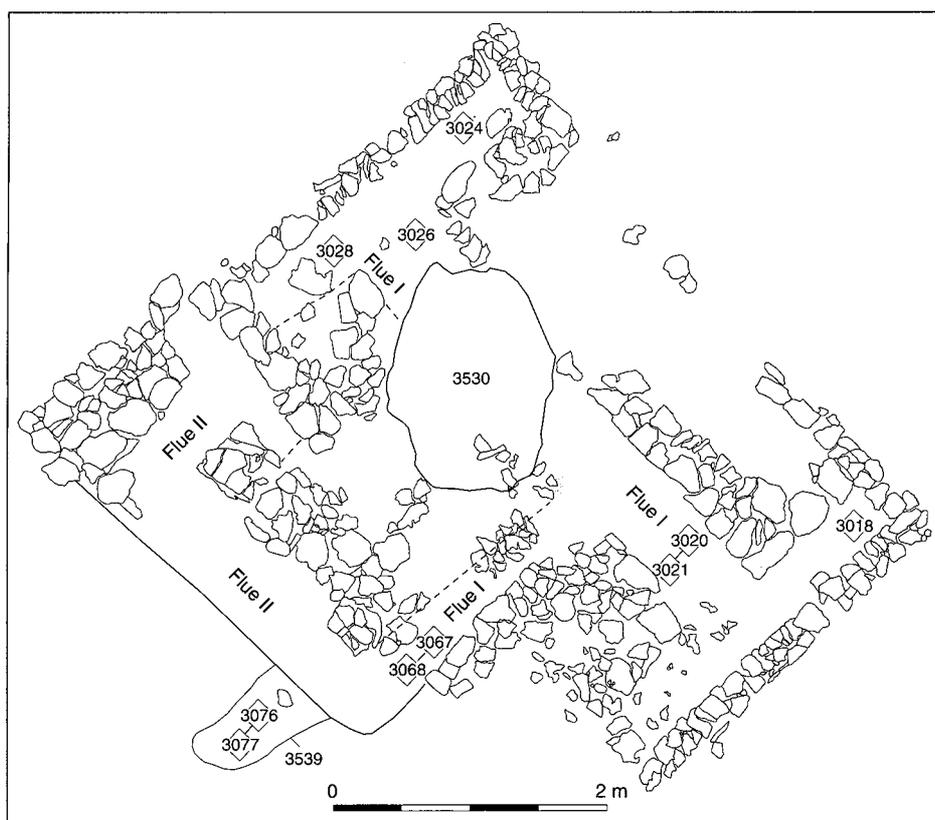


Figure 10. Corn-drier 3548, showing location of environmental samples.

south-west alignment. A single further posthole to the south-east might have been all that survived of a second parallel row of posts. This could suggest that the structure was a small, aisled building with a nave width of 4.0 metres.

Trackway III and the northern occupation area

To the north of the main settlement area, Trackway III crossed the highest part of the site on a north-west to south-east alignment, and could be traced for a distance of 85 metres (Fig. 6). A dispersed group of four pits (1037, 1044, 1050 and 1051) was uncovered in the watching brief area to the south-west of the trackway, which produced significant amounts of pottery, dating mainly to the second century AD. A copper alloy hairpin was also recovered from pit 1051.

Field system

The ditches extending across the northern and north-eastern parts of the site can be divided into two groups (Fig. 6). In the southern part of Area 2, there were roughly parallel, sinuous ditches on an east-west alignment, which on the grounds of morphology and orientation might be associated with the curvilinear Enclosure A to the south-west (see above). To the north of these features lay an extensive rectilinear system of boundary ditches on an identical alignment to Enclosure B. This strongly suggests that these ditches were contemporary with those to the south, although there were no stratigraphic relationships present to prove that the rectilinear field system was later than the curvilinear ditches to the south, and the small

quantities of pottery that were recovered cannot be dated precisely enough to resolve this issue.

While the overall plan of the rectilinear field system is somewhat fragmentary, it is clear that rather than enclosing large fields, the ditches often demarcated relatively narrow 'strips' of standardised width. Within Area 1 and the southern part of Area 2 these strips were about eight metres wide and followed a north-west to south-east alignment. In the northern part of Area 2, meanwhile, there was a discrete rectangular block of strips on a north-east to south-west alignment, each about 70 metres long and 11 metres wide.

Cremation cemetery

The cremation cemetery was located within the rectilinear field system in Area 2, 135 metres to the north-east of the main settlement area (Fig. 11). A cluster of three burials was found (2037, 2041 and 2046); details of the osteological analysis of the human remains can be found in the web report.

Burial 2037 was contained within a shell-tempered jar, buried in a pit just large enough to accommodate the vessel. The remains have been identified as a female aged between 40 and 50 years. A rib fragment showed evidence for pulmonary or respiratory disease, while a vertebra showed signs of mild degenerative joint disease. Pyre goods found amongst the ashes consisted of domestic fowl bone, 79 hobnails and tiny fragments of colourless glass. An iron nail was recovered from the fill surrounding the vessel.

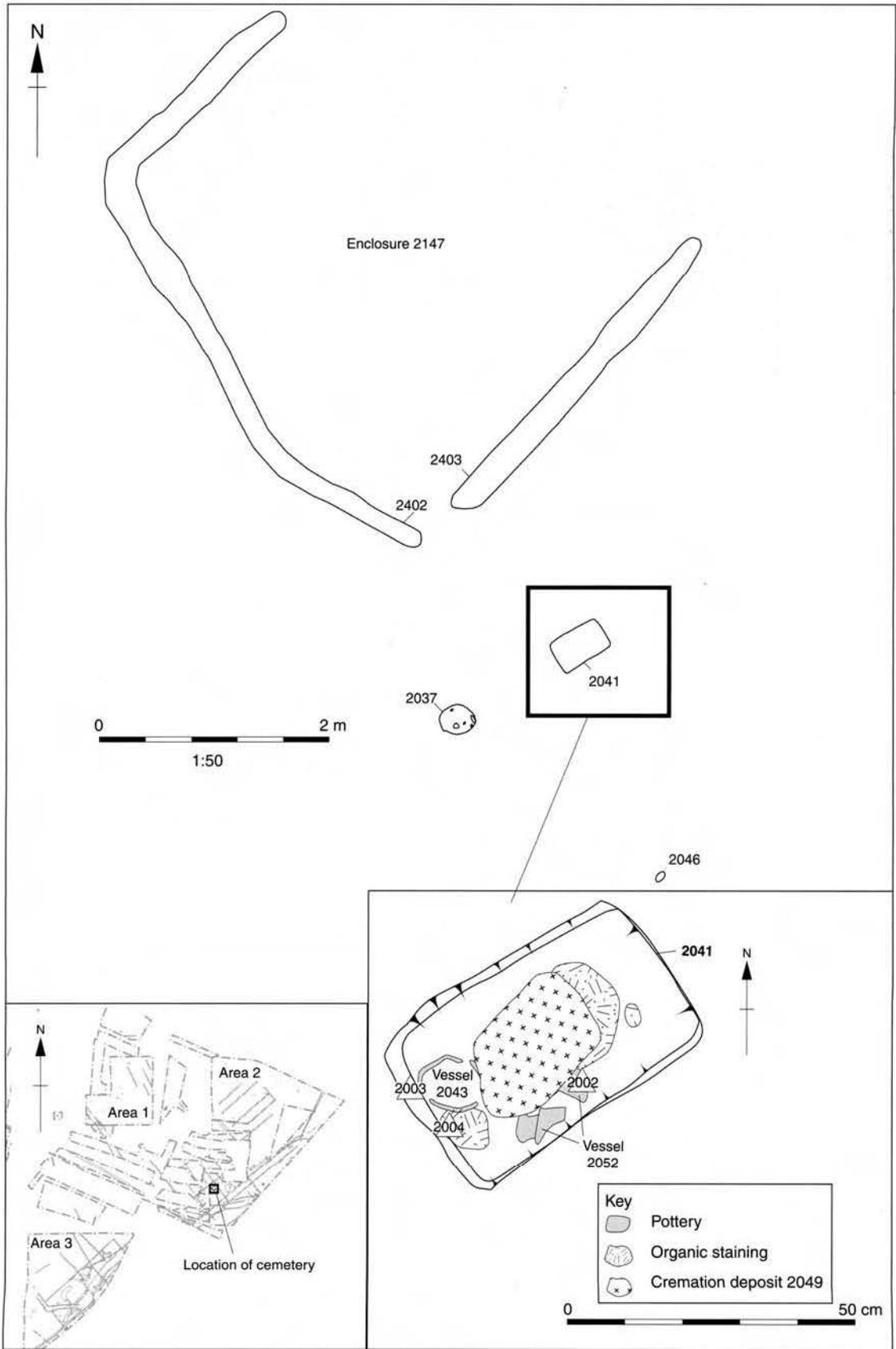


Figure 11. Romano-British cremation cemetery.

Burial 2041 had been interred within a rectangular grave cut, measuring 0.50 metres north-east to south-west by 0.30 metres north-west to south-east. The remains, which belonged to a mature or ageing individual of undetermined sex, were spread across the centre of the grave, overlain by an inverted grey ware bowl and a copper alloy coin. Further grave goods lay at the southern end of the grave, comprising a second pot, a copper alloy trumpet brooch, and an iron nail. Patches of dark staining at the base of the grave may suggest that the burial had been enclosed within an organic container such as a wooden casket. The burial

can be attributed to around the mid-second century AD (coin: AD 145–175; brooch: early-mid second century AD).

Burial 2046 was heavily truncated, with only the base of the urn surviving. Insufficient bone survived to determine the age or sex of the individual. Other burials in the area might have been entirely destroyed. A small square enclosure (2147) immediately to the north of the cremation group could perhaps have surrounded a burial that had been removed in this way. The shallow, truncated gully of this enclosure produced only a single sherd of undiagnostic pottery.

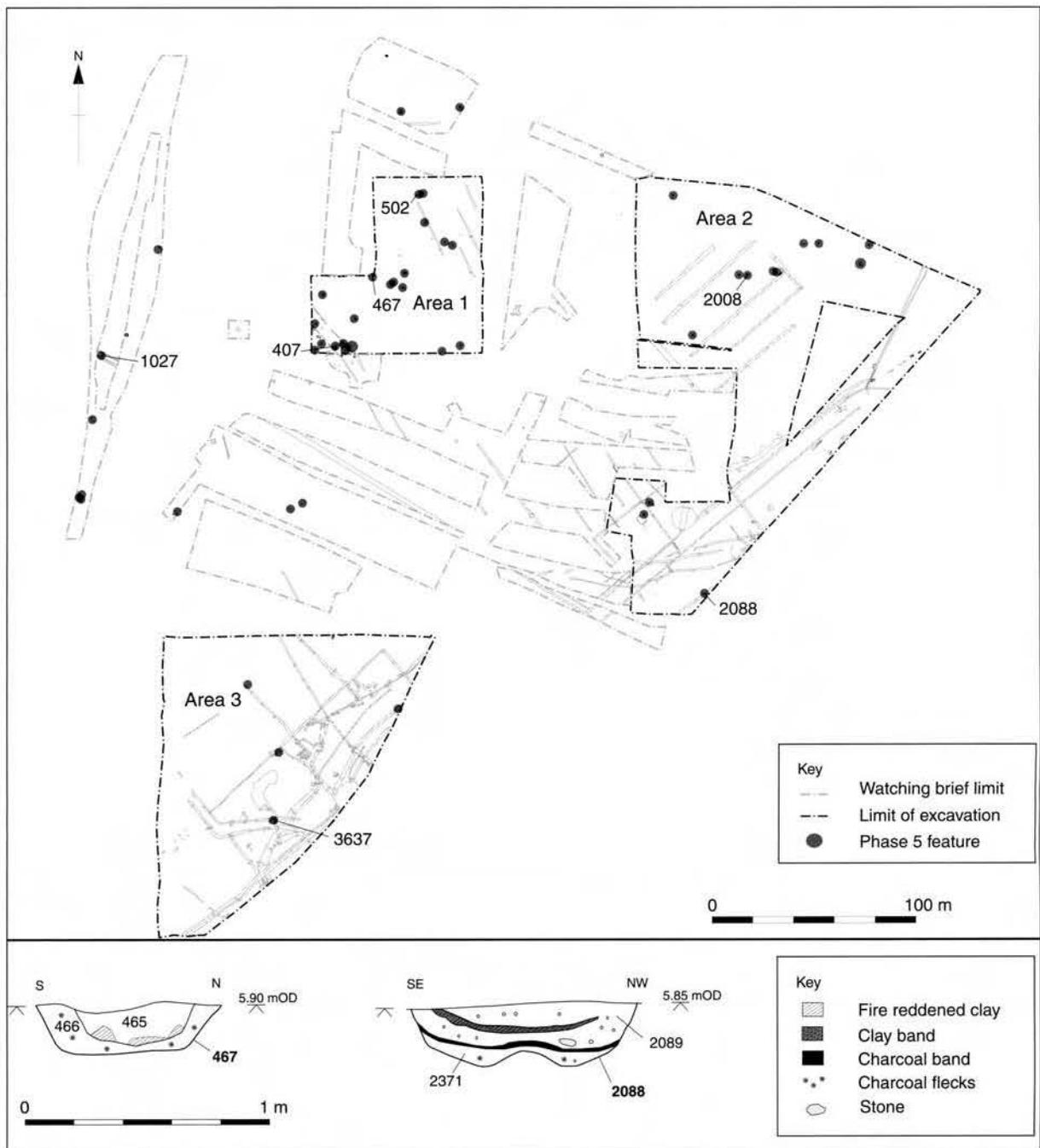


Figure 12. Middle Saxon pits.

Phase 5: Middle Saxon period

Anglo-Saxon activity was represented by 57 small pits with dark fills, rich in oak charcoal (Fig. 12). These were widely scattered across the whole site, though with a concentration in Area 1. Datable finds were absent, but it is notable that several of the pits cut Romano-British ditches, and might in fact have been placed so as to utilise these surviving earthworks. Radiocarbon determinations on charcoal from pits 1027 and 2008 produced date ranges of cal AD 689–890 (NZA 24074: 1220 ± 30 BP) and cal AD 661–778 (NZA 24075: 1288 ± 30BP) respectively.

Scorching of the pit base or sides could be seen in several cases. Charcoal from the pit fills was typically quite fragmented, although in some cases (e.g. pit 502) large pieces up to 40 millimetres long were recovered. Artefacts were largely limited to pieces of fired clay, most of which are likely to have formed in situ, although possible ‘oven plate’ fragments were recovered from pit 407 (identified by C Poole). While the function of these pits is uncertain, it is possible that they played a role in charcoal production (see Discussion below).

Phase 6: Medieval and post-medieval periods

No medieval finds were recovered, which is consistent with the evidence from cropmarks that the site was used for ridge-and-furrow cultivation. Post-medieval features included a trackway visible on the Peterborough enclosure map of 1821 (Peterborough Central Library), and field boundaries and ponds which first appear on the Ordnance Survey first edition map of 1889–91 and remained extant until recent years. Further details can be found in the web report.

Artefacts*Flint**Kate Cramp with Hugo Lamdin-Whymark*

One hundred and ninety-seven struck flints and 216 pieces (141 grammes) of burnt unworked flint were recovered (Table 3). Most of the assemblage dated to the Early Neolithic period, and derived from the Phase 1 pit group at the south-eastern edge of the site. A small amount of flintwork was associated with the Early Bronze Age pit group. The remainder of the assemblage was thinly scattered across the site, mainly occurring as isolated residual finds in later contexts.

The raw material took the form of small pebbles, probably originating from a single source. Where present, cortical surfaces were usually abraded and discoloured, suggesting the exploitation of tertiary deposits, such as the fen-edge gravels. The flint was probably of a reasonable knapping quality, although the small size of the nodules appears to have directly influenced the size of the products, with very few flints exceeding 60 millimetres in length. Two polished axe flakes of Langdale stone were also recovered from pit 2289 (fill 2290).

Early Neolithic

The Early Neolithic flint assemblage represents an accomplished blade-based industry, involving careful preparation and removal using a soft percussor, such as an antler hammer. Platform edge abrasion was regularly used and is present in remnant form on the platform edges of numerous flakes. Cores were shaped and maintained by the removal of rejuvenation flakes, represented by three pieces. Blades, blade-like flakes and bladelets (31 pieces) account for 27.9% of all unretouched removals (excluding chips), a figure that falls securely within the range predicted for earlier Neolithic assemblages (Ford 1987, p. 79).

A single core, aimed at the production of narrow flakes from multiple platforms, was recovered from pit 2289 and illustrates the small cobble form of the raw material (Fig. 13.1). Elsewhere on site, cores were equally rare. The general paucity of cores and chips suggests that knapping was not one of the main activities undertaken on site.

The retouched component makes a significant contribution (23.3%) to the overall lithic assemblage and is dominated by serrated flakes (nine pieces) and simple edge-retouched flakes (five pieces), with lower numbers of piercing tools (Fig. 13.2) and scrapers (Fig. 13.3). Five of the serrated flakes exhibit silica gloss on the back of the teeth (Fig. 13.4), indicating the working of silica-rich plants, such as rushes or reeds, possibly for the production of fibres for textiles (Juel Jensen 1994, p. 62). Serrated flakes were well represented elsewhere on the site (three pieces) and, if assumed to be broadly contemporary, might indicate a wider spread of this particular Early Neolithic activity. A single arrowhead (Fig. 13.5), probably of leaf-shaped form, was recovered from the uppermost fill of pit 2289.

Early Bronze Age

The small Early Bronze Age assemblage was mostly flake-based and contained a limited number of retouched pieces, including one notched flake on a re-used blank. A plano-convex knife was recovered from pit 1062 (Fig. 13.6). The knife was probably intended to be lunate in form, but a poor blank and mediocre knapping skills led to irregularities in its appearance. A second possible plano-convex knife fragment (Fig. 13.7) was recovered from hollow 1086. This piece had been finely and invasively retouched on one side, but had been re-worked following breakage with a few small removals along the broken edge. The intended result was unclear.

*Neolithic and Bronze Age pottery**Emily Edwards*

Five hundred and ninety-one sherds (2423 grammes) of Neolithic and Bronze Age pottery were recovered. The assemblage was dominated by Early Neolithic ‘decorated bowl’ pottery, and a smaller number of Early Bronze Age sherds was also recovered, including fragments of both Collared and Biconical Urns. The remainder of the assemblage (49 sherds, 162 grammes) comprised undiagnostic fragments, which were more difficult to date.

Early Neolithic pottery

Five hundred and one sherds (1852 grammes) of Early Neolithic pottery were recovered, representing a minimum of 39 vessels. Most of this (461 sherds, 1722 grammes) was recovered from the Phase 1 pit group, the remainder being found as residual material in Area 3. The pottery was generally in poor condition, with a mean sherd weight of four grammes. Sherd refits were present between the upper three fills of pit 2289, but no inter-feature refits were found.

Most of the material was in shelly fabrics, presumably deriving from the local Jurassic clays, although a few sherds containing sand, flint and sand, or no visible temper, were also found. Vessel forms mainly comprised bowls, with round-bodied, baggy (Fig. 14.7) and carinated (Fig. 14.8 and 14.10) profiles. The bowls showed a variety of rim forms: 11 were externally expanded (Figs 14.2, 14.6–7 and 14.11), three

everted (Figs 14.5 and 14.10), two squared (Fig. 14.13), two thickened (Fig. 14.1), two rounded (Fig. 14.9), one T-shaped (Fig. 14.3) and one flattened, with a pre-firing piercing (Fig. 14.12). Rim diameters ranged from 100 millimetres to 360 millimetres, with a cluster at 250 millimetres. In addition to the bowls, one small cup with a pointed rim (diameter 70 millimetres) was also recovered (Fig. 14.4). No charred residues were noted.

Some 30% of vessels (12 vessels of the 39) were decorated. Incised diagonal lines were noted on seven rims. In addition, there was one vessel decorated on its body with diagonal impressed lines filling the spaces between horizontal incised bands (Fig. 14.8).

The assemblage at Parnwell is largely comparable in form and decoration to that from the Etton causewayed enclosure, 10 kilometres to the north-west (Kinnes 1998). However, the highly decorated bowl

Table 3. *Flint, summary of assemblage.*

Category	Early Neolithic features			Early Bronze Age features	Later features/ unstratified	Total
	Pit cluster 2315	Pit 2289	Pit 2399			
Flake	10	53	5	10	6	84
Blade	4	7		1	3	15
Bladelet	2	3		1		6
Blade-like flake	6	9		1	1	17
Core face/edge rejuvenation flake		1				1
Other rejuvenation flake	1	1			1	3
Irregular waste	2	7		1		10
Chip		5			1	6
Sieved chips	9	5		2	6	22
Multi-platform flake core		1				1
Levallois / other discoidal flake core					1	1
Unclassifiable / fragmentary core					1	1
Partially-worked nodule					1	1
Retouched flake	3	2			2	7
End-and-side scraper	1					1
Other scraper		2				2
Notch	1			1		2
Serrated flake	2	7			3	12
Piercer		1				1
Spurred piece					1	1
Plano-convex knife				1		1
Other knife				1		1
Unclassifiable / fragmentary arrowhead		1				1
Total	41	105	5	19	27	197
No. of burnt unworked flints	1	2		1	212	216
Weight (g) of burnt unworked flints	1	2		6	132	141
No. of burnt struck flints	9			1	1	24
No. of broken struck flints	2			4	7	60
No. of retouched flints (excluding chips)		13			6	41

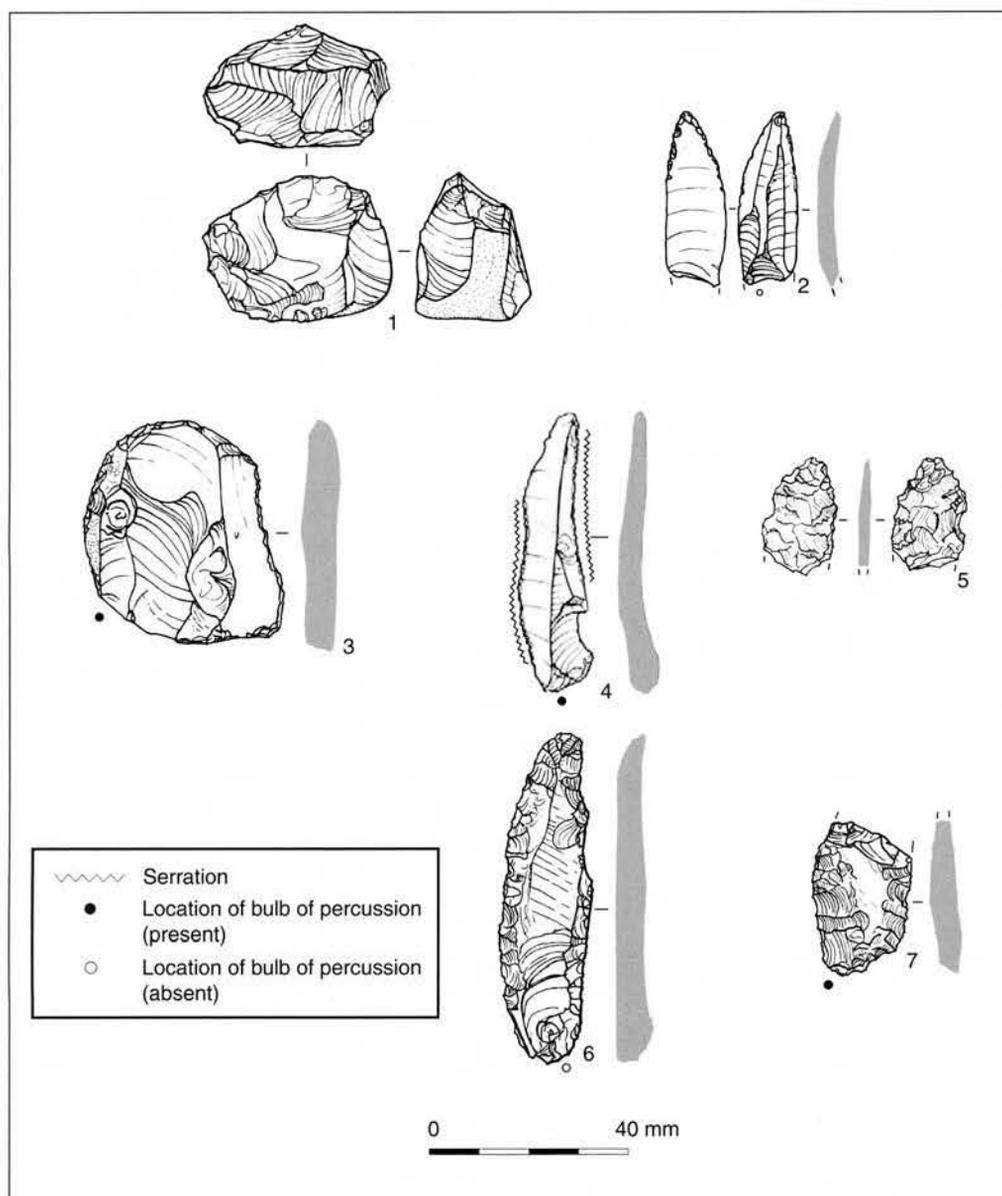


Figure 13. Worked flint.

1 Multi-platform flake core. On small cobble of ?boulder clay flint. Neatly worked but with a few step-terminated scars. Several blade-like removals. 32g. Early Neolithic. Pit 2289, context 2311. Phase 1.

2 Piercer. On blade, dorsal blade scars, slight inverse retouch to distal point. Utilised. Early Neolithic. Pit 2289, context 2290. Phase 1.

3 End-and-side scraper. Abraded gravel cortex. Soft hammer. Platform edge abrasion. Fine semi-abrupt retouch. Slight retouch along right-hand side. Utilised and burnt. Early Neolithic. Pit 2283, context 2284. Phase 1.

4 Serrated flake. Fine blade, good serrations along both edges and visible gloss on the reverse of the teeth. Early Neolithic. Pit 2289, context 2312. Phase 1.

5 Re-flaked ?leaf-shaped arrowhead. Appears to be part of a well-flaked leaf-shaped arrowhead, with an abortive attempt to re-flake. Some of the edges have been turned. Early Neolithic. Pit 2289, context 2312. Phase 1.

6 Plano-convex knife. Made on blade, but an example that has been struck at an unusual angle. Flaking of a reasonable quality, but clearly not the product of an exceptionally skilled flint-worker. Utilised. Probably Early Bronze Age. Pit 1062, context 1063. Phase 2.

7 Re-flaked ?plano-convex knife. Probable plano-convex knife, incomplete, with invasive retouch on dorsal surface only. Snapped (during use?), and re-worked with a few small removals from snap platform. Probably Early Bronze Age. Hollow 1086, context 1084. Phase 2.

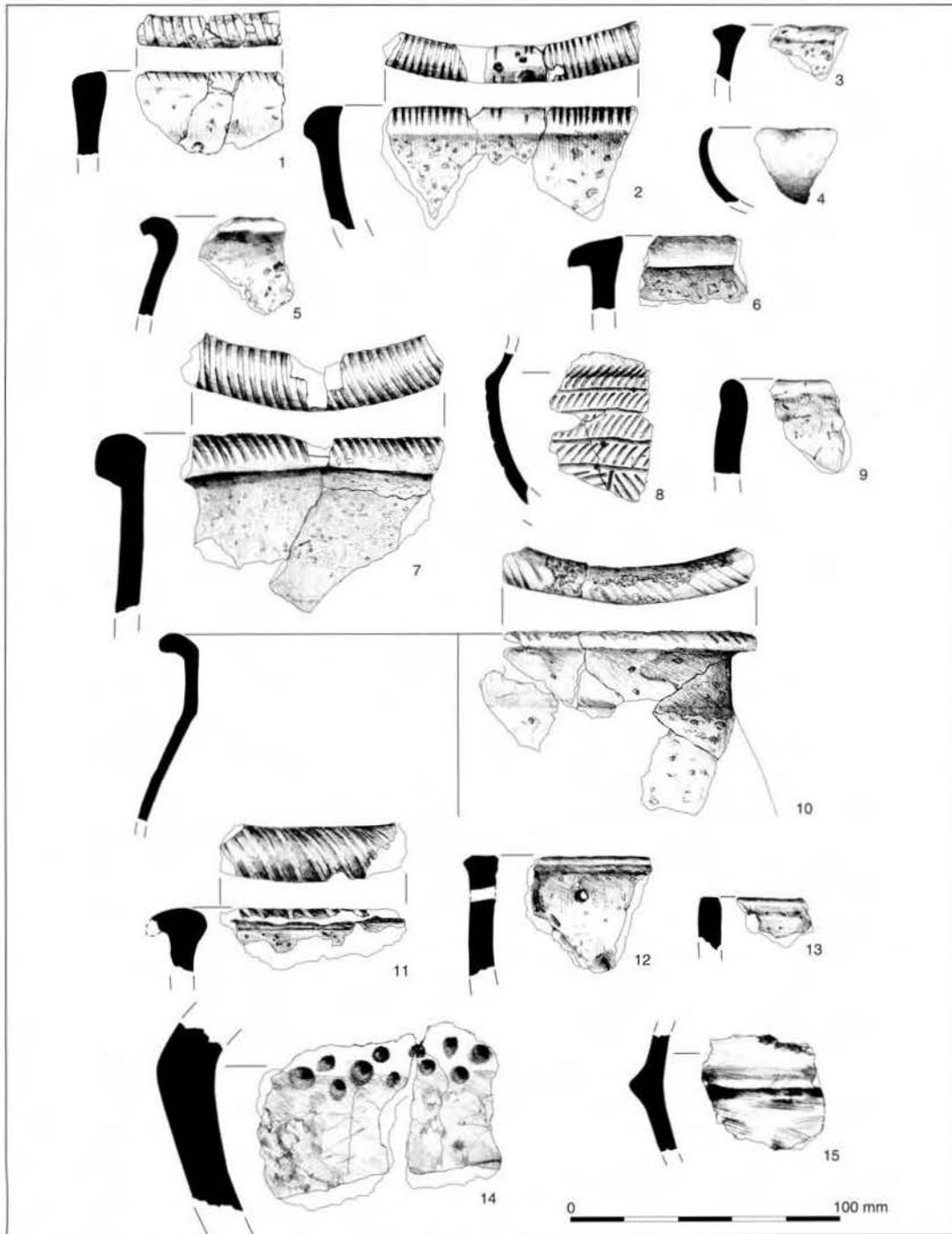


Figure 14. Neolithic and Early Bronze Age pottery.

Neolithic

- 1 Thickened rim. Shelly fabric. Pit 2283, context 2284. Phase 1.
 2 Externally expanded rim. Shelly fabric. Pit 2285, context 2286. Phase 1.
 3 T-shaped rim. Shelly fabric. Pit 2289, context 2312. Phase 1.
 4 Pointed rim from a small cup. No visible inclusions. Pit 2289, context 2312. Phase 1.
 5 Everted rim. Shelly fabric. Pit 2289, context 2312. Phase 1.
 6 Externally expanded rim. Shelly fabric. Pit 2289, context 2415. Phase 1.
 7 Externally expanded, decorated rim. Shelly fabric. Pit 2289, contexts 2290 and 2311. Phase 1.
 8 Body sherd with incised decoration. Shelly fabric. Pit 2289, context 2311. Phase 1.

- 9 Rounded rim. Shelly fabric. Pit 2289, context 2311. Phase 1.
 10 Everted rim. Shelly fabric. Pit 2289, contexts 2311 and 2312. Phase 1.
 11 Externally expanded, decorated rim. Shelly fabric. Pit 2289, context 2416. Phase 1.
 12 Flattened rim with pre-firing hole. Flint-tempered fabric. Pit 2289, context 2416. Phase 1.
 13 Squared rim. Shelly fabric. Pit 2289, context 2419. Phase 1.

Early Bronze Age

- 14 Collared Urn. Grog-tempered fabric. Hollow 1086, context 1084. Phase 2.
 15 Biconical Urn. Grog-tempered fabric. Pit 1008. Phase 2.

(Fig. 14.8) seems more unusual, and no close parallels have been identified.

Early Bronze Age pottery

Forty-one sherds (409 grammes) of Early Bronze Age pottery were recovered from Phase 2 pits and hollows, representing a minimum of five vessels. The pottery was in better condition than the Early Neolithic material, with a mean sherd weight of 11 grammes. The fabrics contained grog, sand or no visible temper.

The vessels included at least three Collared Urns, from pit 1042 and hollow 1086 (e.g. Fig. 14.14). One of the Collared Urn fragments from hollow 1086 was decorated with incised lines on the cavetto zone. The other had rows of impressed fingertips on the shoulder (Fig. 14.14), a form of ornamentation also noted on vessels from Newark Road, Fengate, 2.5 kilometres to the south (Pryor 1980, fig. 59.27). Pit 1008 produced the shoulder from a Biconical Urn, ornamented with a cordon (Fig. 14.15). Charred food residues were present on this sherd.

Iron Age and Roman pottery

Dan Stansbie

One thousand four hundred and fifty-four sherds (20.2 kilogrammes) of Iron Age and Roman pottery were recovered. The assemblage spanned the Middle to Late Iron Age through to the end of the Roman period. However, the majority of the material dated to the early and middle second century AD, with smaller amounts from the late second to third centuries, and only a few sherds from the fourth century. Pottery was recovered from 153 contexts in total. Of these less than 1% produced more than 100 sherds and 7% produced between 30 and 100 sherds. The average group weighed 133 grammes and the mean sherd weight was 14 grammes. One hundred and forty-three identifiable vessels were preserved.

The pottery has been divided into four broad ceramic phases: Middle to Late Iron Age (400 BC–AD 20), Late Iron Age to Early Roman (AD 20–75), Early Roman (AD 75–200) and Late Roman (AD 170–400).

Middle to Late Iron Age pottery

Handmade Middle to Late Iron Age pottery accounted for 2.8% of the assemblage by weight. The small

quantities of pottery were characterised by a variety of shell and limestone fabrics, along with sandy and shelly fabrics and some sand and grog-tempered fabrics. Recognisable forms comprised slack-shouldered bowls/jars.

Thirty-three sherds (361 grammes) were scored. Handmade later Iron Age pottery assemblages from the Peterborough area almost always include a substantial component of Scored Ware (Elsdon 1992). This style of pottery appears to have continued in use well into the first century AD in the lower Nene and Welland Valleys (Elsdon 1992; D. Knight 2002, p. 134). If this is the case at Parnwell, and the Scored Ware in fact represents Late Iron Age activity, then the relative paucity of 'Belgic' style grog-tempered wares may be at least partially explained.

Late Iron Age to Early Roman pottery

A small quantity of wheel-thrown grog-tempered pottery was recovered, which has been ascribed a Late Iron Age to Early Roman date. The only recognisable form was an everted rim jar.

Roman pottery: fabrics

Early Roman pottery accounted for the greatest proportion of the overall assemblage at 47% by weight. Shelly wares dominated the assemblage, accounting for 47% by weight. Also common were sandy reduced wares and Lower Nene Valley grey ware. Fine and specialist wares along with regional and continental imports were scarce.

The Late Roman groups contributed a broader range of fabrics to the assemblage than that seen in the Early Roman period, taking the second largest share of the assemblage by weight at 33%. In contrast to the Early Roman groups, the Late Roman groups were dominated by Lower Nene Valley grey wares, which contributed 42% by weight. Unsurprisingly, the fine and specialist wares were dominated by Nene Valley colour-coated wares, contributing 10% by weight.

Roman pottery: forms

The changing functional composition of the assemblage over time is shown by Table 4. The Early Roman phase was heavily biased towards jars, which represented 50% by estimated vessel equivalent (EVE),

Table 4. Roman pottery, functional analysis of assemblage by phase in %EVEs.

	LIA/Early Roman	Early Roman	Late Roman	Unphased Roman
Storage jars	-	-	-	58
Jars	100	54	37	42
Flagons	-	19	8	-
Dishes	-	10	25	-
Bowls	-	4	12	-
Beakers	-	3	11	-
Cups	-	3	1	-
Mortaria	-	3	1	-
Lids	-	4	1	-
Other	-	-	5	-
Total EVEs	0.04	10.27	12.23	0.38

although flagons and dishes also made a significant contribution and there were some beakers, cups, mortaria and lids. In the Late Roman phase, jars declined in favour of dishes and bowls, although they were still fairly strongly represented at 37% of EVEs. Beakers also increased significantly, although cups, mortaria and lids declined. This is unexpected and might perhaps be related to the small overall numbers of vessels involved. There was also a jar/bowl and part of a cheese press in the Late Roman period, types that were not found earlier in the sequence.

Discussion

If Parnwell is compared with other Roman sites in the area, such as Haddon, Orton Hall Farm and Tort Hill East (Evans 2003, pp. 105–6), it is immediately apparent that there are broad similarities between the sites. Jars declined over time at all sites, although at no site did they go completely out of use in the third and fourth centuries. Conversely tablewares such as dishes and bowls tended to increase over time, and were consistently at relatively high levels when compared to rural sites elsewhere in the Midlands (Evans 2003, p. 104). Cups and beakers seemed to decline over time at all sites including Parnwell, a fact that is surprising given the ubiquity of beakers from the Nene Valley industry in the third and fourth centuries. The explanation might lie with the social status of the inhabitants, although if this were the case then one might expect a corresponding lack of other forms of tableware such as dishes and bowls.

At all the sites discussed by Evans the numbers of mortaria increased over time. However, at Parnwell the opposite is true, with mortaria accounting for 3% of EVEs in the Early Roman phase and 1% in the Late Roman phase. This is the only real anomaly and is best explained by the small numbers of mortaria found at the site. The cheese press found at Parnwell can be matched at many other sites in the area.

Pottery supply to the site was typical of similar sites in the region. In the Late Iron Age to Early Roman period the assemblage was dominated by grog-tempered and grog and shell-tempered wares which, like the similar material from Haddon, Orton Hall Farm and Tort Hill, was probably made locally (Evans 2003, p. 105). In the Early Roman period, pottery supply was dominated by shelly wares and sandy grey wares, with Nene Valley grey wares beginning to make an impact and samian wares of southern and central Gaulish origin also present in small amounts. This pattern also matches very closely that from Haddon and other local sites. It is possible that at least some of the shelly material found at Parnwell was manufactured in the kilns at Haddon, although some might also have come from the Water Newton area (Evans 2003, p. 107). Other locally produced material in this phase came from Longthorpe, comprising two mortaria and some oxidised ware. The presence of a flagon in Much Hadham white-slipped oxidised ware from a late second-century group was the only indication apart from the samian ware of supply to the site from a long distance in the Early Roman period.

Pottery supply in the Late Roman phase was dominated by Lower Nene Valley grey ware, with shelly wares still very important and Nene Valley colour-coated wares making an impact. Once again this pattern of supply fits very well with that seen at Haddon (Evans 2003, p. 107). The nearest known kilns producing Nene Valley grey and colour-coated wares at this time were at Stanground, just 4.5 kilometres to the south (Dannell *et al.* 1993). A single sherd of Dorset black-burnished ware from a Late Roman group indicates that pottery supply was not entirely insular in the Late Roman period. However, for the most part pottery consumption appears to have been resolutely focused on local products. Overall, the ceramics indicate that the socio-economic status of the Romano-British settlement was modest.

Roman ceramic building material

Cynthia Poole

The assemblage of Roman ceramic building material, which amounts to 63 fragments weighing 9.3 kilogrammes, is relatively small and fragmentary. The most notable feature of the assemblage is the dominance of brick and tegulae. The absence of imbrices suggests that the tegulae were not being used for roofing. The distribution of the ceramic building material was mainly across the western half of the settlement, and it might perhaps have been used in the superstructure of the corn-drier.

Other Roman artefacts

Paul Booth, Cynthia Poole, Ruth Shaffrey and Leo Webley

The assemblage of small finds from the Romano-British settlement was relatively modest (Fig. 15). There were two copper alloy dress accessories, comprising a simple hairpin and an imported disc brooch with millefiori glass inlay. Utilitarian metal items consisted of a possible iron ladle and three iron nails. Two pieces of worked stone were recovered, a possible saddle quern fragment and a probable rubber. A small assemblage of fired clay (80 fragments, 1706 grammes) included fragments of oven structure and furniture, probably associated with a range of small-scale domestic activities.

The cremation cemetery also produced a small assemblage of metalwork. Burial 2041 contained a copper alloy trumpet brooch and an iron nail. It also contained a coin, possibly a dupondius, datable to AD 145–75. Burial 2037 contained a further iron nail, along with 79 iron hobnails. The same burial also produced nine tiny fragments of colourless glass (2 grammes) from its sieved residue. The placing of glass vessels on cremation pyres was fairly common during the Roman period (Philpott 1991).

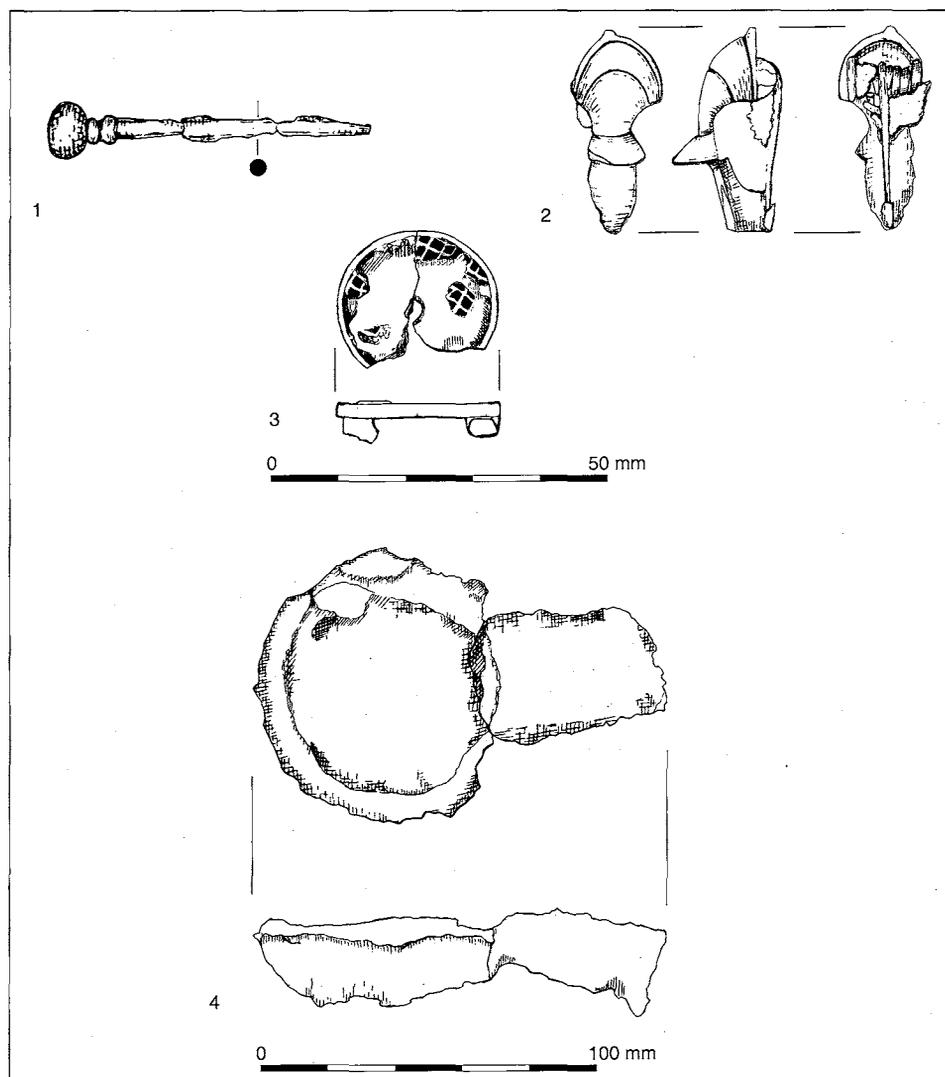


Figure 15. Roman metalwork.

1 Hairpin. Copper alloy pin of 'button and cordon head' type (Cool group 6). Late first–early second century AD (Cool 1991). Pit 1051, context 1053.

2 Trumpet brooch. Copper alloy trumpet brooch of Hull's 'Alcester' type (Hull Type 162: Bayley & Butcher 2004), ornamented with two lateral grooves at the top of the head. The pin appears to be made of iron. Early–mid second century AD. Cremation burial 2041, context 2042.

3 Disc brooch. Two fragments of an imported copper alloy disc brooch with millefiori glass decoration set into the single circular cell (Hull Type 256: Bayley & Butcher 2004). The brooch has a central circular perforation (cf. Bayley & Butcher 2004, no. 372). Brooches of this kind were probably manufactured in northern Gaul or the Rhineland and date to the late second–early third centuries AD. Pit 3897, context 3900.

4 Possible ladle. Heavily corroded iron implement resembling a ladle with a broken handle. Ditch 3710, context 3921.

Environmental analyses

Faunal remains

Kristopher Poole with Emma-Jayne Evans and Rebecca Nicholson

One thousand and eighty-one refitted fragments (18,019 grammes) of animal bone were recovered (Table 5). Most of the material came from Early Neolithic and Romano-British contexts. Hand recovery accounted for 869 fragments, and sieving of environmental samples for the remainder.

Only a small amount of the Early Neolithic bone could be identified to species, with cattle predominating. The vast majority of the bone came from pit 2289, and all parts of the skeleton were represented. Based on size, the cattle bone probably came from domestic animals. Dental ageing from mandibles highlights the presence of one animal aged 18–30 months at death, one young adult, and one old adult, whilst two loose molars came from young adults. Epiphyseal fusion suggests that most cattle were skeletally mature at death, although some immature elements were noted, including a foetal/neonatal femur and humerus. The

presence of a number of adult cattle could suggest that milk was important to the community. A sheep/goat mandible was from an animal between six and 12 months old, and a pig fused distal tibia came from an animal at least two years of age at death. The only butchery observed was a chop mark on the medial side of a cattle metatarsal diaphysis, towards the distal end.

All cattle elements from the Early Bronze Age were teeth, except a fused distal humerus from an animal at least 15–20 months old at death. Cattle were represented in the Middle–Late Iron Age by a proximal metatarsal, which had skinning marks around the articulation, and sheep/goat by four maxillary molars.

The Romano-British assemblage mostly came from the settlement area, with small numbers of bones recovered from the outlying field system. The assemblage is fairly typical of rural sites of this period. Cattle and, to a much lesser extent, sheep/goat were the main food animals at the site, although cattle, being much larger, would have supplied the bulk of the meat. However, the greater proportions of cattle may at least partly be due to the location of deposition, as evidence from other sites indicates that larger animal carcasses often tended to be processed and dumped on the outskirts of settlements (Maltby 1985; Wilson 1996). The importance of horse has probably been unduly inflated by the large number of loose teeth that were recovered. Minor domestic species included dog and domestic

fowl, the latter only found as a pyre good in cremation burial 2037.

Epiphyseal fusion suggests that most cattle were allowed to reach adulthood before slaughter, with around 80% of elements from animals killed after reaching four years of age. Evidence from dental attrition largely agrees with this, although one animal had died at an age of between one and eight months. The presence of a small number of foetal or neonatal cattle, sheep/goats and pigs hints at some on-site breeding of livestock.

A few examples of wild species such as red deer, hare, goose, mallard, snipe and fish suggest that limited hunting, wildfowling and fishing took place. The red deer element was a metatarsal, exhibiting cut marks around the proximal end, possibly associated with skinning. A number of small mammal bones (mouse, vole and shrew) were found in association with the corn-drier, perhaps indicating a problem with vermin.

Charred plant remains

Denise Druce

Following assessment, 21 samples containing relatively abundant charred plant remains were selected for full analysis. Five of these came from Early Neolithic pits, and 16 from Romano-British features, including the corn-drier, various pits and ditches, and an inhumation burial.

*Table 5. Faunal remains, Number of Identified Specimens (NISP) by phase. *=35 bones from a single articulated skeleton.*

Species	Early Neolithic	Early Bronze Age	Middle–Late Iron Age	Romano-British	Middle Saxon	Unphased	Total
Cattle	71	-	1	66	-	13	155
Horse	-	-	-	54	-	1	55
Sheep/goat	1	-	4	36	1	2	44
Pig	4	-	-	3	-	-	7
Dog	-	-	-	38*	-	-	38*
Cat	-	-	-	1	-	-	1
Red deer	-	-	-	1	-	1	2
Hare	-	-	-	1	-	-	1
Domestic fowl	-	-	-	2	-	-	2
Goose	-	-	-	1	-	-	1
Mallard	-	-	-	1	-	-	1
Crow/rook	-	-	-	1	-	-	1
Snipe	-	-	-	1	-	-	1
Fish	-	-	-	1	-	-	1
Field/wood mouse	-	-	-	1	-	-	1
Mouse	-	-	-	1	-	-	1
Cf. Water vole	-	-	-	3	-	-	3
Field vole	-	-	-	3	-	-	3
Mouse/vole	-	-	1	14	-	-	15
Shrew	-	-	-	1	-	-	1
Frog/toad	-	-	-	4	-	-	4
Snake	-	-	-	5	-	-	5
Large	145	1	3	145	-	35	329
Medium	36	6	7	35	-	3	87
Small	-	-	1	20	-	-	21
Unidentified	538	17	44	530	2	107	1238
Total	821	28	61	932	3	136	1981

Early Neolithic pits

Although the charred plant assemblages from the Early Neolithic pits were limited in extent (Table 6), the evidence is consistent with other similar sites in Britain, and indicates that a combination of both cultivated and wild food plants were being utilised. As is typical, the most ubiquitous plant remains were of hazelnut, with over 500 shell fragments coming from one of the samples (pit 2283). The only other certain wild food plant present was crab apple, which is also commonly found in Neolithic pits. Although cereal remains were present in all of the samples, poor preservation meant that identification to species level was difficult. A single grain of barley was identified, however. A spelt wheat glume base from pit 2283 is presumed to be intrusive, as this crop has not previously been attested in Neolithic Britain. Fat-hen was also present in some of the samples. This is a common weed of waste or cultivated ground and might have been introduced into the pits along with the cereal grain, although it was also used as a foodstuff in the past.

Romano-British features

Ten samples came from various locations within corn-drier 3548 (Fig. 10), and further samples were taken from nearby ditch terminus 3852 and pit 3619, believed to contain dumped waste material generated during the use of the drier (Tables 7 and 8).

The evidence from the corn-drier suggests that, like many sites of this period in central and southern Britain, the chief wheat crop under cultivation was spelt. In addition, the presence of bread wheat grains suggests that this might have also been cultivated, perhaps as a minor crop. The presence of barley, rye and oat grains hints that these crops might also have been cultivated to a limited degree. Although only a small number of grains in the corn-drier samples had germinated, the very abundant detached coleoptiles,

especially in the stoking pit, suggests that the actual number was, potentially, far greater. Van der Veen (1989) argues that where 75% or more of a cereal assemblage has germinated it is highly likely that it represents material from malting. This process involves the roasting of the 'green malt' (or germinated grain) in order to halt the process of germination at a given stage, the resultant germinated grain forming the raw material in brewing. An assemblage similar to that from Parnwell was discovered from a corn-drier at the Roman villa site at Bancroft, Milton Keynes, and the high number of detached coleoptiles in this example was interpreted as the waste product of malting. Similarly, corn-drier assemblages from Tiddington, Warwickshire, were interpreted as the waste material produced from malting, which was used to re-kindle the ovens (van der Veen 1989).

It is possible that the thousands of spelt glume bases in the corn-drier samples are the waste product from a different activity, which was subsequently utilised to fuel the corn-drier. However, earlier evidence from 21 other Romano-British corn-driers suggests that in over half the cases the charred plant assemblages were dominated by the remains of spelt wheat (van der Veen 1989). At Catsgore, Somerset, nine out of the ten corn-drier samples contained germinated spelt wheat, which was interpreted as the remains of malt production (Hillman 1982). In addition, the abundant wood charcoal, spelt glume bases and weed seeds in one of the stoking pit assemblages at Catsgore were believed to represent the remains of fuel, which had become mixed with grains when the ovens were cleaned out. A rich assemblage of spelt grains, spelt chaff and detached coleoptiles at Springhead, Kent, was interpreted as the waste by-product resulting from the removal of husks and sprouts of malted grain. Although, as at Parnwell, there were very few germinated grains in the assemblages, Campbell (1999) concluded from the association of the sprouts

Table 6. Charred plant remains from Early Neolithic pits. Figures given are actual counts.

	Feature	2283	2287	2289	2289	2289
	Context	2284	2288	2311	2327	2416
	Sample no.	2034	2036	2333	2087	2060
	Sample size (litres)	30	20	40	40	40
Charred cereal grain						
<i>Triticum</i> sp.	Wheat	1				
<i>Hordeum vulgare</i>	Barley					1
Cerealia indet.	Indeterminate grains	2	3	2	1	1
Cerealia indet. frag.		105	6	9	1	5
Charred cereal chaff						
<i>Triticum spelta</i>	Spelt wheat glume base	1				
Other charred edibles						
<i>Corylus avellana</i> frag.	Hazelnut shell frag. >2mm	79	16	29	8	2
<i>Corylus avellana</i> frag.	Hazelnut shell frag. >1mm	c. 500	5			
<i>Malus sylvestris</i>	Crab apple		2			
Charred weed seeds						
<i>Chenopodium album</i>	Fat-hen	1		1		1
Other						
Poaceae floret base	Wild grass	1				

Table 7. Charred plant remains from Romano-British features. Figures given are actual counts.

	Feature	1051	3412	3548	3548	3548	3548	3548	3548
	Context	1054	3414	3475	3475	3521	3521	3521	3522
	Feature type	Pit	Grave	Corn-drier Flue I					
	Sample no.	1001	3413	3067	3068	3018	3020	3021	3024
	Sample size (litres)	40	10	10	10	10	20	10	10
CHARRED CEREAL GRAIN									
<i>Triticum</i> sp.	Wheat		98	46	70	2	3	7	7
	Wheat, coleoptile impressions		2		3				1
	Wheat, coleoptile attached		1	5					
<i>Triticum dicoccum/spelta</i>	Domestic emmer/spelt wheat		24	3	3				
	Domestic emmer/spelt wheat, coleoptile attached			2					
<i>Triticum</i> c.f. <i>dicoccum</i>	Domestic emmer-type wheat		10						
<i>Triticum aestivum</i>	Bread wheat	5	5	9	8				
	Bread wheat, coleoptile attached		1						
<i>Hordeum vulgare</i>	Barley undiff.		1		1				
	Barley undiff, coleoptile attached				1				
<i>Secale cereal</i>	Rye			1					
<i>Avena</i> sp.	Oats			2	2				
	Oats, coleoptile attached				2				
Cerealia indet.	Indeterminate grains	7	65	119	127	17	24	27	24
	Total cereal grain	12	207	187	217	19	27	34	32
Cerealia indet. frag.		>100	>100	>1000	>1000	>100	>100	>100	>100
Detached coleoptiles			4	48	65		1	2	
CHARRED CEREAL CHAFF									
<i>Triticum spelta</i>	Spelt wheat glume base	2	35	1000	1000	14	3	2	5
<i>Triticum spelta</i>	Spelt wheat spikelet forks		11	12	45				
<i>Hordeum vulgare</i>	Barley rachis	1			5				
Culm nodes		1	5	3		3			
Stem frag.		1	20						
	Total chaff	5	71	>1000	>1000	17	3	2	5
<i>Triticum</i> sp.	Wheat glume base frag.	6	40	>1000	>1000	10	21	5	12
Palea/lemma frag.			>100						
CHARRED WEED SEEDS									
<i>Ranunculus flammula</i>	Lesser spearwort	2							
<i>Chenopodium album</i>	Fat-hen			6					1
<i>Agrostemma githago</i>	Corncockle			2	3				1
<i>Stellaria media</i>	Common chickweed	1							
<i>Fallopia convolvulus</i>	Black-bindweed	1							
<i>Polygonum aviculare</i>	Knotgrass	2		1	3				
<i>Rumex obtusifolius</i>	Broad-leaved dock	5	1	18	24				
<i>Rumex acetosa</i>	Common sorrel	2		7	12				1
<i>Rumex acetosella</i>	Sheep's sorrel	4	1	4	9			1	1
Rosaceae	Rose family	1							
<i>Brassica</i> sp.	Cabbages	1		1					
Fabaceae <4mm	Pea family	3		21	54	3			2
Apiaceae	Carrot family				3				1
<i>Plantago lanceolata</i>	Ribwort plantain		1	1					
<i>Galium aparine</i>	Cleavers			2					
<i>Galium palustre</i>	Common marsh-bedstraw	3	1						
Asteraceae	Daisy family			2			1		1
<i>Anthemis cotula</i>	Stinking chamomile				3				
<i>Chrysanthemum segetum</i>	Corn marigold				3				
<i>Lapsana communis</i>	Nippelwort			1					
<i>Tripleurospermum inodorum</i>	Scentless mayweed	1							
<i>Carex trigonous</i>	Sedges- three sided	4		2					
<i>Carex lenticular</i>	Sedges- two sided	2		2					
<i>Isolepis</i>	Club-rushes	1	1	4					
<i>Juncus</i> sp.	Rushes	1							
<i>Eleocharis palustris</i>	Common spike-rush	18	2		3				
Poaceae <2mm	Grass family	5			12				
Poaceae 2-4mm	Grass family	9		40	42				
Poaceae >4mm	Grass family		1	6		1			
<i>Bromus</i> spp.	Bromes	1	6	225	138	1		1	
	Total charred weed weeds	67	14	345	309	5	1	2	8

continued

Table 7 continued. Charred plant remains from Romano-British features. Figures given are actual counts.

	Feature	1051	3412	3548	3548	3548	3548	3548	3548
	Context	1054	3414	3475	3475	3521	3521	3521	3522
	Feature type	Pit	Grave	Corn-drier Flue I					
	Sample no.	1001	3413	3067	3068	3018	3020	3021	3024
	Sample size (litres)	40	10	10	10	10	20	10	10
OTHER									
Poaceae awn frag.	Wild grass		8	9	2				
Fabaceae seed pod frag.	Pea family			10	1		1		
<i>Raphanus</i> cf <i>Ssp. raphanistrum</i> capsule	c.f. Wild radish	1							

and spelt wheat chaff that spelt wheat was being used for brewing. Within East Anglia, flue features containing sprouted spelt wheat at Stebbing Green, Essex, have been interpreted as belonging to a 'malt house' (Bedwin & Bedwin 1999). Although barley has historically been considered the preferred grain for brewing, the brewing of spelt wheat appears to have been widespread in Roman Gaul, where the resulting wheat beer was 'drunk by the poorer classes' (Strabo, cited by Hillman 1982).

The weed seeds that accompanied the corn-drier cereal remains are likely to have originated from plants that had been harvested along with the malting crop. Nearly all of the weed seeds are associated with waste or cultivated ground, and the very abundant brome seeds, historically a dominant crop weed in wheat fields (www.igergru.bbsrc.ac.uk), suggest that it was particularly invasive at the site. In addition, there is evidence that brome has also been cultivated as a fodder crop in the past.

The samples taken from the terminus of Flue I contained very limited charred plant remains compared to those from the southern end of the flue and the stoking pit. This could imply that the actual working platform or 'floor' of the kiln was well cleaned following its final use and subsequent collapse.

Similar charred plant assemblages were recovered from the nearby ditch terminus 3852 and pit 3619. However, one noticeable difference was the lack of weed seeds in the pit, which suggests that some form of taphonomic process prevented their introduction into the feature.

Aside from the corn-drier and associated features, a number of other Romano-British features contained abundant charred plant remains. Pit 3897 was dominated by wheat grains and, unlike the features associated with the corn-drier, contained very little cereal chaff or weed seeds. Given the lack of processing waste it is possible that the material either represents fully processed grain that was accidentally charred during cooking and subsequently thrown into the pit, or that it represents stored grain, which had been subsequently charred during the cleaning of the pit (Hillman 1981).

Pit 1051, meanwhile, contained very few cereal remains but abundant seeds of weeds associated with waste or cultivated land and damp/wet ground. It

is likely that the charred remains from this pit represent those of plants growing in the outlying area, which were cleared, burnt and then subsequently dumped in the pit. The abundant seeds from plants of wet/damp ground suggest that some of this land, or at least the field boundary ditches, were flooded.

The charred plant remains associated with the inhumation burial (3412) were remarkably well preserved, and, like the other features from the site, were dominated by wheat/spelt wheat with lesser amounts of bread wheat. In addition, however, this sample contained ten possible 'emmer-type' wheat grains. The abundant chaff fragments (including glume bases, spikelet forks, culm nodes and palea/lemma fragments) and the pristine nature of the cereal grains suggests that the material represents ears of wheat, which were charred at a controlled temperature. Subsequently very little distortion occurred, and unlike many other charred cereal assemblages, parts of the whole ear survived. It is tempting to suggest that these remains represent a ritual token, which was preserved through gentle charring and then placed with the body. A symbolic significance might also be suggested by the presence of possible emmer-type wheat in this assemblage, as emmer wheat was not present in any of the other Romano-British contexts.

Charcoal

Dana Challinor

Twenty-five samples from features ranging in date from the Neolithic to the Middle Saxon period was examined. The full data will be presented in the web report.

Early Neolithic

Quercus (oak) was present in all assemblages, and *Fraxinus* (ash) was also well represented. The other species tended to be shrubs or hedgerow types, with the exception of *Clematis* (traveller's joy), which is a climber and might have entered the assemblage accidentally with fuel wood from a larger tree. The picture that emerges from the charcoal assemblages is that a range of wood was used. Most contexts produced four different species, indicating that gathering wood for fuel was probably on an ad hoc basis, reflecting what was easily available. Given the evidence for coppicing and pollarding from other contemporary sites in the

Table 8. Charred plant remains from Romano-British features, continued. Figures given are actual counts.

	Feature	3548	3548	3852	3852	3539	3539	3619	3897
	Context	3522	3522	3532	3537	3538	3607	3621	3900
		Corn-drier Flue I	Corn-drier Flue I	Ditch	Ditch	Corn-drier stoke pit	Corn-drier stoke pit	Pit	Pit
	Feature type								
	Sample no.	3026	3028	3069	3070	3076	3077	3089	3414
Sample size (litres)	10	10	40	40	20	10	40	10	
CHARRED CEREAL GRAIN									
<i>Triticum</i> sp.	Wheat	24	1	96	6	40	6	10	103
	Wheat with coleoptile impression			3		8			
	Wheat, coleoptile attached			6		4	1		
<i>Triticum dicoccum/spelta</i>	Domestic emmer/spelt wheat			5	1	11	2		5
	Domestic emmer/spelt wheat, coleoptile attached					3			
<i>Triticum aestivum</i>	Bread wheat			18		4	7	12	
	Bread wheat, coleoptile attached			1					
<i>Hordeum vulgare</i>	Hulled barley								2
<i>Hordeum vulgare</i>	Barley undiff.				1				
<i>Avena</i> sp.	Oats								1
Cerealia indet.	Indeterminate grains	43	34	112	1	210	26	19	54
	Total cereal grain	67	35	241	9	280	42	41	165
Cerealia indet. frag.		>100	>100	>1000	>100	>1000	>1000	>100	>100
Detached coleoptiles				31	1	247	3	2	
CHARRED CEREAL CHAFF									
<i>Triticum spelta</i>	Spelt wheat glume base	4	2	>1000	126	>1000	16	270	2
<i>Triticum spelta</i>	Spelt wheat spikelet forks					>100	2	4	1
	Culm nodes					1			3
	Total chaff	4	2	>1000	126	>1000	18	274	6
<i>Triticum</i> sp.	Wheat glume base frag.	20	7	>1000	>100	>1000	>100	>1000	
CHARRED WEED SEEDS									
<i>Papaver rhoeas</i>	Common poppy						1		
<i>Chenopodium album</i>	Fat-hen			16					
<i>Chenopodium/Atriplex</i>	Goosefoots/oraches						2		
<i>Agrostemma githago</i>	Corncockle					5			
<i>Stellaria media</i>	Common chickweed						1	1	
<i>Fallopia convolvulus</i>	Black-bindweed			5		20			
<i>Rumex obtusifolius</i>	Broad-leaved dock			29	2	40			
<i>Rumex acetosa</i>	Common sorrel			16		3	2		
<i>Rumex acetosella</i>	Sheep's sorrel					3			
<i>Brassica</i> sp.	Cabbages					1			
Fabaceae >4mm	Pea family						2		1
Fabaceae <4mm	Pea family	4	1	1		35			
Apiaceae	Carrot family						1		
<i>Plantago lanceolata</i>	Ribwort plantain				2	1			
Asteraceae	Daisy family		1				9		
<i>Anthemis cotula</i>	Stinking chamomile						3		
<i>Cirsium</i> sp.	Thistles			1					
<i>Tripleurospermum inodorum</i>	Scentless mayweed					3	2		
<i>Carex trigonous</i>	Sedges- three sided			1					
<i>Isolepis</i>	Club-rushes			4		2	14		
<i>Juncus</i> sp.	Rushes						2		
<i>Eleocharis palustris</i>	Common spike-rush						1		
<i>Schoenoplectus</i> sp.	Club-rushes			2					
Poaceae <2mm	Grass family			4					
Poaceae 2-4mm	Grass family			4	2	35	7	7	
Poaceae >4mm	Grass family			7		10	7		
<i>Bromus</i> spp.	Bromes	1		510	8	297	10	3	
Indet.	Unknown seeds						1		
	Total charred weed seeds	5	2	600	14	455	65	11	1
OTHER									
Poaceae awn frag.	Wild grass			4		6			
Poaceae floret base	Wild grass					1			
Fabaceae seed pod frag.	Pea family					40	3		
<i>Papavar</i> c.f. <i>somniferum</i> capsule lid	c.f. Opium poppy					1			

region (e.g. Etton in Taylor 1988), it is likely that there was a successful woodland management regime operating here.

Early Bronze Age

Only two features from the Early Bronze Age had identifiable charcoal, and *Quercus* was clearly dominant, with lesser quantities of other species. The assemblages are not dissimilar from the Neolithic pit samples, suggesting that the woodland resources were essentially unchanged.

Romano-British period

This period produced the greatest range of species; there was noticeably less *Quercus* than in the earlier periods (present in only four of the eight assemblages). The use of more typical wetland species such as *Alnus glutinosa* (alder) and *Frangula alnus* (alder buckthorn) suggests a change in collection practices and/or local resources. Given that *Alnus* does not burn well (Edlin 1949), it seems plausible that the charcoal assemblage reflects the fact that the fen edge was closer to the site in the Romano-British period than in the Bronze Age (Hall 1987). The extensive use of fenland peat-cuttings for fuel at other sites indicates pressure on the woodland resources in this period (Murphy 2001), but there are no indications that this was the case at Parnwell.

The composition of the corn-drier samples was similar and the quantity of *Fraxinus* (ash) in the possible stoking pit (3539) suggests that this was the primary fuel wood. In addition, there were *Prunus* type thorns and charred buds in the assemblage. All of the Roman assemblages were very mixed, which suggests a lack of careful selection of fuel wood. This is not unusual in domestic contexts of this period (Challinor 2003).

Middle Saxon period

The charcoal assemblages from seven pits dating to the Middle Saxon period solely consisted of *Quercus* (oak). Both heartwood and sapwood fragments were identified and two samples (from pits 502 and 3637) also contained burr wood pieces. Burrs are produced in oak trees in two situations: either the tree has been pollarded or the tree is very old (Mark Robinson Pers. comm.). The occurrence of burrs suggests that either very mature and valuable oak wood was used, or that trimmings from large trees, cut for timber, were used for charcoal. Indeed, the absence of any domestic or industrial debris suggests that these features might have been charcoal-making pits.

Pollen

Sylvia Peglar

Monoliths from an Early Neolithic pit (2289) and a Romano-British waterhole (3716) were submitted for palynological analysis.

Early Neolithic pit 2289

Pollen from the sediments of the pit was very sparse and generally badly preserved. Total pollen sums

were very low, and indeterminable values were high. However, the assemblages were mainly dominated by the pollen of herb taxa, particularly grasses (Poaceae) and dandelion-type (Asteraceae (Lactucoideae)), characteristic of meadows and pastures, suggesting an open environment during the time of fill. Some grains of trees and shrubs suggest that there was some woodland or scrub nearby.

Romano-British waterhole 3716

Pollen was generally sparse and of variable preservation. The pollen assemblages were dominated by herb pollen taxa (more than 90%) except for the two upper samples. This suggests that the local environment was very open at the time the sediments were laid down, possibly with some growth of secondary woodland/scrub by the time of the uppermost fill (context 3518). The decrease in herbs and concomitant increase in pollen values of trees and shrubs, particularly oak (*Quercus*), hazel (*Corylus*), and fern spores, provides evidence for this growth. This might mark the partial abandonment of the site, although some cereals were still being grown in the vicinity.

The dominant herb pollen taxon was grass (Poaceae), but there is evidence for arable cultivation with the occurrence of cereals including wheat and/or oats (*Triticum/Avena*), and barley (*Hordeum*-type). The taxon *Triticum* included those grains with very large pore + annulus diameters: spelt or emmer (*Triticum spelta/T. dicocum/T. compactum*) (Andersen 1978). Weeds characteristic of arable fields were also present. There was no evidence of any other crops, but these are small, limited pollen assemblages. The high grass (Poaceae) pollen values together with the occurrence of dandelion-type (Asteraceae (Lactucoideae)), daisy-type (Aster-type), ribwort plantain (*Plantago lanceolata*), sorrel (*Rumex acetosa*-type), and meadow buttercup-type (*Ranunculus acris*-type) are indicative of areas of meadows and pastures. Other taxa are characteristic of ruderal plant communities of waste and rough ground and waysides. The presence of the pollen of obligate aquatic taxa shows that the feature had standing water.

Discussion

Early Neolithic

Landscape context

The discovery of the Early Neolithic pit complex at Parnwell fills a lacuna in the prehistoric occupation sequence of the Flag Fen basin and its immediate hinterland. Earlier Neolithic features from the Fengate investigations have been relatively sparse, and mainly limited to evidence for funerary ritual. This includes the Site 11 'mortuary enclosure' (Pryor 1993), the 'funerary house' at Padholme Road (Pryor 1974) and the multiple burial and 'mortuary structure' at Cat's Water (Pryor 1984, 2001). The only possible 'settlement' evidence takes the form of two small pits at Newark

Road (Pryor 1980) and a third at Edgerley Drain Road (Beadsmoore 2005). Notably, all of the pottery from the Fengate sites is of plain bowl or 'Grimston' type, in contrast to the decorated bowl ('Mildenhall') wares seen at Parnwell. This might imply that the Parnwell occupation belongs to a later stage of the period than the Fengate sites, although our understanding of Neolithic ceramic development in East Anglia is not strong enough for certainty on this point.

Although Parnwell thus stands alone as the only site of its type in the local area, similar 'pit settlements' with decorated bowl associations are well known in other parts of East Anglia, particularly in Norfolk and Suffolk. Recent work has shown that such sites are invariably found on gravel or sand, and typically occupy locations that are low-lying but elevated over river valleys (Garrow 2006). The Parnwell settlement conforms to this pattern, being strictly confined to the gravel band at the south-eastern edge of excavated area, and not extending onto the clays. Current understanding of the local Neolithic environment suggests that the site was located just to the north of, and slightly above, alluvial deposits belonging to the Nene/Cat's Water river system. The fen edge would have lain at least 2.5 kilometres to the south-east of the site (Hall 1987; French & Pryor 1993, fig. 42).

Pollen evidence from pit 2289 suggests that the site was located within a largely open, grassland environment, with some woodland or scrub in the vicinity. The charcoal assemblage suggests that there was no pressure on woodland resources. This is consistent with the environmental evidence from the Fengate investigations, which indicates that a combination of woodland and grazing land developed during the Neolithic period, with only a minor element of arable cultivation (French 2001, p. 400).

The settlement

The full extent of the occupation at Parnwell is unclear. The pit complex was located very close to the eastern limit of excavation, and hence is likely to have continued beyond it. Small amounts of residual Early Neolithic pottery and flint (including a leaf-shaped arrowhead from the evaluation) were recovered from Area 3, about 200 metres to the south-west of the pit group, and might derive from further features which had been obliterated by the Romano-British settlement. This would suggest that occupation from this period was either very extensive or had more than one focus. Some Early Neolithic settlements elsewhere in East Anglia comprised over 200 pits spread over comparably large distances of 50–170 metres, as at Hurst Fen, Suffolk (Clark 1960) and Kilverstone, Norfolk (Garrow, Beadsmoore & Knight 2005).

Most of the pits were fairly small, and had been rapidly back-filled with a single homogeneous deposit. These fills often had a high charcoal content, and contained mixed assemblages including pottery sherds, worked flint, animal bone, and charred nuts, grains and seeds, suggesting that they represent re-deposited 'midden' or 'occupation' material. Similar small pits back-filled with occupation material are an

ubiquitous feature of Early Neolithic settlements in southern England (Thomas 1999; Garrow 2006). As no 'practical' function can be identified for these pits, it is difficult to avoid the conclusion that they were dug in order to receive the material that was deposited within them.

Much more unusual was large pit 2289, which measured 3.25 metres in diameter and 1.18 metres deep and had a more complex depositional history. Early Neolithic pits elsewhere in East Anglia are almost always significantly shallower than this (Garrow 2006), with pits above one metre deep only previously recorded at Broome Heath, Norfolk (Wainwright 1972). There, the pit had been left open for a period, to partially fill through silting and erosion, before it was rapidly back-filled with 'occupation material' in a similar way to the smaller pits.

Recent discussions of Early Neolithic settlement have emphasised the extent of residential mobility. The general lack of evidence for robust structures, combined with the shallow and short-lived nature of most pits, has suggested that individual sites were typically occupied for short periods at a time (Whittle 1997; Edmonds 1999; Thomas 1999). It is argued that the digging and filling of pits at these sites served to commemorate particular events or periods of occupation, to 'render activity memorable' and 'give meaning to place' (Thomas 1999, p. 72). In East Anglia, it has been argued that the individual pit clusters within the large 'pit settlements' each represent a single discrete episode of occupation. This is supported by the fact that close similarities in pottery types, or actual sherd joins, often occur between pits within a single cluster but not between those from different clusters (Healy 1988; Garrow 2006; Garrow, Beadsmoore & Knight 2005).

At Parnwell, pit 2289 does not entirely fit this model. It would have required a significant investment of effort to construct, and appears to have had a relatively lengthy life-cycle before its ultimate infilling. Perhaps it marked a different kind of event, or a longer episode of occupation, than was typical for sites of this type. Although pit 2289 is unusual, it is not unique. It is similar to many of the pits from Broome Heath, which were up to 1.60 metres deep with complex sequences of fills, and in some cases showed evidence for recuts (Wainwright 1972). The large features from Parnwell and Broome Heath remind us that Early Neolithic settlement dynamics are unlikely to have conformed to any single, simple model. While brief, small-scale visitations might have been the norm, certain sites could also have seen other forms of occupation.

Finds and activities

The finds from the pits suggest that various activities were carried out at the site. The pottery assemblage comprises vessels of varying sizes, including one unusual small cup. The flint assemblage similarly includes a range of tool types, including a notable number of serrated flakes with silica gloss, suggesting use in plant working. The relatively low numbers

of cores and chips do, however, imply that flint knapping was not a major activity at the site. Two flakes from polished axes of Cumbrian origin represent the only objects that can be recognised as non-local. Artefact types found at some other contemporary sites in East Anglia but absent from Parnwell include hammerstones, querns and quern rubbers. However, given the relatively small number of features excavated, these absences may not be significant.

Due partly to acid soil conditions, animal bone is scarce or absent from most Early Neolithic sites in East Anglia, and the faunal assemblage from Parnwell is thus of some interest. As in other regions of southern Britain, cattle were clearly of importance, with smaller numbers of sheep/goats and pigs also consumed. Wild animal remains were absent. The charred plant remains show a mix of wild and cultivated foodstuffs typical for the period. Assessing the relative dietary importance of wild and cultivated plant foods is difficult, however, due to potential issues of differential preservation.

Bronze Age

The Early Bronze Age occupation consisted of six pits and hollows dispersed across an area of 125 metres on the highest part of the site, associated with Collared Urn and Biconical Urn ceramics. Again, the limitations of the excavated area mean that the full extent of the occupation is unclear. Intriguingly, Bronze Age remains including 'Beaker hut sites, Bronze Age cinery urn and cremation ditches etc.' were reportedly found just 200 metres to the south-east of the site by the early twentieth-century antiquarian George Wyman Abbott, but no further details of this discovery are known (RCHM 1969, p. 8).

The discovery of the Parnwell pit group alters our understanding of the local Early Bronze Age landscape, as it was previously thought that occupation was restricted to the gravels and cornbrash, with the clays not colonised until the Iron Age (Hall 1987, p. 60). However, despite its unusual topographic location, the occupation at Parnwell appears to be fairly typical of the period. Similar groups of pits associated with Collared Urn pottery have been found dotted around the Flag Fen basin and its immediate hinterland, including sites on the Fengate terrace at Edgerley Drain Road (Beadsmoore 2005), Newark Road (Pryor 1980) and Third Drove (Evans & Pryor 2001, p. 31); on the higher ground to the west of Fengate at Peterborough Prison (M Knight 2002); on the Eye peninsula at Tanholt Quarry (Patten 2003, 2004); and on Whittlesey island at Bradley Fen/King's Dyke West (Gibson & Knight 2002; M Knight forthcoming). The pits from these sites vary widely in size, but have typically produced only modest quantities of finds; there is no evidence for other associated structures. These traits are typical of Early Bronze Age occupation sites within East Anglia as a whole (Healy 1995; Garrow 2006). In most cases, the pits are fairly dispersed and unfocussed in their distribution, although discrete circular clusters of pits occur at Edgerley Drain Road and Bradley Fen/King's Dyke West. Activity was

particularly dense at the latter site, where the pits were found in association with ring ditches and cremation burials. The pattern that might thus be emerging is that activity was generally dispersed in character, but became more intense where there were monuments to act as a focus (Mark Knight Pers. comm.). Perhaps occupation of Parnwell and most other sites was relatively short-lived and involved fairly small groups of people, while some favoured monumentalised places were returned to repeatedly, or were venues for larger gatherings. This would fit with current models derived from other areas of southern Britain, which suggest that the Early Bronze Age was similar to the Neolithic in being characterised by a significant degree of residential mobility (Brück 1999).

The Early Bronze Age features at Parnwell show wide variation in their size, form and fills. The shallow, irregular feature 1086 might represent use of a natural hollow or tree-throw hole. The remaining features can all be characterised as pits but, as with the Early Neolithic occupation, suggesting specific 'functions' for these features is difficult. Some of the pits might have silted up naturally, although at least one (1008) appears to have been deliberately back-filled. There are few indications of the nature of the activities that took place on the site, as artefacts were limited to modest amounts of pottery and worked flint, and preservation of animal bone and charred plant remains was poor.

One notable absence from Parnwell is any trace of the later Bronze Age field systems that have been found extending across large areas of the gravel terraces around Flag Fen (Pryor 2001). Recent excavations have suggested that the well-known field system complex at Fengate extended much further north, reaching as far as Edgerley Drain Road, 800 metres south of the site (Beadsmoore 2005), and probably Oxney Road, only 500 metres to the south-east (Britchfield 2002). While it is possible that Bronze Age field boundaries at Parnwell could have been completely removed by truncation, the survival of the Romano-British field system suggests that the absence is real. The negative evidence from Parnwell might thus define the northern edge of the Fengate field system, suggesting that the clays were avoided when this ordered landscape was laid out.

Middle to Late Iron Age

Only a small area of Middle to Late Iron Age occupation was found, although this might have formed part of a larger settlement, as two further pits of this date were found 90 metres to the south-east during the evaluation by the CAU of the adjacent field (Williams 2004). Furthermore, a pre-Conquest origin for the earliest phase of the Romano-British settlement enclosure cannot be ruled out, given the lack of datable finds from its lower fills. It is therefore possible that occupation at the site continued without a break from the later Iron Age into the Roman period, with the core of the Iron Age settlement perhaps lying beyond the limits of the excavation. The Parnwell settlement forms part of a pattern of fairly dense later Iron Age

occupation around Flag Fen (Hall 1987, fig. 44), including excavated sites such as Cat's Water (Pryor 1984) and Bradley Fen (M Knight forthcoming).

Romano-British period

The character of the settlement and its setting in the landscape

The early phase of the Romano-British settlement (Enclosure A) had an organic, curvilinear form. The absence of diagnostic artefacts from the lower fills of this enclosure makes its date of construction uncertain, but it seems to have been abandoned at an early stage of the second century AD. The general paucity of finds other than animal bone from the excavated part of the enclosure suggests that it was somewhat peripheral, with the core of occupation at this time perhaps lying to the south.

The settlement was subsequently remodelled as the more regular, rectilinear Enclosure B, which produced a larger finds assemblage, predominantly dating to the second century. The evidence from crop-marks suggests that the total size of this enclosure was 120 metres by at least 140 metres, although its full extent to the south-east is masked by modern buildings (Fig. 7). The excavated part of the enclosure was dominated by two double-ditched trackways, which suggest a concern with demarcating the proper paths of movement of people or livestock into and through the settlement. The area to the north of the trackways was divided into sub-compounds by a series of ditches and gullies. Features present within these sub-compounds were fairly sparse, including a few shallow pits, a corn-drier and a large 'waterhole'. The apparent 'emptiness' of many of the sub-compounds could suggest that paddocks or horticultural plots were present within the enclosure. More likely, however, is that it reflects the use of building techniques that lacked deep earth-fast foundations, and hence were susceptible to truncation. Pottery distributions show a concentration in the north-eastern corner of Enclosure B, which could imply that this area was a focus of occupation, despite the absence of evidence for structures. Alternatively, however, it could simply have been an area of middening. The distribution of tile was markedly different, focusing on the western half of the enclosure, suggesting that much of this material derives from the superstructure of the corn-drier.

The extensive rectilinear field system is assumed to have been contemporary with Enclosure B, given their identical alignment. A small cremation cemetery lay within this field system, to the north-east of the settlement. To the north of the settlement, meanwhile, a trackway and a cluster of pits was uncovered, perhaps representing a subsidiary area of occupation. Dateable artefacts from the cemetery and the northern occupation area mainly belonged to the second century AD, suggesting that they too were contemporary with the settlement.

The evidence suggests that the settlement was inhabited by a small community, perhaps an extended family group (Hingley 1989) engaged in mixed

agriculture. Evidence for other activities was sparse, with residues of crafts such as textile working, potting and metalworking all absent from the excavated part of the settlement. Forms of material culture traditionally regarded as indicating 'wealth' or 'status' were also very scarce. The pottery assemblage was modest and dominated by local wares, and few items of metalwork were recovered, despite the fact that the settlement was surveyed by a metal detector. The small amounts of brick and tile recovered are unlikely to derive from a 'high status' Romanised building. It is of course possible that the excavated part of the settlement was a peripheral area, and that the apparent poverty of the finds is thus misleading. However, the evaluation by the CAU of the southern part of the settlement produced an equally modest finds assemblage (Williams 2004).

The pollen evidence indicates that the settlement lay within a very open landscape of meadows and arable fields, mirroring the picture gained from the Fengate investigations (French 2001, p. 403; Boreham 2005). The edge of Flag Fen lay about 500 metres to the south-east of the site at this time, with a narrow fen inlet only about 150 metres from the northern boundary of the site perhaps developing during the course of the Roman period (Fig. 16; Hall 1987, p. 34). Excavation and survey work have shown a pattern of dense settlement during the Roman period around Flag Fen and on the higher ground to the west (Fig. 16; Hall 1987; Pryor 2001). A number of modest enclosed farmsteads similar to Parnwell have been excavated in the area, including Cat's Water (mid to late second century AD; Pryor 1984), Tower Works (late second to fourth centuries AD; Brudenell 2005) and Paston (late second to early fourth centuries AD; Coates, Hancocks & Ellis 2001).

The agrarian base

Although the plan of the field system is somewhat fragmentary, it seems to be characterised by relatively narrow linear strips, between eight and 11 metres wide. Superficially, this differs from the patterns of rectangular fields dated to the later Iron Age and Romano-British period which have been identified elsewhere around the Flag Fen basin (Pryor 2001). However, excavation of one such field system at Tanholt Quarry, Eye (dated to the second to third century AD) has shown that one of the rectangular plots was divided into a series of similar strips, measuring 48 metres long and 8 metres wide (Patten 2004). This form of field division must presumably have been associated with arable rather than pastoral use. While its specific purpose is unclear, it could perhaps relate to some form of horticulture. It is uncertain whether it represents a similar form of land use to the so-called 'lazybed' cultivation of very narrow strips (about four metres wide) seen at Romano-British sites elsewhere in Cambridgeshire at Godmanchester (Green 1978) and Cottenham (Clark 1949).

The charred plant remains from the settlement suggest that, as at other sites in the local area, spelt wheat was the main cereal crop. The weed flora suggest that

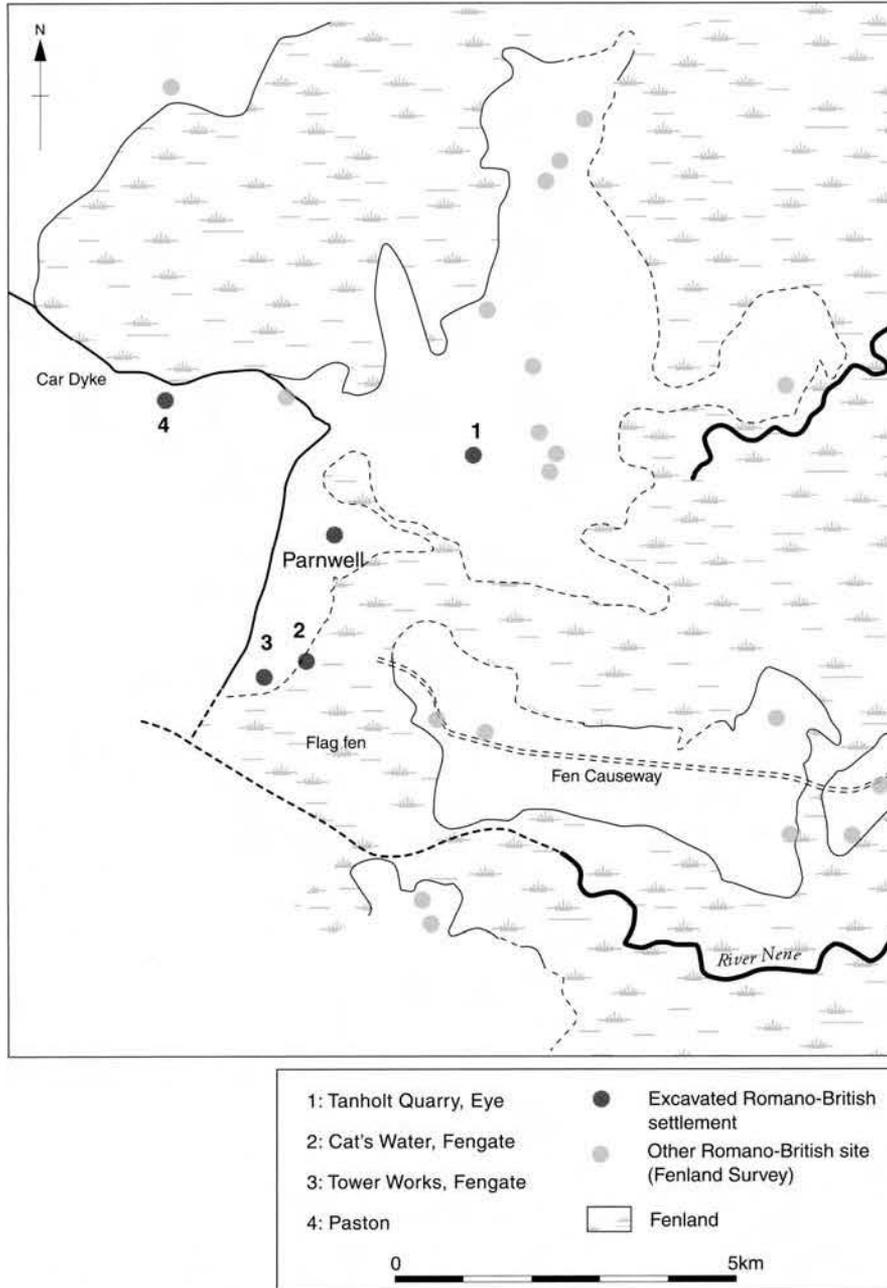


Figure 16. Romano-British settlement around Flag Fen. Based on Hall 1987, fig. 45.

not only heavy clay soils, but also lighter well-drained soils were under cultivation. The farmland associated with the settlement might thus have extended beyond the clays and on to the surrounding gravels.

The significance of cereals to the economy of the site is underlined by corn-drier 3548, a substantial structure built from limestone slabs. The nearest outcrops of limestone lie some 1.5 kilometres to the south-west of the site, although it is of course possible that the stone could have been reused from an earlier structure, rather than brought in specifically for this purpose. Comparable stone-lined corn-driers have been found at a number of rural settlements in

the Peterborough area dating from the late second/early third century onwards (Table 9). They show a wide diversity of forms, suggesting piecemeal local adoption of this innovation rather than construction by specialists; Wild's (1974, p. 155) comment that 'each farmer had his own ideas' about how a corn-drier should be built still seems apposite. The most similar example to the Parnwell drier is that from Phase 4 at Orton Hall Farm (c. AD 300/325–375), which also had an arrangement of two flues meeting at right angles and sharing a single stoking area (Mackreth 1996).

Romano-British corn-driers are argued to have been multi-functional structures, used both for

roasting malt for the purposes of brewing, and for parching grain for storage or consumption (van der Veen 1989). At Parnwell, the charred plant remains show that the drier had been used to roast malt in the form of germinated spelt wheat. Unfortunately, few botanical analyses are available from the other corn-driers in the region. However, those from Barnack (Simpson 1993) and Haddon (Fryer 2003) both contained mixtures of spelt grain and chaff along with detached embryos of indeterminate species, suggesting that they too were involved in malting. The production of wheat beer might thus have been a common activity for rural communities in the area.

The small size of the faunal assemblage from Parnwell prevents any detailed reconstruction of animal husbandry practices. However, it can be noted that cattle were the most numerous species, in common with several other rural settlements in the area such as Paston and Tower Works, but in contrast to sites further east in the Fens proper, where sheep are typically dominant (Malim 2005, p. 169). Some evidence for dairying is provided by a single ceramic cheese press. The unusually high frequency of cheese presses at sites within the Fenland region as a whole might suggest that cheese-making formed a particularly important part of the subsistence economy (Hancocks, Evans & Woodward 1998, p. 78; Evans 2003, p. 104).

Despite the close proximity of the fen edge, evidence for the use of wetland resources was limited. The charcoal assemblage indicates that alder carr woodland was used for gathering fuel. Although individual fish, goose, mallard and snipe bones were present, it would seem that fishing and fowling made little contribution to the economy of the settlement. The frequencies of wetland species are similarly low in faunal assemblages from other contemporary sites around Flag Fen and its western hinterland (e.g. Baxter 2003). It would appear that local rural communities followed 'typical' Romano-British mixed farming regimes, in which the fenland played only a peripheral role, except (presumably) as an area of summer pasture.

Abandonment

The ceramic evidence from both the excavated area of the settlement and the evaluated area to the south

suggests that activity might already have begun to decline in the late second century AD, and largely ceased at some point during the third century. Pollen evidence from the uppermost fill of waterhole 3716 – which contained some of the few pieces of fourth-century pottery from the site – suggests the growth of secondary woodland or scrub, particularly oak and hazel. This might suggest that we are not simply dealing with a shift in settlement location over a short distance, but actual abandonment of the area.

The reasons for the abandonment of the settlement could have related to the biography of this particular residential group rather than to any wider trends. However, there are also indications of settlement abandonment on the Fengate terrace at this time, with occupation at Cat's Water and the neighbouring Storey's Bar Road site going into decline in the late second century AD (Pryor 1984). It has been suggested that these sites were abandoned due to increasing wetness, with occupation shifting to the higher ground to the west, to sites such as Tower Works (Pryor 2001; Brudenell 2005). Certainly, the sites at Cat's Water and Storey's Bar Road were subsequently overlain with freshwater flood deposits during the mid third century, and show no evidence for activity beyond that time. This formed part of a wider flooding episode in the Fenland region, in which extensive areas up to the three-metre OD contour became at least seasonally wet (French 2001). Recent excavations just 500 metres to the south-east of Parnwell at Oxney Road have identified flood deposits probably associated with this episode (Britchfield 2002). Lying at about five metres OD, the settlement at Parnwell would have been safe from inundation, but any associated farmland on the surrounding lower ground might have become wet at this time, potentially weakening the economic base of the community.

The late second-century decline and third-century abandonment of the Parnwell site could thus have been related to a wider episode of disruption to local settlement and socio-economic networks. While there has been much discussion of the role of wetter conditions in causing these problems, it should be remembered that flooding can be a consequence as much as a cause of social disruption if, for example, drainage works cease to be properly maintained (Malim 2005).

Table 9. 'Corn-driers' from Romano-British rural settlements in the Peterborough area. * = not stone-lined.

Site	No. of flues	Date	Reference
Barnack	1	AD 250–300	Simpson 1993
Barnack	1	AD 300–400	Simpson 1993
Haddon*	1	AD 275–350	Hinman 2003
Longthorpe	1	AD 150–250	Dannell & Wild 1987
Lynch Farm	1	Romano-British	Wild 1974, fig. 5
Orton Hall Farm, Phase 3	1	AD 225–300/325	Mackreth 1996
Orton Hall Farm, Phase 4	2	AD 300/325–375	Mackreth 1996
Orton Hall Farm, Phase 5	1	AD 375+	Mackreth 1996
<i>Parnwell</i>	2	AD 150–250	<i>This report</i>
Plant's Farm, Maxey	1	AD 250–350	Gurney, Neve & Pryor 1993

Anglo-Saxon period

The discovery of features radiocarbon dated to the seventh to ninth centuries cal AD was unexpected, as very little evidence for Anglo-Saxon activity has hitherto been found around the Flag Fen basin (Hall 1987; Pryor 2001). The activity at Parnwell was, however, of a limited and specific kind. The 57 charcoal-rich pits from this period contained virtually no artefacts, indicating that there was no permanent settlement in the immediate vicinity. Furthermore, the scattered, unfocused distribution of the pits is suggestive of sporadic or seasonal use of the site, rather than of concerted occupation. In the absence of metalworking slag, briquetage or other evidence for a specific craft or industrial function, the most likely interpretation of these features is that they represent the truncated bases of pits or clamps used in charcoal production. This is supported by the exclusive use of oak in the pits, a wood historically favoured for charcoal making (Harris, Harris & James 2003). The presence of burrs in some of the charcoal would be consistent with woodland management in the form of pollarding. The identification of charcoal production at this site is significant for our understanding of local landscape development, as in combination with the pollen evidence from waterhole 3716 it suggests regeneration of woodland during the Late Roman or post-Roman period.

Evidence for charcoal production prior to the Middle Ages has hitherto been scant, but evidence comparable to that from Parnwell has recently been found at some other sites in southern England, suggesting that the industry was quite widespread during the Saxon period. The nearest example is 19 kilometres to the west at Cross Leys Quarry, Wittering, Cambridgeshire, where several clusters of charcoal-filled pits have been found, radiocarbon dated to about cal AD 520–660 (Abrams 2002; Abrams & Wilson 2004). At Mayton Wood, Norfolk, 27 shallow pits containing significant amounts of charcoal and evidence of in situ burning have been suggested to relate to charcoal burning, and have again produced radiocarbon evidence for a Middle Saxon date (Gurney & Penn 2005). Further afield, at Bestwall Quarry, Dorset, nearly 1000 oak charcoal-filled pits have been found scattered across a wide area, with radiocarbon determinations indicating use between about cal AD 700–850 (<http://www.bestwall.co.uk>). At both Wittering and Bestwall, the pits were associated with contemporary ironworking features, indicating that the charcoal was used to fuel furnaces. As this was not the case at Parnwell, the purpose of the charcoal manufacture is unclear. Production might simply have been carried out for domestic use within the local community and perhaps for small-scale trade, although the foundation of Peterborough Abbey (3.5 kilometres to the south-west) in AD 655 might also have provided a stimulus for the industry.

Conclusion

The evidence from Parnwell has made a significant contribution to our understanding of the long-term development of the landscape around the Flag Fen basin. It is clear that this part of the fen 'hinterland' had a long and complex history of occupation, although it might also have been avoided at certain times in the past, for example when the field systems of the later Bronze Age were laid out across the gravel terraces below. As development work continues around Peterborough at a rapid pace, further excavation is likely to shed more light on this important archaeological landscape.

Acknowledgements

Many thanks are due to Raven Group Developments Ltd for funding the excavation and publication. Paul Chadwick (CgMs Consulting) and Ben Robinson (Peterborough Council) are also thanked for their work in facilitating the project.

The fieldwork was directed by Andy Simmonds and managed by Annie Bingham. The post-excavation work was managed by Alex Smith, who also edited this report. The human osteological analysis was carried out by Diana Mahoney and Sharon Clough, and the soil chemistry and micromorphology analyses of pit 2289 by John Crowther and Richard Macphail. Thanks are due to the numerous other OA staff who worked on the project, whether in the field or at the post-excavation phase. Denise Druce would also like to thank Jacqui Huntley and Elizabeth Huckerby for their assistance with the charred plant analysis. Emma Beadsmoore and Mark Knight at CAU kindly provided unpublished information.

The Cambridge Antiquarian Society thanks Raven Group Developments Ltd for a grant towards the cost of publishing this article

Bibliography

- Abrams, J 2002 *Archaeological Watching Brief: Cross Leys Quarry, Wittering, Peterborough, Phase 3, Stage 3 and 4*. Milton Keynes: Phoenix Consulting Archaeology, Unpublished report
- Abrams, J & N Wilson 2004 *Archaeological Watching Brief: Cross Leys Quarry, Wittering, Peterborough, Phase 4, Stage 2 and Phase 6, Stage 1*. Milton Keynes: Phoenix Consulting Archaeology, Unpublished report
- Andersen, S T 1978 'Identification of wild grasses and cereal pollen', *Danmarks Geologiske Undersøgelse* 1978: 69–92
- Baxter, I L 2003 'The mammal and bird bones'. In M Hinman, *A Late Iron Age and Romano-British site at Haddon, Peterborough*. Oxford: BAR British Series 358: 119–32

- Bayley, J & S Butcher 2004 *Roman Brooches in Britain: A Technological and Typological Study Based on the Richborough Collection*. London: Society of Antiquaries of London
- Beadsmoore, E 2005 *Edgerley Drain Road, Fengate, Peterborough: An Archaeological Excavation*. Cambridge: CAU, Unpublished report
- Bedwin, O and M Bedwin 1999 *A Roman Malt House: Excavations at Stebbing Green, Essex, 1988*. Chelmsford: EAA Occasional Paper 6
- Boreham, S 2005 'Pollen analysis'. In M Brudenell, *Archaeological Investigations at the Former Tower Works Site, Mallory Road, Fengate, Peterborough*. Cambridge: CAU, Unpublished report, 31–2
- Britchfield, D 2002 *A Report on Archaeological Excavations at Oxney Road, Fengate, Peterborough*. Peterborough: Soke Archaeological Services, Unpublished report
- Brück, J 1999 'What's in a settlement? Domestic practice and residential mobility in early Bronze Age southern England'. In J Brück & M Goodman (eds), *Making Places in the Prehistoric World*. London: UCL Press, 52–75
- Brudenell, M 2005 *Archaeological Investigations at the Former Tower Works Site, Mallory Road, Fengate, Peterborough*. Cambridge: CAU, Unpublished report
- Campbell, G 1999 'The charred plant remains'. In A Boyle & R Early, *Excavations at Springhead Roman Town, Southfleet, Kent*. Oxford: OAU Occasional Paper 1, 35–8
- CgMs, 2004 *Archaeological Desk-based Assessment: Distribution Centre, Parnwell Way, Peterborough*. London: CgMs Consulting Ltd, Unpublished report
- Challinor, D 2003 'The wood charcoal'. In P Booth & G Edgeley-Long (eds), 'Prehistoric settlement and Roman pottery production at Blackbird Leys, Oxford', *Oxonienia* 68: 201–22
- Clark, J G D 1949 'A report on an excavation at the Car Dyke, 1947', *Antiquaries Journal* 29: 266–96
- Clark, J G D 1960 'Excavations at the Neolithic site at Hurst Fen, Mildenhall, Suffolk', *PPS* 26: 202–45
- Coates, G, A Hancocks, & P Ellis 2001 'A Romano-British rural site at Paston, Peterborough'. In P Ellis *et al.* (eds), *Four Sites in Cambridgeshire: Excavations at Pote Hole Farm, Paston, Longstanton and Bassingbourn, 1996–7*. Oxford: BAR British Series 322
- Cool, H E M 1991 'Roman metal hair pins from southern Britain', *Arch. J.* 147: 148–82
- Dannell, G B *et al.* 1993 'Excavations on a Romano-British pottery production site at Park Farm, Stanground, Peterborough, 1965–1967', *Journal of Roman Pottery Studies* 6: 51–94
- Dannell, G B & J P Wild 1987 *Longthorpe II. The Military Works-depot: an Episode in Landscape History*. London: Society for the Promotion of Roman Studies
- Edlin, H L 1949 *Woodland Crafts in Britain*. London: Batsford
- Edmonds, M 1999 *Ancestral Geographies of the Neolithic: Landscapes, Monuments and Memory*. London: Routledge
- Elsdon, S 1992 'East Midlands scored ware', *Transactions of the Leicestershire Archaeological and Historical Society* 66: 83–91
- Evans, C & F M M Pryor 2001 'Recent research in south Fengate'. In F M M Pryor (ed), *The Flag Fen Basin: Archaeology and Environment of a Fenland Landscape*. London: English Heritage, 17–36
- Evans, J 2003 'The later Iron Age and Roman pottery'. In M Hinman, *A Late Iron Age and Romano-British site at Haddon, Peterborough*. Oxford: BAR British Series 358, 69–107
- Ford, S 1987 'Chronological and functional aspects of flint assemblages'. In A G Brown & M Edmonds (eds), *Lithic Analysis and Later British prehistory*. Oxford: BAR British Series 162, 67–81
- French, C A I 2001 'The development of the prehistoric landscape in the Flag Fen Basin'. In F M M Pryor (ed), *The Flag Fen Basin: Archaeology and Environment of a Fenland Landscape*. London: English Heritage, 400–4
- French, C A I & Pryor, F M M 1993 *The South-West Fen Dyke Project, 1982–86*. Peterborough: EAA 59
- Fryer, V 2003 'Charred plant macrofossils and other remains'. In M Hinman, *A Late Iron Age and Romano-British site at Haddon, Peterborough*. Oxford: BAR British Series 358, 133–5
- Garrow, D 2006 *Pits, Settlement and Deposition during the Neolithic and Early Bronze Age in East Anglia*. Oxford: BAR British Series 414
- Garrow, D, E Beadsmoore, & M Knight 2005 'Pit clusters and the temporality of occupation: an earlier Neolithic site at Kilverstone, Norfolk', *PPS* 71: 139–57
- Gibson, D & M Knight 2002 *Prehistoric and Roman Archaeology at Stonald Field, King's Dyke West, Whittlesey*. Cambridge: CAU, Unpublished report
- Green, H J M 1978 'A villa estate at Godmanchester'. In M Todd (ed), *Studies in the Romano-British Villa*. Leicester: Leicester University Press, 103–16
- Gurney, D, J Neve & F Pryor 1993 'Excavations at Plants Farm, Maxey, Cambridgeshire'. In W G Simpson *et al.*, *The Fenland Project, Number 7: Excavations in Peterborough and the Lower Welland Valley 1960–1969*. Peterborough: EAA 61: 69–101
- Gurney, D & K Penn 2005 'Excavations and surveys in Norfolk in 2004', *Norfolk Archaeology* 44: 751–64
- Hall, D 1987 *The Fenland Project, Number 2: Fenland Landscape and Settlement Between Peterborough and March*. Cambridge: EAA 35
- Hancocks, A, J Evans & A Woodward 1998 'The prehistoric and Roman pottery'. In P Ellis *et al.*, *Excavations alongside Roman Ermine Street, Cambridgeshire, 1996: The Archaeology of the A1(M) Alconbury to Peterborough Road Scheme*. Oxford: BAR British Series 276
- Harris, E, J Harris & N D G James 2003 *Oak: A British History*. Macclesfield: Windgather
- Healy, F 1988 *The Anglo-Saxon Cemetery at Spong Hill, North Elmham. Part VI: Occupation in the Seventh to Second Millennia BC*. Gressenhall: EAA 39
- Healy, F 1995 'Pots, pits and peat: ceramics and settlement in East Anglia'. In I Kinnes & G Varndell (eds), *'Unbaked Urns of Rudely Shape': Essays on British and Irish Pottery for Ian Longworth*. Oxford: Oxbow Monograph 55, 173–84
- Hillman, G 1981 'Reconstructing crop husbandry practices from charred remains of crops'. In R Mercer (ed), *Farming Practices in British Prehistory*. Edinburgh: Edinburgh University Press, 123–62
- Hillman, G 1982 'Evidence for malting spelt'. In R Leech (ed), *Excavations at Catsgore 1970–1973: A Romano-British Village*. Bristol: Western Archaeological Trust Excavation Monograph 2, 137–41
- Hingley, R 1989 *Rural Settlement in Roman Britain*. London: Seaby
- Hinman, M 2003 *A Late Iron Age and Romano-British site at Haddon, Peterborough*. Oxford: BAR British Series 358
- Hounsell, D 2002 *Land off the Broadlands, Peterborough, Cambridgeshire. An Archaeological Excavation, Phase 3. Interim Site Narrative*. Hertford: Hertfordshire Archaeological Trust, Unpublished report
- Juel Jensen, H 1994 *Flint Tools and Plant Working. Hidden Traces of Stone Age Technology*. Aarhus: Aarhus University Press

- Kinnes, I 1998 'The pottery'. In F M M Pryor *Etton: Excavations at a Neolithic Causewayed Enclosure near Maxey, Cambridgeshire, 1982-7*. London: English Heritage Archaeological Reports 28, 161-214
- Knight, D 2002 'A regional ceramic sequence: pottery of the first millennium BC between the Humber and the Nene'. In A Woodward & J D Hill (eds), *Prehistoric Britain: The Ceramic Basis*. Oxford: Oxbow, 119-42
- Knight, M 2002 *New Prison at Former Rockwell and APV Works, Westfield Road, Peterborough. Archaeological Excavation*. Cambridge: CAU, Unpublished report
- Knight, M forthcoming *Excavations at Bradley Fen, Whittlesey*
- Mackreth, D F 1996 *Orton Hall Farm: A Roman and Early Anglo-Saxon Farmstead*. Manchester: EAA 76
- Malim, T 2005 *Stonea and the Roman Fens*. Stroud: Tempus
- Maltby, M 1985 'Patterns in faunal assemblage variability'. In G Barker & C Gamble (eds), *Beyond Domestication in Prehistoric Europe: Investigations in Subsistence Archaeology and Social Complexity*. London: Academic Press, 33-74
- Murphy, P 2001 *Review of Wood and Macroscopic Wood Charcoal from Archaeological Sites in the West and East Midlands Regions and the East of England*. English Heritage: Centre for Archaeology Report 23/2001
- Patten, R 2003 *Prehistoric and Roman Field Systems at Eye Quarry, Tanholt Farm, Peterborough (Phase 2)*. Cambridge: CAU, Unpublished report
- Patten, R 2004 *Bronze Age and Romano-British activity at Eye Quarry, Peterborough (Phase 3)*. Cambridge: CAU, Unpublished report
- Peterborough Central Library, Enclosure map of Peterborough 1821
- Philpott, R 1991 *Burial practices in Roman Britain*. Oxford: BAR British Series 219
- Pryor, F M M 1974 *Excavation at Fengate, Peterborough, England. The First Report*. Northampton: Northamptonshire Archaeological Society
- Pryor, F M M 1978 *Excavation at Fengate, Peterborough, England. The Second Report*. Northampton: Northamptonshire Archaeological Society
- Pryor, F M M 1980 *Excavation at Fengate, Peterborough, England. The Third Report*. Northampton: Northamptonshire Archaeological Society
- Pryor, F M M 1984 *Excavation at Fengate, Peterborough, England. The Fourth Report*. Northampton: Northamptonshire Archaeological Society
- Pryor, F M M 1993 'Excavations at Site 11, Fengate, Peterborough, 1969'. In W G Simpson *et al.*, *The Fenland Project, Number 7: Excavations in Peterborough and the Lower Welland Valley 1960-1969*. Peterborough: EAA 61, 127-40
- Pryor, F M M 2001 (ed) *The Flag Fen Basin: Archaeology and Environment of a Fenland Landscape*. London: English Heritage
- RCHM, 1969 *Peterborough New Town. A Survey of the Antiquities in the Areas of Development*. London: HMSO
- Reimer, P J *et al.* 2004 'INTCAL04 terrestrial radiocarbon age calibration, 0-26 cal kyr BP', *Radiocarbon* 46: 1029-58
- Simpson, W G 1993 'The excavation of Romano-British aisled buildings at Barnack, Cambridgeshire'. In W G Simpson *et al.*, *The Fenland Project, Number 7: Excavations in Peterborough and the Lower Welland Valley 1960-1969*. Peterborough: EAA 61, 102-26
- Taylor, M 1988 'Some preliminary thoughts on coppicing and pollarding at Etton'. In P Murphy & C French (eds), *The Exploitation of Wetlands*. Oxford: BAR British Series 186, 93-100
- Thomas, J 1999 *Understanding the Neolithic*. London: Routledge
- van der Veen, M 1989 'Charred grain assemblages from Roman-period corn-driers in Britain', *Arch. J.* 146: 302-19
- Vaughn, T & J Last 1999 *Land off the Broadlands, Peterborough, Cambridgeshire. An Archaeological Excavation*. Hertford: Hertfordshire Archaeological Trust, Unpublished report
- Wainwright, G 1972 'The excavation of a Neolithic settlement on Broome Heath, Ditchingham, Norfolk', *PPS* 38: 1-97
- Waller, M 1994 *The Fenland Project, Number 9: Flandrian Environmental Change in Fenland*. Cambridge: EAA 70
- Whittle, A 1997 'Moving on and moving around: Neolithic settlement mobility'. In P Topping (ed), *Neolithic Landscapes*. Oxford: Oxbow, 15-22
- Wild, J P 1974 'Roman settlement in the lower Nene Valley', *Arch. J.* 131: 140-70
- Williams, S 2004 *An Archaeological Evaluation on Land at Parnwell, Peterborough*. Cambridge: CAU, Unpublished report
- Williams, S & L Webley 2004 *An Archaeological Evaluation on Land at Parnwell, Peterborough (Project Leo site)*. Cambridge: CAU, Unpublished report
- Wilson, R 1996 *Spatial Patterning Among Animal Bones in Settlement Archaeology*. Oxford: BAR British Series 251
- Wotherspoon, M 2003 *Archaeological Investigations, Land Off the Broadlands, Peterborough, Cambridgeshire*. Hertford: HAT, Unpublished report