
Iron Age and Romano-British settlement at the Papworth Hospital car park, Papworth Everard, Cambridgeshire

Yvonne Wolfram-Murray and Andy Chapman

with contributions by Simon Carlyle, Dana Challinor, Pat Chapman, Val Fryer,
Matilda Holmes, Tora Hylton, Ian Meadows, Ed McSloy, Paul Kajewski

Part of a middle/late Iron Age and Romano-British settlement complex at Papworth Hospital and Business Park was excavated in advance of a new car park. The earliest artefact is a Neolithic polished flint axe. Settlement probably commenced in the middle/late Iron Age (2nd-1st centuries BC), but only the northern corner of a ditched enclosure lay within the excavated area; with the focus of settlement further south. This enclosure remained in use into the early Roman period, but by the later 1st century AD there was a new and more extensive system of boundary ditches and small sub-enclosures, which were modified over time. The coarse ware pottery indicates that this was a small rural farmstead, although a kiln plate may indicate short-lived pottery manufacturing. In the late Roman period there was a new ditch system, perhaps the corner of a large enclosure lying largely beyond the excavated area. The settlement was abandoned in the 4th century AD. Cropmark evidence and other nearby excavations indicate that the excavated area lay at the northern end of an extensive area of Iron Age and Romano-British rural settlement, and this is compared with other nearby contemporary settlement. Pottery from the final fills of the latest enclosure ditch is broadly dated to the 5th to mid-8th centuries AD, indicating nearby activity during the early/middle Anglo-Saxon period.

Introduction

Between November 2008 and January 2009, Northamptonshire Archaeology (now MOLA Northampton) excavated part of a middle/late Iron Age and Romano-British settlement at Papworth Everard, Cambridgeshire, prior to the construction of a car park to serve the adjacent Papworth Hospital (NGR TL 29216275; Fig 1).

The work was commissioned and managed by Dan Slatcher of RPS Planning and Development (Slatcher 2008) acting on behalf of the Varrier Jones Foundation. The scope of works was based on a desk-based assessment prepared by RPS (Slatcher 2007) and the findings of aerial photography (Cox 1996) and archaeological trial trench evaluations that had identified remains of Iron Age and Romano-British settlement within the proposed car park and the surrounding area (Kenney 1999; Fisher 2006; Upson-Smith 2008; Newton 2008). The archaeological investigation was

requested by Cambridgeshire Authority Planning and Countryside Advice (CAPCA), archaeological advisors to the local planning authority, to address issues relevant to the regional research frameworks (Brown and Glazebrook 2000).

The assessment report (Carlyle and Kajewski 2009) and the client report (Wolfram-Murray *et al.* 2014) will be available in the Cambridgeshire Historic Environment Record and online through the Archaeology Data Service (ADS). The archive will be deposited under accession number ECB 3084, the site code was PAP08.

Topography and geology

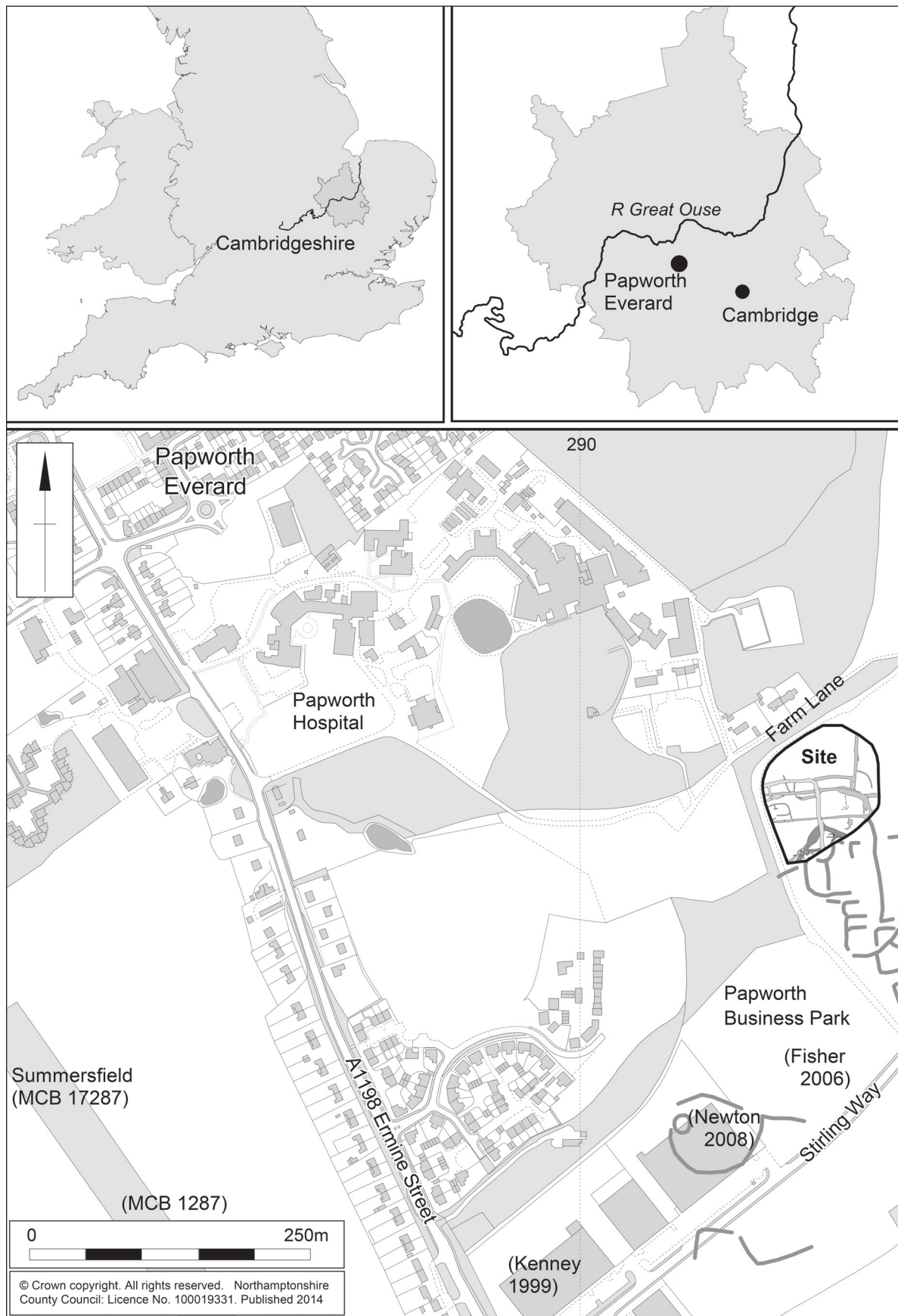
The excavated site lay to the south of Farm Lane, which skirts the southern boundary of the Papworth Hospital site, and to the north of Papworth Business Park (Stirling Way). Roman Ermine Street, the modern-day A1198, passes within 0.4km to the west (Fig 1).

The site was situated in the north-west corner of a large arable field, on the south-western side of a shallow valley, the head of which lies 1km to the south-east. The ground slopes gently to the north-east from 52.5m OD at the western edge of the site to 50.8m OD at the eastern site boundary. At the base of the slope, 150m east of the site, are two balancing ponds, fed by a small stream.

The underlying solid geology comprises Upper Jurassic formations of Ampthill Clay, Kimmeridge Clay and Corallian limestone, overlain by drift deposits of glacial till (<http://www.bgs.ac.uk/GeoIndex/index.htm>). The overlying soils belong to the Hanslope Soil Association (411d), comprising slowly permeable calcareous clayey soils (SSEW 1983).

Excavation strategy

The excavation comprised a sub-square area of 0.7ha, which measured 110m by 95m, taking in the greater part of the car park development site (Figs 1 and 2). The excavated area was stripped of topsoil and subsoil using a 360° tracked mechanical excavator fitted



with a toothless ditching bucket. In selected areas, the excavator was also used to excavate sections into the broad enclosure ditch at the southern end of the site and to clean the surface to clarify relationships between larger ditches and smaller gullies. Drainage of surface water was extremely poor, with clays retaining standing water, and snow and ice, which hindered the progress of excavation, and flooded the excavated features. Discrete features were sectioned, and fully excavated when they contained deposits or artefacts or environmental assemblages of particular value. Intersections were investigated to establish stratigraphic relationships. Representative sections of linear and curvilinear features were also sampled away from intersections. Artefacts and animal bone were collected by hand, but unstratified animal bone and modern material were not collected. The excavated area and spoil heaps were scanned with a metal detector to ensure maximum finds retrieval. Soil samples were taken for flotation from dateable contexts with a potential for the recovery of charcoal and carbonised plant remains.

Summary of chronology

There were four phases of Iron Age and Roman settlement (three of which are illustrated in Figure 3), along with residual finds dating to the Neolithic and early/middle Anglo-Saxon periods and remnant fur-

rows of the former ridge and furrow field system (Table 1). The archaeological remains were generally well-preserved, although ploughing had caused significant truncation in places, particularly at the southern end of the site.

Table 1. Summary of site chronology

Period	Features
Neolithic to Bronze Age	Neolithic polished flint axe Residual worked flint
Middle/Late Iron Age (2nd–1st centuries BC)	Settlement Enclosure E1?
Late Iron Age/early Roman (early to late 1st century AD)	Enclosure E1
Earlier Roman (late 1st – early 3rd century)	Boundary System BS1 & BS2 Enclosure E2 Boundary System BS2 Ditch 810 Enclosure E3
Later Roman (later 3rd – mid 4th centuries)	Enclosure E4 Posthole Group PG1
Early/middle Anglo-Saxon (mid-5th–8th centuries AD)	Pottery
Medieval/post-medieval	Ridge and furrow field system



Figure 2. General view of site, looking north.

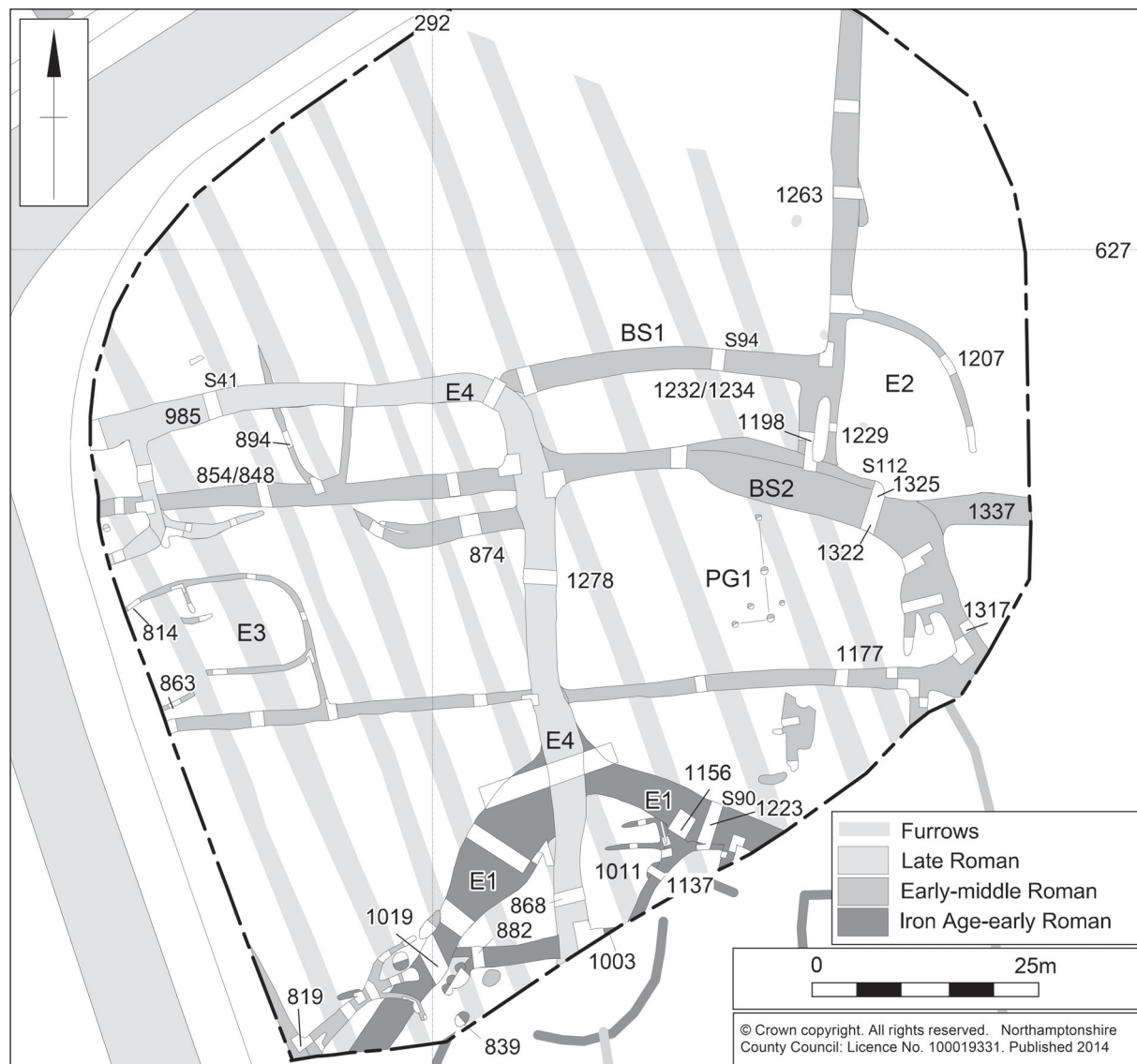


Figure 3. The Iron Age and Romano-British enclosures and boundary systems.

Prehistoric activity

A complete Neolithic polished flint axe and four struck flints, perhaps late Neolithic/early Bronze Age in date, recovered as residual finds from Iron Age and Roman contexts, provide evidence of earlier utilisation of this landscape.

The complete polished flint axe is in excellent condition. It was manufactured from an opaque brownish-grey granular flint, and measures 129mm long, 40–55mm wide and up to 33mm thick, with both faces slightly flattened longitudinally, perhaps to aid hafting (Fig 4). Post-depositional damage is minimal and one side exhibits slight patination. The axe had been utilised in antiquity, with small removals concentrated on one side of the cutting edge.

The other four pieces of struck flint are flakes, with two broken. The raw material of three pieces is vitreous flint of a light to mid greyish-brown colour and

the other is opaque flint of mid brownish-grey colour, similar to the polished stone axe. Cortex or a heavy white patina was present on the dorsal surfaces of the flakes.

It may be speculated that the stone axe had been found and perhaps retained as a curio or talisman. The belief that worked flint, fossils and other regularly-shaped stones were the products of thunderbolts has been widespread in the past, and is a superstition that may even survive in some places today. At the late Saxon church at Furnells manor, Raunds, Northamptonshire, two barbed and tanged arrowheads, most likely recovered from an early Bronze Age burial, had been deposited against the plaster face of the chancel wall behind the clergy bench; perhaps to protect those who had disturbed the ancient burial (Boddington 1996, 21, fig 20).



Figure 4. Neolithic polished flint axe (129mm long).

The Iron Age and Romano-British settlement

Settlement commenced in the middle/late Iron Age, perhaps as early as the 2nd century BC, with continuous occupation until the mid-4th century AD (Fig 3).

Middle/Late Iron Age settlement (2nd–1st centuries BC)

The focus of the middle/late Iron Age settlement lay to the south, with just the northern corner of a ditched enclosure lying within the excavated area (Fig 3, E1). A group of smaller gullies and pits within this area produced significant quantities of pottery and bone dated to the middle/late Iron Age, probably 2nd–1st centuries BC. This may suggest that there was an early phase of unenclosed settlement defined by short lengths of ditch and some pits. However, while the later fills of the enclosure ditch E1 contained pottery dating to the early/mid-1st century AD, spanning the transition from the late Iron Age to the early Roman period, this material only dates the disuse of the enclosure. The enclosure ditch had been re-cut, so it is possible that the earliest phase of use was contemporary with the Iron Age features encompassed by it.

Of these minor features, a ditch to the west, 882, was 1.93m wide by 0.37m deep with a fill accumulated through weathering of the ditch sides. A steep-sided re-cut of this ditch was 1.3m wide by 0.71m deep. To the east, a pit 1011, 0.84m wide and 0.29m deep, was cut by another length of ditch, 1.76m wide and 0.84m deep, which had also been re-cut, 1137. Some animal bone and the largest amount of hand-built Iron Age pottery came from these ditch fills.

Late Iron Age to early Roman enclosure (1st century AD)

Enclosure E1 was probably sub-square in plan, and the cropmarks suggest it was some 60–65m wide, enclosing an area of around 0.4ha (Fig 3).

The western ditch, 1019, was 3.0–4.0m wide by 1.0–2.2m deep, and even broader towards the northern corner. It had been re-cut on at least two occasions. The north-eastern arm, 1223, was similar in size, with a long sequence of re-cutting (Fig 5, S 90). To the east, ditch 1156 contained dumped fired clay, including part of a probable kiln plate, suggesting that there was a short-lived episode of pottery manufacturing around the mid-1st century AD.

Early–Middle Roman boundary systems (late 1st – early 3rd centuries AD)

In the later 1st century AD a system of rectilinear boundary ditches, generally aligned north-south and east-west, was established, and saw various additions and modifications through the 2nd and 3rd centuries AD (Fig 3). The exact form and phasing of these ditch systems is unclear, as much of the system lay beyond the excavated area. It may have comprised a series of smaller enclosures, with internal sub-divisions, set along a linear boundary or trackway running north to south, perhaps a ladder settlement arrangement, as is implied by the cropmark evidence to the south (Fig 1).

The earliest undisturbed ditch systems lay to the north and north-east, BS1, but other early elements may have been at least partially retained and recut, parts of BS2. A ditch system aligned east to west, 1232/1234, up to 1.98m wide and 0.69m deep, with a shallow V-shaped profile (Fig 5, S 94), met a ditch

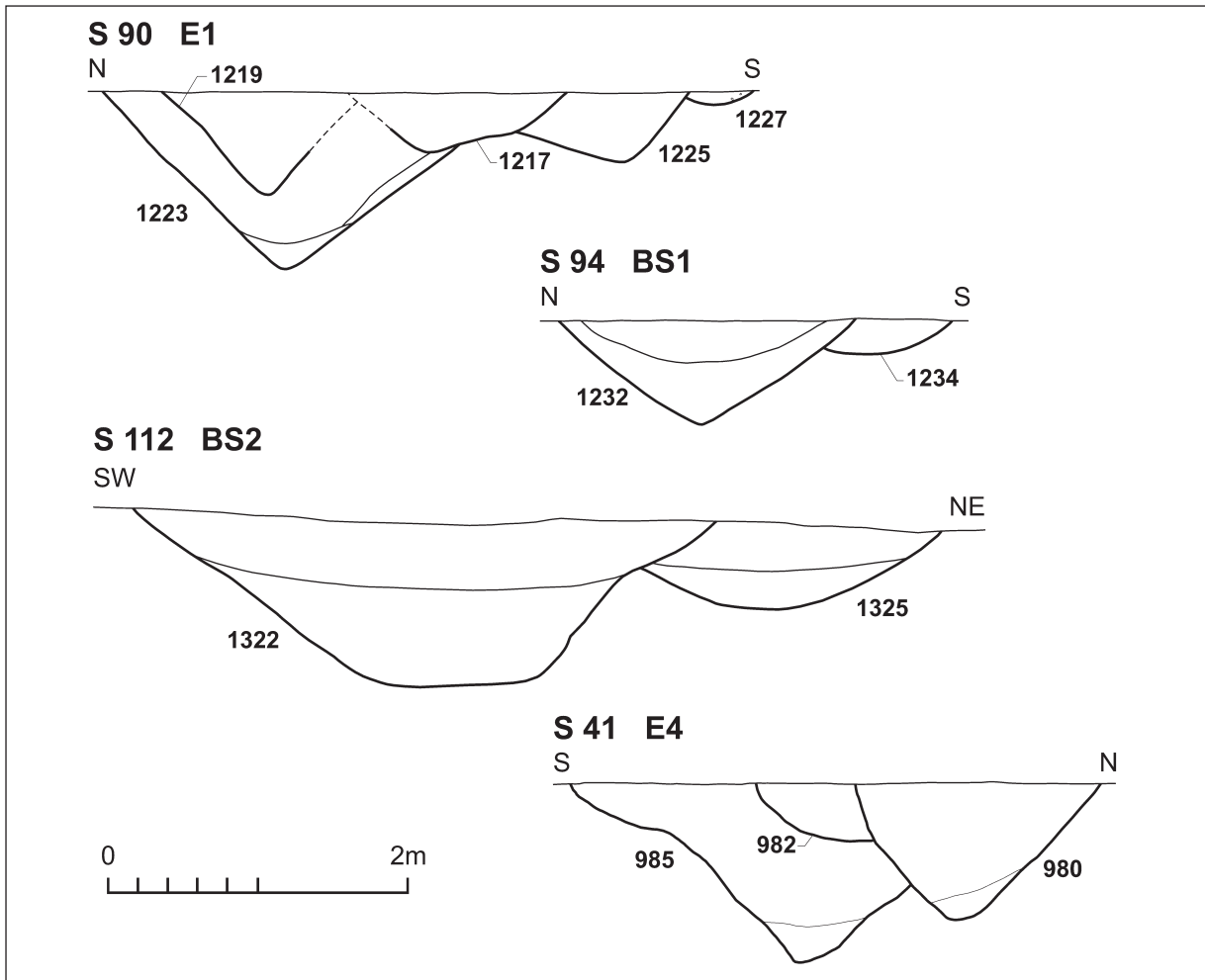


Figure 5. Sections of enclosure and boundary ditches.

system aligned north-south, 1263 and 1198/1229 at a T-junction. Ditch 1198 was 1.40m wide and 0.60m deep.

To the west a length of curving ditch, 874/894, dated to the late 1st – early 2nd century AD, seems anomalous in plan form compared to the rectilinear ditches. It may have branched from an early ditch running north-south and joining ditch BS1 to the north, lost beneath the eastern arm of the later enclosure E4.

Adjoining the eastern side of ditch 1263, there was a curvilinear ditch 1207, 0.56m wide and 0.18m deep, which formed a corner sub-enclosure, E2, measuring 14m east-west by 18m north-south, with an entrance to the south, 3.7m wide, between the gully and a southern arm, 1337. This sub-enclosure probably lay in the south-western corner of a larger enclosure and was probably used for stock control.

Ditch system BS2

The major part of the later ditch system, BS2, comprised an L-shape that was particularly broad to the east, with a long and complex series of re-cuts turning southwards. To the west this ditch, 854/848, was

2.0m wide and 0.6m deep, with a deeper, V-shaped re-cut, 852, 1.0m deep, and a possible broad shallow re-cut, 848, 2.50m wide and 0.50m deep. To the east, an early ditch terminal 1325, 2.0m wide and 0.60m deep, produced a large group of early to middle Roman pottery. The re-cut ditch 1322, 3.60m wide and 1.10m deep, also produced large groups of early to middle Roman pottery (Fig 5, S 112).

Where BS2 turned southwards, the earlier re-cuts on the inside edge of the turn, 0.8–1.3m wide and 0.26–0.50m deep, terminated, while the ditches on the outside, 0.7–2.2m wide by 0.30–0.65m deep, all continued southwards. Ditch 1317 contained a large group of early to middle Roman pottery.

A narrower linear ditch, 1177, lay 23m to the south of BS2, and there was a small sub-enclosure, E3, to the west (Fig 3). This ditch was 1.18–1.50m wide and 0.39–0.49m deep, with a consistent sequence of fills along its length. It may have been a sub-division within a larger enclosure defined to the north and east by the L-shaped ditch system, BS2. The small sub-enclosure, E3, was at least 20m long by 14m wide. The defining gully, 814, was 0.38m wide by 0.19m deep, and internal sub-divisions branching from the eastern and

northern arms were similar in character. A piece of Samian pottery was recovered from gully 863.

In the southern corner of the site, ditch 819 was aligned north-west to south-east, and a complex of smaller ditches and gullies ran eastwards.

Late Roman enclosure (later 3rd to mid-4th century)

In the late Roman period a new ditch system, E4, was perhaps the corner of an enclosure extending to the south and west. It probably overlay part of the early ditch system BS1, indicating that the broad pattern and alignment of the settlement boundaries was still respected. The northern arm, 985, was 1.30m deep with a shallower re-cut, 0.62m deep, and a final re-cut which was V-shaped, 1.64m wide by 0.92m deep (Fig 5, S 41 and Fig 6). The eastern arm was a broad V-shaped ditch, 1278, 2.80m wide and 1.07m deep.

The quantity of pottery, animal bone and other finds in the north-western area, where there was a cluster of minor gullies attached to the southern side of the main ditch, was probably the eastern margin of a focus of domestic occupation lying largely beyond the excavated area.

To the east of enclosure E4, a line of three post-holes, set 5m apart, and a posthole 4m to the west, may have formed a small timber building or a pen (Fig 3, PG1).

The pottery and coin evidence indicates that within the excavated area settlement had ceased by the later 4th century AD.

Iron Age and Roman pottery

Ed McSloy

A total of 1341 sherds of pottery, weighing 22.9kg, was recovered from 125 deposits. The assemblage was quantified according to sherd count; weight and rim EVEs (Estimated Vessel Equivalents). Fabric-type codes of the National Roman Fabric Reference Collection (Tomber and Dore 1998) have been applied where appropriate.

Iron Age pottery

A total of 272 sherds, weighing 4.0kg (20.3% of the total by sherd), comprises hand-built Iron Age material. The majority of this came from the vicinity of the ditched enclosure E1, although over a half was re-deposited in Romano-British deposits. The good condition of the group is reflected in a mean sherd weight value of 14.7g, a moderately high figure for later prehistoric pottery in the region.

The assemblage comprises material in hand-built sandy or calcareous fabrics, all probably local in origin (Table 2). Identifiable forms comprise mainly jars of rounded/globular, slack-shouldered or barrel-shaped profile, with simple rims. Decoration is uncommon (26 sherds, 9.6%), with scoring most common (19 sherds), as lightly-scribed vertical or diagonal strokes. Three sherds feature regularly-spaced vertical strokes probably executed using a comb. The only other decoration is finger ornament on top of or



Figure 6. Enclosure E4, Section 41, showing sequence of ditch re-cutting.

below rims, noted on five sherds.

The scored and restricted finger decoration and the rounded vessel forms are consistent with middle Iron Age scored ware, which characterises pottery across the East Midlands from the 4th to 1st centuries BC (Elsdon 1992). However, regular scoring using a comb is a feature of late Iron Age assemblages, 1st century BC (A Chapman pers comm). There is some evidence for the continuance of hand-built Iron Age type fabrics into the early 1st century AD, the transitional period; and a channel-rimmed jar (Fig 7, 1) is an example of this, comparing to vessels dating to the mid-1st century AD common from the Ouse and Nene Valleys (Friendship-Taylor 1999).

Table 2. Quantification of Iron Age pottery.
EVEs= Estimated Vessel Equivalents.

Fabric description	Sherds	Weight (g)	EVEs
Grog/shell	6	69	0.07
Limestone	71	984	0.29
Limestone/shell with organic	5	46	0.07
Quartz	32	568	0.29
Quartz with flint	1	6	-
Quartz/limestone	72	654	0.20
Quartz with organic	7	60	0.10
shelly	78	1607	0.46
Totals	272	3994	1.48

Roman pottery

There is a total of 1060 sherds (18.9kg; 16.7 EVEs) of Roman pottery, including transitional late Iron Age/early Roman forms). The mean sherd weight is at 17.8g, a high figure for a Roman group. Jars are heavily dominant (67.2% by EVEs), with bowls next most common (21.9% by EVEs), followed by flagons (6%), dishes (3.4%) and beakers (1.5%). Mortaria are present, though they occur only as bodysherds with no EVEs value.

Late Iron Age/early Roman (Fig. 7)

Wheel-thrown grogged wares and a proportion of the shelly and 'Romanising' sandy wares are characteristic of the late Iron Age to early Roman 'transitional' period, spanning the early to mid-1st century AD, up to c. AD70). All could have been made locally, and regional or continental wares are absent (Table 3).

Forms are the necked/shouldered bowls with cordons (Fig 7, 2 and 3) associated with Late La Tène/'Belgic' pottery styles in the south-east midlands (Knight 2002). There are also butt-beaker copies, dating to around the time of the Roman Conquest.

Roman (later 1st to later 2nd/earlier 3rd centuries AD)

Evidence for early to middle Roman activity occurs as discretely-dated groups that cluster to the east, particularly the eastern arm of BS2, and individual vessels, some of which were re-deposited in enclosure E4. Among the fully Romanised assemblage, reduced and shell-tempered coarse wares dominate,

with channel-rimmed jars a feature (Fig 7, 4); and much of this probably originated reasonably locally. Among locally-sourced types are Horningsea greywares and, more commonly, gritty whiteware identifiable with production at Godmanchester, 8km to the north (Evans 2003), including carinated/reeded-rim bowls (Fig 7, 6) and distinctive bifid-rim jars, seemingly derived from Verulamium region whiteware prototypes.

There is also a small group of Samian (five sherds weighing 46g), including a scrap from a South Gaulish (Dragendorff form 37) decorated bowl dating to the Flavian/Trajanic, late 1st to early 2nd century AD. The remainder consists of Central and East Gaulish plain forms, and the only identifiable vessel is a form 38 bowl, which should date to the second half of the 2nd century.

Later Roman (later 3rd to 4th centuries AD)

Deposits containing later Roman pottery were mainly confined to the western half of the site and from the later re-cuts of enclosure E4. Quantities are relatively small, with only three deposits with more than 10 sherds. The gullies at the western margin of the excavation appear to represent a discrete phase of activity probably dating to the mid/late 4th century.

The late groups are characterised by a decreased reliance on local wares. Godmanchester whitewares and Horningsea wares are absent; however, wheel-thrown black-burnished 'imitation' ware and a proportion of the greywares are probably relatively local in origin. Regionally-traded wares become common for the first time. They comprise shell-tempered wares from north Bedfordshire, including a necked jar with undercut/hooked rim (Brown 1994); Hadham oxidised wares from Hertfordshire, including a bowl in imitation of Samian (Going 1999, fig 5.55, 112) and a flagon of uncertain type; and Oxfordshire red-slipped fine ware bowls, including a bowl of Young's form C77 that should date after c. AD325 (Young 1977, 164–6). Lower Nene valley colour-coated wares are also common and occur as the 'coarse ware' vessel classes, necked jars/bowls, plain-rim dishes and flanged bowls, which define late production (after c. 270/300 AD). A disc-neck flagon in this fabric may date to the 3rd or 4th century (Perrin 1999, 98).

Pottery use and site status

The 'transitional' and Roman assemblages are largely devoid of the continental imported finewares or specialist wares which might indicate higher status. The Samian component is small (0.5% by sherd count), a feature shared with lower status rural settlement sites. 'Status' in the smaller late Roman assemblage is more difficult to assess, however, the late Oxford and Hadham fine wares do not appear to occur at untypically high levels. Across the assemblage the range of coarse pottery forms reflects largely 'utilitarian' usage with jar/bowl/dish forms expected to have been used for kitchen-related tasks including cooking and storage.

Fabric Code	Short description	Sherds	Weight (g)	EVEs
<i>Iron Age/Roman 'Transitional'</i>				
BS1r	'Romanising' reduced sandy	54	1168	0.85
BS2	'Romanising' reduced sandy with grog/mudstone	43	618	0.23
BSg	'Romanising' reduced sandy with grog	28	868	0.87
BSs	'silty' black wares	4	39	0.10
GR1	handmade sparse grog	11	145	0.11
GR2	coarser grog with quartz	35	1837	-
GR3	fine grog	60	737	0.40
GR4	fine grog with mudstone	9	94	-
GRq	grog with quartz	23	281	0.32
GRSH	grog with shell	8	52	0.23
<i>Roman: Local/unsourced</i>				
BS1	black-sandy	123	1437	2.15
GW1	greyware, grey brown with sparse flint	64	448	0.23
GW2	greyware; finer with sparse quartz	58	766	1.0
GW3	sandy greyware with common flint	90	1070	1.08
GW4	hard, dense greyware	33	363	0.16
GW5	soft greyware with limestone	12	92	0.18
GWfm	greyware, fine, micaceous	2	32	0.07
BBIM	late BB imitations	21	580	0.59
OXc	coarse oxidised	12	102	0.27
OXf	oxidised, fine	13	53	0.10
OXWS	oxidised, white-slipped	2	8	-
BUFFf	fine buff, painted (Nene valley?)	4	80	1.0
WW1	Godmanchester gritty white	84	1339	1.80
WW2	fine whiteware	16	89	0.23
RSH	misc. Roman shelly	77	2012	0.36
<i>Roman: Regional</i>				
HAD OX*	Hadham oxidised	18	152	0.21
HOR RE*	Horningsea greyware	25	2223	-
LVN CC*	Lower Nene Valley colour-coated	39	801	1.91
LVNGW	Lower Nene Valley grey	2	19	-
LVNWHm	Lower Nene Valley whiteware mortaria	2	61	-
OXF RS*	Oxford red-slipped ware	5	116	0.18
HAR SH*	Midlands/Harrold shell-tempered	78	1131	2.07
<i>Roman: Imports</i>				
LGF SA*	South Gaulish (La Graufesenque Samian)	1	7	-
LEZ SA2*	Central Gaulish (Lezoux Samian)	3	35	-
EGSA	East Gaulish Samian	1	4	-
Total		1060	18859	16.7

Table 3. Quantification of Iron Age 'Transitional' and Roman pottery. *codes match National Roman fabric Reference Collection (Tomber and Dore 1998).

Other finds

Ten Roman coins are all heavily corroded, limiting identification to the basic observation of a 4th-century bust on the obverse, and seldom could the legend or even any part of the legend be deciphered. The coins are all dateable to the 4th century AD, except for one corroded flan that bore no discernible detail but is of a size that could be either 3rd or 4th century AD in date. Only a third of the assemblage could be identified to coin type and in only one instance could the mint, London, be recognised. Coin loss in the 4th century AD was generally greater than the preceding centuries, perhaps reflecting an increasing

monetisation of even rural sites, but it may also be an artefact of the inflation in this period (Reece 1988 and Moorhead 2001, 90).

Metal finds of Roman date comprise a Colchester brooch and a Hod Hill brooch, of early to mid-1st century AD; a lead steelyard weight, weighing 66.3g (2.4oz) perhaps corresponding to 3 *unciae*; an iron hooked fitting and twelve iron nails.

There are nine small sherds of ceramic roof tile, weighing 616g. Four sherds come from curved *imbrex* and three thicker sherds are possibly from the flat *tegulae*. There is a possible sherd of flue tile.

A spherical lump of light grey, vesicular fuel ash slag, weighing 121g, came from Iron Age enclosure

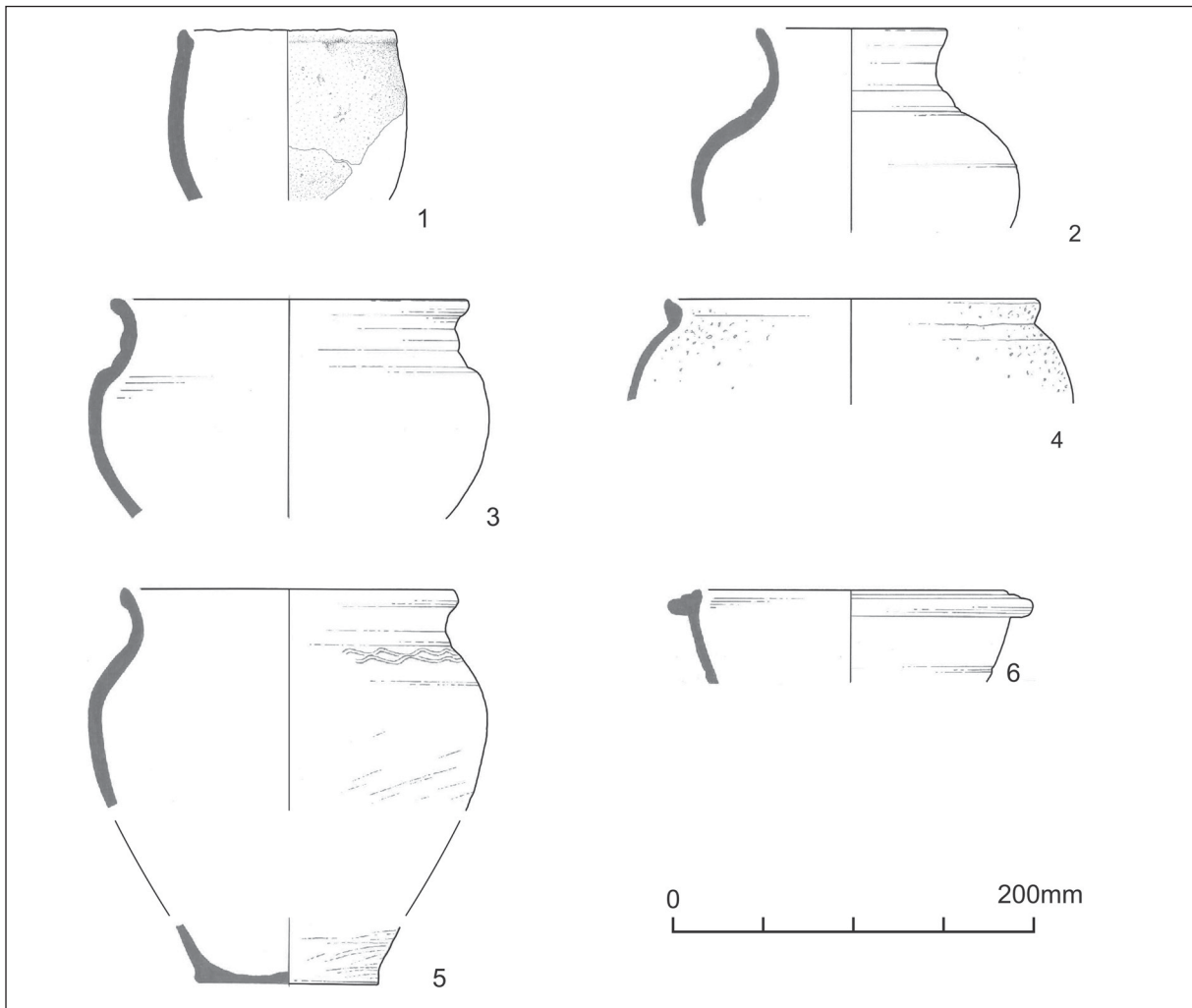


Figure 7. Illustrated late Iron Age and Roman pottery.

1. Shelly Iron Age. Channel-rim jar (hand-built). Iron Age ditch 1003
2. Sandy, transitional. High-necked bowl with multiple cordons. Enclosure E1
3. Sandy transitional. Shouldered, necked bowl with cordon. Enclosure E1
4. Roman shelly. Channel-rim jar. Enclosure E1
5. Transitional, sandy with grog. Necked jar with scored wavy decoration at shoulder. Enclosure E1
6. Roman Godmanchester, gritty white. Carinated bowl with reeded rim. Ditch 868, Enclosure E4

E1, and a smaller fragment of grey fuel ash slag, weighing 26g, came from a gully in enclosure E4. This material is from high temperature burning, but is not necessarily derived from metalworking.

The majority of the fired clay, 2.7kg, is kiln furniture from a deposit in Iron Age enclosure E1. It comprises parts of a curved flat plate or ring, c. 600mm in diameter and 11–25mm thick. Some of the sherds are attached to looser material suggesting that it was placed directly on the floor of its associated structure. The fabric is hard, but not overfired, indicating that it was not subjected to intense or prolonged heat. The remains of a similar clay ring found in a pottery kiln at Caldecotte, Milton Keynes also had a smoothed upper surface and a rough under surface. The tentative interpretation was that it was a spacer or stacking ring (King 1994, 181).

Animal bone

Matilda Holmes

All the animal bones were hand-collected. Bones that could not be identified to species were categorised according to the relative size of the animal (medium: sheep/pig/dog-sized or large: cattle/horse-size). Ribs, vertebrae and skull fragments were not identified to species with the exception of 1st and 2nd cervical vertebrae, sacral elements and occipital and zygomatic areas of the skull.

The bone assemblage was generally in good condition, though subject to considerable fragmentation. The high proportion of loose teeth to those remaining in the mandible indicates delay in burial or later disturbance, as does the high proportion of gnawed bones. A small number of bones are burnt. A greater

proportion of fragments in the Iron Age assemblage bore butchery marks, possibly indicating that they were subject to different butchery techniques than in the Roman phases. No associated bone groups were noted, and there were no isolated deposits of distinct industrial or craft production.

Iron Age bone

This very small assemblage is dominated by cattle, although sheep/goats were also common (Table 4). A dog mandible and skull fragment, a horse radius from a mature animal and a red deer skull fragment were also noted, but pigs were rare, and. It is likely that all these species formed part of the diet of those living within the settlement, and chop and cut marks on cattle and sheep bones reflect this.

Table 4. *Animal species represented, Number of Identified Specimens (NISP) in the hand-collected assemblage*

Species	Iron Age NISP	Roman NISP	Roman %
Cattle	66	200	59
Sheep/ goat	36	88	26
Sheep	6	3	<1
Goat	-	1	<1
Pig	4	14	4
Dog	2	-	0
Horse	1	31	9
Red deer	1	-	0
Domestic fowl	-	1	<1
Total identified	116	338	-
Unidentified	27	9	-
Large mammal	81	418	-
Medium mammal	26	82	-
Bird	-	2	-
Large bird	7	-	-
Sub total	141	511	
Total	257	849	-

Cattle bones were recorded from all parts of the carcass, suggesting that whole animals were processed on site. The sheep assemblage was dominated by a group of mandibles recovered from gully 1137 within E1, which may represent a deposit of primary butchery waste.

The fusion and tooth wear data for the cattle suggest that there was no large cull until well into maturity (over four years of age), consistent with the use of cattle for secondary products, although there are isolated bones from juvenile animals of less than a year of age and less than three years of age.

Sheep were generally younger, typically under 28 months, although tooth wear shows two older animals, between four and six years of age. This suggests that sheep were of prime importance for meat, rather than wool.

This assemblage is similar to other rural settlements in the region (Hambleton 1999, 45, although

the high number of bones from elderly cattle is unusual, but the small size of the sample means that this may not be representative of the wider economy.

Roman bone

Slightly more bones were recovered from this phase (Table 4). The majority were again cattle, followed by sheep/goat bones, Horse bones were markedly more common in this phase (9% of the Roman assemblage). One bone from a domestic fowl, most likely chicken, was also identified. Again, the sparse butchery marks suggest that this assemblage most likely originated as food refuse, with chop marks on cattle and sheep bones, and a cut on two cattle phalanges most likely the result of skin removal. This is also reflected in the carcass parts recorded: while all parts of the animals are present, indicating they were processed on site, the majority of bones comes from the main meat-bearing bones of the fore and hind limbs, suggesting that the assemblage was heavily biased towards table and kitchen waste. Pig bones were all from the upper limbs or head, indicating that these animals were butchered elsewhere; they may even have arrived as joints of meat.

Ageing data from bone fusion suggests that there was a major cull of cattle at around 36–42 months of age, with another smaller cull of animals prior to maturity. This was reflected in the tooth wear data. The additional presence of a number of mature animals suggests that although animals were important for meat, there was also some call for older animals to provide secondary products such as milk and traction.

Sheep were culled prior to maturity, before reaching 36 months, with only a single bone from an older animal, suggesting that the emphasis was on meat production. Nearly all ageing evidence for pigs came from juvenile animals with the exception of a mature animal that may have been used for breeding.

The considerable number of horse bones came from all parts of the body, and their presence amongst deposits that were likely the result of domestic food refuse suggests they may also have formed part of the diet, although there is no direct butchery evidence for this. With the exception of an animal that died before reaching 20 months of age, all horse bones were fused.

The Roman assemblage is broadly similar to those from other contemporary rural sites from the region (Table 5), both in the relative proportions of bones and the animal economy. The presence of 30% or more sheep bones and very low numbers of pig bones is typical of many native sites, although the placement of the Papworth assemblage at the lower end of this bracket makes it comparable with some Romanised rural sites (King 1978, 213; King 1984, 190).

Site (period)	% Cattle	% Sheep/Goat	% Pig	NISP	Reference
Orton Hall Farm (1st-4th century)	57	40	3	6041	King 1996
Barnack (3rd-4th century)	75	21	4	234	Harman 1993
Orton Longueville (1st-2nd century)	53	41	7	2009	Davis 2001
Prickwillow Rd, Ely (1st-4th century)	58	36	6	649	Deighton 2003
Lynch Farm, Peterborough (3rd-4th century)	82	15	3	419	Wilson 1975
Stonea Grange (3rd-4th century)	45	44	12	2905	Stallibrass 1996
Papworth Everard (1st-4th century)	65	30	5	306	-

Table 5. Animal bone: Comparative sites from the region.

Plant remains

Val Fryer

Thirty-nine soil samples for the retrieval of the plant macrofossils were studied. All plant remains were charred and modern contaminants including fibrous and woody roots, seeds, chaff and grass were present throughout.

Samples from Iron Age ditches contained moderate densities of charcoal/charred wood, which may have been small deposits of hearth waste.

Grains, chaff and seeds of common weeds were present at a low to moderate density within 18 of the assemblages. Preservation was moderately good, although some grains were puffed and distorted, probably as a result of combustion at very high temperatures. In all earlier deposits these occurred as single specimens, and wheat grains (*Triticum* sp.) and chaff were only relatively common within the assemblages from the late Roman enclosure, E4. Spelt wheat (*T. spelta*) glume bases were particularly common within a single sample from the enclosure E4. Weed seeds occurred infrequently, and most were of common segetal or grassland taxa including stinking mayweed (*Anthemis cotula*), black bindweed (*Fallopia convolvulus*), medick/clover/trefoil (*Medicago/Trifolium/Lotus* sp.), grasses (Poaceae) and dock (*Rumex* sp.). Other plant remains were scarce, but did include pieces of charred root/stem and a fragmentary indeterminate tuber.

Small assemblages of mollusc shells were present within all but three samples, although most were fragmented and slightly abraded. All four of Evans' (1972) ecological groups of terrestrial molluscs were represented, with open country/grassland species occurring most frequently. A limited number of freshwater obligate taxa were also recorded, indicating that some features were of sufficient depth to retain water in wet periods. Shells of *Anisus leucostoma*, a species commonly found in marshes and ponds prone to seasonal drying, were especially common within Iron Age ditch 1137 and pit 839, and Roman ditches 1322, BS2 and 1263, BS1.

Although many of the assemblages are small, the occurrence of grains and chaff within three samples from the late Roman enclosure E4 may indicate that the western edge of the excavated site was close to a focus of either domestic or agricultural/pastoral activity. This is supported by the occurrence of small

quantities of grain/chaff within other nearby features.

Charcoal

Dana Challinor

Fifteen samples of charcoal were studied but most contained only a few fragments. Only the sample from Iron Age pit 839 produced a reasonable assemblage, more than 50 fragments, and this comprised only two taxa, Maloideae and *Rhamnus*. A total of five taxa were identified from both Iron Age and Roman contexts: Maloideae (hawthorn, apple, pear etc.), *Prunus* sp. (cherry/blackthorn), *Quercus* sp. (oak), *Fraxinus excelsior* (ash) and *Rhamnus cathartica* (buckthorn). Given the paucity of charcoal, it is likely that it represents wind-blown material which accumulated over time, rather than dumps of spent fuel. The apparent scarcity of oak, occurring in a single Roman ditch, BS2, suggests that fuel was derived from hedgerows or marginal woodland type habitats.

Anglo-Saxon activity (mid-5th to 8th centuries AD)

Sherds of Anglo-Saxon pottery, broadly dated between the mid-5th to 8th centuries AD, were recovered from the upper fill of the 4th-century enclosure ditch E4, in the north-western portion of the site, suggesting there was some Anglo-Saxon activity in the same general area as the apparent focus of late Roman activity.

The nine sherds of pottery, weighing 95g (0.19 EVEs) are in a single fabric, probably locally made. Featured sherds are restricted to two rims probably from the same vessel. The sherds are unabraded and one vessel exhibits a thick internal carbonised (burnt food?) residue. Absence of stamped or other decoration precludes closer dating.

Later features

Medieval or post-medieval furrows, from a truncated ridge and furrow field system, were spaced c.7m apart (Fig 3). The fills were relatively loose, dark soil, similar to the topsoil, and they contained dumps of clinker and modern pottery and glass, mainly dat-

ing to the 19th century, indicating that the ridges had been leveled in the 19th or early 20th centuries.

The site was also crisscrossed by a network of ceramic land drains of the 19th and 20th centuries, and a mole plough had also been used to improve the drainage, with deep scars running the length of the site from north to south, parallel to the earlier field system. A line of pits on the eastern side of the site, some of which were packed with beer bottles and bricks, had probably held the posts of a modern fence line.

Discussion

The archaeological remains investigated in the current project form part of an extensive area of Iron Age and Romano-British settlement that extends at least 470m north-south and 300m west to east along a low ridge overlooking a small stream to the east. Cropmarks on aerial photographs supported by archaeological excavation and evaluation ahead of development at Papworth Business Park has revealed the outlines and some details of this complex of small enclosures, ring ditches and droveways, which are characteristic of settlement associated with small farming communities (Fig 8).

In the 1st century AD, a major road, Ermine Street, was built to link the Roman fort at Godmanchester (*Durovigium*), 10km to the north-west of Papworth Everard, with Braughing, Hertfordshire, to the south. The road passes 400m to the west, and Roman activity has also been identified at Summersfield to the west of Ermine Street (Fig 1).

The broader pattern of local settlement from the middle/late Iron Age through to the later Roman period is partially understood through fieldwork at Summersfield and Papworth Everard bypass to the west, and these settlements relate to other sites, further afield but also lying on the clay uplands, at Cambourne and Scotland Farm, Dry Drayton.

The prehistoric landscape

There are no records of Neolithic remains in immediate vicinity, so the polished flint axe is an isolated find, although there were also a few flint flakes. In the broader area, there was a middle Bronze Age cremation cemetery on Papworth Everard bypass (Gilmour *et al.* 2010), and excavations at Summersfield (Cambridgeshire Historic Environment Record, MCB17287) found flints dating to the Mesolithic and limited occupation, a pit and associated gullies, in the late Bronze Age/early Iron Age (Patten 2012). Trial trenching and excavations on the neighbouring business park revealed residual pottery of possible late Bronze Age/early Iron Age date (Wilson 1999; Hallybone & Pole 2007; Kenney 1999), and a fragment of a Bronze Age rapier was recovered from topsoil at the eastern end of the business park (Fisher 2006). At the hospital car park site there is a single pottery bowl with early Iron Age characteristics, but this does not

necessarily imply an early Iron Age occupation on the site, as a single vessel can contain archaic stylistic elements.

It has been suggested that this lack of evidence for Bronze Age and early Iron Age settlement may be a result of sparse population densities and the agricultural practices in the Cambridgeshire claylands (Gilmour *et al.* 2010).

Cropmarks and excavated evidence

The recorded cropmarks provide a basic outline of the palimpsest of Iron Age and Roman settlement lying between Papworth Hospital and the business park, although the results of trial trenching (Upson-Smith 2008; Fisher 2006; Hallybone and Pole 2007) have all shown a greater density of features than those evident on the aerial photographs alone (Fig 8).

The excavation on the business park (Unit 5) revealed a circular enclosure of middle/late Iron Age date, 75m in diameter, containing four roundhouse ring ditches and a possible stock enclosure to the west, and a north-eastern entrance with external outworks (Newton 2008). There are also further cropmarks to the south of the business park excavations.

While the cropmark evidence does not show all of the surviving archaeology, it is sufficient to define the broad structure of the settlement pattern. At the hospital car park site, the southern arm of Iron Age enclosure E1 is recorded, and a sub-rectangular enclosure to the south-east, 45m long by 40m wide, E5, might also be Iron Age in date. The circular enclosure to the south, at 75m diameter and containing at least four roundhouses, may be the largest of these three elements of Iron Age settlement, with other elements perhaps unidentified in the area of plots 7 and 9.

This pattern of dispersed enclosures was replaced in the later 1st century AD by a more structured landscape. The central element appears to be a boundary system aligned north to south, and at least 250m long. This terminated to the north in the ditch complex BS2, which lay within the excavated area. To the south, multiple ditches at right angles to this boundary may have formed a series of abutting enclosures, perhaps a ladder settlement arrangement (Fig 8).

The local and regional landscape

In recent years there has been an increased understanding of settlement on the clay uplands through the Iron Age and Roman periods through the discovery of many more settlements than previously known. There was a general increase in settlement in the region during the middle Iron Age, including an expansion from the Ouse river valley onto the clay uplands, with this indicating a growing population (Wright *et al.* 2009). There have been frequent discussions regarding the distribution of Iron Age sites on clay soils in comparison to the gravel soils of the river valleys, which resulted from cropmarks not showing up as well on clays as on gravel soils (Wright *et al.* 2009). However, there has now been an increase in

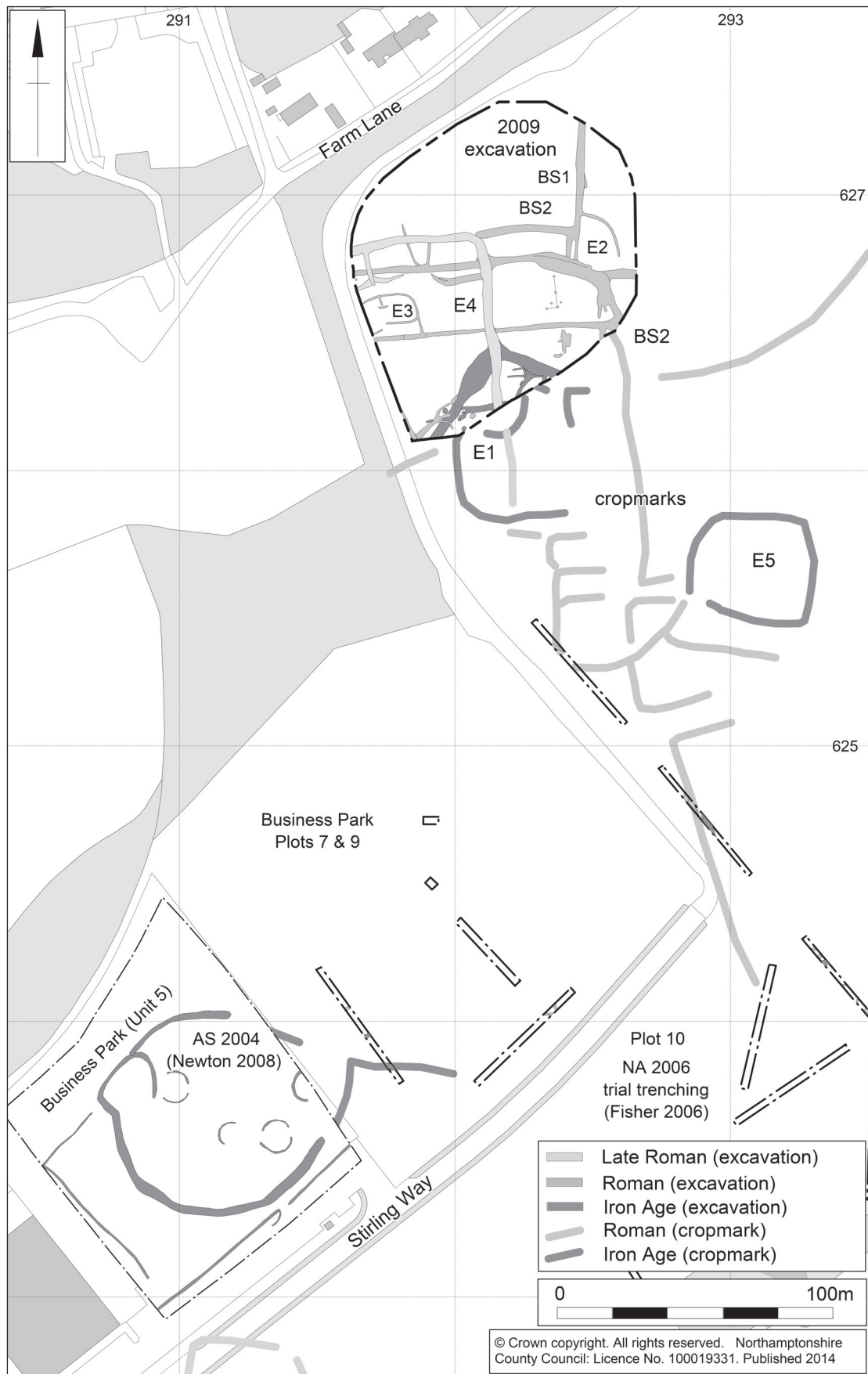


Figure 8. The Iron Age and Roman landscape at Papworth Everard Hospital and Business Park.

excavation opportunities on the clay uplands and a consequent increase in identified sites, which is starting to counterbalance the previous paucity of sites on clay.

The height of activity for many of these small rural settlements was during the early Roman period. The nearby Summersfield site (Patten 2012) and the more distant Cambourne sites saw a population increase (Wright *et al.* 2009), and this may have been related to the receding of water levels that had risen during the middle/late Iron Age and early Roman period (Newton 2008). Around the 3rd century AD there appears to be a decline in settlement (Patten 2012).

In terms of later settlement, the excavations at Cambourne show some Romano-British settlements continuing into the 5th century AD, such as at the Lower Cambourne and Childerley Gate sites, but generally there was a marked reduction of known settlement sites in the immediate post-Roman period. In a similar fashion to the Papworth Hospital car park site, many Roman settlements have a few finds of Anglo-Saxon age from the subsidence fills of the final Roman ditches, which would have been visible earthworks throughout the Anglo-Saxon period if not levelled by ploughing. The main focus of settlement during the Anglo-Saxon period was on the fen-edge and dry islands (Wright *et al.* 2009).

The middle/late Iron Age and late Iron Age/early Roman landscape

Occupation at the car park site began in the middle/late Iron Age, possibly as early the 2nd century BC and certainly by the 1st century BC. It comprised a ditched enclosure with internal features, lying largely to the south of the excavated area. The final filling of the ditch occurred in the 'transitional' late Iron Age/early Roman period, perhaps as late as AD70, indicating that the pattern of settlement remained relatively unchanged until some decades after the Roman Conquest.

The circular ditched enclosure to the south was broadly contemporary, and was perhaps abandoned due to the rising water table. A previous suggestion that Iron Age settlement was relocated from the business park site to the hospital car park site because of flooding can be discounted as the hospital site is actually lower lying, and would have had the same environmental problems (Newton 2008). The two sites were probably contemporary and abandonment of the business park site must have been for other reasons.

The environmental analysis suggests that there was open country/grassland, but some of the deposits in late Iron Age to early Roman features suggest the presence of seasonal marshes and ponds. This pattern was also suggested as a possibility for sites to the south-east, excavated as part of the Cambourne development.

It is possible that the Iron Age settlement at the car park site was initially open, as the internal features

contained pottery dated to the middle/late Iron Age while the main assemblages from the latest re-cuts of enclosure E1 are dated to the transitional later Iron Age/early Roman. However, as these assemblages are dating the final filling of the ditch and not its origins, it remains uncertain whether enclosure E1 was original or a later enclosing of an open settlement.

At Knapwell Plantation, Cambourne, it was estimated that the settlement was enclosed after two or more generations, and that the settlement at Lower Cambourne was enclosed soon after establishment. At Little Common Farm settlement and enclosure may have been contemporary and at the nearby business park (Unit 5) the enclosure and settlement are described as contemporary (Wright *et al.* 2009). The two phases of Middle Iron Age settlement revealed at Summersfield, comprised an open settlement replaced by an enclosed settlement (Patten 2012). The enclosure of previously open settlements has been variously interpreted as a status symbol, as part of social change or a response to environmental changes, perhaps to protect a settlement from rising water levels (Wright *et al.* 2009).

The earlier and later Roman landscape

During the early Roman period the elements of Iron Age settlement were replaced with a boundary system and associated sub-enclosures, and the crop-marks indicate a continuation of a similar system southward (Fig 8). While fragmentary, the overall appearance is of a ladder settlement, with multiple enclosures and paddocks set along a primary boundary system aligned near north-south. By the later 3rd century AD this complex system may have been replaced by simpler enclosure system, perhaps denoting contraction and decline, but as only a single element of later enclosure lay within the hospital car park site, it is uncertain how representative this may be of the broader pattern of later Roman settlement across adjacent areas.

At the Summersfield site three phases of late Iron Age/early Roman farmsteads were identified with a fourth phase in the early Roman period, when the Iron Age settlement was replaced. The excavations revealed two farmsteads with a track, thought to have branched off Ermine Street, and 20 ditched enclosures, which were categorized into settlement, horticultural, crop processing and paddocks (Patten 2012). A late Iron Age and earlier Roman boundary system was uncovered during the excavation of the Papworth Everard Bypass. The pottery evidence suggested that it was maintained from the Iron Age into the earlier Roman period (Hounsell 2007).

The majority of the excavated Cambourne sites contained Roman features, and half of these were of late Iron Age origin. However, only one or two sites had evidence of continuous occupation through the Iron Age and Roman periods, the Lower Cambourne site and possibly the Jeavons Lane site (Wright *et al.* 2009). The settlement at Lower Cambourne was thought not to have been influenced substantially by

the Romans until, perhaps, the late 2nd/3rd centuries AD when new sub-rectangular enclosures were created. Roundhouses were apparently still in use in these new enclosures, but alongside sub-rectangular buildings (Wright *et al.* 2009).

The excavations at the hospital car park revealed the north-eastern corner of a later Romano-British enclosure. At Summersfield it was found that the settlement declined during the later Roman period (Patten 2012). Papworth Everard bypass revealed a few ditches of mid to late Roman date, but it was not possible to establish how concentrated the settlement was (Hounsell 2007).

The Iron Age and Romano-British settlement and its economy

The finds recovered from the hospital car park site are appropriate for domestic activity on a small, low status, rural farmstead. The late Iron Age transitional pottery and the Roman pottery is indicative of a lower status settlement, as it comprises coarse wares, typically used to cook and store food, with few imported continental fine wares and no more specialist imports, such as *mortaria*, than would be expected in such a settlement.

The faunal remains suggest a diet comprising cattle, sheep and pig. Horse was, perhaps, also eaten, and dogs were present. Part of a red deer skull from the Iron Age settlement may have been related to collecting antlers for craft rather than food debris. It is likely that butchery happened on site, and a possible deposit of butchery waste was found in an Iron Age gully. The ageing data showed that the cattle were allowed to mature, suggesting that they were used for secondary products before culling, while sheep were mostly kept for their meat.

The animal bone assemblage is similar to those on other rural settlements in the region (Hambleton 1999, 45). There was a higher proportion of bone from elderly cattle than usual, but given the small size of the sample this may not be representative of the wider economy. However, a similar bone assemblage of cattle, sheep/goat, small amounts pig, horse and dog was found at the Iron Age settlement at the business park site, where it was suggested that the animals were kept for their secondary products, with some butchery possibly taking place on site (Newton 2008). The Cambourne sites produced a similar assemblage of cattle sheep/goat and pig. Cattle bones were mostly of more mature animals and, unlike the hospital car park assemblage, few juvenile sheep/goat animals were butchered (Wright *et al.* 2009). At Summersfield cattle, sheep/goat, pig, horse and poultry were identified (Patten 2012).

During the earlier and later Roman phases, cattle and sheep were still consumed, but there was an apparent increase in pig and horse, an assemblage broadly similar to those from other contemporary rural sites from the region. Butchery and skinning of cattle and sheep was still taking place on site, but some butchery and disposal also happened else-

where. Ageing data suggests the same pattern of culling, with cattle used for milk and traction and sheep mostly for meat. Pig, however, was probably butchered off-site. Pig bones, similarly to sheep, indicated that they mostly were bred for meat with the occasional pig allowed to mature for breeding purposes.

At the Cambourne site cattle were predominant, followed by sheep/goat, while pig was rarely present and horses were unimportant (Wright *et al.* 2009). The Summersfield bone assemblage suggested a similar consumption in meat of beef, mutton, poultry and a similar increase in pork (Patten 2012).

There was very little evidence of crop growing/processing at the hospital car park site. Soil samples from later Roman features from the western edge of the site were the only ones containing small amounts of, probably windblown, cereals. Similarly, very little evidence of agriculture was found on the business park (unit 5). At Summersfield, evidence of crop processing was found in the Roman period, generally a mixed economy with specialist crop processing (Patten 2012). At the hospital car park site the small enclosures within the boundary system were probably at least partly in use as paddocks for animals.

At the circular Iron Age enclosure on the business park there was evidence of smithing and iron-working within a possible industrial area centred on a roundhouse gully and a pit. There was no evidence of smelting, so iron objects were probably brought in through trade and were only repaired or recycled on site (Newton 2008). There is no evidence that iron smithing played any part in the economy of the hospital car park site at any stage of its use.

Anglo-Saxon and medieval landscapes

Although early/middle Anglo-Saxon pottery was recovered from the current excavation, evidence for Anglo-Saxon activity in the general area is sparse.

The first documentary evidence for Papworth dates to 1012. In the Domesday Book it is listed as belonging to Count Alan, Lord of Richmond, and the estate remained in the honour of Richmond until the 17th century. Papworth derives its name from the Old English *Pappas Field* and the suffix 'Everard' is named after the 12th-century lord of the manor, Evrard de Beche (Salzman 1938, 357).

The core of the medieval village of Papworth appears to have focused on the church of St Peter, to the west of Ermine Street. The current excavation lay in open fields to the east of the village, and this was confirmed by the presence of furrows of the former ridge and furrow field system.

Conclusions

The partial excavation of the Iron Age and Romano-British settlements at the Papworth Hospital car park has provided a story broadly similar to that obtained from other excavations in the area. A decade ago very little was known about Iron Age and Romano-British

settlement on the clay uplands around Papworth Everard. It had been thought that the gravel terraces were the favoured location for settlement.

Recent excavations, including the Papworth Hospital car park site, have shown that settlement of the clay uplands began in the Bronze Age, and expanded rapidly through the middle and late Iron Age to reach a peak in the early to middle Roman period. There was an apparent decline in progress prior to the end of the Roman occupation. There is a little evidence of Anglo-Saxon settlement, with a resurgence of use in the medieval period following the Norman Conquest.

Acknowledgements

Cambridgeshire Authority Planning and Countryside Advice (CAPCA) monitored the works as archaeological advisors to the local planning authority. Simon Carlyle, project manager for Northamptonshire Archaeology, and site supervisor Paul Kajewski were assisted by Adrian Burrow, Susan Stratton, Daniel Nagy, Lazlo Lichtensstein, David Haynes, Peter Haynes, Jim Burke, Jonathan Elston, Adrian Adams, Mark Patenall, Elizabeth Hawksley and Tom Stewart. Andy Chapman has overseen the post-excavation analysis and the preparation of the client report and this publication. The finds were studied by Ian Meadows (coins), Tora Hylton (metal objects), Pat Chapman (tile and fired clay) and Andy Chapman (slag). The excavation and publication has been funded by the Varrier Jones Foundation.

References

- Boddington, A, 1996. *Raunds Furnells: The Anglo-Saxon church and churchyard. Raunds Area Project*, Archaeological Report, 7. London: English Heritage.
- Brown, A, 1994. A Romano-British shell-tempered pottery and tile manufacturing site at Harrold, Bedfordshire. *Bedfordshire Archaeological Journal*, 21, 19–107.
- Brown, N, and Glazebrook, P, 2000. *Research and Archaeology: A Framework for the Eastern Counties 2: Research Agenda and Strategy*. East Anglian Archaeology, Occasional Paper 8.
- Carlyle, S, and Kajewski, P, 2009. *Late Iron Age and Romano-British settlement at Papworth Everard, Hospital Car Park, Cambridgeshire*. Northamptonshire Archaeology report, 09/124 (unpublished).
- Cox, C, 1996. *Church Lane/Ermine Street, Papworth Everard, Cambridgeshire; Aerial Photographic Assessment*. Air Photo Services report, 967/05 (unpublished).
- Davis, S, 2001. The animal bones, in D Mackreth (ed.) *Monument 97, Orton Longueville, Cambridgeshire: a Late Pre-Roman Iron Age and Early Roman Farmstead*. Norwich: East Anglian Archaeology, 97, 82.
- Deighton, K, 2003. Animal Bone, in R Atkins and A Mudd (ed.), *An Iron Age and Romano-British settlement at Prickwillow Road, Ely, Cambridgeshire: Excavations 1999–2000. Proceedings of the Cambridge Antiquarian Society*, XCII, 5–55.
- Eldson, S M, 1992. *East Midlands Scored Ware*. Transactions of the Leicestershire Archaeological and Historical Society, 66, 83–91.
- Evans, J, 1972. *Land Snails in Archaeology*. Studies in Archaeological Science. London and New York: Seminar Press.
- Evans, C J, 2003. *Romano-British Pottery*, in A Jones (ed.), *Settlement, Burial and Industry in Roman Godmanchester*. Birmingham University Field Archaeology Unit Monograph Series, 1, British Archaeol Reports (BAR), British Series, 346, Oxford: Archaeopress, 42–61.
- Fisher, I, 2006. *An archaeological evaluation at Papworth Everard Business Park, Plots 7, 9 and 10, Cambridgeshire*. Northamptonshire Archaeology report, 06/107 (unpublished).
- Friendship-Taylor, R E M, 1999. *Late La Tène Pottery of the Nene and Welland Valleys of Northamptonshire: with particular reference to Channel-rim Jars*. BAR, British Series, 280, Oxford: Archaeopress.
- Gilmour, N, Dodwell, N, and Popescu, E, 2010. A Middle Bronze Age Cremation Cemetery on the Western Claylands at Papworth Everard. *Proceedings of the Cambridge Antiquarian Society* XCIX, 7–42.
- Going, C J, 1999. *Oxidised Hadham wares*, in C J Going, R Symonds and S Wade, *Roman pottery from excavations in Colchester 1971–86 Colchester*. Colchester Archaeological Report, 10, Colchester Archaeological Trust, 297–305.
- Hallybone, C, and Pole, C, 2007. *Plots 7 & 9 Papworth Business Park, Papworth Everard, Cambridgeshire*. Archaeological Solutions report, 2891 (unpublished).
- Hambleton, E, 1999. *Animal Husbandry Regimes in Iron Age Britain*. BAR, British Series, 282, Oxford: Archaeopress.
- Harman, M, 1993. Mammalian and bird bones, in W Simpson, D Gurney, J Neve and F Pryor (ed.), *The Fenland Project Number 7: Excavations in Peterborough and the Lower Welland Valley 1960–9*. Norwich: East Anglian Archaeology, 61, 122–123.
- Hounsell, D, 2007. *Papworth Everard Bypass Project: Post-Excavation Assessment and Updated Project Design*. Cambridgeshire County Council Archaeological Field Unit report, 971 (unpublished).
- Kenney, S, 1999. *Iron Age Occupation off Ermine Street, Papworth Everard: an archaeological evaluation*. Cambridgeshire Archaeology report, 154 (unpublished).
- King, A, 1978. A comparative survey of bone assemblages from Roman sites in Britain. *Bulletin of the Institute of Archaeology*, London, 15, 207–232.
- King, A, 1984. Animal bones and the dietary identity of military and civilian groups in Roman Britain, Germany and Gaul, in T Blagg and A King (ed.), *Military and Civilian in Roman Britain*. BAR, International Series, 136 Oxford, 187–217.
- King, N, 1994. The pottery: pottery kilns 1 (MK44, F74) and 2 (MK357), in R Zeepvat, J S Roberts, and N A King, Caldecotte, Milton Keynes: Excavation and fieldwork 1966–91. *Buckinghamshire Archaeological Society*, 9, 179–182.
- King, J, 1996. The animal bones, in D Mackreth (ed.) *Orton Hall Farm: A Roman and Early Anglo-Saxon Farmstead*. East Anglian Archaeol, 76, Manchester, 216–218.
- Knight, D, 2002. *A regional ceramic sequence: Pottery of the First Millennium BC between the Humber and the Nene*, in A Woodward and J Hill (ed.), *Prehistoric Britain: The Ceramic Basis*. Oxford: Oxbow Books, 119–42.
- Moorhead, T S N, 2001. Roman coin finds from Wiltshire, in P Ellis (ed.) *Roman Wiltshire and After. Papers in honour of Ken Annable*. Devizes: Wiltshire Archaeological and Natural History Society.

- Newton, A, 2008. *An archaeological investigation of land off Ermine Street (Unit 5, Papworth Everard, Cambridgeshire)*. Archaeological Solutions report, 3100 (unpublished).
- Patten, R, 2012. An Iron Age and Roman Settlement at Summersfield, Papworth Everard. *Proceeding of the Cambridge Antiquarian Society*, CI, 115–142.
- Perrin, J R, 1999. *Roman Pottery from excavations at and near to the Roman Small Town of Durobrivae, Water Newton, Cambridgeshire, 1956–58*. *Journal of Roman Pottery Studies*, 8, 10–136.
- Reece, R, 1988. Coins and villas, in K Branigan and D Miles (ed.) *The economy of Romano-British villas*. Sheffield: Sheffield University Press, 34–41.
- Salzman LF (ed.) 1938. *The Victoria History of the county of Cambridgeshire and the Isle of Ely*, 1. London: Oxford University Press.
- Slatcher, D, 2007. *Papworth Hospital, Papworth Everard, Cambridgeshire; Desk Based Assessment*. RPS Planning and Development (DHL2804/archaeology/058) (unpublished).
- Slatcher, D, 2008. *Construction of a new Hospital Car Park, Papworth Everard, Cambridgeshire; Archaeological Project Design*. RPS Planning and Development (DHI/2804/106) (unpublished).
- Stallibrass, S, 1996. Animal bones, in R Jackson and T Potter (eds.) 1996, *Excavations at Stonea, Cambridgeshire 1980–85*. London: British Museum.
- Tomber, R, and Dore, J, 1998. *The National Roman Fabric Reference Collection: a handbook*. London: Museum of London Archaeology Service.
- Upton-Smith, T, 2008. *Archaeological evaluation at Papworth Hospital car park Papworth Everard, Cambridgeshire*. Northamptonshire Archaeology report, 08/161 (unpublished).
- Wilson, J, 1975. The animal remains, in R Jones (ed.) *The Romano-British Farmstead and its Cemetery at Lynch Farm, near Peterborough*. *Northamptonshire Archaeology*, 10, 94–138.
- Wilson, N, 1999. *Papworth Business Park, Papworth Everard, Cambridgeshire*. The Heritage Network report, 89 (unpublished).
- Wolfram-Murray, Y, Carlyle, S, and Kajewski, P, 2014. *Iron Age and Roman settlement at the Hospital Car Park, Papworth Everard, Cambridgeshire*. MOLA Northampton report, 14/60 (unpublished).
- Wright, J, Leivers, M, Smith, R S, and Stevens, C J, 2009. *Cambourne New Settlement, Iron Age and Romano-British Settlement on the clay Uplands of West Cambridgeshire*. Wessex Archaeology report, 23.
- Young, C J, 1977. *Roman Pottery Industry of the Oxford Region*. BAR, British Series, 43, Oxford: Archaeopress.