Proceedings of the Cambridge Antiquarian Society

(incorporating the Cambs and Hunts Archaeological Society)

Volume CI
for 2012

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Volume CI
(101)
for 2012

Editor
Richard Halliday

Associate Editor (Archaeology) Professor Stephen Upex

Published by the Cambridge Antiquarian Society 2012
ISSN 0309-3606

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Cambridge Antiquarian Society
Report for the Year 2011

Membership: there are now 395 members, 54 Associates, 50 Affiliated Societies and 56 subscribing institutions.

Meetings: There were four Council meetings and nine ordinary meetings. The following lectures were given:

Christopher Evans: *Time and the River; Environmental Change, Monumentality and Prehistoric Land-use at Needingworth Quarry, Over*

Jennifer Wallace: *Archaeological Poetics*

Belinda Crerar: *The decapitated dead of Roman London and Cambridgeshire: a rural/urban divide*

Andrew Reid: *Cattle droving and Cambridgeshire*

Mark Hinman: *New Landscapes of the Cambridgeshire Claylands*

Martin Millett: *Rural Society in Roman Yorkshire – recent research*

Ben Gearey: *Down by the River: excavations of prehistoric timber alignments in the Waveney Valley East Cambridgeshire*

Catherine Hills & Carenza Lewis: *Under hallowed turf: recent excavations in Newnham College gardens*

Tony Legge: *Beef for the Bosses, Pork for the Proletariat: animals at El Amarna, Egypt*

Ladds Lecture, 3 November: Geoffrey Dannell: *Edmund Tyrell Artis – Antiquary, Palaeontologist, and Much More*

Conferences:

19 March: *From Camulodunum to Durobrivae, aspects of Roman Life in the Eastern Region*

26 November: *Recent archaeological work in Cambridgeshire* (Attendance 106)

Excursions: Two by coach: to the parish churches of Great Staughton, Higham Ferrers, Earls Barton and Aldwincle (24 May, guide Revd Dr Lynne Broughton, 27 participants); Hertford (walking tour) and Much Hadham (church, tea) (29 September , 22 participants). Others:(two excursions each year will be either local and/or accessible by public transport): 15 June, Melbourn Village History Society (walk round the village, tea, 15 participants); 19 September, historic core of King's Lynn (guide Dr Paul Richards, 19 participants). In recent years, excursions have tended to be 'historical' rather than 'archaeological' and Council agreed that visits to archaeological digs should be arranged: one was made to the Fen Edge Archaeology Group's dig at Cottenham (20 July).

Communication with members: We started to use e-mail in addition to our existing methods. This proved to be a useful addition to the range of methods used and will be continued in 2012.

Publications: Volume 100 of the Proceedings was published in October 2011. The publication of Conduit was supported through purchase of copies by the Cambridgeshire Association for Local History (CALH) and the Huntingdonshire Local History Society. Copies were made available in libraries, record offices, archaeological units and other institutions. There is a journal exchange programme with other institutions and journals received are deposited in the Haddon Library.

Representatives: Mrs Morris, Cambridgeshire Advisory Group on Archives and Local Studies; Mrs Morris, CALH (Mr Kirby from October 2011); Mr Goldsmith, Cambridge University (CU) Museum of Archaeology and Anthropology Committee; Dr Oosthuizen, CU Faculty Board of Archaeology and Anthropology; Dr Allen, Cambridgeshire Records Society; Mr Stanford, Council for British Archaeology; Dr Pickles, Haddon Library Committee and Mr Carroll, Cambridgeshire Curators' Panel (Mr Doig from October 2011).

Finance: The financial state of the Society at the end of 2011 was sound. The net adjusted cash position, cash at bank and investments at current value, allowing for debtors and creditors, was £49,571.89. The Society is considered to have adequate reserves in relation to an annual turnover from normal activities of £17,305. There was a small operating surplus from normal activities of £ 295.64.

Grant Scheme for Small Projects: The maximum grant, £500, was awarded to Kate Hadley of the Porch Museum, Godmanchester: project to collect data (primarily on Roman artefacts) from local collections and to put it on DVDs.

Other: A successful collaboration between the Society and the Fen Edge Archaeology Group in the Twenty Pence Project (July 2011) gave members of the Society the opportunity to take part in a practical field archaeology project.

Governance: The conduct of the Society is governed by Laws dated 1988 (amended 2003, 2008 and 2009). Management is vested in an elected Council whose members' names are published annually on the membership card/ lecture programme.

Gift Aid: Members are reminded that anyone contributing under the Gift Aid scheme and who no longer pays any tax should notify the Registrar.

Cambridge Antiquarian Society Accounts for the Year Ended 31/12/2011

Registered Charity 299211 • Founded 1840

EXPENDITURE	2011		2010	
Lectures: Publishing Programme	564.00		315.00	
Expenses	331.40		435.99	
Total		895.40		750.99
Proceedings Publication costs	7897.36		7842.65	
Delivery	1601.73		1064.70	
Total		9499.09		8907.35
Conduit		2340.63		1528.18
Conferences		1377.11		1339.67
Excursions		1602.12		1905.65
Mailings: Delivery Charges		232.77		556.50
Subscriptions		111.78		104.00
Haddon Library: Conservation		0.00		100.00
Office Expenses, Web Site, Misc		357.88		366.38
Indexing Costs		875.00		250.00
Insurance		289.31		270.20
From capital: Web Site Grant		0.00		500.00
Small Grants Scheme		500.00		500.00
Treasury Stock Purchase Cost		0.00		434.24
Total Expenditure		**18081.09**		**17513.16**

INCOME	2011	2010
Subscriptions - Members & Societies	6872.90	6661.50
Tax Reclaimed	730.08	887.92
C.U. Archaeology Dept.	800.00	800.00
Proceedings: Grants	6535.00	3922.00
Conduit	753.25	222.25
Conferences	2086.00	1315.00
Excursions	1382.40	1559.50
Sales of Publications	641.08	285.59
Miscellaneous income	0.00	8.00
National Savings Interest	1076.63	0.00
Treasury Stock Interest	787.44	1079.92
Bank Interest	233.18	121.35
Gifts - Atlas money	0.00	3000.00
Total Income	**21897.96**	**19863.03**
Less Expenditure	18081.09	17513.16
Surplus Income over Expenditure	**3816.87**	**2349.87**

STATEMENT OF ASSETS		
Cash Funds: Current Account	12045.81	3075.57
: Deposit Account	19687.45	19454.27
Accrued Income	1282.17	0.00
Treasury Stock at maturity values	6987.60	13516.59
National Savings at valuation	11076.63	10000.00
	51079.66	**46046.43**
Less Accrued Expenses	1216.36	0.00
	49863.30	**46046.63**

Accumulated Fund		
At beginning of year	46046.43	43696.56
Surplus Income over Expenditure	**3816.87**	**2349.87**
At end of year	49863.30	46046.43

S Keith Treasurer *B. Cloke, Independent Examiner*

Notes

The presentation of the accounts has been converted from Receipts & Payments Accounts to Income & Expenditure Accounts in order to facilitate accrued income and expenditure.

Contents

Cover: excerpt from the 1727 Payler Smyth copy of William Hayward's map of the Fens.

Between River, Priory and Town: Excavations at the former Cambridge Regional College site, Brunswick, Cambridge

Rob Atkins

with contributions by Peter Boardman, Steve Boreham, Nina Crummy, Antony Dickson, Chris Faine, Carole Fletcher and Rachel Fosberry. Illustrations by Andrew Corrigan, Gillian Greer and Adam Parsons

Excavations on the south bank of the River Cam provided a rare opportunity to study preserved prehistoric, Roman and medieval land surfaces, flood deposits and hillwash, beneath which were Early Neolithic pits. During the medieval period, the land lay adjacent to Barnwell Priory, one of the wealthiest and most important religious establishments in East Anglia. Large quantities of imported soil were dumped here during the 13th to early 16th centuries, perhaps to facilitate farming or to improve access to the river. The dumped material contained a diverse assemblage of finds including book fittings and iron working waste.

Introduction

Oxford Archaeology East undertook archaeological works in advance of a new housing development on the former Cambridge Regional College site, Brunswick, which lies adjacent to Midsummer Common (Fig. 1; TL 4604 5894). An evaluation in 2009 uncovered a probable medieval cultivation soil in the north-western corner of the site, which perhaps derived from middens associated with Barnwell Priory (Atkins 2010a). Subsequent excavation of this deposit (*c.* 450 m^2) took place in 2010 and found evidence of underlying prehistoric and Roman buried soils. These deposits were investigated using a chequerboard of 5m squares to examine alternate hand excavated squares (HES) 1–12; (Fig. 2) and were also recorded in section (e.g. Fig. 3). The individual buried soils within each square were assigned a context number and excavated in 20cm spits, subdivided 1 to 4 (e.g. context 123.1), the spits broadly equating across contexts. These contexts were grouped together in three 'layers' (1–3), reflecting their prehistoric, Roman and medieval/early post-medieval dates.

This article is designed as a synthesis of the excavated findings and is supplemented by the full analytical reports which can be freely accessed at http://library.thehumanjourney.net/view/subjects/UK-Medieval.html.

Geology and Topography

The underlying geology of the site is Gault clay overlain by 2nd Terrace gravels in the northern part, with a thin tongue of chalk in the north-eastern corner (British Geological Survey 1981). The terrace gravels were laid down by previous courses of the River Cam under predominantly cool or cold (glacial) climatic conditions (Boreham 2002). An ancient (Palaeolithic) course of the River Cam originally flowed northwards close to this location, while several undated palaeochannels of possible prehistoric origin were observed during a watching brief *c.* 1km to the northwest of the site in 2004–8 (Cambridgeshire Historic Environment Record (CHER) 1447; Davenport *et al* 2008, 23–28 and fig. 6). The River Cam moved progressively towards a more easterly-flowing course, so that by the Upper Palaeolithic it adopted a route similar to that of the present day.

The river currently flows close to the northern boundary of the development area at a height of *c.* 4.9m OD. From the river to the site (a distance of approximately 60m), there is a gradual rise in ground height to *c.* 8m OD. The site's northern boundary sits on a steep east to west bank, more than 1.5m in high, at 9.6m OD. Excavation has now confirmed that this bank in part resulted from human modification. The height of the land increases towards Newmarket Road to the south, where it lies between 12.20m OD and *c.* 13.20m OD.

Riverine flood deposits have been recorded across Midsummer Common: 17th- century pottery and a residual Roman sherd were recovered from the uppermost levels (Davenport *et al* 2008; Boreham 2002, 26).

Archaeological and Historical Background

Several archaeological findspots and sites lie close to the east and west of the development area (Fig. 1). Palaeolithic implements include an abraded hand axe found by a gravel digger in 1878, 200m to the southeast of the subject site (CHER 04531). An Early Bronze Age type 'A' Abercromby Beaker was found 50m to

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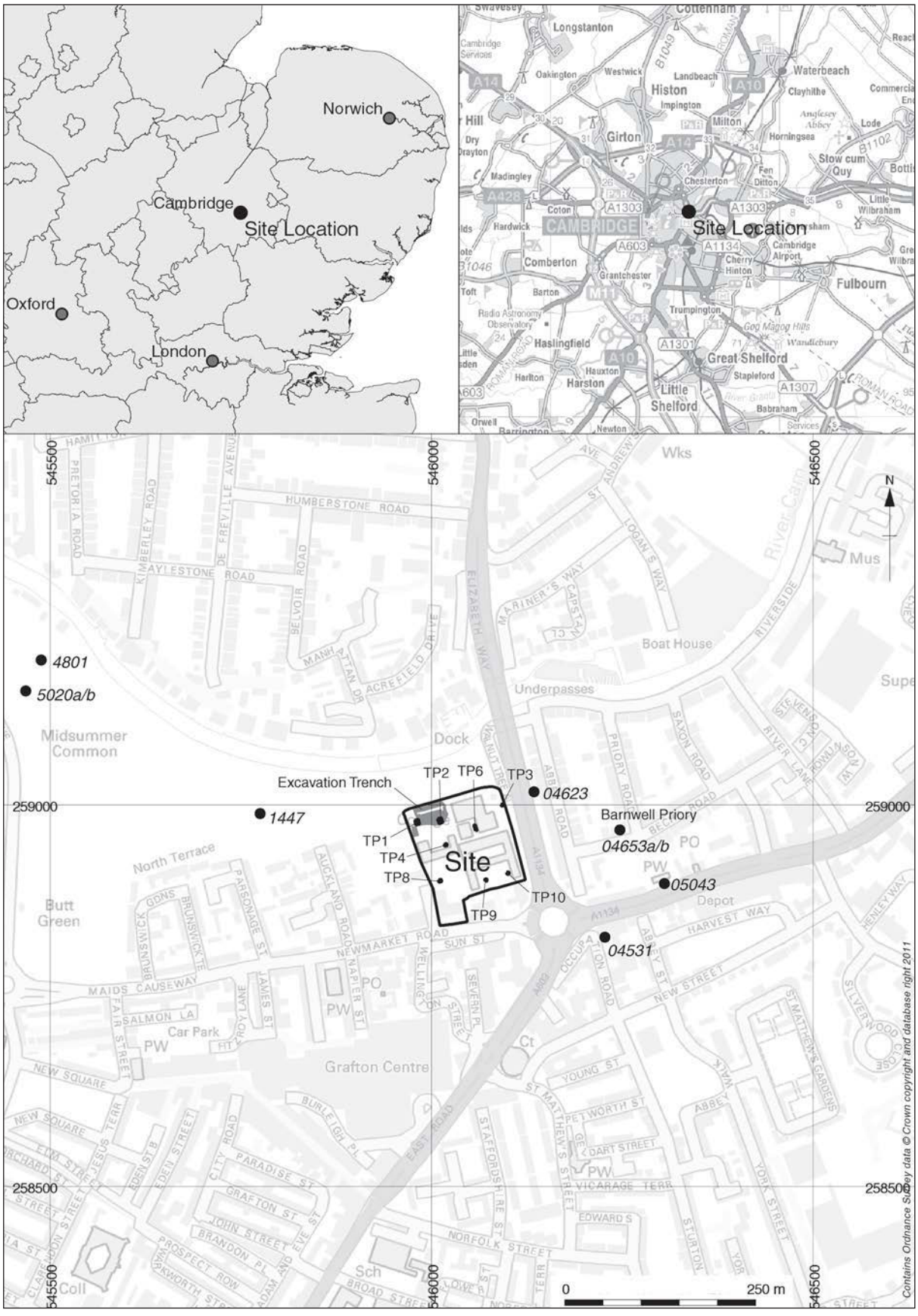


Figure 1. *Site location and surrounding CHER sites mentioned in the text.*

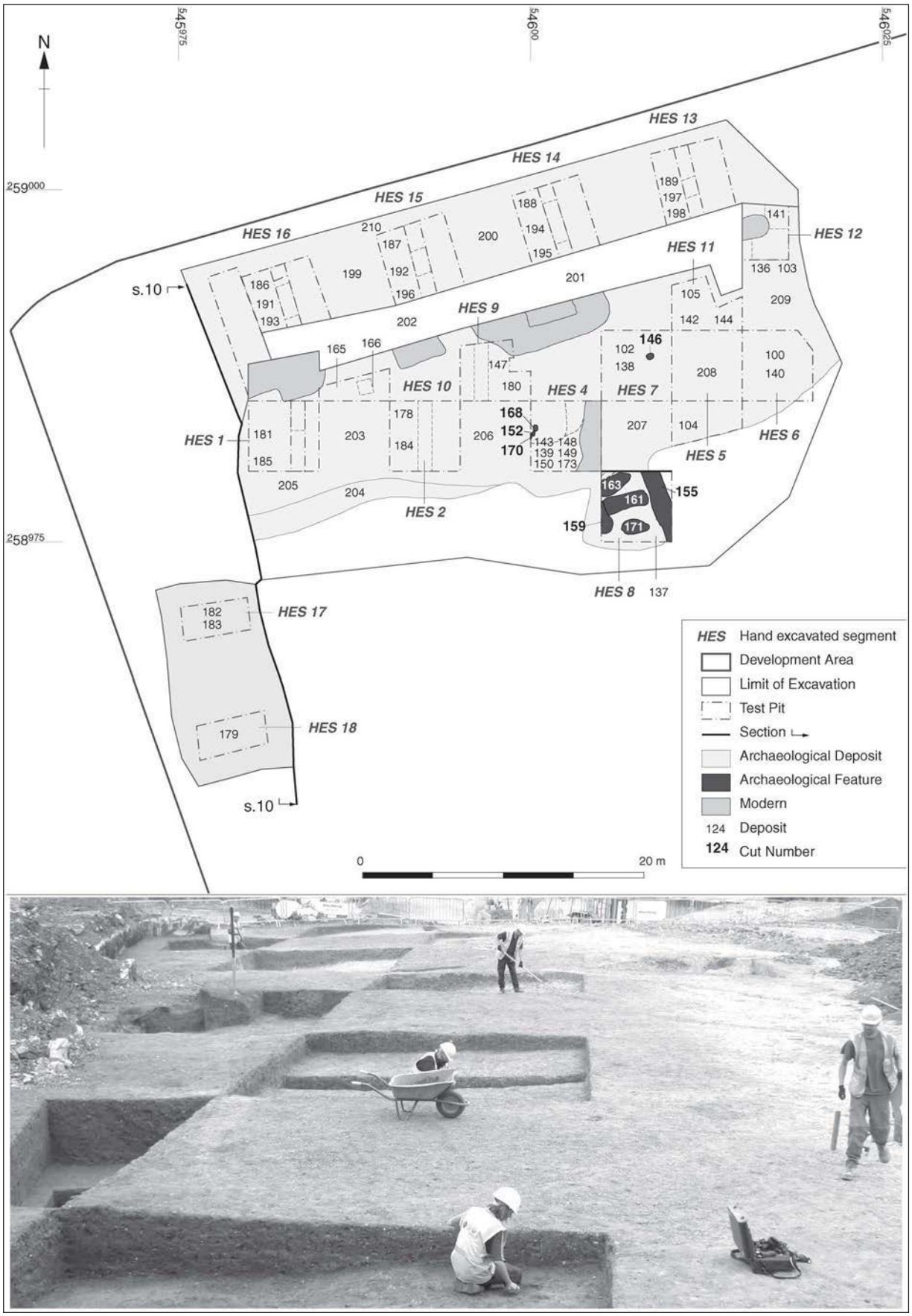


Figure 2. *Site plan and the site during excavation (looking east).*

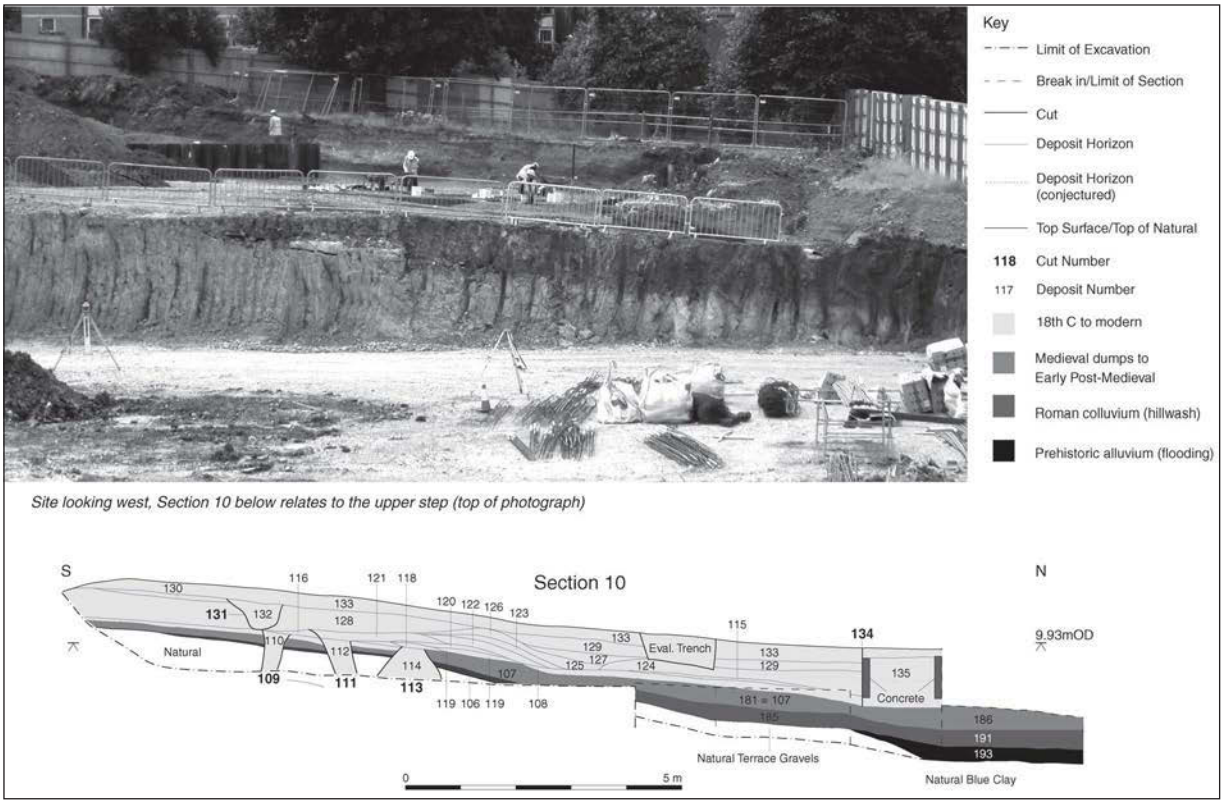


Figure 3. *Section across the various deposits, sloping towards the River Cam.*

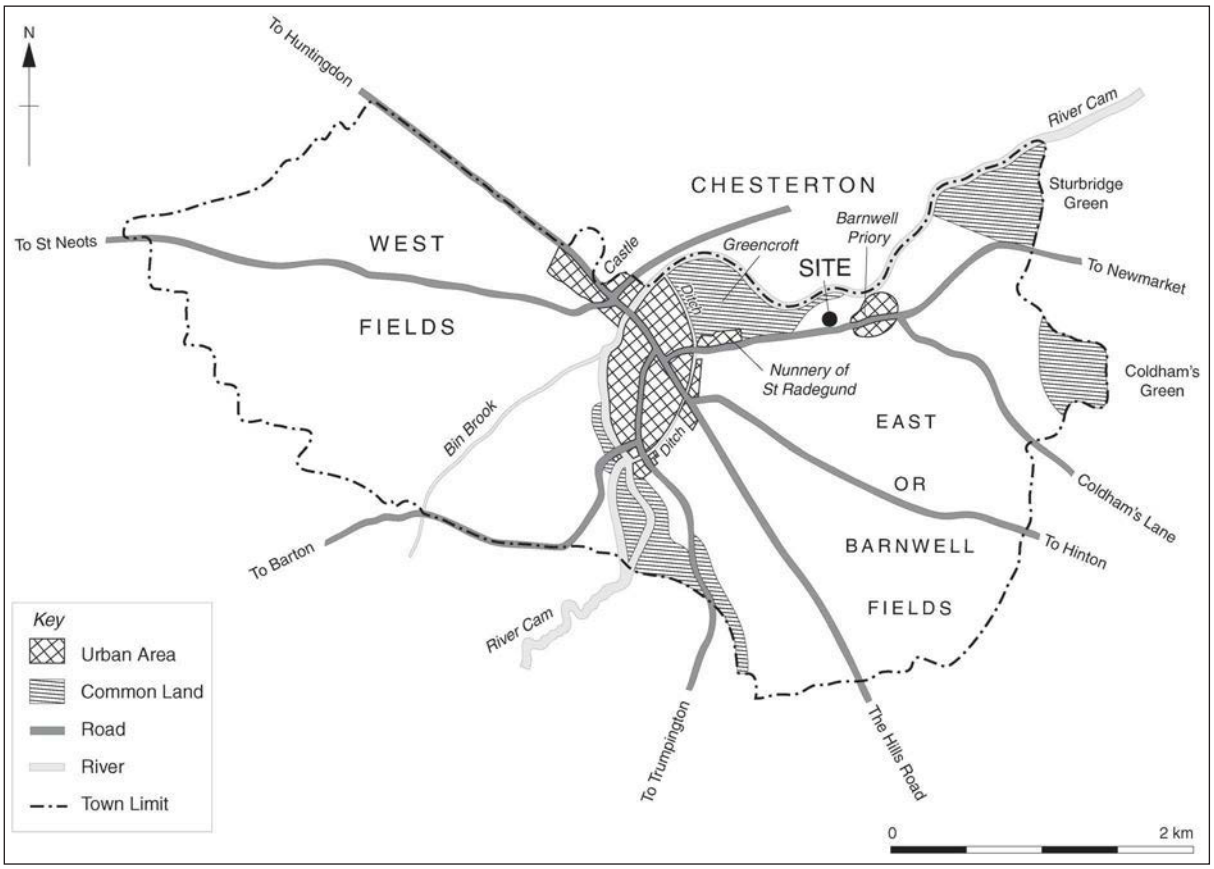


Figure 4. *Site in relation to medieval Cambridge (after Maitland 1964, facing p.54).*

the east (CHER 04623) and a cremation of indeterminate prehistoric date 0.5km to the west (CHER 05020A). Two food vessels and a small bowl of Early Bronze Age date were found in gravel diggings on Midsummer Common in about 1860 (CHER 04801). Roman and Saxon pottery were found nearby during construction of a sewer and may relate to settlement or manuring scatters (CHER 05020B; Browne 1974, 23).

Barnwell Priory, an Augustinian foundation of the Canons Regular (originally sited near Cambridge Castle), was re-founded at the current site in 1112 on land given by Henry I to Sheriff Pain Peverel (CHER 04653; Salzman 1967, 235). The newly re-founded priory was described as being 'a place lying in the fields of Cambridge, to wit 13 acres around the springs of Barnwell which King Henry gave rise... extends along the high-road the full length of the Canons' courtyard, while in depth it stretches over dry land … to the river bank' (Maitland 1964, 191). A small ribbon development ran from Cambridge along the Newmarket Road but apparently ended at the nunnery of St Radegund, about a kilometre from the priory (Fig. 4). The development site formed part of the Sturbridge sub-field of the East Fields, located between Greencroft Common (later Midsummer Common) directly to the west and Barnwell Priory and related settlement to the east.

The priory was the main place of residence when royalty visited Cambridge; such visitors included King John, Henry III, Edward II and Richard II (and his court), as well as the bishops of Ely in the 15th and early 16th century (Salzman 1967, 244–6). One of main sources of its substantial revenue was Barnwell Fair (also called Midsummer Fair), which was granted to the canons of Barnwell in 1211.

After the priory's dissolution in 1538, most of the lots were bought by John Lacy, a farmer, who leased the former priory lands and tithes for some years, although various lots were purchased by Dr Legh (Danckwerts 1980, 211). The Lacy acquisitions can probably be traced: in 1550 the priory and its lands were granted to Sir Anthony Browne and resold twice in three years, the last time to Thomas Wendy of Haslingfield in 1553 (*ibid*, 211–212). The land probably became Barnwell Abbey Farm which was owned by Thomas Panton II at the time of the 1807 Act of Enclosure. It was auctioned off in 1809 when the area of the farm roughly corresponded with the 391 acres the Prior of Barnwell is said to have held in 1279, leading to the suggestion that the abbey farm was probably the core of the former Barnwell Priory estate (*ibid*, 212 and fig. 1). The subject site itself was not part of Barnwell Abbey Farm and it therefore remains uncertain whether it related to the remaining part of the former priory property (i.e. that bought by Dr Legh in 1538) or whether it was never owned by the priory.

Settlement around the former priory and its church (St Andrew the Less; CHER 05043) survived the Dissolution, although further demolition and robbing of the remaining priory structures took place in the early 19th century. The only extant building is a single vaulted chamber of mid 13th-century date (the Cellarer's Chequer) and some 15th-century walling that now forms part of the boundary wall of Abbey House (CHER 04653a). A medieval fish pond (CHER 04653b) is recorded on the 1888 1st Edition Ordnance Survey Map (1: 2500) *c.* 50m to the east of the excavation site.

The first cartographic evidence for development at the subject site itself is the 1811 Enclosure map, which shows several buildings fronting onto Newmarket Road in the southern part of the development area (Gailey and Hawkins 2009, fig. 6). By this time the site was called Woolpocket Close and was owned by Jesus College, being leased to John Hemington (Cambridge Records Office Q/RD/26, 200). Between 1811 and 1888 the ground level at the site and elsewhere along the River Cam was raised by a series of embankments to mitigate river flooding (Gailey and Hawkins 2009). The 1888 Ordnance Survey shows much of the site occupied by landscaped grounds, two tennis courts and a sports pavilion. In 1930 the subject site came

***Table 1**. Number and type of lithics from each phase.*

Phase	Arrowhead	Backed blade	Blade	Chip	Chunk	Core	Core fragment	Flake	Misc. retouched blade	Misc. retouched flake	Notch	Scraper	Worn edge	Total
Neolithic pits			8	37	1			13		1			1	61
Alluv. & Colluv.		1	58	34	4	6		58	5	6	2	6	1	181
Medieval	1		26	1	4	1	2	41	4	7	2	3	3	95
Quarry Pits			1		1			4		2				8
unstratified			1											1
Total	**1**	**1**	**94**	**72**	**10**	**7**	**2**	**116**	**9**	**16**	**4**	**9**	**5**	**346**

into the ownership of Cambridge Borough as part of a land exchange with Jesus College (Peter Glazebrook, pers. comm.). Apart from the frontage buildings on Newmarket Road, the entire site was then cleared and Brunswick County Primary School was built, later becoming Cambridge Regional College.

Prehistoric Pits and Flintworking

The earliest activity discovered by the excavations took the form of four shallow pits (Fig. 2). One of these (pit 146; HES 7) yielded a single sherd of Early Neolithic pottery, 61 worked flints of comparable date, charred cereal grains and a large quantity of charcoal. The other pits (152, 168 and 170; HES 4) contained no datable finds although charcoal and charred cereal grains were found.

The worked flint from pit 146 is dominated by flake and blade debitage, with a few complete flakes and blades (Table 1). Among the latter are several narrow examples (between 5 and 8mm in width; Wickham-Jones 1990, 64–86), while two are bladelets. The flakes generally comprise small pieces (with the largest flake having a length/breadth ratio of 1.67:1), some of which are blade-like in form. A careful approach to production using soft hammer technology was apparent and an Early Neolithic date is possible, given the presence of true blade forms and narrow flakes.

Layers sealing the pits (contexts 150, 148, 149 and 173) yielded a ?Neolithic pottery sherd and 23 worked flints including 9 blades, 9 flakes and a scraper.

A sequence of clean alluvial silts recorded towards the northern edge of the site (HES 13–16; contexts 193, 194, 195, 196 and 198; Figs 2 and 3) provides evidence of episodic flooding. The few finds include two small fragments of quartz-tempered pottery and 11 worked flints. These flooding episodes occurred after the Early Neolithic and before deposits of colluvium began to accumulate in the Late Iron Age to Roman period (see below), but cannot be more closely dated. A flint concentration was found within the Roman colluvium (in HES 12; contexts 136 and 141), *c.* 15m to the north-east of the Neolithic pits, and comprised 49 worked flints.

While the lithics from these deposits are residual (a total assemblage of 181 items; Table 1), the diagnostic tool types and core technologies indicate a Late Mesolithic/Early Neolithic to Early Bronze Age date for the combined assemblage. A possible backed blade (Fig. 5, No. 1) may date to the Final Upper Palaeolithic/Earlier Mesolithic, while a fine concave scraper (No. 2) could be Late Mesolithic/Early Neolithic. Among the other diagnostic tools are side, side and end (No. 3) and possible end (No. 4) scrapers of Early to Late Neolithic date. The cores include examples with opposed and multi-platforms and discoidal forms (No. 5), most of which are attributable to the Neolithic/

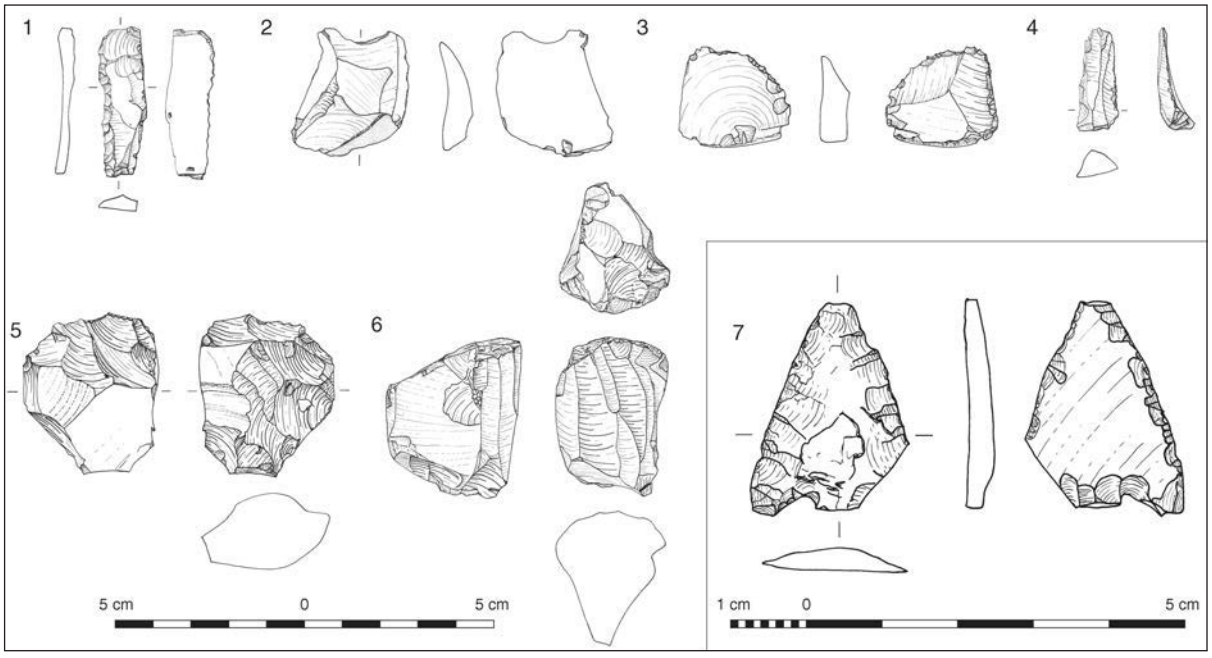


Figure 5. *Worked flint.*
1. Possible backed blade. (140; HES 6). Roman colluvium
2. Concave scraper on a patinated flake. (185.2; HES 1). Roman colluvium
3. Side and end scraper. (187.3; HES 15). Medieval to early post-medieval dumping
4. Possible end scraper on the distal end of a blade. (186.1; HES 16). Medieval to early post-medieval dumping
5. Partially worked discoidal core with remnants of patinated flaked surfaces. (140; HES 6). Roman colluvium
6. Opposed platform blade core with medium patination. (136.1; HES 12). Roman colluvium
7. Damaged/partially worked barbed and tanged arrowhead. (187.4; HES 15). Medieval to early post-medieval dumping

Early Bronze Age. The possible exception to this is a small core which was used predominantly for the production of narrow blades (No. 6); this piece could be Late Mesolithic/Early Neolithic.

Several fragments are associated with the setting up and maintenance of cores: a crested blade, several core preparation/trimming flakes and possible core tablets. Furthermore, the relatively high numbers of complete primary and secondary pieces (55) in relation to tertiary pieces (41) appears to indicate that there was a focus on the initial stages of core reduction. A damaged or unfinished barbed and tanged arrowhead (No. 7) of Early Bronze Age (Green 1980) date was found in a medieval deposit.

Interestingly, equal numbers of unmodified blades and flakes came from the alluvium and colluvium (Table 1). Most of the blades can be classified as broad (with widths >8mm; Wickham-Jones 1990, 64–86), but there are a number of narrow blades and bladelets (15). Several of the flakes can also be described as blade-like in form. Again, an apparent emphasis on soft hammer blade production may indicate an Early Mesolithic/Early Neolithic date for a significant proportion of the debitage.

Roman Arable Farming?

Layers of colluvium or hillwash sealed the earlier flooding and were traced in section along the western edge of the site (106=185=191; Fig. 3). Starting as a thin band near the southern extent of the excavation at 10.30m OD, they gradually increased to *c.* 0.7m thick down-slope towards the river. The colluvium sealed natural clay or terrace gravel on the southern side and alluvium closer to the river. Many of the finds were residual, and may have rolled down hill from agricultural land during episodes of Roman ploughing. The diagnostic metalwork includes a rectangular strap-guide from a Roman harness and part of an open-socketed flanged ploughshare (Manning 1985, 43). In addition, six Roman coins ranging in date from the 2nd to late 4th century were found in medieval/early post-medieval deposits or unstratified.

Medieval to Early Post-Medieval Land Reclamation

Depositional Processes

Overlying the Roman colluvium was a series of dumped soils (collectively termed 'layer 3'), consisting of various contexts (100, 102–105, 107, 139, 147, 165, 178, 179, 181, 182, 186, 187, 188 and 189), each of which were excavated in spits within each excavation square. These deposits were again thinnest at the top of the slope (only 0.25m) becoming thicker towards the river and reaching a depth of 0.90m at the northern edge of the excavation. The layers consisted of mid grey brown sandy silt with a little clay. The uppermost deposits (Spit 1) had suffered low level contamination from post-medieval material, but also included late medieval finds. Overall, the deposition spanned the 13th to early 16th centuries. The dumps produced a moderate quantity of finds (Table 2), dominated by pottery, but also including roof tiles, metal objects and metalworking debris. Low levels of animal bone, plant macrofossils and mollusca were also recovered.

Examination of the spatial distribution of finds from each excavated square suggests concentrations within contexts 105 (HES 11), 147 (HES 9), 181 (HES 1), 187 (HES 15) and 189 (HES 13), across different parts of the site (Fig. 2). Context 105 (HES 11) was particularly rich in finds, despite the fact that only 50% of the square was excavated (the buried soil appeared to have been removed during the construction of an air raid shelter). In contrast some squares were relatively unproductive, in particular contexts 100 (HES 6), 139 (HES 4) and 178 (HES 2). It is possible that the concentrations of finds derived from individual cart loads of material dumped to raise the ground.

Examination of the distribution of finds vertically within the dumps by spit (Table 2). shows that the upper spit (Spit 1) yielded the most finds with progressively fewer further down. The paucity of material from Spits 3 and 4 can, however, be partly explained by the fact that the layer was less than 0.40m deep in nearly half of the excavated areas.

Pottery recovered from the dumps amounted to 1440 sherds (Table 2). With the exception of two sherds, the lowest three spits did not contain intrusive material. Spits 3 and 4 appeared to date before AD 1400, whilst Spit 2 may have been mid 15th or early 16th century in date. Some intrusive pottery was apparent within Spit 1 but the vast majority of the pottery was medieval or late medieval with only a small proportion being post-medieval or later in date. It seems likely that this upper spit was contaminated by later activity such as ploughing and was in the main pre-Dissolution.

In terms of its spatial distribution, pottery from the lowest deposits (Spit 4, from three HES) amounted to 43 sherds, all pre-dating AD 1400. Spit 3 yielded 330 sherds (from nine HES) and all except one sherd dated before AD 1400. The single exception was a post-medieval red ware bowl sherd from HES 7 (AD 1500–1700) which was presumably intrusive. The pottery from Spit 2 amounted to 574 sherds (from fourteen HES). In eight of the HES the pottery dated before AD 1400, while in five squares the latest pottery was AD 1400 or 1450 to AD 1550 or 1600. One square (HES 17) produced a single intrusive Cream ware sherd (AD 1730–AD 1900) as well as five sherds of medieval/late medieval pottery. The uppermost deposits (Spit 1), contained 493 sherds. In six squares all the pottery from this spit dated before AD 1500 and in a further four squares the pottery dated from the late medieval to AD 1550 or 1600. Five squares had at least one pottery sherd of definite post-medieval date with the latest pottery in four of these dating to AD 1600 to 1750 and the final square to AD 1800–1900.

In terms of the distribution of metal items, the lowest deposits (Spit 4) contained only four iron nails (all

Spit (No. exc.)	Pottery (no. sherds)	Metal objects (excl nails)	Nails	Roof tile	Floor tile	Brick	Lava	Shell	Total	Ave. no. finds per HES	Animal bone (kg)
Spit 1 (17)	493	31	62	512	5	24	3	134	1264	74.4	2.635
Spit 2 (14)	574	21	80	116	-	12	3	86	892	63.7	1.251
Spit 3 (9)	330	11	25	4	-	1	2	32	405	45	0.825
Spit 4 (3)	43	-	4	1	-	-	-	3	51	17	0.062
Total	**1440**	**63**	**171**	**633***	**5**	**37**	**8**	**255**	**2612**		**4.773**

***Table 2**. Distribution of finds within the medieval to early post-medieval dumps.*
** 622 ceramic roof tiles, 11 limestone roof tiles*

from context 187.4). Spits 3 and 2 contained no intrusive late material, but the datable items in the former were medieval items while those in the latter were either very late medieval or early post-medieval. The uppermost deposits (Spit 1) contained a greater number of objects that ranged in date from late medieval to modern.

There was some difference in the character of material across the spits, with a ratio of iron to non-ferrous metals (copper alloy and lead) across the spits that highlights a change in the character of the site. Ironwork is almost the only material represented in Spit 3 (34 iron objects and two copper alloy), with a ratio of iron to non-ferrous metals of 17:1. In Spit 2 there are 94 iron and seven copper alloy objects (13:1). These ratios are characteristic of a site with little or no domestic occupation, but one that may have been used for agriculture or industry – primarily a working environment. Non-ferrous metals temper the high level of ironwork in Spit 1, reducing it to slightly over 4:1, a proportion characteristic of sites with domestic occupation. The later deposit (Spit 1) may therefore contain dumps of midden waste from nearby houses or from Barnwell Priory itself. There does not, however, appear to be any strong evidence for an episode of major post-Dissolution dumping of debris from the priory, and the absence of lead scrap and definite medieval window glass is consistent with this interpretation.

Roof tile was concentrated within four adjacent squares (HES 7, 11, 4 and 9) in the south-eastern part of the site and one other square (HES 1; spit 181) on the far western side; these areas collectively yielded 466 fragments (75% of the total ceramic roof tile assemblage).

Metal-working waste was found in seven contexts relating to the medieval to early post-medieval dumping sequence (two from Spit 3, three from Spit 2 and two from Spit 1). The material came from six HES spread across the site, with no suggestion of a geographical concentration.

An assemblage of 4.773kg of animal bone was recovered from the dumps. Of this, only 0.062kg came from Spit 4, 0.825kg from Spit 3, 1.251kg from Spit 2 and 2.635kg from Spit 1. The bone was spread relatively evenly across the site.

An overview of the finds assemblages from the medieval dumping sequence is given below, presented under general themes. The full archival reports are available in the digital report noted at the beginning of this article.

Household and Monastic? Items

Few items, if any, in the assemblage need be of monastic origin. The exceptions are two copper-alloy fittings. One is a folded strap-end with a quincunx of large globular-headed rivets (Fig. 6, SF 60). Folded strap-ends of this size generally come from book straps and often have a central hole to slot over a pin on the front cover of the book. A knobbed triangular mount still attached to a fragment of thick leather may also be a book fitting (Fig. 6, SF 20). Its form is unusual, but a pair of knobbed triangular mounts with a slight projection at the wide end from Colchester and one with a bird's head at the apex from Northampton are of similar general form and size and the Colchester and Cambridge mounts also share the integral clenched shanks on the underside, which distinguish them from the general run of riveted belt, girdle and harness strap mounts (Crummy 1988, 19, fig. 20, 1792–3; Oakley 1979, 253, fig. 108, 30). Use on book covers or book straps is a likely alternative for these mounts.

An iron mount fragment (context 139.2) has a dragon-like animal executed in white metal inlay on the upper surface (Fig. 6, SF 127). In general style this piece can be attributed to the later medieval period; earlier pieces are generally not two-dimensional and decorated with animal shapes, but are three-dimensional zoomorphs with features picked out in white-metal. It may be a piece of harness decoration, similar to the copper-alloy mounts with heraldic devices popular in the later 13th and 14th centuries (Clark 1995, 61–3).

A fragment of an iron strip, part of an iron barrel padlock and a small iron key all relate to chests or caskets, possibly even from a single piece (SF 36, SF

58, SF 102; unillustrated). All are common as site finds on medieval sites. Part of a small Norwegian ragstone hone had been pierced for suspension at one end (SF 22; not illustrated).

Moving on to the pottery, the vessels present are primarily domestic in character and forms are dominated by jugs, which account for almost a quarter of the assemblage. Small quantities of Late Saxon to early medieval fabrics were found (64 sherds, 0.462kg). The substantial medieval assemblage (13th-15th centuries; 1,301 sherds, 9.460kg) contains both glazed and unglazed wares; overall the ceramic assemblage is abraded (with an average sherd size of 8g), making its appearance consistent with middening/dumping processes. The fabrics are a range of local and non-local wares from the surrounding counties, and are types commonly found on medieval sites along the south Cambridgeshire border. The assemblage is dominated by Medieval Sandy Ware (3.044kg), some originating in Essex. Medieval Ely Ware is the second largest group (2.049kg), present in both glazed and unglazed forms, with East Anglian redwares forming the third largest group (1.822kg). All other fabrics are present in restricted numbers. The largest of these are 96 sherds (0.602kg) of mainly glazed Sible Hedingham Ware jugs, including sherds from a Scarborough style jug, stamped strip jugs and combed sherds from pear-shaped or biconical jugs. Also present are a small number of Norfolk wares (mainly Grimston jug sherds), fragments from Brill vessels produced in Buckinghamshire and Stamford and developed Stamford sherds from Lincolnshire.

Some of the redwares identified as post-medieval are likely to be the 15th–16th century products of the Ely kilns. In the late medieval and early post-medieval periods, continental imports (such as Dutch red earthenwares and Raeren stonewares) appear in the assemblage, although no early Siegburg stonewares were identified. Other early post-medieval wares present include Surrey Border ware sherds (mid 16th century).

Craft and Trade

A small group of coins was recovered from the medieval to early post-medieval layers, of which two are residual 4th-century issues (see above) and two are intrusive post-medieval to modern issues. The contemporary items are a worn long cross penny from the York mint which probably dates to the reign of Richard II (1377–99). Two small fragments of a second silver medieval issue are too worn to be closely identified, although the reverse design suggests a French issue. An early post-medieval Nuremberg rose/orb jetton was also found.

Two 16th-century cloth-seal fragments, both from the upper part (Spit 1) of the medieval and early post-medieval layers, point to the importance of the textile trade in the economy of late medieval and post-medieval eastern England. One is a London alnage seal bearing the arms of Tudor England flanked by E R, more likely standing for Elizabeth Regina than Edwardus Rex (Fig. 6, SF 51). This seal would have been put on woollen cloth by an alnager, a crown official responsible for ensuring that bales of cloth were of good quality and that the required tax had been paid; without an alnage seal the cloth could not have been sold (Egan 1988, 33; 1995, 11, 40–1; 2001, 43–5, 51–2). London would not have been the source of the fabric, but it would have passed through the city for finishing, quality control and taxation, before being sold on and reaching Cambridge (Egan 1995, 39). The style of lettering on the second seal points to a rather later date. It is a weaver's, clothier's or searcher's personal seal with the initials W S flanking a damaged privy mark (Fig. 6, SF 53). This item may have come from locally-produced cloth, or it may again have been applied to a bale as a mark of tax and quality control by a searcher acting on behalf of the crown (Egan 1995, 78).

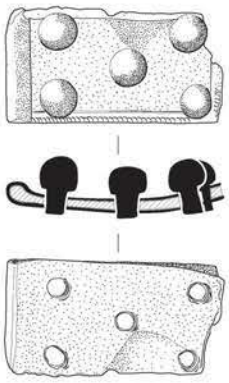
An unstratified lead weight is probably medieval (Fig. 6, SF 8), weighing 20.76g. It does not appear to conform to any of the systems in use in the medieval period, but the number of ounces in a pound varied, and unscrupulous merchants may have tried to give short measure, making comparison difficult. Three 14th- or early 15th-century examples from London weigh between 20 and 22.5g, and all three, together with the Cambridge piece, may fall into a common system (Egan 1998, tables 14–15, 311–17).

A major component of the finds assemblage from the medieval to early post-medieval dumps is a group of iron smithing debris, with three bar-iron offcuts coming from Spit 2 (Fig. 6, SF 37, SF 119, unillustrated SF 134), and another bar-iron offcut and a strip of unfinished hold-fast roves from Spit 3 (Fig. 6, SF 103, SF 61). Two further bar-iron offcuts came from 17th-century quarrying (Fig. 6, SF 83, SF 84). Although the fragments were not closely associated on the site, they probably all represent the same iron-working operation, having been dumped there when a nearby smithy went out of use or was cleared out. Other ironwork from the site may have come from the same source, either as scrap collected for recycling or as unsold and therefore unused items.

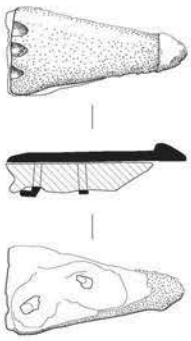
In addition to the smithing debris noted above, some 1.396kg of metalworking debris was recovered, of which a proportion was identified as roasted ore (0.101kg) and the remainder as smelting slags. Iron ore is not common in Cambridgeshire and may have been imported (see further discussion below). Iron-rich ores would have been roasted prior to smelting to reduce the quantities of impurities (gangue). The square nature of the piece of ore from context 102.1 (HES 7) is the result of fragmentation when it was heated to prepare it for the smelting process.

Bloomery smelting during the medieval period produced a solid iron bloom along with iron-rich slags. The bloom required consolidation into bar-iron which often took place in associated smithies. From the 15th century blast furnace smelting became more common and produced liquid iron which was cast into objects or ingots (English Heritage 2001). Limestone (calcium carbonate) was commonly added to lower the melting point of the ferrous component

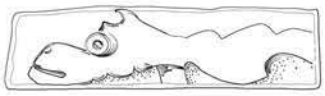
SF 60



SF 20

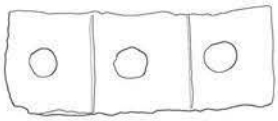


SF 127
from x-ray



1 cm 0 5 cm

SF 61
from x-ray



SF 84
from x-ray

SF 103
from x-ray

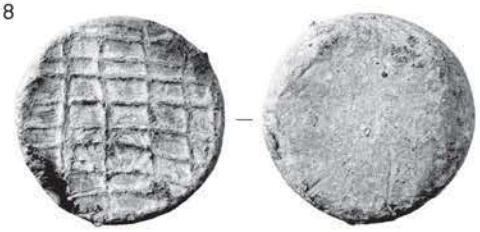
SF 37
from x-ray

SF 119
from x-ray

SF 83
from x-ray

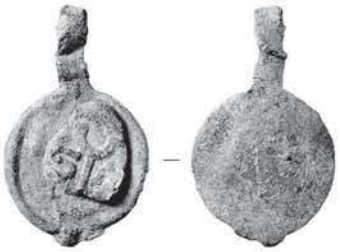
5 cm 0 5 cm

SF 8



SF 51

SF 53



1 cm 0 5 cm

of the ore by combining with the non-ferrous impurities and by increasing the amount of carbon monoxide produced during the heating process, helping to extract the non-ferrous elements to a higher efficiency. This addition would produce calcium-rich slags. The tap slag from context 186.2 (HES 16) has inclusions of shell which itself is composed of calcium carbonate, presumably having the same effect. Smelting slags would have been removed from the furnace as they formed, allowing the smelt to continue for longer and produce larger blooms. Tap slag is the bloomery smelting slag that has been tapped from a furnace whilst it is still molten giving it a characteristic 'flowing' appearance. The morphology of the tap slag from context 186.2 suggests that a pit was used to catch such run off, which would explain the larger voids and the smoother surface of the side that cooled quickest. The adhesions on the surface of the slags recovered from two spits within context 188 (HES 14, 188.2 and 188.3) are either clay or chalk that has adhered during the cooling process suggesting a lined cooling pit outside the smelt furnace for catching the tapped slag.

This small assemblage of metalworking debris is of note, since it shows evidence of the smelting of iron in an area where there is a limited supply of iron ore. It also demonstrates advances and possible experimentation in smelting technology and the bloomery process. It is of interest that, as noted above, several off-cuts of bar-iron were also recovered; such iron bars are produced by consolidation the iron bloom at the smelting site and are generally rare finds at smithing sites.

Building Materials

The building material assemblage forms a moderate collection of 735 roof tile fragments (22.339kg), most of which came from the dumps (622 fragments), but also 133 fragments from post-medieval and modern deposits. These were almost entirely peg tiles, with only a single sherd of ridge tile. In addition, 11

Figure 6. *Medieval and later metalwork.*

SF 60 Rectangular copper-alloy folded strap-end with part of the leather strap remaining between the plates. On the upper plate one long edge and part of the open short edge are missing. There is delicate rouletted decoration on the undamaged margins. The fold is very tight. The strap and plates are secured by five prominent globular-headed rivets set in a quincunx. Length 29 mm, width 15 mm; rivets 6 mm long. (187.3; HES 15), layer 3. Medieval to early post-medieval dumping.

SF 20 Triangular copper-alloy mount, the wide end decorated with three notches, the tip knobbed. On the underside are two integral clenched shanks passing through a thick fragment of leather. Length 22.5 mm, maximum width 11 mm; thickness of leather 4 mm. (100.1; HES 6), layer 3. Medieval to early post-medieval dumping.

SF 51 One disc from a two-disc lead-alloy London alnage seal. The face of the disc bears a crown over the arms of Tudor England flanked by E R and the legend S/-/PAO VIALLE LON. On the underside the burred rivet shows traces of an ornate shield that would have included the arms of London. Textile imprint on the underside shows coarse woollen Z-spun threads. Diameter 23 mm. (189.1; HES 13), layer 3. Medieval to early post-medieval dumping.

SF 53 One disc and part of the connecting strip from a two-disc lead-alloy clothier's, weaver's or searcher's seal with privy mark. The face is worn and bears only a vertical scratch with a second at right angles passing over it; the latter may be accidental. On the underside the burred rivet has part of a privy mark consisting of W S flanking a bar rising from a suspension line. Diameter 19 mm. (210), surface find in layer 3. Medieval to early post-medieval dumping.

SF 8 Lead-alloy disc weight with coarsely hatched upper face and plain underside. Diameter 27 mm; weight 20.76 g. (206), surface find in layer 3. Medieval to early post-medieval dumping.

SF 127 Iron rectangular mount fragment with white-metal plating on the margins and with a zoomorphic design in white-metal inlay on the upper surface. The design is damaged at one end, but retains a clear dragon-like head with heavy snout, small ear and an eye formed by a white-metal plated rivet. Length 42 mm, width 11 mm. (139.2; HES 4), layer 3. Medieval to early post-medieval dumping.

Iron smithing

SF 37 Offcut from a smith's blank of dense bloomery iron. The sides and the narrow rectangular section taper to one worn and broken end; the other end has been cut. Length 50 mm, width 25 mm. (147.2; HES 9), layer 3. Medieval to early post-medieval dumping.

SF 119 Offcut from a smith's blank of dense bloomery iron, the section narrow and rectangular but with rounded sides. The original end is tongue-shaped, the other end is cut straight across. Length 37 mm, maximum width 25 mm, 10 mm thick. (178.2; HES 2), layer 3. Medieval to early post-medieval dumping.

SF 61 Iron strip of unfinished clench-bolt roves. The strip is marked into three squares, each pierced centrally. Length 71 mm, width 27 mm, perforations 7 mm in diameter. (187.3; HES 15), layer 3. Medieval to early post-medieval dumping.

SF 103 Offcut from a smith's blank of dense bloomery iron, square in section at the surviving original end, tapering to a thin ragged edge. Length 42 mm, section 17 by 17 mm, tapering to 17 by 8 mm. (188.3; HES 14), layer 3. Medieval to early post-medieval dumping.

SF 83 Offcut from a smith's blank of dense bloomery iron, tapering from a narrow rectangular section to a ragged chisel edge. Length 44 mm, width 35 mm, section 38 by 10 mm at the thicker end. (137.1; HES 8), Seventeenth century quarrying.

SF 84 Offcut from a smith's blank of dense bloomery iron, rectangular in section and slightly curved. One end is original, the other is raggedly cut. Length 44 mm, width 19 mm, 12 mm. (137.1), 17th century quarrying.

limestone roof tile fragments (1.148kg), five unglazed medieval floor tile fragments (527g) and 98 pieces of brick (6.72kg) were found, 37 from dumps and 61 from post-medieval and modern deposits. The average roof tile fragment size (30.4g) is relatively small compared with other sites (such as Huntingdon Town centre at 83g per sherd; Atkins and Fletcher 2009), reflecting the depositional character at the Brunswick site.

The limestone tiles may have been medieval and would have been an expensive commodity at the time, perhaps indicating high status buildings; for example 3,000 slate tiles were transported by river to Wisbech Castle from King's Lynn in the mid 14th century (Sherlock 1998, 64).

The few pieces of brick recovered from the medieval dumps (37 fragments: 2.49kg) are likely to be very late 15th/early 16th century in date, with two intrusive 17th-century fragments also being found. There are no known 15th-/early 16th-century brick making sites in Cambridge. Both archaeological and documentary evidence suggest that medieval bricks were commercially produced at Ely, Ramsey and Wisbech. The Ely and Wisbech brickworks were both on Ely Cathedral land and these workings would have used the river network to transport the bricks. Ely had a wide distribution market for its bricks and tiles, including Cambridge (Lucas 1993, fig 1); Ely brick was, for example, purchased by Trinity College in 1528/9 (*ibid*, 158). At Ramsey Abbey there are numerous records of bricks and brick moulds being produced in the early 16th century, the finished products again being transported by river (DeWindt and DeWindt 2006, appendix 8). It notable that some of the Brunswick bricks are very similar to those recovered from the site of the late 15th-century Bishop's Palace at Wisbech (Atkins 2010b) and those evident in the extant Ely Palace (built by Bishop Alcock 1486–1500).

Economy and Environment

Evidence for the local environment and economy was limited, suggesting that the 'midden' source for the medieval dumping did not include significant quantities of food waste. Animal and bird bones were relatively scarce, with a small assemblage of faunal remains being recovered (4.773kg). The group is dominated by domestic taxa with sheep/goat being the most prevalent species, along with slightly smaller numbers of cattle. Roughly equal numbers of pig and horse remains were found, along with small amounts of bird, dog and rabbit. Butchery marks were observed on many elements.

Lava quern fragments came from eight medieval to post-medieval contexts, while environmental samples yielded a range of cereal types, legumes and weed seeds. Barley (*Hordeum* sp.) was relatively common, along with rye (*Secale cereale*) and oats (*Avena* sp.). The weed seed assemblage is largely uninformative since it represents common plants growing in a variety of habitats that include crop fields, disturbed ground and pasture. Saw-sedge nutlets (*Cladium mariscus*) may indicate the use of this wet-land plant as thatch and/or fuel.

Of the relatively small assemblage of marine shell (1.97kg) recovered from the excavations, oyster (*Ostrea edulis*) was the most common (1.86kg), with few mussels (*Mytilus edulis*) (0.07kg) and cockles (*Cerastoderma edule*) (0.01kg) represented.

Post-Medieval/Early Modern Quarries and Modern Activities

Two small areas of 17th- to 18th-century quarry pitting were identified within the southern part of the excavation area (HES 8) and during the 2009 evaluation at the extreme north-eastern area of the development area (Test Pit 3) (Fig. 1). These small scale quarry pits were evidently extracting both chalk and terrace gravels. Sealing the quarries were layers dating to the later 18th and 19th centuries which denoted further dumping/raising of the ground level. Cutting these layers were probable mid/late Victorian coprolite trenches and a network of World War 2 air raid shelters.

Small quantities of pottery, metalworking waste and animal bone (0.976 kg) were recovered. By the 17th century the early factory wares are represented in the pottery by Staffordshire slipwares and London stonewares, and the 18th century saw the appearance of Cream wares and later refined white earthenwares from factories in the Midlands and elsewhere. Several post-medieval coins and a jetton were found including a Royal farthing token of Charles I, minted 1625–34.

Discussion

The Site in Earlier Prehistory

The Brunswick site has provided new evidence for earlier prehistoric activity along the south bank of the River Cam, lying at *c.* 8m OD. The discoveries suggest that the area was exploited between the Mesolithic and Early Bronze Age, with an absence of evidence for activity in the Iron Age. This is typical of sites of this period, since earlier prehistoric sites appear to have gravitated to lower lying ground close to rivers. The Brunswick site provides the first evidence for earlier prehistoric activity (rather than casual finds) in this part of Cambridge and as such is a useful indicator of early exploitation of the river bank. Comparable sites are relatively scarce in the vicinity, with the nearest example being that *c.* 5km to the north–east at Stow-cum-Quy (Bishop 2007). The latter site, however, lay *c.* 1km to the north of the Little Wilbraham River and was on higher ground (*c.* 13m OD). Both sites provide evidence for the manufacture of flakes and blades between the Mesolithic and Neolithic, suggesting short term occupation.

Early Bronze Age findspots have been recorded in the CHER to the east (50m) and *c.* 0.5km west of the Brunswick site, suggesting that occupation continued during this period. The fact that no Later Bronze Age,

Early or Middle Iron Age findspots have been recorded in the immediate vicinity of the site reflects evidence elsewhere that later prehistoric sites generally lay further away from rivers and on higher ground (Atkins and Connor 2010, 107).

Farming and Flooding

The episodic flooding evident at Brunswick, *c.* 2km to the west of the Roman town of *Duroliponte*, probably began during the Late Iron Age period as a result of increased farming on the river banks, which is likely to have silted up the river (Boreham 2002). Flooding in this part of Cambridge appears to have occurred at a consistent level of *c.* 6m OD.

Similar alluvial deposits have been excavated at six other sites in the Cambridge area (Table 3), all of which lay on land far lower than Brunswick, with natural deposits lying between 0.60m OD and 4.69m OD and the overlying alluvial sequence varying between *c.* 1.30m and 3.6m OD thick. These differences result from the fact that the ancient river channel varied in width and depth over its course; the Cam runs through a channel which at Cambridge varies in width between 200m and 400m and is presently filled with alluvium (Whitelaw 1991, 2). It is likely that the main channel of the river meandered across this originally marshy floodplain, since several old channels can be seen further along the Cam at Sheeps Green (*ibid*, 2). The layer excavated at Brunswick is presumably part of the same alluviual deposit found at Jesus Green and Midsummer Common (Davenport *et al* 2008). Significantly, the work at Brunswick has defined the uppermost southern bank of the river for the first time.

Barnwell Priory?

During the medieval period, the site may have been agricultural land owned by Barnwell Priory or may simply have lain adjacent to the priory's holdings. There were clearly substantial attempts to level the area, resulting in a deep and extensive dumped layer. This layer continued beyond the excavation area to east and was recorded during building works in 2011 for at least a further 50m westwards towards the former priory buildings (Atkins 2011). The northern boundary of the site was partly formed by an east to west bank which rises more than 1.5m higher than land to the north. This drop can be partly explained by the presence of nearly a metre of medieval to early post-medieval deposit at this point. The remaining drop may be the result of the land having been worn down through use as a droveway or other route between the boundary and the river. This route may have been referred to in a document from Edward I's time, when the prior was accused of obstructing the route directly to the east of the site as 'townsmen were wont to try and get their animals from Greencroft to Sturbridge Common, through Barnwell Priory between the bake house and the river' (Maitland 1964, 192). The raised boundary appears on the earliest map of the area (1811 Enclosure plan) and continues several hundred metres to the west, with Midsummer Meadow directly to the north.

The general lack of Late Saxon and early medieval finds from the site accords with the date of the priory's foundation in 1112. Most of the finds date to the 13th to early 14th centuries, although the presence of 15th- or early 16th-century material implies continued disposal and/or levelling activities.

Medieval Ironworking

The evidence for metalworking is significant, since relatively few sites have yet provided similar results. The few records present in the CHER for medieval smelting and smithing (Table 4) include several workshops and furnaces used for both ferrous and non-ferrous working.

Two of the smelting and smithing sites noted in Table 4 were owned by abbeys and priories (Ramsey and Sawtry). This is not surprising, since these religious entities played a major role in trade and industry from at least the Middle Saxon period. The monastic sites had incredible power and wealth, al-

***Table 3**. Comparable riverside excavations in Cambridge (in order of location from north to south), after Davenport* et al *2008, table 6.5.*

Site Name	River bank	Distance from river	Height of natural (m OD)	Depth of alluvial sequence	Date 'sealed'
Gonville and Caius Boathouse	West	3m	0.60m	*c.* 3.60m	?
Jesus Green and Midsummer Common	East	5–50m	3.77m–4.69m	1.35m+	17th century
Brunswick, former Cambridge Regional College	East	*c.*60–70m	5.50m	0.64m	Roman colluvium
24 Thompson's Lane	East	35m	2.97m	2.10m	13th century
St John's College (Chapel Court and Master's Garden)	East	50m	*c.* 4.20m	*c.* 1.30m	13th century
Trinity Hall (New Library Extension)	East	*c.*5m	3.03m	1.91m	16th century
Clare College (Master's Garden)	West	*c.*90m	2.60m	3.40m	19th century

lowing them to engage in a multitude of activities. The major houses were largely self sufficient and produced surplus goods to sell at markets. The partially made roves found at Brunswick may reflect their manufacture or use within the priory or related buildings (or perhaps boat building), or may have derived from nearby settlement. Metalwork was produced at many monastic sites, either within the precinct itself or outside (as at Sawtry in the Grange Farm; Delve 1980). Metalworking was, however, ubiquitous in medieval towns across the country and the material found at Brunswick need not necessarily link to the adjacent priory. The zoning of urban industries, often on the outskirts, was common in medieval villages and towns and Brunswick was in just such a location.

Iron was the most indispensable metal during the medieval period, being essential for all manner of tools and implements and 'by the end of the 13th century this diversified industry was established in every part of the country where ore could be dug and fuel was available to smelt it' (Miller and Hatcher 1995, 61). Cambridge had no local source of iron ore but its position adjacent to the River Cam would have facilitated the transport of ore and fuels such as coal to the site. It is worthy of note, however, that 'metal ores were generally refined close to the point of extraction because of the cost of transport of low value materials' (Blair 2007, 92).

The nearest iron ore deposits to Cambridge lie in the Wansford/Castor area near Peterborough but it is uncertain how extensively ore was extracted from here: the scale of these workings would have been minor in comparison to the ironworking industry of Rockingham Forest (Bellamy *et al* 2000/2001, 105). The geology producing nodular ore suitable for iron working is mainly located in north Northamptonshire, although it extends into east Rutland and just into the Cambridgeshire/Peterborough District (as far as Wansford and Castor) but less abundantly (*ibid*, 105–8).

It seems likely that the source of the Brunswick ore was Northamptonshire where there were two separate main focii of iron production (Foard 2001, 69). One was the Whittlewood Forest area located near Towcester, *c.* 10km to the south of Northampton on the River Tove which feeds into the Great Ouse that flows through Cambridgeshire. The other major iron production centre was at Rockingham Forest on the River Welland where ironworking was recorded in the medieval period and was noted in the Domesday Book (although it had considerably earlier origins; Wall 2011). In the vicinity of Rockingham Forest, the Welland flows near Collyweston, Barnack, King's Cliffe and Weldon, the famous medieval roof tile and stone quarries. Both ore and pig iron would probably have been transported from the Rockingham Forest area to Cambridge, as this location is known to have supplied Cambridge with other commodi-

***Table 4**. Known medieval smithing and smelting sites in Cambridgeshire (CHER records).*

HER Site	Location	Result	Publication
14619	Wisbech	Mid 14th- to mid 15th-century metalworker's workshop (Building 7; Phase 6, Period 2), containing a working 'trough' or drain and associated water storage within ceramic vessels. Both ferrous (probably smithing) and non-ferrous working are indicated and it is possible that padlocks and bells were being manufactured, although this material may simply have been gathered as scrap.	Hinman and Popescu 2012, (26–29)
01020	Sawtry St Judith	Excavations within a moated enclosure found 14th- to early 16th-century remains at Grange Farm owned by Sawtry Abbey. Building 1, a possible industrial outbuilding, contained ironworking evidence with iron ore and slag. Building 2 contained a hearth with copper slag embedded. 50–60 pins recovered.	Delve 1980
16055	Ramsey	Excavations in Ramsey Abbey found secondary evidence of iron working in the 12th century with smithy hearth bottoms deposited in the backfill of a watering hole.	Spoerry *et al* 2008, 170–210
15551	Ely	Secondary evidence of smithing with iron slag found within several medieval features, dating to 1150–1350.	Kenney 1999
02650	Godmanchester	13th-century buildings found. One had been used as a blacksmith's shop. At the rear four shaft furnaces for smelting iron were found.	Green 1975
00565; 00566	St Neots, The Cross	Smeltery: 13th-century buildings and metal workings. Two iron-smelting furnaces and a bowl-shaped hole containing dross from the melting of copper. It was suggested that iron ore was brought in from greensands 7 miles away.	Tebbutt and Rudd 1966, 158–160
16865	Bourn	Possible extraction pits behind 12th- to 15th-century properties. Evidence rests on small quantities of slag found as secondary deposits.	Spoerry 2005
15489	Cambridge	Secondary evidence of iron smithing waste in 16th-century quarry pits.	Mortimer 2000
18196	Cambridge	A 15th- to 17th-century possible blacksmith's workshop with quenching pit containing metalworking debris.	Newman 2008
17229	Fulbourn	An evaluation found a possible medieval furnace.	Bailey and Spoerry 2005
11697	Hinxton	Medieval metal working debris found in an evaluation.	Leith 1993

ties, including building stone. Cambridge Castle was built from Barnack stone in the late 13th century (Alexander 1995, 116) and large quantities of King's Cliffe and Weldon stone were used in the building of the Cambridge colleges in the mid/late 15th and 16th centuries (*ibid*, 116–117).

Although no medieval records have yet been traced for the suggested movement of ore and pig iron from the Rockingham Forest area to Cambridge, this is unsurprising given that 'little is known of the social context of iron working and the mechanism for distribution, such as to what extent smelted iron was worked into finished objects on site, or sold in pig form for finishing elsewhere' (Lewis 2006, 208). The recovery of burnt ore at Brunswick does suggest that this movement of raw material took place, despite the expense, perhaps indicating that Barnwell Priory or metalworkers in the vicinity were producing their own specialised iron objects.

Post-Dissolution

There was seemingly no post-dissolution dumping of debris from the priory, indeed relatively few artefacts dating to the late 16th century and early 17th century were found. The two 16th-century cloth seals recovered from medieval to early post-medieval dumped deposits would have been attached to woolpackets. Notably, the earliest documentary reference to the subject site in 1811 was to 'Woolpocket Close', perhaps originating from woolpacket. A parallel comes from Woolpack Public House in Norwich which was known as The Woolpocket in 1760 (Norwich Heart 2011). This Norwich pub lay outside the city, on the north side of the river and was where carriers met before selling their wool in the city. It is therefore possible that the land at Brunswick, in a similar location to the Norwich example, performed a similar function.

Later use of the site for minor quarrying would no doubt have related to local use in building construction. By this time, the population in the parish of St Andrew the Less had presumably declined since only 48 houses were recorded within the parish in 1749.

Conclusions

Archaeological investigations at Brunswick have provided the first known Neolithic 'domestic' site in Cambridge, albeit suggesting very short term and sporadic activity on the river bank. During the Late Iron Age and Roman periods the local landscape was cleared for arable farming. The resultant silting into the River Cam caused it to flood, with later colluvial layers accumulating along the bank and presumably also filtering into the river. It is likely that these events related directly to the increasing population, with new farmsteads being established.

The medieval period saw a more orderly use of the site, with the River Cam protected from silting by a bank which prevented soil movement. To the south of the bank, the land was raised well above the floodplain by the deposition of domestic and industrial waste, thus allowing the ground to be intensively used for agricultural activities. The recovery of finds from these deposits has permitted new insights into the character of the area, some of which may have been associated with Barnwell Priory.

Acknowledgements

The author would like to thank CgMs who commissioned the work, particularly Suzanne Gailey who organised the schedule of the project, and Berkeley Homes for funding the archaeological work. The project was managed by Aileen Connor. The brief for archaeological works was written by Andy Thomas of Cambridgeshire County Council, who visited the site and monitored the excavation. Rob Atkins directed the archaeological works, assisted by Ben Attfield, Thomas Black, Graeme Clarke, John Diffey, Nick Gilmour, Steve Graham, James Fairbairn, Jasmin Hall, Jon House, Claire McGlenn, Steve Morgan and Helen Stocks. Taleyna Fletcher carried out the site surveys.

Thanks are also extended to each of the contributing specialists and the illustrators. Steve Wadeson supervised the post-excavation work on the artefacts and Rachel Fosberry the environmental material. Conservation and cleaning of metalwork was carried out at Colchester Museum by Emma Hogarth. Steve Critchley kindly metal detected the site. Sarah Poppy and Sally Croft of the Cambridgeshire HER were as ever very useful in supplying information on the sites in the area. This article was edited and prepared for publication by Elizabeth Popescu.

Cambridge Antiquarian Society is grateful to Berkeley Homes for a grant towards the publication of this paper.

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Late Bronze Age and Iron Age activity on the Littleport Fen Edge

Tom Woolhouse

with a contribution from Martin Tingle
and Rob Scaife. Illustrations by Charlotte Davies.

Between June 2005 and February 2008, Archaeological Solutions carried out two stages of archaeological investigation on land adjoining 80 Wisbech Road, Littleport, Cambridgeshire (NGR TL 5608 8732), in advance of residential development. The site encompassed part of the former Fen edge on the north side of Littleport 'island'.

The investigations revealed three phases of activity, focused on the higher, drier southern part of the site. Scattered struck flint indicated sporadic activity during the early Neolithic (Phase 1), when this area was probably dry. In the late Bronze Age/ early Iron Age (Phase 2), numerous shallow pits, some containing pottery and occasional daub fragments, suggest the site lay within paddocks on the periphery of a settlement further to the south. Peat growth in the north of the site was well-developed by this time, having begun around the middle Bronze Age. Remains of two ditches, the larger of which ran down into the fen, suggest that similar agricultural land use continued into the late Iron Age (Phase 3). Part of a ?curated Mesolithic/ Neolithic quartzite pebble hammer was found in the upper fill of the larger ditch, close to its terminus. This might represent a deliberately-placed 'votive' deposit. Its deposition may have been associated with the rising water table, which was causing flooding on the site around this time and probably led to its abandonment soon after. Column samples contained well-preserved pollen evidence for later prehistoric environmental change and agriculture in this part of Littleport. A shift away from the predominantly dry conditions of the early prehistoric was evidenced by grasses, sedges and other reed swamp taxa. Bar a brief period of increased salinity and alluvial sedimentation during the middle Iron Age, thought to be associated with rising sea levels, these prolonged fresh water fen conditions provided a backdrop for a predominantly pastoral agricultural regime.

Introduction and background

In June 2005, Archaeological Solutions Ltd. carried out a trial trench evaluation at land adjoining Wisbech Road, Littleport, Cambridgeshire (Grassam *et al.* 2005). This was followed in December 2007 and February 2008 by an open-area excavation with test-pitting (Greene 2008). The work was commissioned by Cheffins/ Matthew Homes (respectively) prior to redevelopment of the site and construction of residential housing (Figs. 1 and 2). The investigations revealed late Bronze Age to early Iron Age pits and late Iron Age ditches and small gullies (Fig. 3).

Littleport is located *c.* 5.6km north-east of Ely and *c.* 20km east of Chatteris. The site is situated on the west side of Littleport, on the north side of Wisbech Road. The site lies at *c.* 0.00m–2.00m AOD, on the northern edge of what was once a dry 'island' surrounded by fenland and slopes down towards the former fen, to the north. The 'island' is comprised of solid Kimmeridge Clay deposits, overlain by a tongue of boulder clay till and capped with glacial sand and gravel.

Targeted fieldwalking along the route of the Ely Bypass to the north and west of Littleport recovered struck flint implements of Neolithic and Bronze Age date (e.g. Cambridgeshire Historic Environment Record (CHER) 07191, 07192, 07193B and 07239), suggesting prehistoric occupation of the gravel terraces of the Old Croft River. Archaeological investigations at Highfield Farm (Dymond 1999; Holt 2008) on the higher ground of Littleport 'island', to the south of the site, revealed pits dating to the Neolithic and Bronze Age (as well as the early Iron Age and Romano-British periods). These have been interpreted as possible evidence for ceremonial activity (Gdaniec, pers. comm.).

The principal aim of the investigation was to identify and characterise any prehistoric remains on the site and to contextualise them against other prehistoric sites/ finds in Littleport. Another key aim was to use the full spectrum of appropriate scientific techniques to shed light on the origins/ date of the fen deposits at the site and to facilitate reconstruction of the past environment.

For full discussion of all features and finds and for specialist reports, see the site's 'grey literature' report, which can be found at the Cambridgeshire Historic Environment Record (CHER No. ECB 2820; Woolhouse and Greene 2009).

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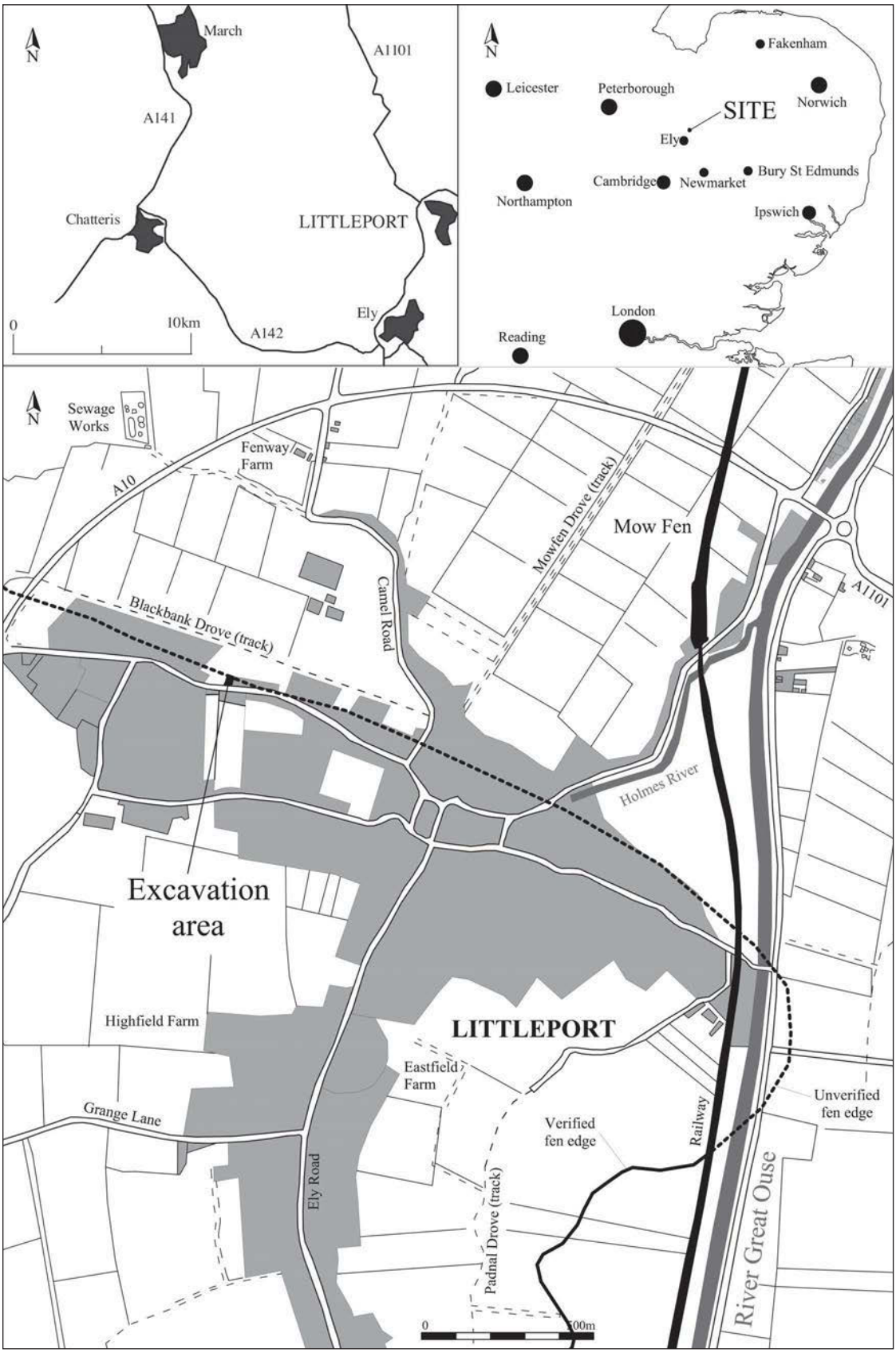

Figure 1. *Location of excavation area.*

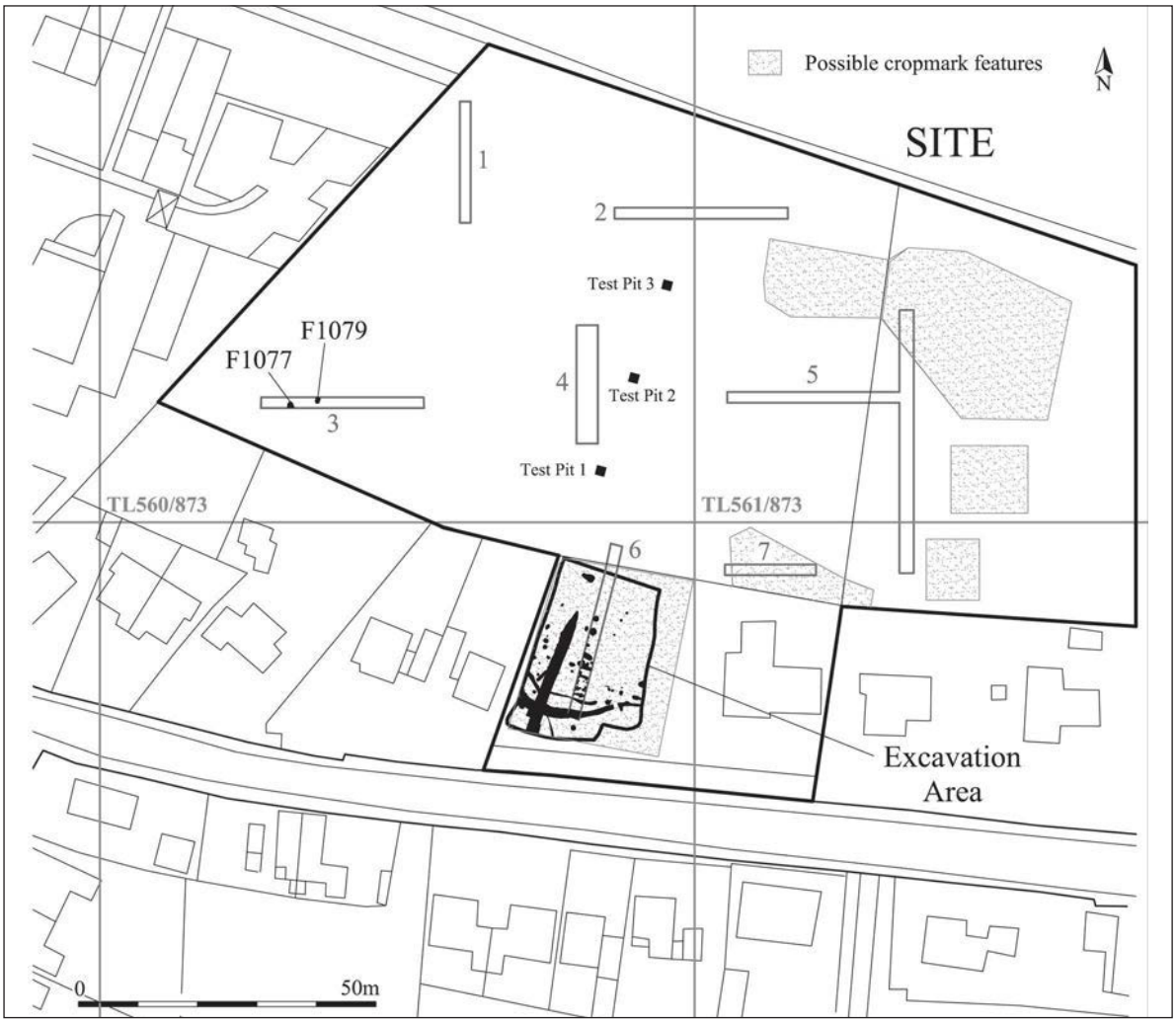

Figure 2. *Detailed site location.*

Results of the excavations

Phase 1: early Neolithic* (c. *4300 to 3300 BC)

Residual struck flint was found in several features and deposits across the excavation area. Although limited in number, and generally undiagnostic, a few blades and other pieces are enough to suggest a low level of early Neolithic activity on or near the site, possibly including blade production and retouching. The only piece which might have been found in its original context is a denticulate or scraper from Pit F2084, in the north-west corner of the excavation area. However, this feature had clearly been subject to more recent disturbance and the original provenance of the piece is therefore not certain. Other residual blades were found in late Iron Age (Phase 3) Ditch F2011 and late Iron Age/ early Roman Silt Layer L2003=L1012. The evidence for sporadic early Neolithic activity on the site might also help to explain the presence of a Mesolithic/ Neolithic pebble hammer in the terminus of late Iron Age (Phase 3) Ditch F2011 (see below).

Phase 2: Late Bronze Age to early Iron Age Activity (c. 1000 to 600 BC) (Figs. 2 & 3)

A dense cluster of postholes and small pits was located in Trench 6, on the higher ground in the south of the site. They were all extremely shallow and had been subject to past truncation. Pits F1020, F1022, F1024 and F1050 all contained prehistoric pottery, all of which was undiagnostic except for one body sherd in Pit F1020. Pit F1032 contained two Bronze Age button end scrapers. All these features were cut into L1009=L2004, a mixed boulder clay and glacial sand/ gravel. A few late Bronze Age/ early Iron Age potsherds were recovered from this deposit and a thumbnail scraper was found lying on its surface.

Undiagnostic struck flint flakes and chips were near-ubiquitous in undated hollows, pits, postholes and stakeholes in the vicinity, many of which may also have been Bronze Age in date. A high incidence of charcoal/ burnt material in the fills of many of these features might indicate the disposal of hearth waste from domestic areas (of the 27 such features sampled, 11 yielded charcoal <2mm in size), while the presence of very small quantities of daub (just a few

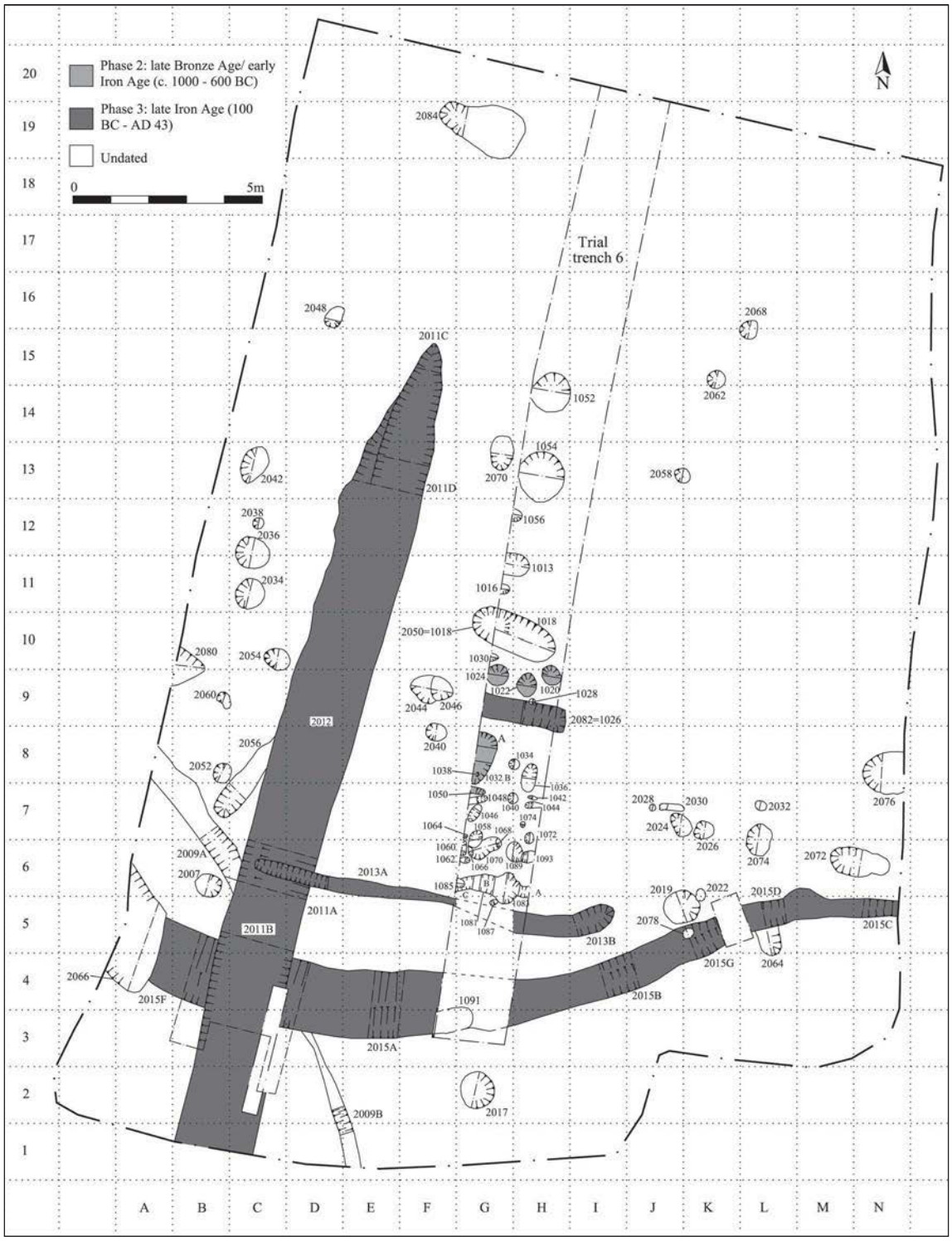

Figure 3. *All features phase plan.*

grams each) in Pit F1032 and undated Pit F1036 hints at there being structures or wattle and daub hurdles/ fences somewhere in the vicinity.

Overall, although the sparseness of cultural material in these features might be a result of subsequent truncation, it is likely that this was not a 'core' settlement area. The pits and postholes are more likely to represent traces of agricultural land use on the periphery of a settlement further to the south, with some of the postholes/ stakeholes perhaps being related to fenced stock enclosures or paddocks.

One of the peat layers in the north of the site (Trench 5) yielded a large assemblage of un-abraded late Bronze Age pottery, probably all from the same

vessel. As this layer overlay an earlier peat horizon (L1004), it appears that the north of the site had already been waterlogged for a considerable period of time before the late Bronze Age. A loomweight fragment from Peat L1004, which appears to be middle to late Iron Age on typological grounds, is hard to reconcile with the late Bronze Age date of the pottery from the overlying peat layer. Either the fragment is too small to conclusively identify and may actually belong to an earlier period, or it was intrusive within the lower peat horizon, perhaps as a result of some localised truncation not visible within the confines of the evaluation trench.

Phase 3: Late Iron Age activity (100 BC to AD 43) (Figs. 2 & 3)

Phase 3 activity comprised two large ditches (F2011 and F2015) and one gully (F2082). Ditch F2011 ran northwards from beyond the southern boundary of the excavation area, leading down towards the fen. As well as a late Iron Age rim fragment and five fragments of cattle bone, Ditch F2011 contained a residual/ curated Mesolithic/ Neolithic quartzite pebble hammer (SF1, Fig. 4) found fairly high up in the ditch fill close to the northern terminus).

Ditch F2015 was sinuous and aligned roughly east to west, running across the southern edge of the excavation area. It seems likely, given its position and slightly meandering alignment, that Ditch F2015 would have followed the contemporary fen edge. It was dated by a single fragment of late Iron Age pottery. Ditch F2015 appeared to be cut by the perpendicular north to south aligned ditch (F2011), but as it was generally shallower than F2011, might simply have become silted up earlier than the deeper ditch, giving the impression that it was cut by it. The ditches could therefore have been contemporary parts of the same system, forming the corner of a ditched enclosure. Two metres to the north of Ditch F2015, and following the same alignment, was a narrow, shallow, *c.* 10m long gully (F2013). It did not contain any finds, but appeared to be part of the same late Iron Age boundary system.

Another gully, F2082, was noted during the trial trench evaluation as F1026 and was tentatively dated to the late Iron Age based on the presence of a possible late Iron Age pottery sherd. Scattered undated pits and postholes including F2007, F2024, F2026, F2042, F2038, F2036, F2034, F2060, F2052, F2072 and F2074 appeared to be aligned with respect for the late Iron Age ditches, suggesting, albeit tentatively, that these features were truncated postholes forming fence-lines contemporary and associated with the boundary ditches, or that they were rubbish pits located with respect for the spaces defined by the ditches. The layout of the ditches and the small quantity of associated finds suggests that they were probably field or paddock boundaries. Based on the few fragments of associated animal bone, it can be suggested that the enclosed spaces were used for grazing cattle. The topographical position of the site would have been well-suited to such land use.

All the archaeological features of Phases 2 and 3 were sealed by a shallow silt layer, which is thought to represent an ephemeral episode of flooding to the higher ground in the south of the site. It contained struck flint, four late Iron Age potsherds and a single small Roman sherd in an oxidised sandy fabric. The fills of Ditches F2011 and F2015 were very similar in composition and appearance to this silt layer, suggesting that the ditches were naturally in-filled during this phase of rising water levels in the fen.

The quartzite pebble hammer (Fig. 4, Plate 1)
Martin Tingle

This artefact is a pebble hammer, a prehistoric shaft hole implement formerly known as a pebble macehead. The fragmentary example from Littleport exhibits the characteristics of a pebble hammer, being made from a quartzite-type rock, possessing an hour glass perforation and showing marks of battering on its surviving end. While they are often made from discoid pebbles with the perforation at the centre, this example would appear to have utilised an ovoid pebble and consequently, when complete, it might have resembled an ovoid macehead.

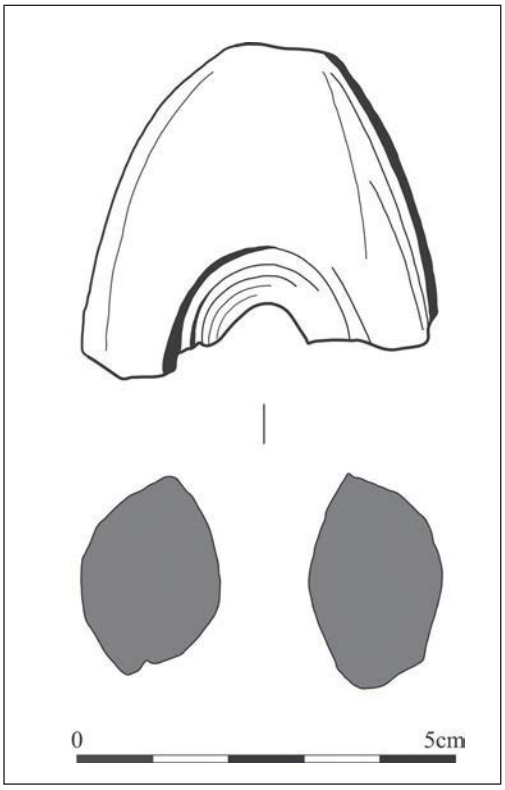

Figure 4. *Quartzite pebble hammer.*

Pebble hammers appear to date from the Mesolithic, although they may have continued in use through the Neolithic and even into the Bronze Age (Rankine 1951, 53; Roe 1979, 36). The presence of this example in an Iron Age context may simply result from chance,

although there are numerous examples of these distinctive artefacts appearing, apparently as curated objects, in much later periods, including the Iron Age (Crummy 2004, 12: Roe 1979, 36).

The hammer is made from a pale white translucent quartzite which has pinkish veins that are clearly visible in the broken sections. Only one pebble hammer from Cambridgeshire (a greywacke example from Fen Ditton) has been ascribed to a specific petrological group, thought to derive from Cornwall (Crummy, 2004, 12). Most, like the Littleport example, are quartzite and probably derive from local drift deposits (Rankine 1951, 53). In general pebble hammers are distributed in the south and east of England, although the concentrations in East Anglia and Sussex (identified by Rankine) seem less obvious as more have been found (Roe and Radley 1968, 169; cf. Rankine 1951, 55 and Roe 1979 fig. 15). A recent example from Gamlingay has been linked to a general cluster of pebble hammers centred on Cambridge, to which the Littleport example could also be ascribed (Crummy, 2004, 12).

Discussion

Development of the fen environment

Rob Scaife and Tom Woolhouse

One of the primary aims of this investigation was to use the full spectrum of appropriate scientific techniques to shed light on the origins/ date of the fen deposits at the site and to facilitate reconstruction of the past environment. In light of this a peat sample was sent for radiocarbon dating, and soil monoliths were taken for the purpose of pollen analysis. The full results of these investigations can be seen in the Research Archive Report (Woolhouse and Greene 2009 – CHER No. 2820), and are summarised and discussed below:

Radiocarbon dating of the basal peat at the site failed to return an accurate date, presumably due to groundwater contamination or unseen soil disturbance just outside the test pit. It is therefore not possible to determine an absolute date for the beginning of peat growth on this part of the Littleport fen edge. However, based on the overall characteristics of the pollen spectra from the column samples, it is thought that the site's sediments are of late prehistoric or early historic age (Scaife 2009, 39). This characterisation is based particularly on the presence of cereal pollen and associated weeds to the base of the profile, and also on the absence of elm/ lime in any substantial numbers, except for the latter in the lowest pollen zone. The presence of large, un-abraded fragments of late Bronze Age pottery in the upper peat horizon indicates that peat growth was well-underway by this time. The ceramic evidence lends weight to the early to middle Bronze Age date for the onset of fen conditions suggested on the basis of the pollen evidence.

The site was probably dry land in the early Neolithic, when it was sporadically visited by hunter-gatherer groups and saw occasional flint-working. The pollen indicate that around the late Neolithic/ early Bronze Age, the area was river floodplain with grasses, sedges and other fen taxa, and possibly some alder growth along the fen edge. Clay layers directly overlying the Kimmeridge Clay in the lowest-lying parts of the site also suggest the presence of localised freshwater meres. A conjectural map of the later prehistoric landscape in Littleport (Hall 1996, 23 fig. 11) shows the site as lying close to a meander in the course of the Old Croft River, with one of its tributaries running directly along the northern site boundary (this former watercourse was identified in Trenches 1 and 2). The pollen evidence fits well with this suggested topographical context. The higher, drier land to the south of the site originally supported lime woodland, but this declined markedly prior to the onset of peat growth, probably mainly due to deliberate woodland clearance for agriculture.

This river floodplain stage was followed, in the Bronze Age, by a long and stable period of reed swamp in which willow-dominated fen carr woodland became increasingly important, and peat formed, eventually reaching nearly 0m OD. The late Bronze Age pottery found in the upper peat in Trench 5 shows that the late Bronze Age/ early Iron Age activity in the far south of the site was taking place immediately adjacent to the contemporary fen, on what must have been marginal land.

The period of stable peat growth was terminated by renewed alluvial sedimentation, with strong signs of saline conditions reaching as far as the fen edge. This may have been a result of the last (probable) late prehistoric increase in regional sea level causing water to pond-back up the Old Croft River and its tributaries. It might equate to a known phase of flooding and silt deposition along the course of the Old Croft River, which has been dated to 405–180 cal. BC at Welney (Hall 1996, 19). It might also provide a context for the apparent 'gap' in activity on the site during the middle Iron Age. This marine phase was brief and was followed by a return to freshwater fen conditions, dominated by grasses, sedges and other reed swamp taxa. Late Iron Age (Phase 3) land use on the site would have taken place against this backdrop of renewed freshwater peat fen. At least during prehistory, peat never formed at the far southern edge of the site, which was probably always just above the fen edge. However, a shallow silt deposit sealing all the late Iron Age (and earlier) archaeological features shows that even this high ground (above 1.00m OD) was becoming increasingly prone to flooding by the late pre-Roman Iron Age and was probably eventually abandoned for this reason.

Subsequent developments during the historic period were not evident in the pollen record. Hall notes that peat would have continued to form uninterruptedly in Littleport during the Anglo-Saxon and medieval periods, reaching the 3.5m contour (Hall 1996, 19). Peat wastage and modern agriculture had probably removed deposits of later than prehistoric origin.

Later prehistoric agriculture on the Littleport fen edge

Late Bronze Age/ early Iron Age activity on the site was represented by a cluster of shallow pits, hollows and possible postholes/ stakeholes, all located on the higher ground in the south of the site, and most of which could not be securely dated. While all had clearly been severely truncated, the general paucity of pottery, daub fragments and other cultural material suggests that this was not a 'core' settlement area. It is more likely that contemporary occupation was focused on the higher, drier land further to the south, with the fen edge being used for agriculture and perhaps small-scale rubbish dumping from nearby occupation areas. Some of the possible postholes might relate to fenced enclosures for livestock.

Similar land use appears to have continued in the late Iron Age, albeit possibly with a break in occupation during the middle Iron Age. The late Iron Age ditches show that land along the northern Littleport fen edge was divided into enclosed plots, probably used as pasture/ paddocks given the low-lying topography and fairly wet ground conditions. It is unclear whether the two principal Iron Age ditches represent successive phases of boundary demarcation, or were contemporary, forming the corner of a rectilinear enclosure extending beyond the site boundaries.

By the late pre-Roman Iron Age/ early Romano-British period, the site became increasingly prone to flooding, as evidenced by a silt layer overlying (and in some case in-filling) all the late Iron Age (and earlier) archaeological features. The fill of the largest late Iron Age ditch, which ran down into the fen, was near-identical to this flood-borne silt layer and it seems likely that the ditch also in-filled as a result of flooding.

The pollen record indicates that after the clearance of lime woodland, the pattern of agricultural activity remained much the same for the duration of the sediment record *i.e.* from around the middle Bronze Age onwards. Grassland, probably rough pasture, was important in areas adjacent to the fen edge (almost certainly including the site itself), while there is a consistent record of cereal, including wheat and barley, being cultivated on the better-drained soils of the nearby high ground.

Excavations at Highfield Farm, near the high point of the 'fen island' just over 1km south of Wisbech Road, have identified features spanning the early Neolithic to Romano-British period and beyond (Dymond 1999; Holt 2008). By the late Bronze Age/ early Iron Age, the surviving features suggest that the hilltop was occupied by a ditched rectilinear enclosure. Contemporary postholes could have formed structures and several pits and ditches contained animal bone, large 'fresh' potsherds and other domestic 'waste' (Holt 2008, 15–16). The presence of only a single middle Iron Age pit suggests that activity shifted away during the middle Iron Age, but by the late Iron Age/ early Romano-British period, the site was occupied by an extensive rural settlement with possible posthole structures, substantial ditched enclosures, droveways, a covered working area and watering holes. The lower slopes to the west and north of the hilltop were occupied by field systems, identified during a previous archaeological evaluation (Cutler 1996). The site is thought to have been used for stock rearing and animal butchery/ processing on a fairly substantial scale, perhaps providing food for the inhabitants of the Romano-British saltern sites along the Old Croft River. It was occupied until the 4th century AD (Holt 2008, 17 & 107).

The Phase 2 and Phase 3 remains on the fen edge at Wisbech Road might be directly related to these phases of activity on the hilltop to the south. The inhabitants of the late Bronze Age – early Iron Age and late Iron Age – early Roman settlements at Highfield Farm may have driven their livestock down to the fen edge to graze and drink. A need for water, as well as pasture, for livestock, is suggested by the presence of a large wattle-lined pit during the late Bronze Age/ early Iron Age phase at Highfield Farm, and by possible watering holes within the late Iron Age/ Romano-British settlement (Holt 2008, 15–17). At just over 1km away, the fen edge on the north side of the 'island' is close to the one mile maximum distance recommended by the Ministry of Agriculture for driving cows in milk (Martin 1999, 40). By the late Iron Age, the boundary/ drainage ditches on the present site suggest that this area of the Littleport landscape was well-ordered and managed, and that the local population were concerned with demarcating areas of different use or ownership, even in what must have been a fairly marginal topographical location. Given the evidence for stock raising and processing on something more than subsistence level at Highfield Farm, the importance of the fen edge for pasturing animals is readily understandable. The Highfield Farm settlement was connected to the surrounding fields by droveways, one of which ran westwards, another of which ran downhill towards the fen edge to the north-west. The latter, dated to the late Iron Age phase of the complex, ran almost directly towards the present site (Holt 2008, fig. 10).

The quartzite pebble hammer: a 'votive' deposit?

The quartzite pebble hammer fragment found close to the terminus of the larger late Iron Age (Phase 3) ditch (F2011) is an unusual object. Given their rarity, it is perhaps significant that another similar object has previously been found in Littleport itself, on the high ground of the island, south of Highfield Farm (HER 07218). In Cambridgeshire, others have been recorded at Chatteris, Kingston, Litlington, Reach and Swaffham Prior (Reynolds 2000, 6), and from Gamlingay (Crummy 2004, 12). Pebble hammers appear to largely date from the Mesolithic, although they may have continued in use through the Neolithic and even into the Bronze Age (Rankine 1951, 53; Roe 1979, 36). It is therefore possible that the object represents residual material left on site during the phase of sporadic early Neolithic activity.

Its presence within the ditch fill may simply be an instance of residual material which was present in the vicinity, either on the ground surface or within an earlier prehistoric feature truncated by the ditch, finding its way into the ditch through natural processes. However, it is equally possible that the pebble hammer had been found by chance by the late Iron Age inhabitants of the area and been deliberately collected and curated as an unusual, aesthetically-pleasing, and valued object. Apparently curated pebble hammers/ mace-heads have been found in later contexts elsewhere, including, for example, in Anglo-Saxon *grubenhaüser* at Gamlingay (Crummy 2004, 12) and West Stow (Pieksma and Gardiner 1989, 47, fig. 36).

The deliberate placement of a valued object in the upper fill of a boundary ditch leading down into the fen may represent a 'votive' deposit of some kind. Deliberate deposition of objects in watery contexts is well-attested throughout much of prehistory (and possibly beyond). In the broadest sense, such deposits often seem to have been offerings, perhaps to deities, natural forces or ancestors, but could perhaps also have been used to commemorate important events in the life of a community or its inhabitants. Such practices are seen most spectacularly at sites such as Flag Fen near Peterborough and Fiskerton in Lincolnshire. At Bradley Fen near Whittlesey, the boundary between the late Bronze Age fen and the field/ enclosure systems along the dry fen edge was demarcated by seemingly symbolic deposits of bronze metalwork, including spearheads driven point-down into the ground (Pryor 2003, 289–293). The prehistoric inhabitants of the Fenland seem to have been deeply concerned with the transition from 'wet' to 'dry' land, and with demarcating boundaries. As such, it is tempting to see the pebble hammer in Ditch F2011 as a propitiatory offering in response to the increasingly flood-prone conditions on the site in the late pre-Roman Iron Age.

Acknowledgements

Archaeological Solutions would like to thank Cheffins/ Matthew Homes for commissioning the archaeological investigations. AS would also like to acknowledge the assistance of Sarah Poppy and Quinton Carroll of the Cambridgeshire Historic Environment Record, and of staff at the Cambridgeshire County Record Office. AS is also pleased to acknowledge the advice and input of Kasia Gdaniec and Dan McConnell of Cambridgeshire Archaeology Planning and Countryside Advice.

The project was managed for AS by Jon Murray. The trial trench evaluation was managed by Phil Weston and the excavation by Rik Greene. Finds were coordinated by Claire Wallace. Daub was analysed by Andrew Peachey, flint by Tom McDonald, pottery by Peter Thompson, the loom-weight by Nina Crummy, the quartz pebble hammer by Martin Tingle and animal bone by Carina Phillips. Charred plant macrofossils were analysed by Ruth Pelling and Val Fryer. Soil analysis was undertaken by Dr. Richard Macphail. Pollen analysis was carried out by Dr. Rob Scaife. This paper was prepared for publication by Antony Mustchin. Illustrations by Charlotte Davies.

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War Ditches, Cherry Hinton: Revisiting an Iron Age Hillfort

Alexandra Pickstone and Richard Mortimer

with Rachel Ballantyne, Barry Bishop, Christopher Bronk Ramsey, Matt Brudenell, Gordon Cook, Nina Crummy, Natasha Dodwell, Chris Faine, Alice Lyons, Peter Marshall, John Meadows and Elizabeth C. Stafford. Illustrations by Gillian Greer

War Ditches is a large enclosure, lying on a spur of the Gog Magog hills to the south of Cambridge. Much of this originally circular monument was destroyed by chalk quarrying in the late 19th to mid 20th centuries, during which time a series of excavations was conducted, largely under the auspices of the Cambridge Antiquarian Society. Had the monument survived intact, it would undoubtedly have acquired scheduled status as one of the county's key prehistoric monuments.

Emergency archaeological work in 2009 was necessitated by ground works relating to the opening of the site to the public as a nature reserve. Excavation of a single large slot through the surviving ditch, in the area most at risk, was supplemented by test pits and auger surveys. Relatively large and well stratified finds and environmental assemblages were found which, allied with radiocarbon dating, have enabled the first accurate dating of the ditch infill sequence. It is now clear that the monument was constructed at the end of the 5th century BC or the beginning of the 4th century BC only to be destroyed before completion or shortly thereafter. The site was then abandoned until reoccupation in the middle of the 1st century BC. Final infilling of the upper part of the ditch probably occurred in the second half of the 1st century AD.

Introduction

During the summer of 2008 children playing within the East Pit, Cherry Hinton (Fig. 1, TL 484 555) discovered the legs and feet of a human burial, along with animal bones and Romano-British pottery, high up in the south-eastern corner of the quarry. Subsequent visits by members of the Cambridge Antiquarian Society (CAS), Oxford Archaeology East (OA East) and the parish archaeological warden (Michelle Bullivant) led to the recovery of further finds from the same location. Archaeological deposits along the top of the quarry edge were identified as surviving fills of a remnant of the War Ditches.

Before this 'rediscovery' the ring ditch was considered to be 'all but … quarried away' (Evans and Knight 2002, 48). A series of excavations spanning some 70 years had previously taken place, the results being published in the *Proceedings of the Cambridge Antiquarian Society* (*PCAS*). These are reviewed below in relation to the recent findings.

The Wildlife Trust's plans to open the East Pit as a nature reserve entailed significant landscaping at the quarry edge, including the area of the surviving monument. Since the Trust were unaware of the archaeological potential of the site, no provision for archaeological works existed within their budget and funding was therefore agreed with English Heritage for a targeted rescue excavation; this was conducted by Oxford Archaeology East between April and June 2009.

This article is designed as a synthesis of the excavated findings and is supplemented by the full analytical report which can be freely accessed at http://library.thehumanjourney.net/view/subjects/UK-Iron-Age.html.

A History of Excavation

War Ditches lies in a prominent position at *c.* 46m OD on a spur of the Gog Magog hills, with commanding views over the Cam valley and into the fens (Fig. 2). It holds an excellent vantage point over much of southern Cambridgeshire, with clear sight-lines to the contemporary Iron Age fort at Wandlebury to the south-east, to the contour fort at Borough Hill, Sawston to the south-west and to Arbury Camp to the north-west.

The first record of archaeological discoveries at War Ditches, which are located in Figs 3 and 4, came during excavation of the reservoir on Lime Kiln Hill in 1854. The *Cambridge Chronicle* reported the discovery of up to nine skeletons and noted that 'several of them were of large size, and were evidently the remains of men who reached to a greater height than ordinary men in the present day' (Filby 1995). Nearly 40 years later another skeleton was discovered in a new quarry pit opened by Messrs. Crawley and Tebbutt in 1893. This was reported to Professor Thomas McKenny Hughes, a very active member of the CAS who, with the help of Society members, embarked on an archaeological ex-

Proceedings of the Cambridge Antiquarian Society CI pp. 31–59.

Figure 1. *Location of War Ditches.*

cavation in the area of 'Tebbutt's Pit'. A large ditch was identified, thought at the time to be one of the great East Anglian linear dykes. The name 'War Ditches' appears to have originated at this date (Hughes *et al*. 1894, 319). Although the ditch's function remained uncertain, its infilling was accurately recorded: the ditch 'got gradually filled up by natural operations during more than one long period, judging by the growth of humus at successive levels, but it must have also been filled in artificially on at least two occasions by throwing back the chalk which had been dug out of it' (Hughes *et al*. 1894, 318; see Figs 3 & 4).

During these preliminary excavations, Hughes discovered five skeletons, seemingly laid into the ditch (Fig. 5, No. 1). Spurred on by the initial findings it was proposed that the CAS should undertake systematic excavations under the direction of Professor Hughes and with the help of the newly formed Cambridge University Digging Club. In a short article Hughes stated 'Since my last report (Feb. 3) the course of the great fosse has been quite straight, pointing towards the centre of the reservoir, but now it is beginning to curve around to the east.' (Hughes 1902a, 234). Continued excavations in the same year confirmed its circular nature and by the time of Hughes' second more lengthy report (1902b) the monument was being compared to the ringworks at Wandlebury and Arbury: 'We found that the fosse curved steadily round as if to pass under the Reservoir…It also enabled us to estimate the size and position of our earthwork on the assumption that it was circular, like Ring Hill, Wandlebury and Arbury. This assumption proved to be correct, and even with my spud I verified the line of the fosse through Caius Chalk-pit' (Hughes 1902b). Hughes concluded that '…we had a deep circular fosse excavated in the chalk by pre-Roman people who had little pottery…The material thrown out of the fosse was heaped up on the inside to form a vallum. The crumble from the sides of the neglected ditch filled the bottom to a depth of four feet more or less' (Hughes 1902b, 480). He reported that there then followed an episode in which numerous skeletons were 'thrown' into the ditch. The ditch was subsequently filled '… by the accumulation of vegetable mould, by debris purposely thrown in and accidentally crumbling down the sides, by the refuse of people who occupied the fosse from time to time' (Hughes 1902b, 481). Hughes identified problems with dating some of the material but concluded that the pottery was made in 'Romano-English' times.

Four more skeletons were found outside the ditch during quarrying between 1907 and 1911 which were deemed to be pre-Roman in date (Walker 1908, 267, fig. 1; *PCAS* 1912, 5). In 1913 the CAS appealed for further excavation to be carried out at War Ditches as it had been: 'explored only partially; at least two-thirds of the circle of the camp remains untouched, as well as the cemetery belonging to this pre-Roman settlement' (*PCAS* 1913, 5). The Cambridge Digging Club were subsequently awarded a grant of £5 'to assist in the expenses of exploring the War Ditches' (*PCAS* 1917, 4).

By 1939 the quarry was advancing at a rapid rate and the monument was at risk of being completely destroyed. The then Director of Excavations at the CAS, Mr T.C. Lethbridge, began excavating in the summer of 1939 with the assistance of Cambridge University staff and undergraduates. Two large trenches were opened, one to the east of Caius Pit, sited over Hughes' projected circle of the ring ditch and the other to the west between two sections previously excavated by Hughes. The western trench found the ditch as expected and showed a similar infill sequence to that recorded in Hughes' adjacent slots. Here, however, Lethbridge was the first to conclusively interpret the layer of skeletons towards the base of the ditch, which included a charred torso, as the result of a massacre. The eastern trench did not contain any traces of the ring ditch leading Lethbridge to conclude that 'what remains is either an unfinished work or something of a different character' (Lethbridge 1949, 118).

Excavation at the site intensified in the early 1950s and 60s but throughout this period the reporting of the findings became sporadic and in some cases inconsistent. The work of K.D.M Dauncy (Birmingham University) and C.H Houlder (Cambridge University Archaeological Field Club; CUAFC) identified the entrance to the ring monument and the overlying 2nd- to 4th-century AD settlement. The settlement evidence was published by D.A. White (1964a) but the report excluded the numerous segments excavated by Dauncy and Houlder along the north-eastern part of the ring work to the extent that White's publication (1964b, 13, fig.3) shows an insert of the settlement site over the area which they had investigated. The Cambridge University Museum of Archaeology and Anthropology (CUMAA) hold the field notes from the 1949–1951 seasons which give detailed descriptions of the entrance and the excavated segments of the ditch: the entrance 'was at the E. side, marked by a gap 48ft. wide in the main ditch, which was here turned out at right angles, in the form of two parallel ditches about 15ft. wide; they can be traced for 20 ft. to the modern hedge, but beyond this nothing is visible' (CUMAA, CUAFC Records Box 31 G03/7/3: 2). The excavated segments had the same infill sequence as previously recorded but there were notable differences in the form of the ditch itself. Here it was considerably narrower and shallower with the ditch terminal formed by two parallel cuts leaving a large central baulk (CUMAA, CUAFC Records Box 31 G03/7/3). This potentially unfinished part of the ditch (Fig. 4, Section 7) had a W-shaped profile 6.1m wide, but was only 2.4m deep at its deepest point and indicated 'large rubble' as its primary fill. Some of the other sections (see Fig. 4, Section 6) also had – unlike the completed parts of the ditch – large rubble blocks dumped directly back into their bases with no evidence for any weathering having taken place. The evidence combines to suggest that the monument had been destroyed before completion.

A large semi-circular feature to the east of the ring ditch (White 1962, 13, fig.3; located in Fig. 3) is described in a series of 'Extracts from correspondence with L. Barfield' as 'A very unusual depression in the

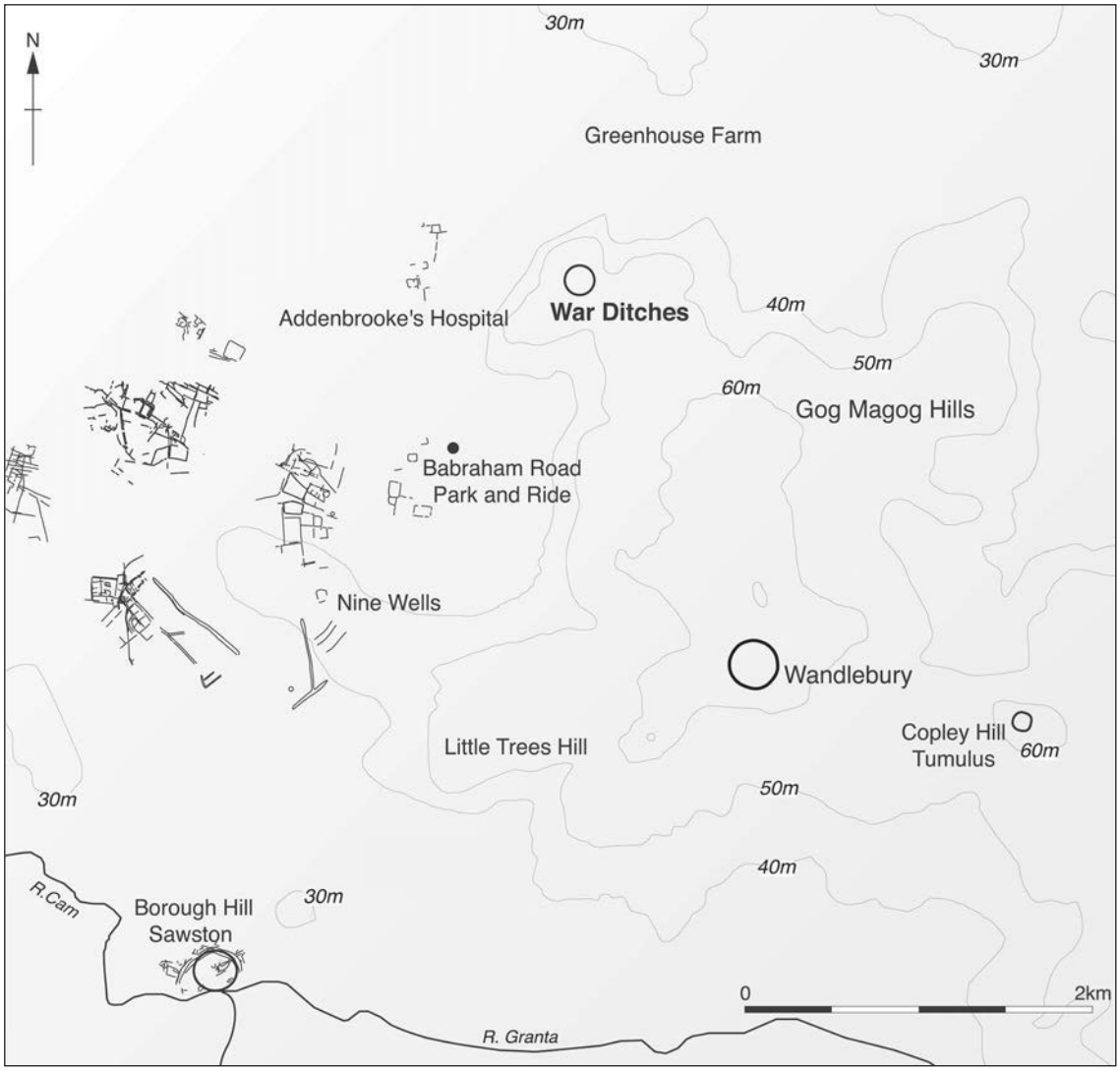

Figure 2. *War Ditches and surrounding sites.*

chalk; only part has been uncovered by bulldozing. It is approx. 3 ft. deep at its deepest point. The brown earth filling only produced a few sherds of Roman pottery near the surface. It is interesting to note that at the nearest point to it the main ditch narrows considerably as if it [i.e. the ditch] had been dug later' (CUMAA, Box 32 G03/7/6: 30.viii.58 F.).

It is occasionally difficult to differentiate between the works of Dauncy, Houlder, Barfield and White from the archive and published material available. However, following Dr Lawrence Barfield's death in July 2009 his field notes and archive were handed to OA East. They show the positions of three further sections through the ditch and its entranceway (Fig. 3). The advancing quarry had truncated much of the ditch and in the case of Section I had exposed skeletal remains within the ditch fill (Fig. 5, No. 7). In 1961/2 White excavated two sections through the ring ditch, one directly to the south of the current excavations and the other on the southern arm of the entranceway. The ditch sections demonstrated the consistent pattern of the infill sequence and also the variation in size between the main ditch (3.5m deep x 5m wide) and the entrance (2m deep x 3m wide). Human skeletal remains were recovered from the lower fills of both the sections (Fig. 5, Nos 8 and 9). White also reported upon an area to the south-west, within the enclosure corner, where up to nine apparently Early Iron Age pits covered an area of 40m in length and 10m wide. These were to be the last excavations at War Ditches for nearly half a century, until the spring of 2009.

Table 1 summarises the location and nature of the human remains recovered that correspond to the destruction of the monument (Fig. 5). The reporting from previous interventions is often sketchy but the table provides an overview from both published and archived data.

War Ditches and the Wider Landscape

Despite the fact that the monuments at Wandlebury and Arbury have been subject to a number of in-

No.	Date	Excavator & Publication	Location	Human Skeletal Remains
1	1893	Hughes Pub. 1894 and 1902b	Segment I	Five nearly complete skeletons lain in the ditch. (perhaps those reported in 1902b?) and an isolated skull. 2 adult male, 2 young females, 1 'aged' female 'they showed no traces of violence, it is probable that they died a natural death.' (Hughes 1894,)
2	1901	Hughes Pub.1902a	Segment I	One skeleton found in the extension to Segment I 'it appeared to have suffered rough treatment..the skull was gone and the legs doubled back on the body'
3	1901	Hughes Pub. 1902b	Segment II	A number of skeletons. 'bodies of young and old of both sexes'. 'we clearly established the fact that some of the bodies had been dismembered'
4	1939	Lethbridge Pub. 1949	Between Caius and Tebbutt's Pits	A charred human torso 'the head arms and legs were charred off.' Also charred skull fragments and another skull ?female.
5	1951	Houlder (CUAFC) unpublished	Cutting A1 NE side	An isolated human tibia with cut marks
6	1951	Houlder (CAFG) unpublished	Cutting D1	One female (?EU 1.3.213 in the Leverhulme Centre catalogue), a human skull with 'the frontal missing' and a human femur
7	1956	Barfield (CAFG) unpublished	Cutting I	Two disarticulated skeletons (?EU 1.3.211, ?EU 1.3.212), one skull
8	1961	White Pub. 1962	Directly to the south of 2009 excavation	Adult male, 20-25 years old, complete. Lay on his back with left arm over right shoulder and right arm lying across the chest. Both legs drawn up with knees together (EU 1.3.246)
9	1961	White Pub. 1962	Entrance ditch	Adult female, 30 years old. (EU 1.3.243)
10	1961	White Pub. 1962	Southwest part of Caius pit (recovered by mechanical grab)	Adult female, 20 years old. (EU 1.3.245)
11	2009	Pickstone and Mortimer		Left adult fibula shaft

***Table 1**. Human skeletal remains recovered from the Early Iron Age 'destruction' layer at War Ditches. The location of each observation appears in Fig. 5.*

vestigations over the years, they remain enigmatic. Wandlebury lies just 2.5 km to the south-east of War Ditches and is positioned on the top of the chalk ridge of the Gog Magog Hills at *c.* 78m OD (Fig. 2). It consisted of an outer ring measuring *c.* 330m across constructed in the 5th century BC, with a much later (1st century BC) internal ditch and rampart which reduced the diameter to *c.* 218m (French 2004, 15). Wandlebury begs interpretation as a defensive structure with its substantial banks and ditches but is placed well away from the north-eastern scarp face of the hill which would have provided the more natural, defensive site. Its ditches would have been most visible from the southern, south-eastern and south-western sides leading French (2004) to suggest that the monument may have been linked culturally or tribally to the chalk downland to the south.

Arbury Camp sits on the edge of the Cam floodplain, 7 km to the north-west, at 14m OD. Its obvious similarities to War Ditches and Wandlebury lie in its circular form (*c.* 275m diameter) and its large ditch with an entranceway at the east. However, it is the ringwork's lowland location, its age and its lack of contemporary settlement that mark it out as different, and this difference leads to questions over the function of such monuments. Arbury appears to be perhaps shorter lived and of a later date than the others, having been in use somewhere between the 4th and 2nd centuries BC (Evans and Knight 2002, 44).

Borough Hill at Sawston, 6km directly to the south of War Ditches is the only true contour fort in the area, occupying a strategic location on a prominent chalk rise (24m OD) on the east bank of the Cam and above the river crossing at Whittlesford. The fort is roughly D-shaped and has double and triple ramparts with ditches up to 6m deep enclosing an area of around 7ha. It appears to have been constructed in the 5th or 4th centuries BC and to have contained contemporary occupation which may have continued through to the later Romano-British period (Mortimer 2001).

These four 'hillforts', including War Ditches, sit within an area of just 12.5km north to south and 2.75km west to east, and were all initially in use between the 5th and 3rd centuries BC. War Ditches was by far the smallest of the monuments (Table 2).

***Table 2**. Comparison of local hillfort sizes.*

Site	War Ditches	Wandlebury	Arbury	Borough Hill, Sawston
Diameter (*c.* m)	150	330	275	260 x 370m
Enclosed area (*c.* ha)	1.75	6.25	5	7

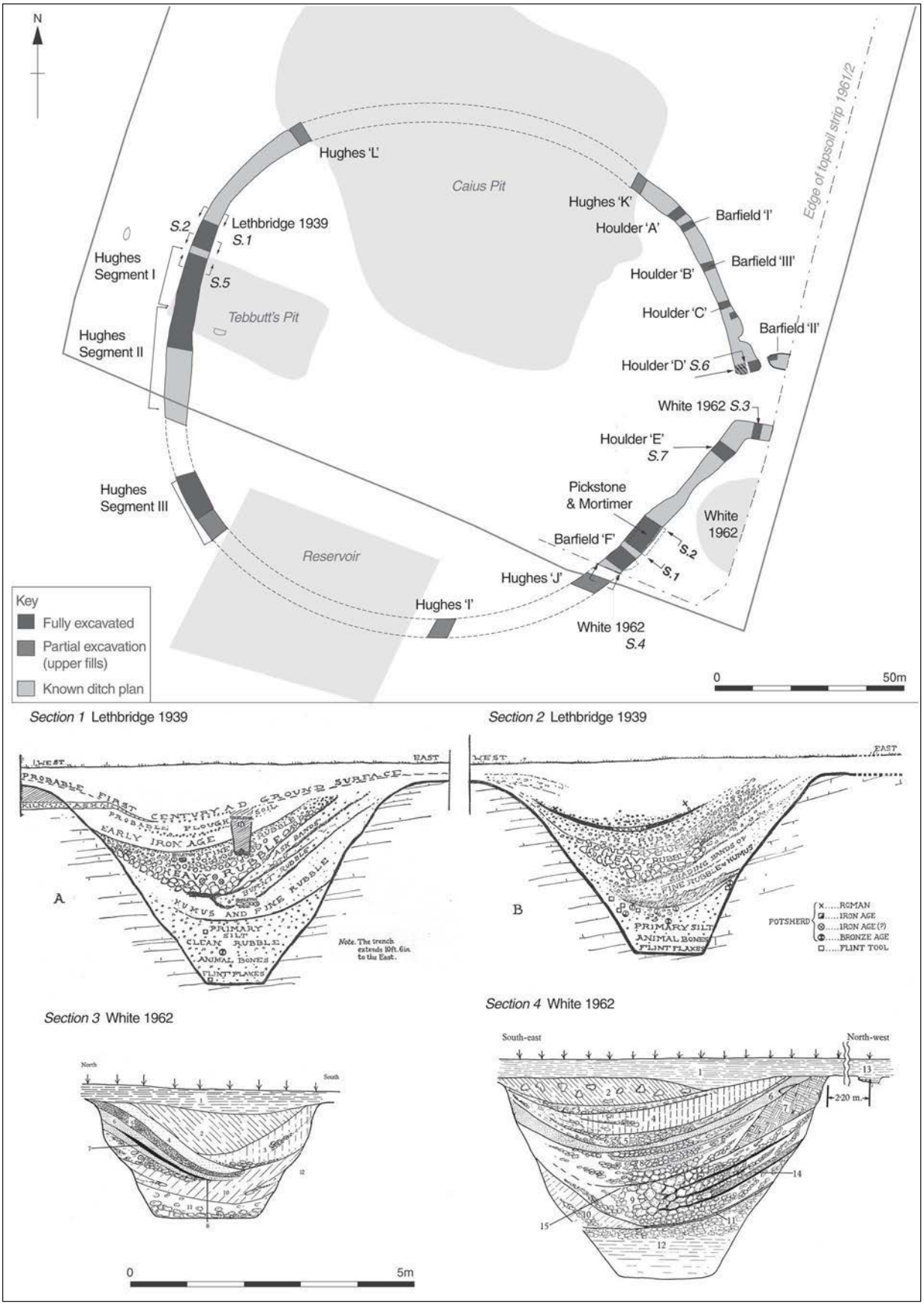

Figure 3. *Previous interventions with Pickstone and Mortimer 2009.*

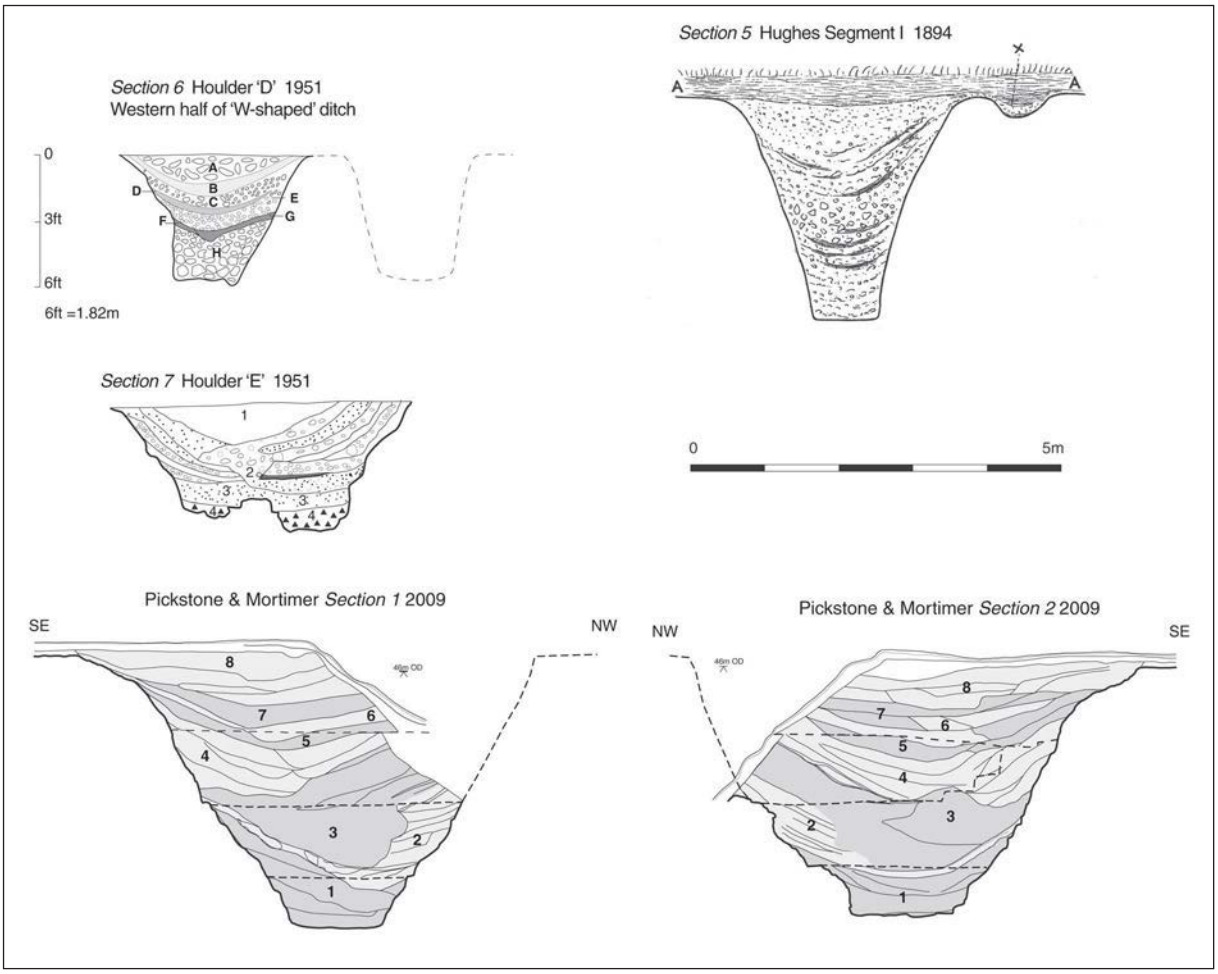

Figure 4. *Sections recorded from previous interventions compared with Pickstone and Mortimer 2009.*

The Excavation

Methodology

The field investigations of 2009 comprised the excavation of a single large section of the ditch, six 1m square test pits, a geophysical survey and an auger survey (Fig. 6). An area above the surviving ditch measuring 9m by 6m was de-turfed by hand and what little topsoil remained was removed (the area had been stripped of topsoil and subsoil prior to quarrying in the early 1960s). The upper, compacted and relatively sterile chalk rubble fill was excavated as a single context whilst all subsequent fills were divided into a chequerboard of 1m square spits for finds retrieval. The spits were either 0.1m or 0.2m deep depending on the fill type and the size of the chalk rubble. All spits were assigned a unique number linked to their relevant context (fill), and all contexts were assigned to a fill group, representing an archaeologically recognisable event. Each context was sampled (40 litres maximum) for the retrieval of environmental evidence.

Given the extremely precipitous character of the site when excavation commenced, work was conducted with the team wearing safety harnesses. Access to the ditch was made via a scaffold tower from the base of the quarry (Fig. 7).

The test pits were placed both inside and outside of the ring ditch to ascertain the levels of preservation of buried soils as well as to identify any surviving features. The auger survey sought to determine whether possible archaeological deposits visible in the chalk cliff were in fact the remains of the ring ditch or other features.

Site Phasing

Excavation revealed a well stratified sequence of fills spanning the period from *c.* 400 BC to *c.* AD 80 (Figs 8–10). Material from the test pits and other observations was assigned to Group 0. The ditch fills were grouped by event, each being radiocarbon dated. The radiocarbon results presented in italics below are based on the posterior density estimates or modelled dates detailed by Meadows *et al*. in later text. Pottery from the Early Iron Age fills dates to *c.* 600–300 BC, although refinement has been possible through scientific dating. The Iron Age reoccupation phase appears to start at around 50 BC (Group 5), largely on the basis

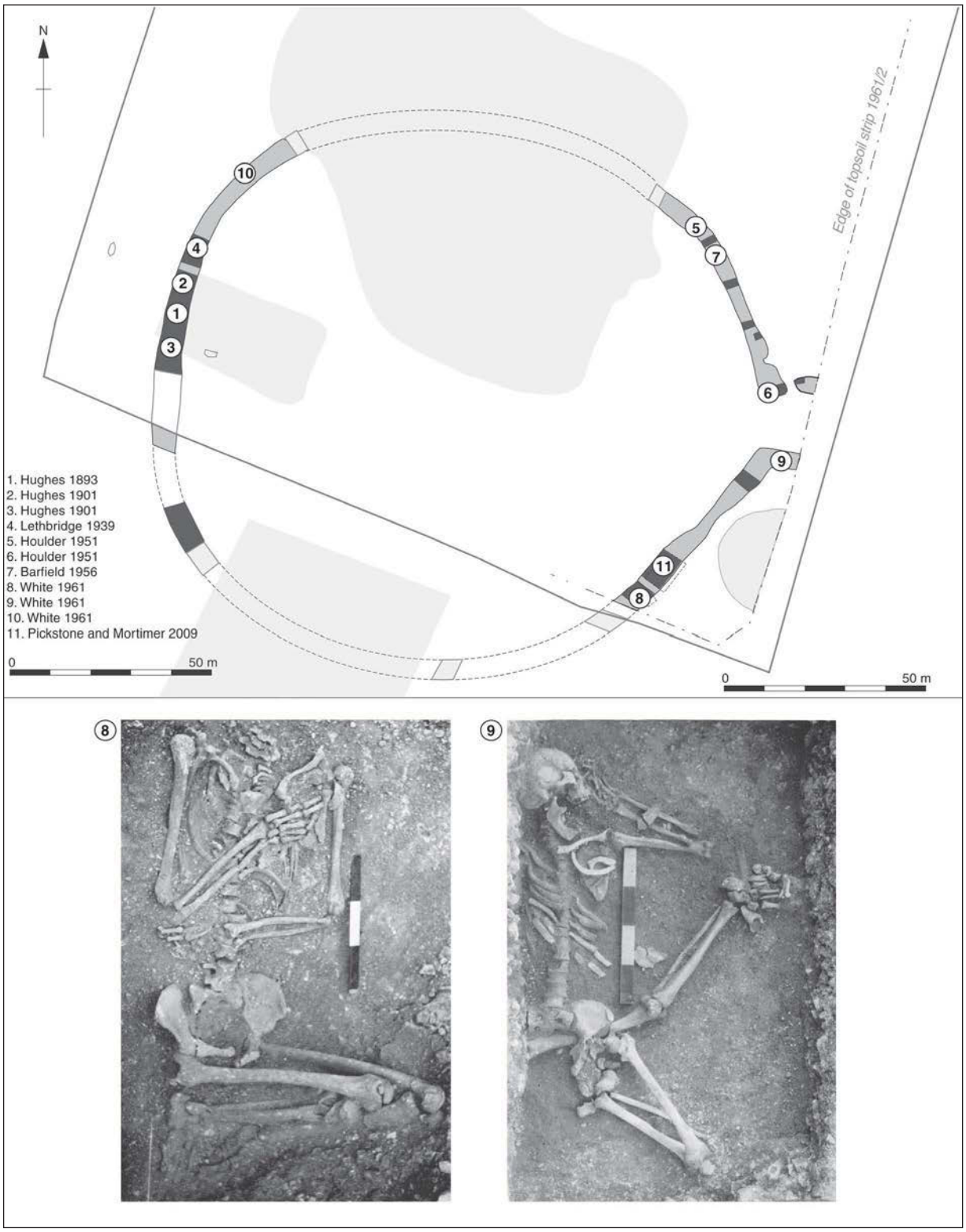

Figure 5. *Location of human skeletal remains.*

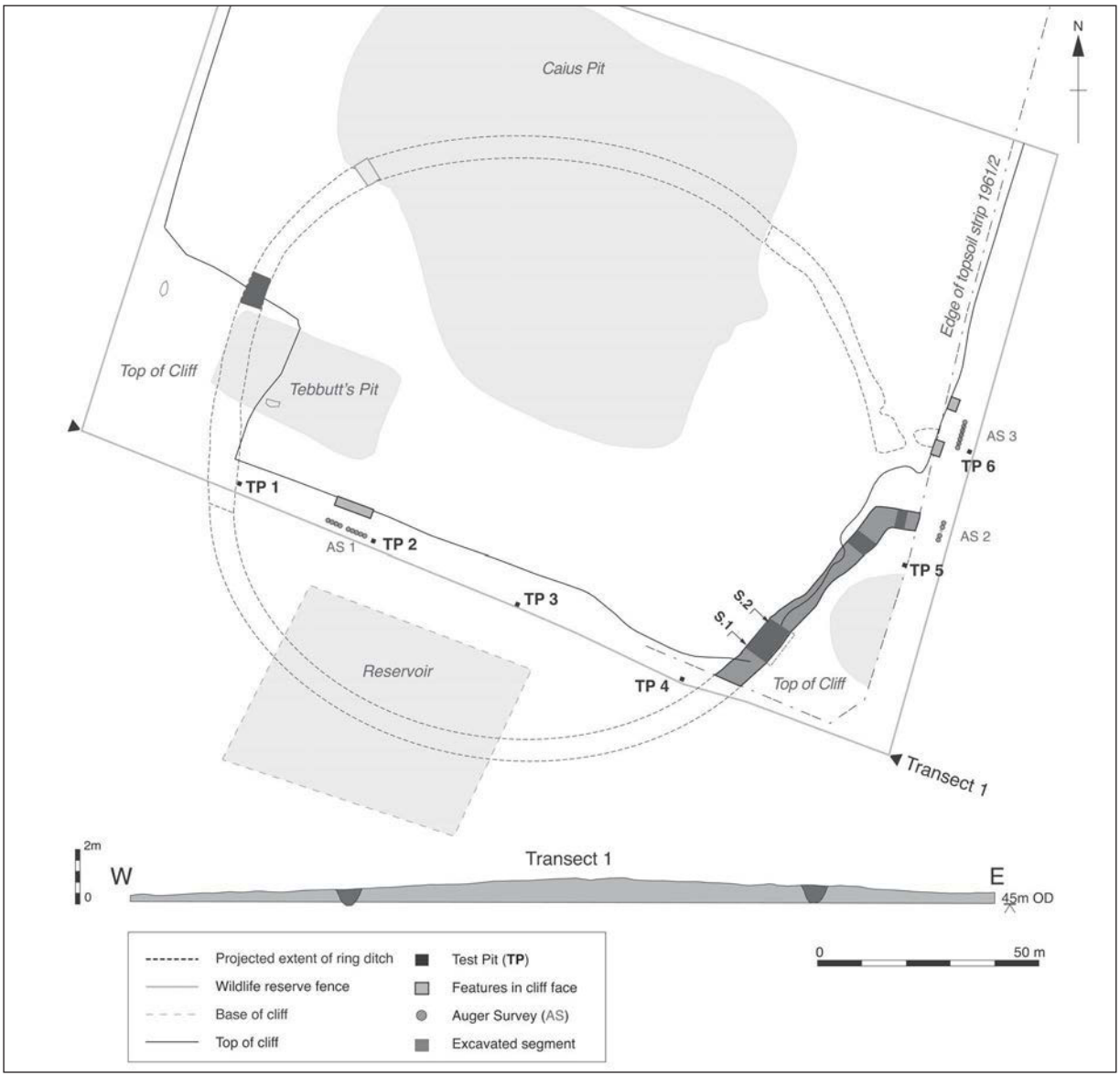

Figure 6. *Location of excavated segments and test pits.*

of the pottery, while the modelled radiocarbon dates indicate that this occurred in *245–110 cal BC* indicating an anomaly. The date of Groups 6–7 given below is based on the pottery evidence, while the final infilling (Group 8) dates to *c. cal AD 55–150* (68% probability) on the basis of the modelled radiocarbon dating, but can be refined to *c.* AD 50–80 on the basis of the pottery.

Early Iron Age

Group 1: Construction and initial weathering/infilling, *455–390 cal BC (68% probability)*

Group 2/3: Bank destruction, *405–380/465–385 cal BC (95% probability)*

Group 4: Abandonment *c.* 380 to 50 BC

Later Iron Age to Early Roman

Group 5: Later Iron Age reoccupation, *c.* 50 BC

Group 6/7: Continued settlement, *c.* 50 BC to AD 50

Group 8: Final infilling and levelling, *c.* AD 50–80

The groups are illustrated in Fig. 8, with contexts being indicated in Fig. 9.

Early Iron Age

Internal features

Test pitting along the southern edge of the quarry revealed a single feature inside the ring monument itself (TP 2, Fig. 6). This possible pit was 0.8m wide and 0.34m deep, and contained two fills, the uppermost of which contained 38 sherds (0.313kg) of Early Iron Age pottery including a single sherd of 'Chinnor-Wandlebury' style fineware.

Figure 7. *The excavated ditch viewed from the south.*

Monument construction and initial use:
455–390 cal BC (68% probability)

The excavated ring ditch measured 4m deep and *c.* 6m wide, with very steep sides; the base of the ditch was flat and narrow measuring 1.2m across, creating an almost V-shaped cut into the natural chalk (Figs 8–10). The infill sequence indicates that the bank would have been above the inner, western ditch edge. The sides of the ditch were rough and fractured, partly as a result of their original excavation and partly due to the effects of weathering; representing this process were six primary fills (Group 1) consisting of poorly sorted layers containing at least 70% chalk fragments in varying quantities of chalky silt. These accumulated to a total depth of *c.* 0.75m at the centre of the ditch and 1.1m on the eastern side. A very small finds assemblage was recovered toward the base of the fill, including eight sherds of Early Iron Age pottery, 417g of animal bone (chiefly a single horse jaw) and 15 pieces of struck flint. The horse jawbone was found close to the ditch base, on the interface between fills 266/267 and 264 (Fig. 9); radiocarbon dating returned a date of *495–385 cal. BC* (SUERC-30936, at 95% confidence). The derivation of the small number of finds within these early fills must be considered. The material could have come from earlier features which had eroded and weathered, from the original land surface through which the ditch was cut, or from the occupation of the area during the monument's construction and initial use.

Monument destruction/levelling:
405–380/465–385 cal BC (95% probability)

Above the basal fills was a clear change in the character of infilling, representing the rampart's rapid destruction and levelling. Twelve thin, lens-like fills lay on the western, bank side of the ditch (Group 2) – the proportion of large chalk fragments within these fills was noticeably low, with a corresponding increase in small chalk fragments, silt and pea grit. Some of the lenses were darker and soil-rich, while others consisted of fine chalky silt – the former deposits had the appearance of turf but were unconsolidated, suggesting an origin as loose soil run-off rather than soil growth. These lenses interleaved with the more substantial fills of Group 3 which comprised dumps of chalk rubble (up to 90% of the fill), in loose silty matrices with frequent voids and medium to large charcoal fragments. The rubble consisted of medium to very large chalk fragments suggesting that the fill was not the result of weathering but was a deliberate backfilling episode in which part of the bank material had been redeposited into the ditch. The interleaving of the two fill groups would have occurred as the large fragments of chalk rubble rolled or were thrown into the centre of the ditch, whilst the lighter turf and soils were caught on the edge.

Charcoal fragments found within the Group 3 fills could suggest a burnt structure, perhaps associated with the rampart. Similar evidence has been recorded in most of the earlier ditch observations, demonstrating a destructive event that was monument-wide. A single adult fibula shaft was recovered from these fills: most of the human remains found in previous investigations came from this level (Fig. 5, Table 1).

Few finds came from these fills, suggesting that little domestic waste was being produced at the site, or at least entering the ditch, during this period. A total of 125 sherds of pottery came from Groups 1–3 with an average sherd weight of 5g. The articulating foot bones of a sheep from context 263 (Group 2) were radiocarbon dated and gave a mean weighted date of *405–380 cal. BC* at 95% confidence (OxA-23231, OxA-23232, SUERC-30935).

Abandonment: c. *380–50BC*

Six fills (Group 4) were recorded infilling the hollow created by the redeposited bank at the ditch's eastern edge. They consisted of small to medium-sized chalk rubble in relatively dense silty chalk matrices and were interspersed with possible *in situ* turf lines. The total depth of these deposits was between 0.85m on the eastern edge and 0.2m on the truncated western edge; they gradually levelled up the uneven slope of the ditch fill left by the slighting of the bank. An assemblage of 210 sherds of pottery weighing just over 1kg, 3.5kg of animal bone, 1.6kg of burnt flint and 93 struck flints were recovered from these fills, nearly twice the weight of pottery and seven times the weight of bone recovered from the preceding fills (in Groups 1–3). There was, however, still a dearth of domestic or craft waste such as fired clay, loom weights or quern stones. Most of the finds may re-

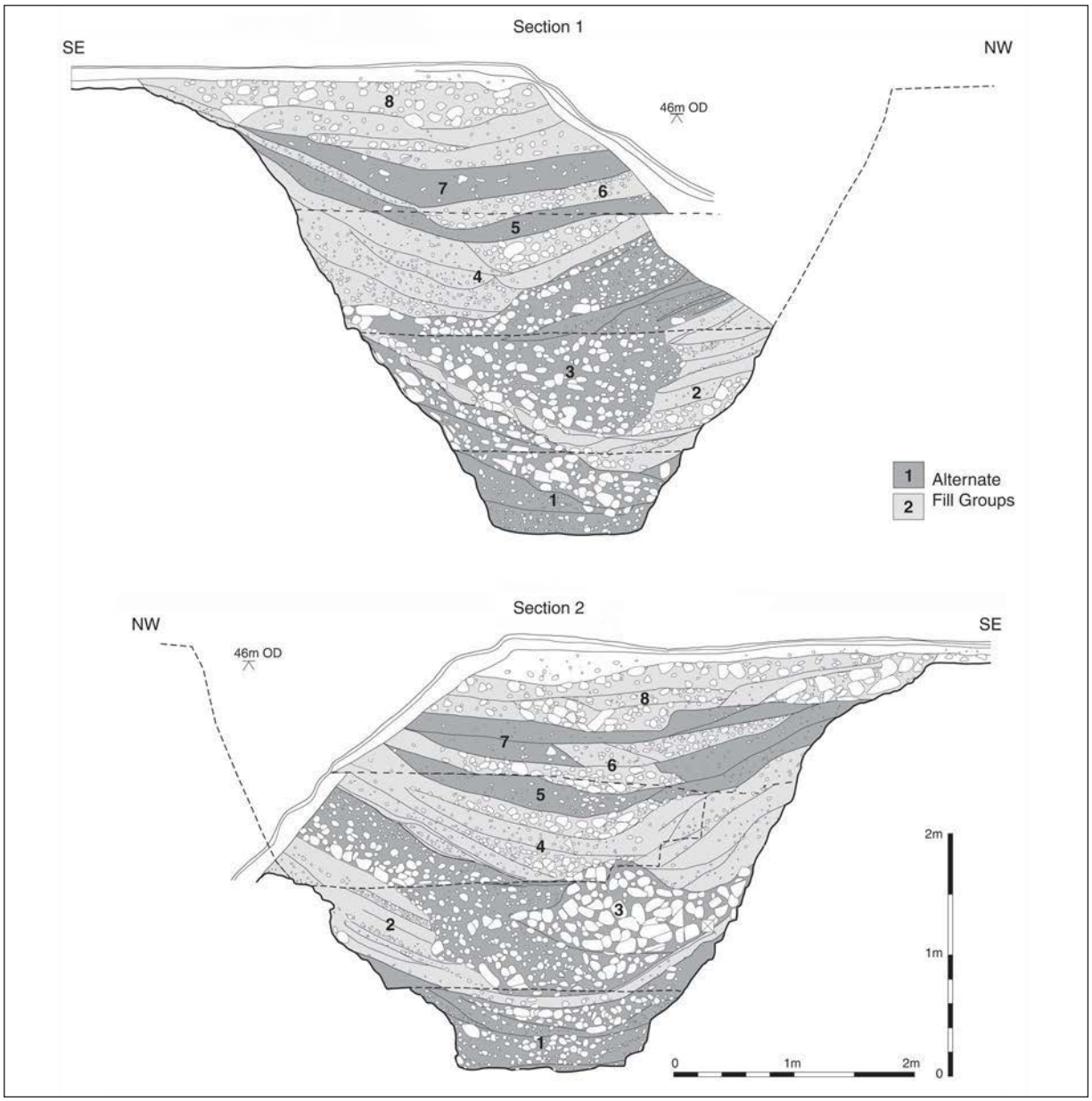

Figure 8. *Sections 1 and 2.*

sult from the long period of time it took for these fills to form; gradual erosion of the ditch edges and the subsequent inclusion of surface scatter material may account for the entire assemblage.

Later Iron Age and Early Roman

Later Iron Age reoccupation: c. 50 BC

A single darker, somewhat siltier fill with frequent chalk fragments and pea grit inclusions represented the later Iron Age reoccupation of the monument (Group 5); the start of this activity is dated by pottery to *c.* 50 BC. It had a maximum thickness of 0.3m and contained 430 sherds (3.33kg) of Late pre-Roman Iron Age pottery, 2.3 kg of fired clay and 3.4kg of animal bone. Much of the animal bone was spread along the length of ditch within a single layer, perhaps representing an episode of disposal. Bones of both sheep and cow were radiocarbon dated, returning results of *95 cal BC – cal AD 30* (OxA-23230, 95% confidence) and *120 cal BC – cal AD 30* (SUERC-30933, 95% confidence) respectively.

The settlement evidence: c. 50 BC – AD 50

Subsequent fills also date to the Late Pre-Roman Iron Age to Early Roman period, closely dated by pottery to *c.* 50 BC to AD 50. The composition of fill 95 (Group 6) was nearly 100% small to medium chalk rubble compared to the siltier matrix of preceding fills, although it was relatively finds-rich with 421 sherds (4kg) of pottery, 1kg of fired clay and 1.6kg of animal bone. Fill 52 (Group 7) which was up to 0.4m thick

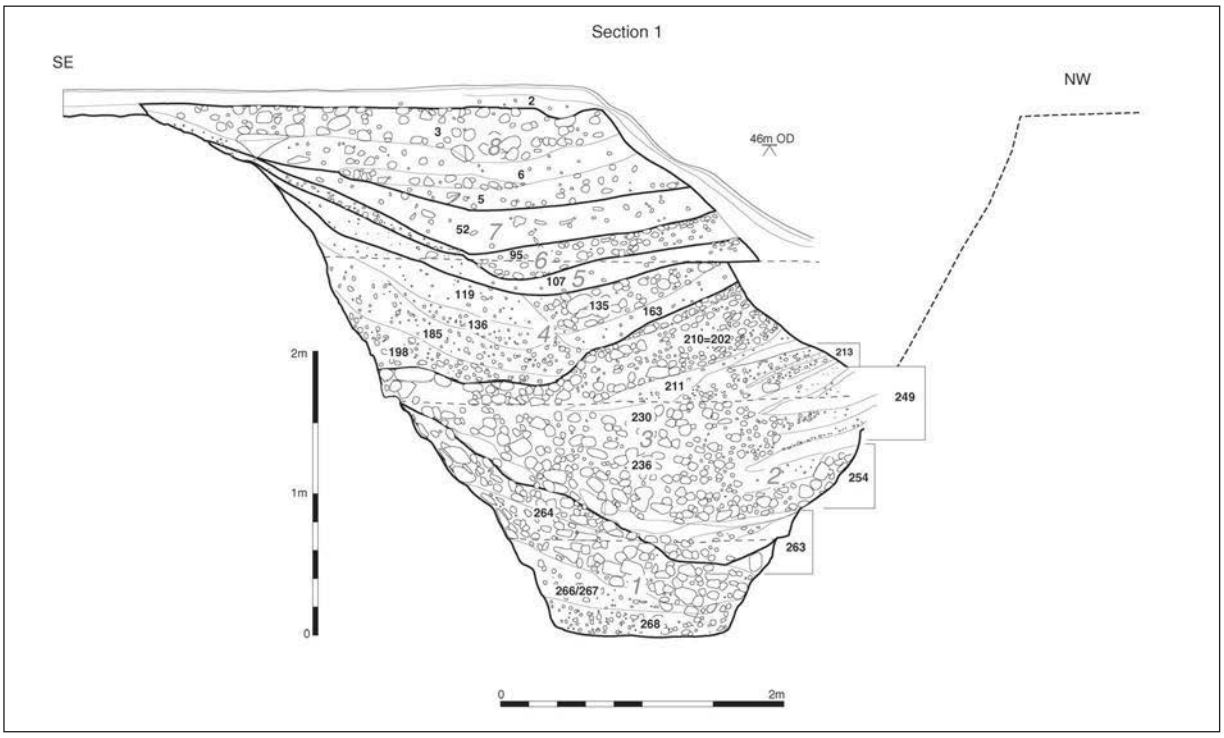

Figure 9. *Section 1, showing contexts by fill group.*

Figure 10. *Section 1.*

was similar in composition to fill 95 in Group 6 albeit slightly darker, more charcoal-rich and with a higher frequency of larger chalk pieces. The most obvious difference between the two was the vast increase in the quantities of finds from the later fill; over 20kg of pottery (2,703 sherds), 6.4kg of fired clay and 8kg of animal bone were recovered. A small unurned cremation was also cut into this layer, as was, presumably, the inhumation found by the children at the top of the slope; a bone from this skeleton was radiocarbon dated to *35 cal BC–cal AD 65* at 95% confidence (OxA-23233).

The final infilling: c. *AD 50 –AD 80*
Four chalk rubble deposits filled the upper 0.7m of the ditch (Group 8). The size of the chalk pieces suggests a second deliberate episode of backfilling, probably utilising the remainder of the bank inside the monument, since very few finds came from these fills and many of them were residual. A total of six fragments of Early Iron Age pottery and 49 sherds of Late Iron Age to Early Roman pottery came from the group. Two samples from a small area of ashy charcoal were sent for radiocarbon dating and showed that the charcoal had been incorporated into the chalk at or before the construction/destruction phase and was residual within this context; the tightest date was obtained by dating one sample twice, giving a weighted mean date of 520–395 cal BC at 95% confidence (OxA-23234, OxA-23235).

Finds and Environmental Evidence

Introduction

Finds are quantified by fill group in Table 3. The artefactual and ecofactual evidence is summarised below, with full details by fill group being available in the downloadable report.

Table 3. *Finds quantification by group*

Group	Pottery (kg)	Fired Clay (kg)	Animal Bone (kg)	Burnt Flint (kg)	Struck Flint (no.)
1	0.052		0.417		15
2/3	0.578		0.435	0.057	25
4	1.024	0.030	3.542	1.598	93
5	3.330	2.296	3.468		29
6	3.959	1.016	1.638	0.110	7
7	20.310	6.357	8.080	0.366	43
8	0.616	0.004	0.059		3
Total	**29.869**	**9.703**	**17.639**	**2.131**	**215**

Struck and Burnt Flint
Barry Bishop

Most of the assemblage of 226 pieces of struck flint came from ditch fills, although four pieces came from Test Pit 2 and seven others were unstratified, giving a total stratified assemblage of 215 items. There was a small number of residual recorticated and abraded pieces, but the remainder of the assemblage appears to be of Iron Age date and broadly contemporary with the ditch's infilling. The characteristics of flintworking during this period have been much discussed (Young and Humphrey 1999; Humphrey 2003; 2004; 2007) with the result that Iron Age flintworking has been identified as a research priority (Haselgrove *et al*. 2001). Definition of the specific typological and technological changes in struck flint industries through the late 2nd and the 1st millennia BC remains poorly understood, meaning that the sealed and dated assemblage from War Ditches is of some significance.

The raw material is typical of flint nodules from the New Pit Chalk Formation, which outcrops *c*. 1km to the south-east. Similar flint is likely to be present within remnants of glacial till and can be found as 'erratics' in the local topsoil. No flint was encountered in the chalk sides of the ditch, nor observed in the quarry faces.

The struck assemblage is technologically homogeneous, consisting of a very simple flake and core industry. Flakes account for nearly a third of the assemblage with flake fragments contributing a further 15%. The lack of micro-debitage suggests that the material was dumped into the ditch rather than knapped *in situ*. The recovered flakes are variable in shape and size, tending to be small but thick; they average around 30mm in both length and breadth and 9mm in width. Their small size reflects both the limitations of the raw materials and a lack of flaking skill. Hard hammer percussion appears to have been exclusively used. A small proportion of flakes provide macroscopic evidence for light utilisation, in the form of unifacial or bifacial spalling that probably arose from cutting or scraping soft to moderately hard materials (Tringham *et al*. 1974).

Cores were very simply reduced, some having been utilised as heavy duty scrapers, or for chopping or boring. Conchoidal chunks formed the largest single category of struck flint. Most are fragments of cores that disintegrated during reduction due to the presence of thermal faults. Many of these have sharp edges and again may have been used for tasks such as cutting or scraping.

Burnt flint (2.14kg) was present throughout much of the ditch's profile. Some of the assemblage may have been residual, but the bulk of it is probably associated with activity occurring in the vicinity of the ditch during its infilling.

Flintworking was clearly being undertaken at the site during the Early Iron Age and appears to have continued into the Late Iron Age. The quantities present in the excavated portion of the ditch suggest that a great quantity of flintwork was made and used at the monument. Varying degrees of competency in flint tool production are apparent; none of it was very skilfully reduced and it is unlikely to have been made by skilled workers. No formal tools were produced; rather, the objective of flint reduction appears to have been the production of either sharp or steeply angled

edges on pieces of flint for tasks such as cutting, chopping, whittling and scraping.

The flintwork from War Ditches conforms to the pattern of slowly decreasing elaboration in flintworking techniques that, in broad terms, can be traced from the Mesolithic and into the Bronze Age (Ford *et al*. 1984; Ford 1987; Pitts 1978a; 1978b; Pitts and Jacobi 1979). A key feature of many of these studies is the observation that flakes tend to become broader over time, indicating a diminution of skill in producing pieces with long useful working-edges. The War Ditches material certainly conforms to this pattern as can be seen in a comparison with a sample of dated assemblages as given in Pitts (1978b, 194) and as modified from Pitts and Jacobi (1979, 166) (Table 4). Included in this table is the substantial assemblage from Sawston Police Station that has been dated to the Late Bronze Age. This site is located less than 4km to the south of War Ditches and the flint assemblage used similarly flawed raw materials, which allows the technological aspects to be more accurately compared. Overall, these two assemblages are remarkably similar, the main differences being a greater percentage of conchoidal chunks and a small reduction in the proportion of flakes amongst the material from War Ditches.

Early Iron Age pottery

Matt Brudenell

The investigations yielded 440 sherds of Early Iron Age pottery (2359g): two pieces of residual Early Bronze Age pottery (14g, one possibly Beaker) were also recovered. The assemblage primarily derived from the ditch fills (the majority from Groups 1–4), with small quantities being recovered from Test Pit 2. Overall, the material is dominated by highly fragmented sherds, the assemblage as a whole having a low mean sherd weight (MSW) of just 5.4g. Radiocarbon determination suggests that the earliest pottery was deposited during the mid 5th to early 4th century BC, equating to the closing stages of the Early Iron Age. The assemblage can therefore be regarded as one of the most securely and 'tightly' dated groups of Early Iron Age pottery from Cambridgeshire.

A diverse range of pottery fabrics was encountered, with 21 Early Iron Age fabric types being distinguished, belonging to eight main groups. By weight, around two thirds of the pottery (63%) was tempered with burnt flint and sand, whilst the remaining third was shared amongst 'minor' fabric groups with sand with flint (10%), flint (6%), sand (6%), shelly limestone and flint (6%), shell (5%), sand with flint, grog and limestone (4%), and flint and quartzite (<1%). This range and frequency of fabrics is best paralleled at Wandlebury, where 57% of the pottery is recorded as flint-tempered (Webley 2005, 39). Burnt flint and sand tempered fabrics tend to typify Early Iron Age assemblages in southern and western Cambridgeshire, although the relative frequencies of other 'minor' fabric groups are generally more variable. The clays and tempering agents required to produce the War Ditches Early Iron Age pottery were all available within the local landscape. Petrological analysis of nine thin-sectioned sherds submitted from this group revealed that all the raw materials could have been procured relatively close to the site (see Lyons, below).

As with all Late Bronze Age and Early Iron Age pottery assemblages, the ceramics divide into burnished finewares and un-burnished coarsewares (Barrett 1980). Some 58 sherds were identified as being burnished, polished or carefully smoothed (326g; 13.8% by weight, or 13.2% by sherd count). As is usual, this form of surface treatment was most prevalent on sandy wares, and those vessels made with well-sorted and finely crushed inclusions.

Few vessel profiles could be reconstructed and only five vessels were assigned to form (48 sherds, 353g), including three coarseware shouldered jars and two hemispherical bowls: one a fineware, one a coarseware. Based on the minimum number of different identifiable rims and bases, the assemblage is estimated to contain fragments of at least 38 different vessels (26 different rims – EVE 0.50; 12 different bases – EVE 1.18). The ten coarseware bases included in this number all have simple flat feet (where surviving), whilst the two fineware examples are of pedestal form. The latter are chronologically significant as they do not appear in the ceramic repertoire before 600 BC (Hodson 1962, 142; Barrett 1978, 286–287). Most of the rims have flat or rounded lips; some of which are slightly expanded or rounded externally and/or

Table 4. *Complete flake breadth(B)/length(L) ratios compared with those recorded by Pitts (1978) and at Sawston Police Station. Presented as percentages of the total assemblage.*

		Narrow blades	**Blades**	**Narrow flakes**	**Flakes**	**Broad flakes**
B/L	<0.2	0.21–0.4	0.41–0.6	0.61–0.8	0.81–1.0	1.0+
Pitts 1978, 194						
E. Meso	2	43	27	13	6.5	9
L. Meso	0.5	15.5	30.5	22	14.5	17
E. Neo	0	11	33	27.5	14.5	13
L. Neo	0	4	21.5	29	20	25.5
Chalcolithic	0	2.5	15	24	24	35
Bronze Age	0	3.5	14.5	23	23	35.5
Sawston	0	0.8	8.8	20.8	24.4	45.2
War Ditches	0	0	6.0	11.9	26.9	55.2

internally, with the two fineware examples being more carefully moulded. Though none of the form-assigned vessels are ornamented, 33 decorated sherds were identified (227g). The un-burnished coarsewares are ornamented on the rim-top, exterior rim-edge, shoulder, or less commonly, the neck or body. These zones are adorned by single rows of either fingertip/nail marks or tooled impressions; eight of the 18 different coarseware rims being decorated. Noteworthy are two unusual, but residual decorated sherds (refitting) from context 77 (Group 7) (25g, fabric QFGCH1), adorned by a series of pin-prick like impressed dots. The sherds have a rim/lip, and appear to belong to ladle or crude coarseware spoon, which is hard to parallel. It is certainly unlike the unpublished examples from Linton or Exning, Suffolk (Brudenell forthcoming), and may in fact prove to be Early Bronze Age.

Evidence for vessel use was identified in the form of limescale (interior of one sherd, 16g) and thin carbonised residues adhering to sherd surfaces (15 sherds, 145g). The latter were classified as traces of sooting: five on sherd exterior surfaces, eight on sherd interiors, and two on rim-tops. Three carbonised residues adhering to the interior of Iron Age pottery from Groups 2 and 5 were submitted for radiocarbon dating (see Meadows *et al*. below).

The radiocarbon determinations have refined the dating of the Early Iron Age ceramics, which could only be placed in a broad chronological bracket between *c.* 600–350 BC on typological grounds alone (Brudenell 2010). More importantly, owing to the petrological analysis, we can be much more certain about where the clays and tempering agents used in the pottery derive from. This is particularly significant, as it is the first time since the Fengate Project (Pryor 1984, 134) that thin-section analysis has been conducted on sherds of Early Iron Age ceramic from Cambridgeshire. Here the results suggest that raw materials were all potentially collected from the local landscape. The exact location of these procurement sites is unknown, but several sources appear to have been used, judging by the variations in the shelly limestone fabrics. That said, many of the materials needed for potting could have been exposed and obtained along the Cam Valley and its tributaries to the west and north-west, where the watercourses would have cut into the varied deposits flanking their route.

Only six of the burnished fineware sherds are ornamented (72g); three with horizontal grooves/furrows; one with a cordon; one with a row of closely spaced dimples, and one with an incised double chevron. The chevron motif is particularly characteristic of fineware ceramics belonging to the 'Chinnor-Wandlebury' style group (Cunliffe 2005, 101–102), and is prevalent in a number of assemblages across the Chilterns and southern Cambridgeshire, including local examples at Wandlebury (Hartley 1957, 16, fig. 7, no. 9; Webley 2005, 42, fig. 2, no. 9), Trumpington Park and Ride/Meadows (Brudenell and Dickens 2007; Brudenell forthcoming), the Addenbrooke's Link Road Site 1 (Brudenell 2007) and the Milton Landfill Site (Brudenell and Philips 2008). Also significant is a single residual sherd of red 'haematite' coated pottery recovered from fill 5 (Group 7; 1g). Haematite-coated ceramics are regularly encountered in Early Iron Age assemblages in Wessex, parts of the Thames valley and Kent, but are rare in Eastern England, suggesting they were probably non-local imports obtained through exchange networks linked back to southern Britain. The only sites from Cambridgeshire, Norfolk, and Suffolk thus far known to yield such wares are War Ditches, Wandlebury (Cambs; Hill 2003), Fordham (Cambs.; Braddock and Hill forthcoming), Exning (Suffolk; unpublished), Snettisham (Norfolk; unpublished), Aylsham (Norfolk; unpublished) and Darmsden (Suffolk; Cunliffe 1968). All but the last two are located on a line approximating to the path of the Icknield Way, suggesting that this may have been the route along which material was exchanged.

Late Pre-Roman Iron Age and Early Roman Pottery
Alice Lyons

Late Iron Age to Early Roman pottery constituting 3617 sherds, weighing 27.223kg, with an estimated vessel equivalent (EVE) of *c.* 25 vessels was recovered from the surviving section of the encircling ditch (largely from Groups 5–8, the majority coming from fills assigned to Group 7). The material is severely abraded with a MSW of only *c.* 7.5g; despite this, some evidence for wear and use survives. Since most of the assemblage consists of body and base sherds only, the Estimated Vessel Equivalent (EVE: based on rim measurement) is severely under representative; the minimum vessel count is significantly higher at *c.* 500 vessels. Most of the pottery consists of latest Iron Age and Early Roman locally produced reduced ware jars and bowls (often cordoned and carinated), many of which are certainly contemporary within the Transitional Romanising period (between the Iron Age and Roman). Small amounts of imported Gaulish grey ware beakers and Terra Rubra dishes were also found, as were single fragments of a South Gaulish samian dish (Dr18) and the foot from a Spanish olive oil amphora (Dr20). In the latest deposits fine wares thought to have been produced at the nearby kilns at Cherry Hinton were also found. The assemblage is remarkable in that much of it appears to have been deposited within a relatively short period of time between 50 BC and AD 50 and as such is one of the most closely dated pre-conquest assemblages excavated in south Cambridgeshire. Carbonised residues adhering to a Late pre-Roman Iron Age vessel and an Early Roman Horningsea-type jar were submitted for radiocarbon dating (see Meadows *et al*. below).

The majority of the assemblage consists largely of handmade (and to a lesser extent wheelmade) locally produced utilitarian reduced ware jars and bowls (Thompson 1982, type B-1), which were usually either undecorated or externally burnished, although some were decorated with fine combed lines. Most frequent within these reduced wares are quartz- tempered fabrics, although grog as the main temper was also common, while flint-tempered clays and clay

with naturally occurring fossilised shell were also used to a lesser extent.

Diagnostic vessel-types are poorly represented although in the quartz- and grog-tempered fabrics several examples were identified, including a handmade reduced ware wide-mouthed bowl with a rippled shoulder and a domestic copy of a Gaulish butt beaker (Thompson 1982, 507–528). In addition to these vessels were two examples of carinated wide mouthed cups (Thompson 1982, E1–2) in both handmade and wheelmade versions and a related although squatter and less distinctly carinated wheelmade form (Thompson 1982, E2–1). The latter vessel was particularly intriguing as the different joining fragments of the cup were quite different colours, suggesting they had undergone varying post-use processes (one was burnt) before they were deposited within the same context. It is also noteworthy that several vessels in this group show signs of adaptation and secondary use: one has a post-firing hole drilled in the neck, others have had post-firing holes drilled in the base. It is interesting that all the adapted vessels are wheelmade – perhaps the method of manufacture meant they were strong enough to withstand secondary working.

While no flint-tempered vessel types could be identified, all of the fossilised shell-tempered fabric sherds could be assigned to one specific form, a globular lid-seated jar (Thompson 1982, type C5-1) in use from the Late Iron Age with little change. The external surfaces of these pots are commonly marked with smoke and are thought to have been primarily used as cooking pots. These vessels can be handmade or wheelmade, although the wheelmade versions are frequently decorated with a fine horizontal rilling.

Small amounts of proto (pre-industrialised) grey wares were also found – within this group of material wheelmade technology is clearly more widely used as 56% (by weight) were made in this way. Most are undecorated, although many have an exterior burnish, while combed motifs also appear. Combed decorative techniques are known to have been a trait of the pottery previously identified as being produced at the War Ditches site (Webley with Anderson 2008, 69), so its presence here may be significant. Most of the handmade material can be assigned to the undiagnostic wide mouthed jar/bowl category, although storage jars were also found. The wheel made vessels are mostly utilitarian jar/bowl forms, although a handmade carinated cup and a necked bowl were also found. Another grey ware sub-group is distinctive and is primarily tempered with grog, this clay mix having been used exclusively to produce wheelmade jars and Gaulish-type platters.

Several grey ware fragments are quite fine with oxidised burnished surfaces additionally decorated with fine rouletting. This fabric seems to be very closely associated with the butt beaker form and may indeed be fragments of imported Gaulish (Tomber and Dore 1998, 74) vessels, although some indigenous copies were also present. Other fine grey wares have similar surface treatment but are decorated with 'arcs' or 'zig-zags' depicted in red paint. Vessels decorated with similar red paint designs were also found at the Hutchinson Site at Addenbrooke's (Webley with Anderson 2008, 71) and may have been produced in Colchester before the Boudican revolt (AD 61–65).

The white ware material includes a small amount of a quartz-rich gritty fabric found as undiagnostic jar/flagon body sherds, consistent with domestically produced Verulamium white wares (Tomber and Dore 1998, 154). The white ware material that cannot be assigned to a manufacturing source includes several beakers. Medium mouthed jar sherds are the most common form. Included here are several body and base sherds that are consistent with Gaulish amphora-class flagons (Tomber and Dore 1998, 93). A single piece (a foot) from a Spanish DR20 amphora (Tyers 1996, 87–89) was also found.

Several sherds of Gallia-Belgica Terra Rubra (Tomber and Dore 1998, 17–21) platters were recovered (Tyers 1996, 162, fig 198). Of the two samples sent for thin-section analysis from this stratigraphic group, one was a genuine import; the other was a local (unsourced) copy.

Fine wares were found in small quantities. Of particular interest are the fine red ware sherds that are distinctively decorated with a barbotine red slip 'ring and dot' motif. This is similar to vessels found at War Ditches previously (Evans *et al*. 2008, 103, fig, 1) and may well have been produced at the early (AD 55–90) fineware production centre at Cherry Hinton (Evans 1990), located only a short distance away. Also worthy of note – because it was the only piece found – is a single sherd of South Gaulish La Graufesenque samian from a Dr18 type platter (Tyers 1996, 109, fig 93), which dates between AD 50–110. That so little samian was recovered is a real indicator that the majority of this deposit was laid down before this material became a common import (even to rural areas) in the third quarter of the 1st century AD (Tyers 1996, 56).

It is noteworthy that the War Ditches' assemblage is largely utilitarian in character; tablewares are rare, as are specialist products. No tazzas (a carinated cup form) were recovered and only one pedestal urn (Thompson 1982, 33). This dearth may indicate that the assemblage largely post-dated the period when these vessel types were most prolific (early-to-mid 1st century AD), or rather that the settlement was not of sufficient status to use these impressive vessels. Single sherds only of Spanish olive oil amphora and South Gaulish samian were found, which again might reflect status, as well as the chronology of the site and cultural choices, while mortaria (Romanised mixing bowls) (Tyers 1996, 116–135) are totally absent from the assemblage. Different ceramic wares were not always available (samian supply is known to have fluctuated during the 1st century; Tyers 1996, 56), meaning that the absence in an assemblage of any traded ware can be an indicator of disturbed trade conditions rather than consumer choice and/or status. Moreover, many (particularly the wheelmade sherds) had been adapted for a secondary purpose either as a drainers (?possibly steamers), spindlewhorls or as lids – which shows a society willing, or having,

to improvise by using the materials available to them.

Establishing the status of those who deposited this material is not a straightforward process. These people had the resources to produce and use large amounts of household ceramic wares, with some (limited) access to both domestic and international imports from the wider Roman Empire. They were not without the means to benefit from trade but perhaps did not choose (for economic or cultural reasons) to invest much of their surplus in certain ceramic goods or the consumables which they contained. It can be said, however, that the pattern of pottery production and use recorded at War Ditches appears typical for this distinctive transitional period in the small area of southern Cambridgeshire in which is was located.

Ceramic Petrology
Alice Lyons

The War Ditches lie on the edge of the Upper Cretaceous Holywell nodular (shelly) chalk formation in an area that has been heavily quarried in recent times. To the north is the narrow Zig Zag (grey) chalk band which joins the West Marly chalk formation, within which are limestone layers and beneath which are the glauconitic Cambridge Greensands. This geology overlies Gault clay deposits that are suitable for pottery production and would have been available from the river valleys where water erosion would have revealed suitable deposits. The nearest natural outcrops of Gault clay (away from the river valleys) occur 3km to the north and the north-west (British Geological Survey 2002). Flint nodules may also have been retrieved from the river valleys or from glacial deposits on top of the Gog Magog Hills 1km to the south south-west.

The ceramic assemblage can be loosely grouped into calciferous lime-rich fabrics, (including fossilised shell) and quartz-based fabrics, although variations within these groups demonstrate that there are several different (mostly local) clay sources, and possibly production centres, represented here. The local geology could have provided the raw materials for the majority of the pottery, the distance falling well within our understanding of the distances potters were prepared to travel to collect clay: a *c.* 7km radius can be considered local (Arnold 1985; Morris 1996).

There is considerable variety in the levels of clay preparation at War Ditches (within both the handmade and wheelmade sherds) indicating that different potters were at work, with differing interest (or skill levels) in how well the clay was prepared. The sherds containing glauconite belong to both the handmade and wheelmade fabrics. This contrasts with findings at Wardy Hill (Williams 2003) in the north of the region (where glauconite was associated with wheel made products only), probably reflecting the proximity of the Greensand deposits and the high levels of local pottery found here.

Grog (previously fired clay deliberately broken and introduced into the clay by the potter) was in use, both in the Iron Age and Early Roman fabrics, but in none was grog the sole temper. Sometimes only a few pieces were included and it appears to have become a 'socially embedded' practice. All the grog pieces contain similar material (quartz, quartz and flint) to the clay matrix in which they were found, demonstrating a certain level of continuity of production method.

Some of the Proto grey ware fabrics can be compared with clays used at local kilns sites (such as Addenbrooke's (Webley with Anderson 2008 (Fabric K)) or Greenhouse Farm (Gibson and Lucas 2002 (Fabric OX2)) and may have been prepared there. At least one kiln, however, has been found within the War Ditches perimeter (White 1964, 5; see below). Analysis of the Terra Rubra fabrics suggests that both genuine and local copies were in use.

Fired Clay
Alice Lyons

Most of the assemblage of fired clay came from deposits assigned to the transitional period. Of particular interest are a number of plate fragments: these are solid (unperforated) with fumed surfaces that are between 31 and 35mm thick and have a curved outer edge. They are all made from the sandier fabrics (Fabrics 2, 3 and 4) and are consistent with the portable or temporary kiln floor plates that were used as kiln furniture in the Late pre-Roman Iron Age and Early Roman period (Swan 1984, 64–65). At least one pottery kiln has previously been identified at War Ditches (Evans *et al*. 2008, 102–106) and it is possible that these plates are associated with that kiln or others yet to be located (Swan 1984, 61).

Metalwork
Nina Crummy

Fill 107 (Group 5) yielded a one-piece Colchester brooch, dating to *c.* AD 10–50. These are a Catuvellanian/Trinovantian type and were made in considerable numbers; at Verulamium and Camulodunum, they are the principal type present before the conquest (Hull forthcoming, Type 90; Stead and Rigby 1986, 112; Niblett 2006, figs 9–10; Hawkes and Hull 1947, 308–10).

A proto-Rosette brooch from fill 52 (Group 7) is an imported type that is rare in Britain. This form is the forerunner of the Rosette or Thistle brooch and is generally considered to be Augustan, although Feugère has suggested a revised dating (1985, 269). A date-range of 30 BC to AD 30 is offered by Hattatt (1987). Most of the British examples are from the eastern region: those closest in form to the War Ditches brooch come from Camulodunum in Essex, Braughing and Skeleton Green in Hertfordshire (two), and Bradwell in Norfolk (Hull forthcoming, Type 25A-B; Mackreth 1981, fig. 70, 41; Hattatt 1987, 31).

Human Remains
Natasha Dodwell

The surviving articulated elements of the burial found by children in 2008 included both left and right tibiae,

fibulae, and patellae and most of the bones from both feet. The distal halves of both femora were also recovered. The upper part of the body probably eroded out from the quarry face. All of the skeletal elements were extremely well preserved and very gracile. No traces of the epiphyseal line of fusion were observed on the limb bones indicating that this individual was over the age of 18 or 20 years when he/she died. No pathological lesions were observed.

During excavation of the ditch in 2009 a disarticulated left adult fibula shaft was recovered from fill 259 (Group 2). A cremation burial was identified in fill 89 (Group 7). Only 215g of cremated adult bone was recovered with the majority (87.9%) being >10mm (the largest fragment was 89.4mm). All body parts are represented, and the burnt bone is predominantly a buff white colour indicative of complete oxidisation.

Faunal Remains
Chris Faine

A total of 19.600kg of faunal material came from the excavation, yielding 653 'countable' bones. Of the total group, 17.639kg came from stratified deposits. The assemblage is dominated by the domestic mammals, with cattle and sheep/goat being the most prevalent taxa.

Cattle dominate the Early Iron Age assemblage, with by far the largest group being recovered from the Group 4 fills: 42% of the countable bones in Group 4 were cattle, with 28% pig and 17% sheep/goat. Only one dog bone fragment was recovered from the Early Iron Age sample in the form of a fragmentary maxilla and the only evidence for wild mammal is a portion of red deer antler from context 157 (Group 4). Numerous small mammal and amphibian remains came from environmental samples, the majority clearly being intrusive. The cattle assemblage consisted mainly of forelimb elements, along with loose teeth, cranial fragments and lower limb elements. Whilst some tibia fragments were recovered, hind limbs are somewhat under-represented. Epiphyseal fusion data suggests the majority of animals were around 3–3.5 years of age at death; no neonatal elements or ageable mandibles were recovered.

The Late Iron Age to Early Roman phases (Groups 5–8) show a reversal with sheep/goat remains most prevalent, followed by cattle and with very few pig bones. The sheep/goat assemblage shows a wide variety of body parts, albeit with a greater ratio of hind limb to forelimb elements. Epiphyseal fusion data suggests the majority of the animals were around 2.5–3.5 years of age at death, with a single mandible being recovered from an animal around 1–2 years of age. Juvenile remains were recorded in three contexts. Cattle body part distribution shows a much greater instance of hind limb elements than did the Early Iron Age assemblage, the latter perhaps being a result of the varying sample sizes rather than differing husbandry strategies. Epiphyseal fusion data again suggests that the majority of animals were around 3–3.5 years of age at death, with two mandibles being recovered from animals aged around 1.5–2.5 and 2.5–3.5 years respectively. Two measurable metapodia from fills 50 and 112 (Groups 7 and 5) came from animals with withers heights of 1.09 and 1.3m. Metrical and morphological analysis (after Grigson 1982) suggests that the elements derived from a steer and bull respectively. A number of horse bones (Number of Identified Specimens (NISP): 14) were recovered along with dog teeth, cranial and mandible fragments (NISP: 11).

Whilst faunal remains had been recovered from earlier work on the site (Phillipson 1963), little published data is available to add to the information presented here. Other comparable sites in the area such as Wandlebury (French 2004), Arbury Camp (Evans and Knight 2002) and Wardy Hill (Davis 2003) were the subject of much larger areas of excavation which included surrounding features aside from the earthworks themselves. This provided greater understanding of land use and settlement activity than is available at War Ditches, which has implications when comparing assemblages. Despite these limitations several conclusions can tentatively be drawn about animal husbandry at the War Ditches. Both cattle and sheep body part distribution suggest the presence of whole carcasses (if not live animals) especially during the later Iron Age phases, and most of these remains are from young adult animals suggesting exploitation for meat. There is evidence for the presence of juvenile sheep if not necessarily on-site breeding. Any questions of further exploitation for secondary products (i.e. dairying) remain unanswered due to the lack of ageable mandibles and sexable elements in particular. Unusually for the Late Iron Age, pig remains are scarce (Hambleton 1999).

Settlement in the wider landscape of the War Ditches is well attested (Hinman 1998; Evans *et al*. 2008) and it is possible that the domestic mammal assemblage found in the ditch fills represents livestock brought from the surrounding area or managed in or near the ringwork itself. There is no evidence of specialised husbandry, in contrast to sites such as Wardy Hill which shows clear evidence of breeding of cattle, sheep/goat and pigs (Davis 2003). The lack of ageable elements prevents further analysis of possible seasonal use of the area.

Charred Environmental Remains
Rachel Ballantyne

Charred plant assemblages of differing character were recovered from all fill levels within the ditch. Samples from Group 1 and 2 fills and those in the mid/lower part of Group 3 contain no charred plant remains other than fine wood charcoal, and indicate very rapid infilling. The upper fills from Group 3 and lower fills from Group 4 are charcoal-rich; the charred wild plant seeds and mollusc shells in fills 206 and 208 (Group 3) almost certainly represent *in situ* charring, interpreted as a possible destruction event. Seeds of medick/clover (*Trifolium/Medicago* sp.), buttercups (*Ranunculus acris/bulbosus/*

repens), meadow-grass (*Poa* sp.) and ribwort plantain (*Plantago lanceolata*) are all consistent with open grassland, as are most of the charred and uncharred molluscs (Stafford, below). Single charred seeds of fat hen/orache (*Atriplex/Chenopodium* sp.) and brambles (*Rubus* subgen. *Rubus*) in context 208 may represent plants colonising disturbed soils. Plants of damp to wet ground occur in very low numbers, with two types of sedge seed (*Carex* spp.) and rushes (*Juncus* sp). The free-draining chalk bedrock and elevated location of the ring monument suggests these plants are probably a gathered wetland resource such as thatching, strewing material or animal fodder (cf. Friday and Harvey 1997). Whilst such low numbers of charred seeds require cautious interpretation, some of the Group 1–3 mollusc types noted by Stafford (below) also suggest the presence of gathered wetland plants. The charred plant remains, when viewed in conjunction with charred and uncharred molluscs, reveal that the ring ditch was open grassland at the time of the destruction event.

The central Group 4 fills again contained only very low amounts of comminuted wood charcoal but the upper/mid fills included low amounts of grain, chaff and wild seeds very similar to overlying Group 5 fills. As some items may have moved down the porous chalk rubble matrix, the upper samples have not been pursued further.

The Late Iron Age reoccupation fills (Group 5) contain moderate quantities of hulled wheat and barley grain with occasional chaff items. Cereal types are spelt wheat (*Triticum spelta*) and hulled 6-rowed barley (*Hordeum vulgare*). Wild seeds are numerous and dominated by types associated with open grassland and disturbed soils. Many are arable types, notably chickweed (*Stellaria media*), fat hen (*Chenopodium album*), orache (*Atriplex patula/prostrata*), oats (*Avena* sp.) and rye brome (*Bromus secalinus*). Of these, chickweed, fat hen and orache are all indicators of nutrient-rich soil, which is consistent with the chalk downland and could further indicate a form of manuring. Many of the other wild seeds are grassland types that could be found on the margins of arable land or perhaps as weeds of fallow land within a rotation system; clover (*Trifolium* sp.), meadow-grasses (*Poa* sp.) and cat's-tail (*Phleum* sp.).

Small numbers of wetland seeds must represent resources brought to the ring monument, as they could not grow on the free-draining chalk hillside. Great fen-sedge (*Cladium mariscus*) and black bog-rush (*Schoenus nigricans*) are both associated in Cambridgeshire with base-rich fen peats, particularly along springs and watercourses of the chalk downland (Perring *et al*. 1964).

The Early Roman contexts (Group 7) again contain spelt and emmer wheat, confirmed by chaff fragments, with moderate amounts of hulled wheat and barley grains. Occasional hulled and twisted barley grains again suggest the hulled 6-rowed variety. No other domesticated food plants are present.

The many wild seeds are dominated by types associated with open grassland and disturbed soils, including indicators of both nutrient-rich and nutrient-poor soils. There are slight differences in composition between Groups 5 and 7; brome grass and fat hen are no longer represented, and instead there are seeds of goosegrass (*Galium aparine*), fescues (*Festuca* sp.) and clover/medicks (*Trifolium/Medicago* sp.). Many types occur as single seeds, of which stinging nettle (*Urtica dioica*) indicates nutrient-rich soils, fairy flax (*Linum catharticum*) indicates calcareous grassland and field madder (*Sherardia arvensis*) arable land or disturbed soil.

Domestic activities, notably the later stage processing of hulled wheats and barley, are only represented in the reoccupation fills. The range of cereals and arable weeds is consistent with many other later Iron Age/conquest settlements in Cambridgeshire, although the gathered wetland plants only compare well to the nearby Hutchinson site, Addenbrooke's (Roberts 2008). Overall, the plant remains reveal that this ring monument occupied a strategic location in terms of ecology, as well as topography; on a promontory of open, probably farmed, chalk downland above a small spring-fed wetland.

Land Snails

Elizabeth C. Stafford

Overall 21 individual species of mollusca were recorded (Table 5), with modern contamination evident in most samples. Shell was most abundant in Group 2 (up to *c.* 550 per litre) and some of the Group 4 and 5 samples (up to *c.* 650 per litre). Shell abundance is significantly lower in the Group 1 and Group 8 deposits.

Shell numbers are very low in the basal samples from contexts 264 and 266 (Group 1), probably reflecting the rapid rate of accumulation of chalk rubble in the base of the feature immediately after it was cut. Shell abundance and species diversity rapidly increased in the lower secondary fills (Group 2, contexts 251 and 252) suggesting some stabilisation of the feature edges. The base of the ditch itself may have provided a more mesic (moderately moist) environment and this is reflected in the small shade-demanding and catholic component. *Trichia hispida* can become very abundant in the base of features where conditions are slightly more humid.

The hygrophilous (damp or wet-loving) group of species in the lower fills appear to be out of place with rest of the assemblage and may represent shells brought to the site attached to vegetation collected from a wetland environment. It seems less likely the ditch would have held standing water given the low numbers, geology, elevated location and the absence of other taxa usually associated with such conditions. The species identified usually inhabit environments such as damp grassland found on floodplain marsh or fen. The rare species *Vertigo angustior* is a notable record, although it was probably more widespread in the past, inhabiting open wet base-rich meadows. *Vertigo antivertigo* is a species restricted to lowland wetlands, fens and reed swamps and it avoids places where water levels fluctuate (Kerney 1999, 92–101).

Fill Group	**1**		**2**		**3**		**4**		**5**		**6**		**7**		**8**	
Context	264	266	251	252	206	230	130	183	116	122	96	104	32	67	3	6
Sample	63	65	52	53	42	47	27	38	21	26	19	20	5	12	1	3
MARSH																
Carychium cf. minimum (Müller)	+	+	+++ +	+++ +	+	++					+				+	
*Lymnaea truncatula (*Müller)			+													
Vertigo antivertigo (Draparnaud)				+												
Vertigo angustior (Jeffreys)	+		++	+											+	+
Vallonia cf. *pulchella* (Müller)	+		+++	+++	+											
CATHOLIC																
Cochlicopa spp.	+	+	+++ +	+++ +	++	++	++	+	+	+++	++				+	
Punctum pygmaea (Draparnaud)	+	+	+++	+++	+	++		+	+	+	+			+	+	
Vitrina pellucida (Müller)				+			++			+++						
Nesovitrea hammonis (Strøm)	+		++	++	+						+					+
Euconulus fulvus (Müller)			+	+												
Trichia hispida (Linnaeus)	+	+	+++ +++	+++ +++	+++ +	+++ +	+++ ++	+++ +	+++ +	+++ ++	+++ +	++	+++	+++	+	+
SHADE-DEMANDING																
Zonitidae indet.				++	+	+	++	+	+	++	+					
Vitrea sp.			+													
Aegopinella nitidula (Draparnaud)	+						+			+						
Oxychilus cf. *cellarius* (Müller)										++						
OPEN-COUNTRY																
Truncatellina cylindrica (Férussac)		+					++		+	+	++	+	+	+		
Vertigo pygmaea (Draparnaud)	+		+++ ++	+++ ++	++	+++		++	+						+	+
Pupilla muscorum (Linnaeus)	+	+	+++ ++	+++ ++	+++ +	+++	+++ +++	+++ +	+++ +++	+++ ++	+++ +	++	+++ +	+++ +++	++	+++
Vallonia spp.	+	+	+++ +++	+++ ++	+++ +	+++ ++	+++ +++	+++ +	+++ +++	+++ +++	+++ +++	+++	+++ ++	+++ +++	+	+++ +
Vallonia costata (Müller)	+	+	+++	+++ +	+++	++	+++ +++	+++	+++ ++	+++ ++	+++ +	++	+++	+++ ++	+	++
Vallonia excentrica (Sterki)	+	+	+++ +	+++ +	++	+++	+++	++	+++	+++	++	+	+	+++		+
Helicella itala (Linnaeus)	+		+	++	++	+	+++	++	+++	++		+	+	+++	+	+

Table 5. *Molluscs by fill group and environment type. Shells of each species were recorded on a sliding scale (+ = 1-4, ++ = 5-12, +++ = 13-25, ++++ = 26-50, +++++ = 51-100, ++++++ = 101-500)*

Group 3 deposits have been interpreted as a deliberate backfilling episode in which part of the bank material was pushed into the ditch with silty lenses suggestive of the turf and soils which would have developed over the bank prior to its partial destruction. Shell numbers and diversity decrease markedly during Groups 3 and 4 which is consistent with an increase in the rate of sediment accumulation. Groups 4 and 5 are characterised by a further increase in shell abundance suggesting a slow down in accumulation. Species diversity, however, remains low. The increase in *Vallonia costata* and appearance of *Truncatellina cylindrica* during Group 4 suggest the local environment of the ditch became drier during the later stages of infilling as the feature became shallower. The assemblages here may be more representative of the surrounding environment. *Truncatellina cylindrica* today is a rare and local xerophile species that inhabits dry and exposed places, particularly calcareous grassland (Kerney 1999: 89), and it has also been suggested that dryness, as well as some disruption of the soil surface, favours *Vallonia costata* over *Vallonia excentrica* (Evans 1972). Shell numbers fluctuate within Groups 6 to 8 although the species composition remains relatively constant. This probably reflects episodes of erosion and the presence of unstable/stable surfaces.

Overall the dominance of the terrestrial open-country group suggests a local environment during the initial stages of infilling of well-established short-turfed (grazed) grassland. The presence of numerous xerophiles (*Vallonia excentrica*, *Vallonia costata*, *Vertigo pygmaea*, *Pupilla muscorum* and *Helicella itala*) suggests this was quite dry and open. There was some indication that vegetation cover in the immediate vicinity was not complete as *P. muscorum* tends to proliferate where there are broken surfaces bare of vegetation (Evans 1972, 146). The damp-loving species in the lower fills contrast with rest of the assemblage and

may represent shells brought to the site attached to vegetation collected from a wetland environment.

Radiocarbon Dating

John Meadows, Christopher Bronk Ramsey, Gordon Cook and Peter Marshall

Sixteen AMS radiocarbon measurements were obtained on 13 single entity (Ashmore 1999) samples, of animal and human bone, charcoal, and carbonised residues adhering to the interior of ceramic sherds, from the Scottish Universities Environmental Research Centre (SUERC) and the Oxford Radiocarbon Accelerator Unit (OxA). The radiocarbon results (Table 6) are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). They are conventional radiocarbon ages (Stuiver and Polach 1977).

The calibrations of the results, relating the radiocarbon measurements directly to calendar dates, are given in Table 6 and in outline in Fig. 11. All have been calculated using the calibration curve of Reimer

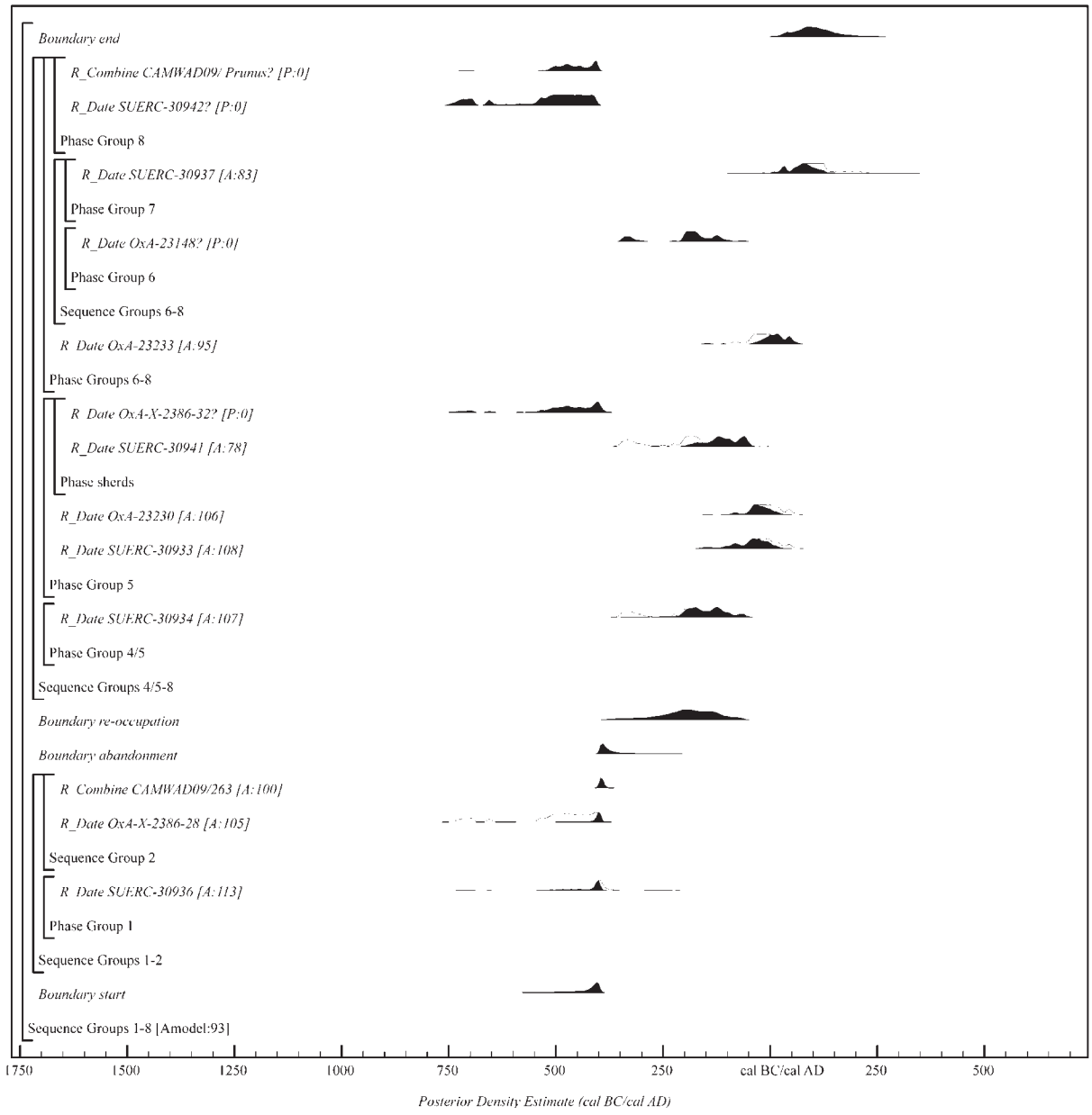

Figure 11. *Probability distributions of radiocarbon dates from War Ditches. Each distribution represents the relative probability that an event occurs at a particular time. For each radiocarbon date, two distributions have been plotted: one in outline which is the result of simple radiocarbon calibration, and a solid one based on the chronological model used. The other distributions correspond to aspects of the model. For example, the distribution 'Boundary start' is the estimate for when construction of the ditch started. Measurements followed by a ? have been excluded from the model. The large square brackets down the left-hand side of the diagram and the OxCal keywords define the overall model exactly.*

Laboratory number	Group	Sample number	Material dated	Radiocarbon age (BP)	Weighted Mean	Calendar date (95% confidence)	Posterior Density Estimate (95% probability)
SUERC-30936	1	CAMWAD09/265	Animal bone, horse mandible (not articulated) from primary fill of ditch; context 265.	2340 ± 35		480–370 cal BC	*495-385 cal BC*
OxA-X-2386-28	2	CAMWAD09/270	Carbonised residue adhering to the interior of sherd. One of six wall sherds from an Early Iron Age flint and sand tempered jar, including three clear conjoins from context 270.	2390 ± 40		740–390 cal BC	*465-385 cal BC*
OxA-23231	2	CAMWAD09/263	Animal bone, sheep/goat calcaneum (articulating with phalanges) from context 263.	2310 ± 30	2318 ± 18 BP (T′=1.3; ν=2; T′(5%)=6.0; Ward and Wilson 1978)	405–380 cal BC	*405-380 cal BC*
OxA-23232				2299 ± 30			
SUERC-30935				2345 ± 30			
SUERC-30934	4/5	CAMWAD09/133/134	Animal bone, humerus of articulated juvenile pig from context 133.	2140 ± 35		360–50 cal BC	*230-55 cal BC*
OxA-23230	5	CAMWAD09/107/105a	Animal bone, articulating sheep femur and epiphyseal plate (epiphyseal plate sampled) from context (107). This was a well stratified dump of animal bone spread along the length of the excavated segment with 3.33kg of pottery.	2011 ± 28		90 cal BC–cal AD 60	*95 cal BC-cal AD 30*
SUERC-30933	5	CAMWAD09/107/105b	Animal bone, articulating cow pelvic bone and femoral head (femur sampled) from context 107.	2025 ± 35		160–50 cal BC	*155-135 (2%) or 120 cal BC-cal AD 30*
SUERC-30941	5	CAMWAD09/107/108	Carbonised residue adhering to the interior of base sherd fragment of an Iron Age reduced ware handmade jar/bowl from context 107.	2140 ± 35		360–50 cal BC	*190-45 cal BC*

Table 6. *Radiocarbon results (continued below). ν = degrees of freedom.*

Laboratory number	Group	Sample number	Material dated	Radiocarbon age (BP)	Weighted Mean	Calendar date (95% confidence)	Posterior Density Estimate (95% probability)
OxA-X-2386-32	5	CAMWAD09/107/109	Carbonised residue adhering to the interior of base sherd of an Iron Age reduced ware handmade bowl/ jar from context 107. The sample was recovered from a different spit to sample CAMWAD09/107/108.	2370 ± 40		710–380 cal BC	-
OxA-23233	6–8	CAMWAD09/601	Human bone, left calcaneus, from articulated lower limbs of skeleton. The upper part of the skeleton was truncated by the quarry and the lower part discovered by children. Its context is unstratified (601) but from layer groups 6-8.	2013 ± 29		90 cal BC–cal AD 60	*35 cal BC-cal AD 65*
OxA-23148	6	CAMWAD09/95/101	Carbonised residue adhering to the interior of sherd. One perforated Early Roman Horningsea-type ware handmade jar sherd, from 27 sherds in context 95 attributed to the same vessel.	2141 ± 26		350–90 cal BC	-
SUERC-30937	7	CAMWAD09/5/9	Carbonised residue adhering to the interior on single sherd of Late pre-Roman Iron Age sandy coarse ware jar/bowl base; one of three conjoining pieces of a base from context 5.	1895 ± 30		cal AD 50–220	*cal AD 1-135*
SUERC-30942	8	CAMWAD09/4 Acer	Charcoal, *Acer* sp. single fragment from context 4. Context 4 was a sub-circular area containing charcoal & burnt grain sandwiched between fills 3 and 6.	2420 ± 30		750–390 cal BC	-
OxA-23234	8	CAMWAD09/ Prunus	Charcoal, *Prunus* sp. single fragment from context 4.	2388 ± 29	2390 ± 21 BP (T′=1.3; ν=2; T′(5%)=6.0; Ward and Wilson 1978)	520–395 cal BC	-
OxA-23235				2392 ± 29			

Table 6. *Radiocarbon results, continued.*

et al. (2009) and the computer program OxCal v4.1 (Bronk Ramsey 2009). The calibrated date ranges (95% confidence) in plain type in the table have been calculated according to the maximum intercept method (Stuiver and Reimer 1986) and are quoted in the form recommended by Mook (1986). The ranges quoted in italics are posterior density estimates derived from mathematical modelling of archaeological problems (Bayliss *et al*. 2007). All other ranges are derived from the probability method (Stuiver and Reimer 1993).

A Bayesian approach (Buck *et al*. 1996) in which the calibrated radiocarbon dates are combined with the relative dating of the samples given by the stratigraphic sequence of ditch fills (see Table 6) has been used for the interpretation of the ditch's chronology. The model (Fig. 11) shows good agreement between the radiocarbon dates and the stratigraphy (A_{model}=93%) (although see note in relation to scientific and pottery dates in earlier text) and provides an estimate for the digging of the ditch of *575–385 cal BC* (*95% probability*; Boundary start) and probably *455–390 cal BC* (*68% probability*). The initial weathering of the exposed chalk sides of the ditch (Group 1) and subsequent infilling (Groups 2 and 3) by destruction of the bank appears to have been a very rapid process that took *1–30 years* (*68% probability*).

Following a period of abandonment (Group 4) that probably lasted *120–270 years* (*68% probability*) re-occupation occurred in *330 cal BC–cal AD 70* (*95% probability*; Boundary re-occupation) and probably *245–110 cal BC* (*68% probability*). The final infilling of the ditch occurred in *cal AD 5–225* (*95% probability*; Boundary end) and probably *cal AD 55–150* (*68% probability*).

Samples of pottery with traces of residues from Groups 2 and 5–7 were examined. The carbonaceous fractions extracted physically and chemically from the inside of the sherds are assumed to represent organic-rich food remains, and thus should date the last use of the vessel in question. However, in this case two of the five dated carbonised residues (OxA-X-2386-32 and OxA-23148) are clearly much too old for the pottery types in question. OxA-X-2386-32 had a very low % carbon yield following pre-treatment and the laboratory advised caution in the interpretation of the result. For OxA-23148 the inadvertent sampling of the clay fabric that may contain appreciable amounts of 'old' carbon even after firing (Nakamura *et al*. 2001) may provide an explanation for the discrepancy.

Discussion

Pre-Monument Settlement?

The Early Iron Age storage pits recorded by White within the monument in the 1960s, along with the single pit excavated in the recent work, are characteristic of settlement at this period and could equally date to a pre-monument phase or to the immediate occupation of the monument itself. At Wandlebury an extensive and apparently unenclosed Early Iron Age settlement existed on the hilltop (French 2004), although the limited evidence at War Ditches does not suggest the presence of substantial settlement here. The relatively small number of sherds, and the level of attrition, would suggest that the material is secondary in its context and could represent a general scatter of surface material in the area created either prior to or during the monument's construction. This scatter must have been widespread, however, with Early Iron Age material recovered from most the excavated ditch segments. A crucial factor at War Ditches is that it is an exposed and dry place with the main water source being the chalk springs at the bottom of the hill to the north-west. The chalk upland would perhaps have been better used for grazing or arable land than for settlement.

Monument Construction, Use and Function

The catalyst behind construction of the War Ditches may have been local social tensions. Very little is known of the peoples or boundaries of the region in the Early to Middle Iron Age, although the construction of so many defensive and/or communal sites such as War Ditches, Wandlebury (French 2004) and Sawston (Mortimer 2001) within such a limited geographical area could suggest that it was a time of shifting boundaries and allegiances producing intertribal conflicts. The causes of these tensions remain supposition, but may have included increasing population resulting in pressure on farming land or perhaps an influx of peoples from the continent.

Previous interventions confirm that War Ditches was broadly circular, with an entranceway at the east measuring some 13m across. Ditches set out at right angles to the entrance created a causeway leading to the monument, the full length of which has not been revealed. The main enclosing ditch was on average 6m wide and 4m deep, but at and around the eastern entrance was found to be significantly narrower and shallower. It is estimated that six to seven thousand cubic metres of chalk would have been excavated from the ditch to form the internal bank or rampart; there may also have been a smaller counterscarp bank, but the infill sequence indicates that the main bank was internal. Very little was found within the ditch fills to aid interpretations of construction methods, although some of the environmental evidence from the lower fills may provide clues about the rampart's construction. Small amounts of sedge were associated with the bank's destruction, along with large numbers of aquatic snail species that probably lived on the plant. These species must have been brought to the site from the nearest sedge fen down the hill to the north. It is possible that, in what may have been a substantially cleared landscape, timber was scarce and that sedge could have been layered between the rubble of the rampart to bind and stabilise it.

Two main functions are normally attributed to hillforts and ring monuments: as defensive structures and/or defended settlements or as locations for trade, religion, politics and gatherings/celebrations. Such

monuments may have had wide ranging uses, providing a focus of social cohesion in troubled times. Considerable organisation would be necessary to construct such a monument, indicating that its initiators were able to command significant influence and/or control over the surrounding populace.

Both the War Ditches location and its general morphology suggest a defensive function, although the limited finds and environmental assemblage, together with the relatively small size of the area enclosed, suggest that it was not a defended settlement. As the ditch approaches the eastern entranceway it becomes markedly narrower and shallower, remaining so throughout the flanking entrance ditches. In a defended site the weakest point will generally be the entranceway(s) and the earthworks here would be expected to be amongst the most effective. The excavations of the 1950s and 60s, however, attest to the potentially unfinished nature of the ditch, at and around the entranceway which suggests that the monument was destroyed before becoming firmly established.

Monument Destruction

A potentially violent end to the monument has been suggested since the earliest archaeological interventions: its short life was first identified from what appeared to be the 'unfinished nature' of parts of the ring ditch. In at least two of the earlier excavated segments a central baulk of chalk remained upstanding; others were recorded as shallow and having been excavated in 'an irregular system of steps' (White 1964a, 10). These would appear to represent unfinished parts of the ditch where excavation had suddenly ceased. Some of these sections had large rubble blocks as their primary fill, with no evidence for any earlier weathering having taken place. Since the first excavations at the end of the 19th century most of the excavated segments have contained this thick rubble layer, consisting of the original upcast bank material which had been pushed back into the ditch, above an initial weathering fill. This does not appear to have been a case of the monument going out of use and gradually eroding: the displacement of the bank was clearly a rapid and uniform event. Large pieces of charcoal have also been recovered from within the rubble matrix at all points around the ditch circuit, suggesting a significant burning event prior to or at the time of this infilling. The charcoal may represent the remains of the timbers and other organic materials used in the bank's construction. Radiocarbon dating now confirms that this took place before or soon after its completion.

The nature of the monument's destruction is clearly demonstrated by the human remains, occasionally burnt and/or disarticulated, that have been recovered consistently from the level of the bank's destruction. The greatest numbers of articulated or semi-articulated individuals were found along the heavily investigated western side. Taken as a whole, the evidence suggests that large numbers of people were interred within the ditch at the time of its rapid infilling.

The violence which may have occurred at the War Ditches did not go unnoticed by its earliest excavators, although Hughes (1902b) remained uncertain as to 'whether we have traces of a massacre or of a time when the residents used the neglected fosse to throw their dead into'. He failed to identify the 'fires' or episodes of burning as a destructive event but was led by a suggestion that the fires had been used for cooking, even though they extended for 4m or more along the lower level of the ditch. The massacre theory was cemented by Lethbridge (1949) with the discovery of the charred torso and the presence of charcoal mixed in with the bank material which was interpreted as the destruction of the rampart. Cut marks were also observed on some of the bones (Cutting A1 – CUAFC records Box 31 G03/7/3; CUMAA). It is difficult to argue against the interpretation of a violent destruction event, even with the modern archaeologist's wider knowledge of the 'burial' practices of the Early Iron Age and recent trends in thinking which have tended to suggest that hillforts were not necessarily central places nor related to defence at all (Hill 1995). The findings at War Ditches, however, resonate with those recently made at the hillfort of Fin Cop, Derbyshire, where 'the martial nature of the site and the violent end implied by the discovery of the corpse [and others recently found] stands as a corrective to the pacification of these monuments, and the Iron Age groups who inhabited them, in the academic literature of the past decade or so' (Waddington 2010, 56).

Following its destruction, the War Ditches ringwork appears to have been abandoned for some considerable time: no cultural material was recovered from the Middle or Later Iron Age (until *c.* 50 BC) suggesting a period of abandonment of around 300 years. The accumulation of material which built up above the displaced bank material (Group 4) comes from the gradual infilling and erosion of the ditch. There is no evidence that the area became scrub or woodland and it was presumably still grazed over this period. While there is a relative abundance of artefactual material in these fills, it is of a consistent date, type and character as the assemblages recovered from the earlier fills, suggesting the gradual incorporation of surface material into the ditch.

Reoccupation

Reoccupation of the War Ditches occurred *c.* 50 BC, on the basis of recovered pottery. The upper ditch fills contained debris from the period between approximately 50 BC to AD 50–80, after which the ditch was deliberately and completely, infilled. The corresponding fills demonstrate the initial reoccupation (Group 5), a small-scale period of change, perhaps a minor levelling or 'tidying' of the bank area (Group 6) and the main period of settlement activity in the environs (Group 7).

When these settlers arrived, the site would have been a turf-covered earthwork with a small, probably wide, bank and a ditch of up to 1.4m deep. The

limited area within the ring ditch could suggest that the new settlement was established both within and outside the monument, disregarding rather than deliberately utilising the ring ditch itself; there was certainly no attempt to recut or remake the monument as a defensive structure. Spatial analysis of the finds assemblage and the nature of the fill sequence suggest that material was probably entering the ditch from both sides at this time. The large and reasonably varied finds assemblage contains significant quantities of domestic waste, in clear contrast to the Early Iron Age material. The presence of quernstones and kiln debris demonstrate that both domestic and semi-industrial activities were occurring on the site. The remaining hollow of the ditch (although not utilised as such in the area of the 2009 excavations) was elsewhere used as a sheltered working area, for fires, a kiln and further burials. A 'Belgic pit' dating to *c.* 20 BC – AD 40 was identified in the 1950s along the line of the ditch to the north of the 2009 excavation and appears to be one of the few known features (excluding the kilns and potentially contemporary burials) relating to the Later Iron Age settlement.

During the latter half of the 1st century AD the final 0.7m depth of the ditch hollow was deliberately backfilled with the remnants of the bank. It is difficult to gauge the precise date for the final infilling of the feature, but the pottery assemblage suggests it occurred between 50 and 80AD. Cambridge lay on the border of Icenian lands and the eradication of the last vestiges of such a prominent hillfort was perhaps linked to a reaction to the Boudican revolt of AD 61–65.

Open area excavations carried out by White and others (between 1949–51) close to the entrance of the ring ditch revealed large posthole structures and field systems associated with a 2nd- to 4th-century AD farmstead, following the final infilling of the ditch. This settlement completely disregarded the position of the ring ditch, with later ditches cutting straight across it.

Conclusions

The objectives of the recent excavations at the War Ditches were effectively threefold: to excavate and record that part of the monument most threatened by the remedial works in the quarry and in doing so to utilise modern archaeological techniques unavailable to earlier excavators; to attempt to answer the questions around the monument's potential antecedents, its construction and demise; to integrate the results with a review of the findings of past excavators. The first objective has been an unqualified success, since the precise nature of modern excavation and recording techniques have produced the most detailed picture of the ditch and its infilling thus far; radiocarbon dating has successfully enabled those phases of the ditch not well-dated by pottery to be precisely dated. This in turn assists with the research objective of furthering understanding of Iron Age chronology.

Another key objective was to clarify the date of the monument's construction, whether it had significantly earlier origins, as suggested by Lethbridge and others, or was simply an earlier Iron Age construct. The nature and rapidity of the monument's demise was also questionable. Antiquarian interpretations had cleaved to violence, war and massacre in relation to the skeletons, fires and rubble they recorded in the ditch, interpretations that in recent decades the academic literature has tended to deny, stressing instead the atypical nature of Iron Age mortuary practices. In this instance, however, a cataclysmic event does seem to have occurred at the site.

The developmental sequence at the War Ditches appears to have been relatively simple: the monument was constructed in the late 5th to early 4th century BC and was largely destroyed, with some loss of life, towards the end of its construction period. The site was then abandoned, half infilled in an area of open grassland for *c.* 300 years until reoccupied, as a farmstead, around the middle of the 1st century BC. This occupation continued through into the second half of the 1st century AD when the upper part of the ditch was filled in and the site levelled. Occupation continued into the 2nd century AD and beyond but with no further evidence of material having entered the ditch, even the *in situ* burial that came from the upper levels of the ditch in 2008, the discovery that brought about the excavation, dates to *35 cal BC – cal AD 65* (*95% probability*).

A limited number Early Iron Age sites have been excavated in the region and few have been precisely dated: Wandlebury itself has only been broadly assigned a possible construction date in the 5th to 4th centuries BC, reworked in the 1st century BC. One major contribution of the War Ditches project is that it has given the construction and destruction of an Early Iron Age hillfort an accurate date for the first time: *455–390 cal BC* (*68% probability*). At present none of the similar, contemporary sites have been accurately dated in the area; Arbury Camp has been dated to the Middle Iron Age and further afield both Stonea Camp (Potter and Jackson 1982) and Borough Fen (Malim and McKenna 1994) are likely to be of similar or later date; a large hilltop ditch at Exning to the east of War Ditches, has been dated to the 8th or early 7th centuries BC (Jo Caruth, pers. comm.). The results from War Ditches only serve to highlight that the political and cultural landscape of the area at this time is neither well dated nor well understood, but they offer a starting point for further investigation and discussion.

Perhaps the overriding result of the excavation has been that the use of modern techniques and approaches serve both to confirm many of observations of past excavators and to add considerable layers of detail to these earlier findings.

Acknowledgements

The authors would like to thank English Heritage for funding the project, and in particular Jonathan Last and Helen Keeley for their support. The Wildlife Trust are warmly thanked for their funding, their help throughout and their continued interest and enthusiasm: particular thanks are due to Laura Watson and Martin Baker. Thanks are due to Mark Hinman and Michelle Bullivant for sharing their unrivalled local knowledge, and to Carenza Lewis and Nick James of the CAS for their support. The site was excavated by the authors and by Nick Gilmour, Graeme Clarke and Ross Lilley. Louise Bush provided survey support. Elizabeth Popescu edited and prepared the article for publication.

Cambridge Antiquarian Society is grateful to English Heritage for a grant towards the publication of this paper.

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Above the Fen Edge: Late Bronze Age to Early Iron Age Activity on land off Broadlands, Peterborough

Kate Nicholson

with Jane Cowgill, Nina Crummy, Val Fryer, Rowena Gale, Andrew Peachey, Carina Phillips, Maisie Taylor, Peter Thompson and Martin Tingle.
Illustrations by Caroline George and Tansy Collins.

Excavations between 1998 and 2006 have revealed significant prehistoric activity on land off Broadlands, Peterborough (NGR TF 2142 0001), to the north of the well known Fengate sites. The main period of activity at this site was in the late Bronze Age to early Iron Age. This activity seems to have been primarily agricultural (pastoral) in nature, with features including a stockyard and two waterholes, one containing two preserved log ladders. A single crouched burial, dating to the early Iron Age and marked by a wooden post, was also present. Its location may have been influenced by the presence of a Beaker period barrow, c. *100m to its north-north-east, and/or by its position between the contemporary agricultural features and the edge of the fen. A middle Bronze Age field system and small-scale late Iron Age to early Romano-British activity was also recorded but is not presented herein.*

Introduction and background

Between 1998 and 2006, Archaeological Solutions Ltd (AS, formerly Hertfordshire Archaeological Trust) carried out four stages of excavation on land off Broadlands, Peterborough (NGR TF 2142 0001) (Figs. 1 and 2). The archaeological potential of the site had been predicted on the basis of its position, on the fen edge to the north of the Fengate area, and demonstrated by a trial trench evaluation (Vaughan 1998).

Broadlands lies in Peterborough's 'Eastern Industry', an industrial area which has been developed since the late 1960s. The site comprises a rectangular area of *c.* 4.3ha between Newark Road and a parallel service road to the west; it is bounded by Broadlands to the south and a playing field to the north. The site was formerly part of an area of playing fields (and was agricultural land prior to that), but has become derelict since the commencement of development in 1998.

The site lies at *c.* 5m OD (ordnance datum) on the landward side of the former fen edge, where the upland areas of Nene terrace gravels give way to the Flandrian alluvial and peat deposits which fill the low-lying basin between the western fen edge and Northey island. The solid geology is of cornbrash limestone overlain by first terrace gravels and Oxford Clay.

Intensive activity from the Neolithic to the Roman period is well attested on the western fen edge at Peterborough. Investigations in the area began with G. Wyman Abbott's recording of finds and features revealed by gravel working in the early 20th century (Leeds 1922; Hawkes and Fell 1945). Modern investigations commenced with the Fengate excavations in the 1970s and 1980s (Pryor 1974; 1978; 1980; 1984), and have continued until the present day. The prehistoric to Roman development of the area is summarised in Pryor's volume *The Flag Fen Basin* (2001). Only a brief overview of this information will be presented here; additional information from specific sites will be given as relevant in the following text. The locations of sites mentioned in the text are shown in Figure 1.

The first human subdivision of the Fengate area dates to the early Neolithic, but the extent of the cleared landscape associated with this is unclear. The main areas of activity were *c.* 600m to the south of Broadlands (Pryor 2001, 406–407). Late Neolithic settlement is also attested in this more southerly area, concentrated around Storey's Bar Road; the landscape of the time is thought to have been an open one (Pryor 2001, 407–408). Contemporary Neolithic activity is attested by pits containing struck flint and Grooved Ware pottery and by tree hollows at a site on Edgerley Drain Road, just c. 110m east of Broadlands (Beadsmoore 2005). Similar activity continued at Edgerley Drain Road in the Beaker period (Beadsmoore 2005), and three barrows (Cambridge Historic Environment Record (HER) 3002, HER 3111 and HER 50420) are located close to the site.

The Bronze Age landscape of the Fengate area consisted of droveways running westwards from the fen edge to higher ground, with fields, paddocks, stockyards and areas of occupation located in between. Similar contemporary landscapes have been identified on the eastern side of the Flag Fen Basin, at Northey and Bradley Fen. The main elements of the Fengate system are shown in Figure 1. It can be divided into a southern and a central/northern zone, the latter characterised by droveways and including an

Proceedings of the Cambridge Antiquarian Society CI pp. 61–79.

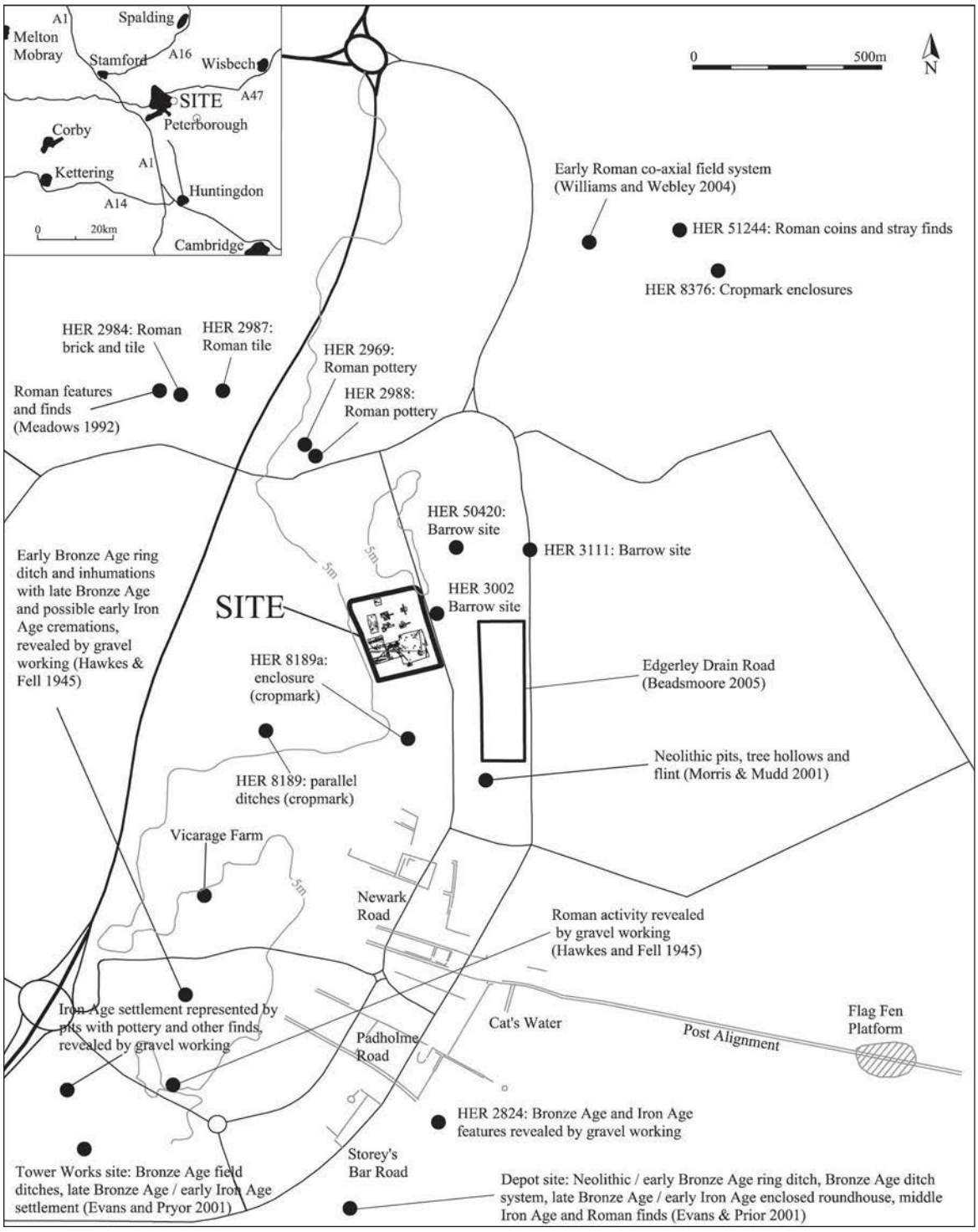


Figure 1. *Site location.*

area of 'community stockyards' (Pryor 2001, 408), *c.* 700m south of Broadlands. The features of the Bronze Age Fengate landscape are thought to have gone out of use in/by the late Bronze Age (Pryor 2001, 410 and 411–412). A middle Bronze Age system of land division at Edgerley Drain Road had also gone out of use by the late Bronze Age (Beadsmoore 2005).

The field systems on the eastern edge of Flag Fen were also redundant by the late Bronze Age, but settlement continued at Bradley Fen and King's Dyke West. The main period of deposition of metal artefacts and other items around the Flag Fen post alignment and platform dates to this time. Known late Bronze Age to early Iron Age activity in the Fengate area includes a roundhouse set within a palisaded enclosure and a possible road flanked by ditches at

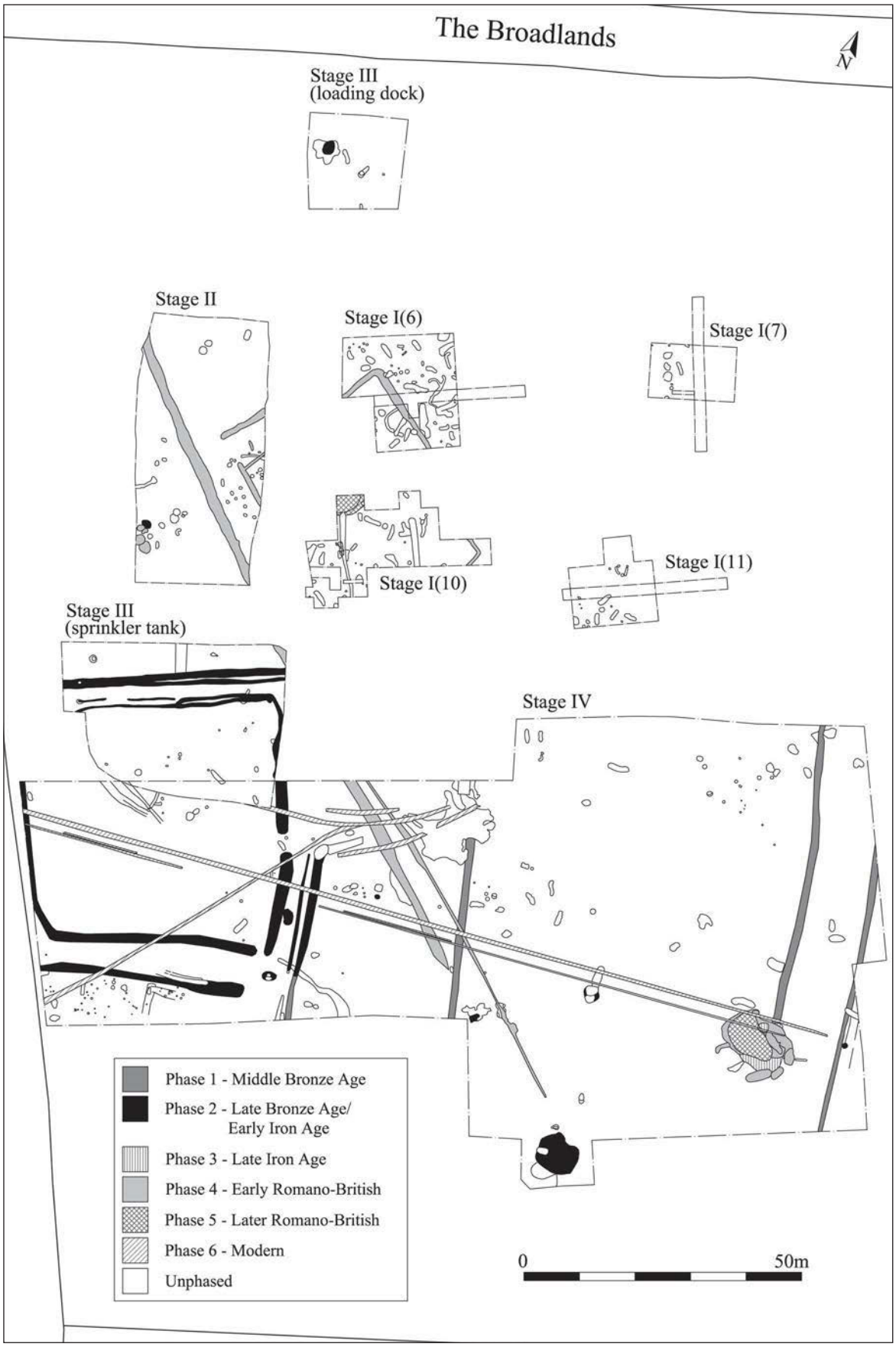


Figure 2. *All features plan.*

the Depot site (Evans and Pryor 2001, 23–24, 28–29). Occupation is also attested at the Tower Works site by pits containing large assemblages of animal bone and pottery (Evans and Pryor 2001, 33–36). By the 5th century BC, occupation is attested by pitting at the Vicarage Farm site, *c.* 400m to the south-east of the Broadlands excavation (Pryor 1974, 15–22; 1984, 7–10), and the buildings and yards of the fen-edge Cat's Water settlement are thought to have their origins in the middle Iron Age (Pryor 1974, 15–22; 1984, 7–10).

Occupation at Cat's Water, *c.* 600m south of Broadlands, continued until the mid-1st century AD, the abandonment of the settlement coinciding with evidence for renewed activity (pitting) at Vicarage Farm (Pryor 1984, 228). Wet conditions persisted in the area during the Roman period, although there may have been a brief drier period in the late 1st century AD when the Fen Causeway was constructed. However, wetter conditions had resumed by the 3rd century (French 2001, 403). The Cat's Water site was briefly reused in the mid to late 2nd century AD, for livestock paddocks rather than for settlement (Pryor 1984, 125), and Roman fields (possibly used until the 3rd century AD) have been identified at the Depot site (Evans and Pryor 2001, 24). A Roman droveway identified at Cat's Water has also been seen to extend into the Tower Works site, and further Roman features ('settlement features', not recorded in detail) were identified in this area during early 20th century gravel quarrying (Pryor 2001, 414). A 2nd to 3rd century AD field system, possibly associated with occupation, has been identified *c.* 900m north-east of Broadlands (Williams and Webley 2004), and finds and features from the Newark/Newark Hill area suggest settlement to the north (Meadows 1992; HER 2969, 2984, 2987, 2988).

Summary of results

The latest investigations revealed five phases of activity, identified on the basis of datable artefacts, stratigraphic relationships and spatial/functional associations. The earliest features at the site were middle Bronze Age boundary ditches (Phase 1), although very sparse evidence hints at a Neolithic presence prior to this. The main period of activity at the site was the late Bronze Age to early Iron Age (Phase 2); features of this date include a stockyard, water-holes and a crouched burial. Although some isolated Phase 2 features may extend into the middle Iron Age, there was a clear hiatus in activity following this period of pastoral activity. Phase 3 dates to the late Iron Age and comprises only a small cluster of pits; early Romano-British (Phase 4) activity followed on directly from this and included pits cutting their Phase 3 predecessors. The main elements of the Phase 4 site were a square enclosure (probably used for livestock) and a significant boundary ditch, alongside which ran a gully from which a possible votive deposit of cattle bone was recovered. The remains were in stark contrast to the otherwise sparse faunal assemblage from the site and comprised an articulated skull and spine as well as numerous articulated limb bones.

A similar deposit model was identified in all four stages of the investigation; this comprised recent deposits and topsoil overlying a palaeosol which sealed all Phase 1 to 4 features and the vast majority of the site's undated features. In Stages I–III of the investigation only the B horizon of the palaeosol was present; in the southern part of the Stage IV area only, its A horizon (which had been subjected to alluvial aggradation from over bank flooding) was also present (French 1998). The palaeosol sealed natural deposits of yellowish orange silty sand with gravel, into which Phase 1 to 4 features were cut.

The final pre-modern phase of activity (Phase 5) at the site comprised two large pits and a small oven, all of which cut the palaeosol, and dated to the late 3rd to 4th century AD. The following text focuses on the Phase 2 activity; a full account of the archaeology is presented in the Research Archive Report (see Nicholson 2007).

The late Bronze Age to early Iron Age

The stockyard

Description of features

Phase 2 at Broadlands was dominated by a sub-square ditched enclosure (internal dimensions *c.* 40 x 45m (the stockyard); Fig. 3) in the Stage III (sprinkler tank) and Stage IV areas (F4286, F4328 (recut as F4311), F4029 (=F4011), F1035 and F1028; Fig. 4). The enclosure was aligned almost parallel/perpendicular to the Phase 1 ditches, though the alignment tended more towards north-west/south-east than in Phase 1 (Fig. 3). Two entrances to the enclosure were identified, one (3.4m wide) at the centre of its eastern side and one (1.40m wide) at its south-eastern corner. The stratigraphic relationship between Ditches F1035 and F1028 suggests that in the later part of its use, the enclosure was unbounded (or incompletely bounded, by gullies F1061 and F1065) on the western part of its northern side.

The enclosure was flanked by additional ditches to the north (F1018, recut as F1016; Fig. 4) and south (F4316 (=F4033, F4021)), separated from it by gaps of *c.* 4–6m. The western edge of the enclosure lay at the boundary of the excavated area, but a similar flanking ditch ran along the southern part of its eastern side. This ditch (F4084) cut and followed the line of a Phase 1 Ditch. Its northern and southern termini were in line with those of F4328, and it seems likely that the recutting of this feature (as Gully F4178 or possibly as a double boundary also incorporating Gully F4071 (=F4076)) was contemporary with the recutting of F4328 as F4311. The courses of the northern and southern flanking ditches beyond the corners of the enclosure remain unknown. F1018 and F1016 did not terminate within the sprinkler tank area, but showed no signs of turning parallel to the corners of

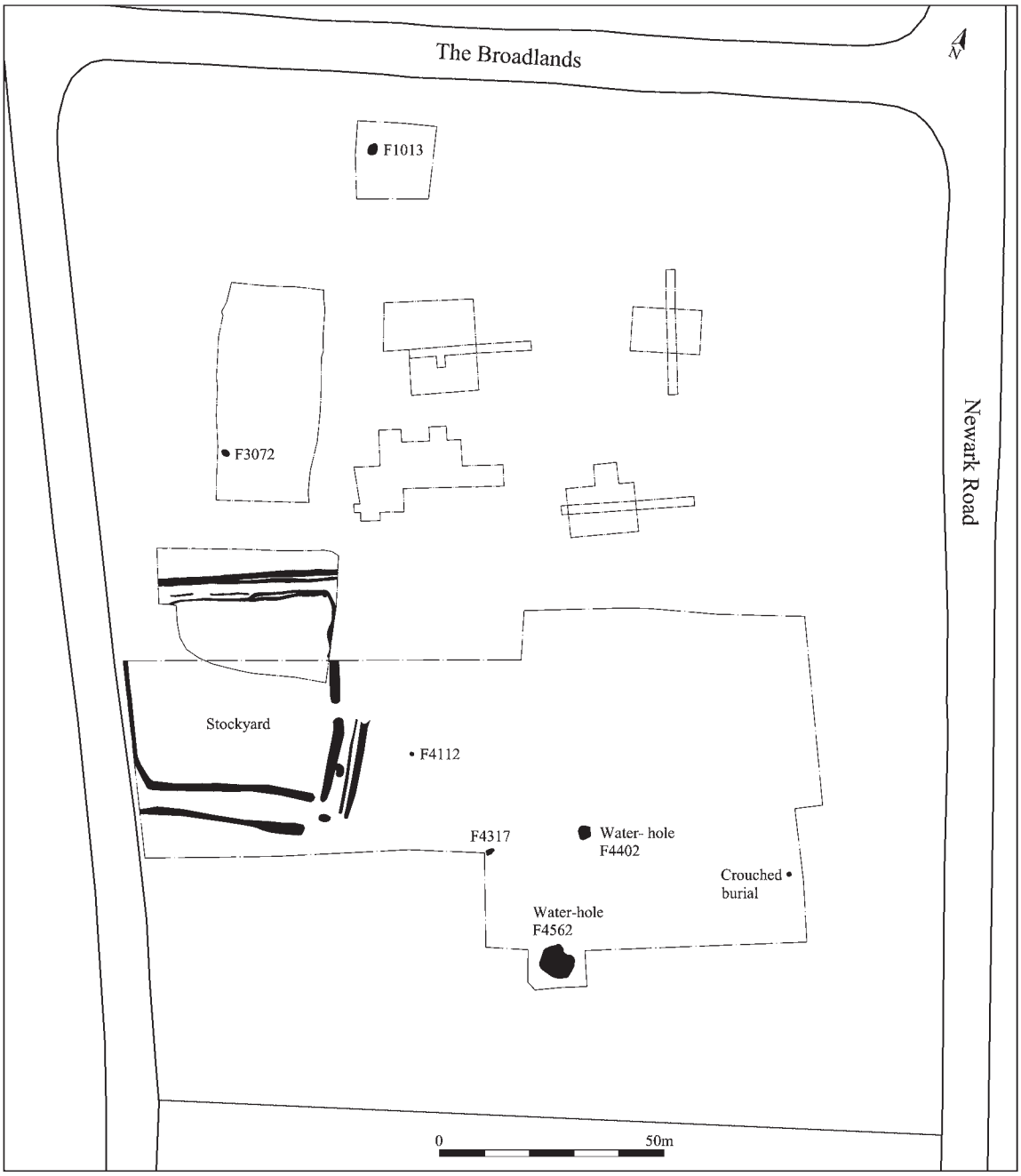


Figure 3. *Phase 2 features.*

the enclosure; the same was true of the western end of F4316 (=F4033, F4021), but its eastern end terminated in line with that of Ditch F4029.

Very few finds were recovered from the enclosure ditches, the only datable items being seven small pot sherds from F4328. However, Ditch F4316 contained a large dumped deposit of late Bronze Age to early Iron Age pottery (317 sherds, 1269g) and crude daub (370 fragments, 2350g) in its penultimate fill, just west of its terminus. Much of the pottery in this deposit had been burnt post-firing. The general absence of finds from the ditches is consistent with their interpretation as parts of a stock handling system.

Large Posthole F4413 was located at the eastern entrance to the enclosure, between the termini of Ditches F4316 (=F4033, F4021), F4029 and F4328. It was of great size (2.60 x 1.54 x 1.12m) and is thought to have held a substantial post. The configuration of its fills suggests that this was removed and the feature left to silt up for a time, though the presence of two (undated) smaller, consecutive recuts probably indicates that the post was re-erected twice after this, albeit on a smaller scale.

To the south of the eastern entrance, undated

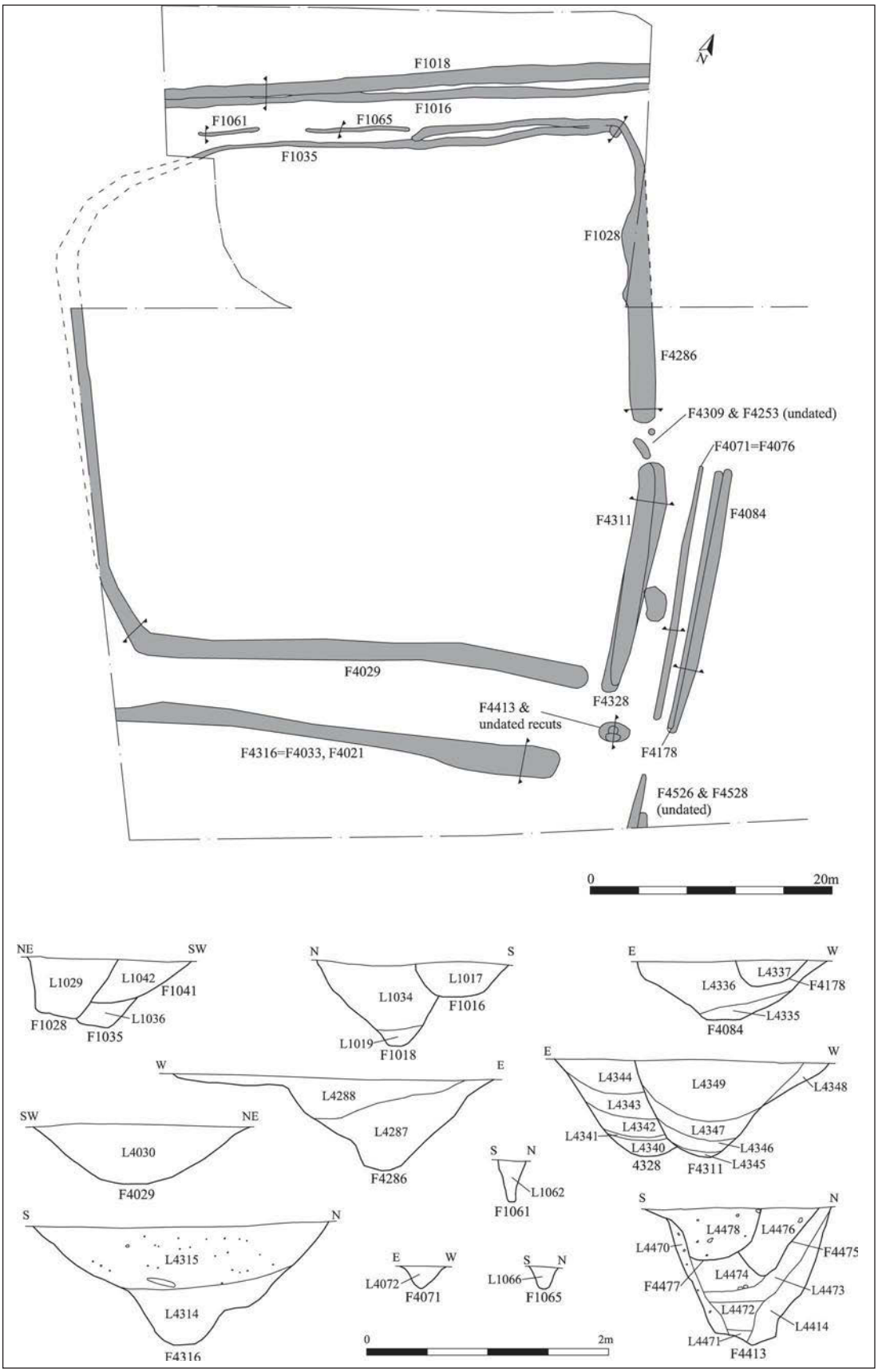


Figure 4. *The Phase 2 stockyard.*

Ditches F4526 and F4528 ran on the same alignment as F4084 and F4328. Although they may have been contemporary with Phase 1 features, it is also possible that these ditches represent the northern part of the extension of late Bronze Age/early Iron Age land divisions southward from the stockyard.

There were no datable features present within the enclosure, and the undated pits, gullies and postholes which were sealed by the palaeosol showed no sign of spatial/functional patterning.

Interpretation of features

The enclosure and its associated features are thought to represent a stockyard, either with a double boundary, or flanked by ditches forming part of a droveway system, extending westwards from the site. If the latter, then the presence of additional ditches to 'partner' F1018/F1016 and F4316 (=F4033, F4021) as they run westwards from the enclosure is postulated.

The water-holes

Description of features

Large Pits F4562 and F4402, located (respectively) *c.* 54m south-east of and *c.* 51m east of the eastern entrance to the stockyard, were identified as water-holes (Fig. 3). In profile, both resembled water-holes from other sites in the Fengate area, having steep or moderately sloping sides and flattish bases; both also contained multiple layered fills (Fig. 5), the lower of which were waterlogged. The presence of water-holes, to provide water for livestock, is consistent with the interpretation of the Phase 2 enclosure as a stockyard. F4562 was exceptionally large (7.40 x 7.00 x *c.* 1.33m), though water-holes of similar size have previously been excavated in the Fengate area (e.g. Pryor 1978, 39).

Apart from waterlogged wood, F4562 contained few finds (12 sherds of late Bronze Age to early Iron Age pottery, a small assemblage of struck flint and several animal bone fragments). Finds from F4402 were more plentiful, and included three pieces of a (residual) Deverel-Rimbury type bucket urn, as well as 36 sherds representing two early Iron Age fine ware vessels. Animal bone from the lowest fill of this water-hole included three fragmented cattle skulls, one of which was largely complete at the time of excavation.

The preserved wood from the water-holes

Maisie Taylor

Introduction

Forty-seven pieces of wood from the Phase 2 water-holes were examined in detail; material that appeared to be 'natural' deposits or root (e.g. F4208, L4578) was also sampled. Using the scoring scale developed by the Humber Wetlands Project (Van de Noort, *et al.* 1995, table 15.1), most of the material scores 4 or 5. These high scores denote material that is identifiable to species, permits analysis of production technologies and past woodland management and can be dated by dendrochronology. A score of 5 further signifies material that is worthy of museum conservation. Species identification was possible for only three of the waterlogged wood samples: two instances (one tentative) of alder (*Alnus glutinosa*) and one of oak (*Quercus* sp.).

The log ladders

Two log ladders were recovered from Pit F4562. The first, SF19, is a ½ split log, which has one end trimmed from three out of four sides to a point (Figs. 5–7). One and a half steps have survived, one with a toolmark on the step, which is 42mm wide and 6mm deep (42:6). The log was found driven into the base of F4562 to a depth of 0.15m, and leaning at an angle of *c.* 45° against the side of the feature. This is thought to have been the position of its last use: the concretion of L4572 and accumulation of clay silt deposits L4572 and L4574 around its broken-off base while the water-hole was still in use enabled it to remain *in situ*.

The second log ladder (SF26) was found lying horizontally within L4572 (Figs. 5–6 and 8). It is more complete that SF19, with 3 steps surviving, and is generally in better condition, though no tool marks are preserved. The shaft of the log is slightly curved.

Until recently, log ladders were comparatively rare finds. One of the first to be recorded was found further down Newark Road, between Newark Road and Fengate (Pryor 1978, fig. 27 and plate 12). Pryor could only offer ethnographic parallels as nothing similar was known at the time. A number of these ladders have been found recently, particularly in the Peterborough area, but also in the Thames Valley and other gravel areas. They seem to be a feature of access to deep water-holes, particularly where the water-hole or well has been cut into fairly loose sand/gravel. The pair of ladders from the Broadlands site are of two different designs: one (SF19), is a ½ split log, while the other (SF26) is a full log (i.e. roundwood). The ends are different, with SF19 trimmed to a point on three out of four sides, and SF26 trimmed from two directions to a flat tapered point. SF26 is also slightly curved, possibly helping the log to lie securely against the side of the pit.

Other categories of preserved wood

Roundwood was by far the best represented category of preserved wood from the Phase 2 water-holes (38 pieces). Much of the material is probably derived from coppice with long, straight stems, and mostly below 50mm in diameter. This is classic debris from coppice being harvested for wattle and fencing (Forestry Commission 1956). There is some evidence for slightly larger (over 90mm diameter) trees. Water-hole F4402 contained roundwood with a diameter of 90–110mm, showing clear evidence for felling. The log ladders are derived from slightly larger trees: 180mm diameter in the case of SF19 and 80–90mm in the case of SF26. None of the material is from forest trees, but this is often the case with domestic material.

Three pieces of bark were also recovered from F4402. Two of these (both 15mm thick) came from

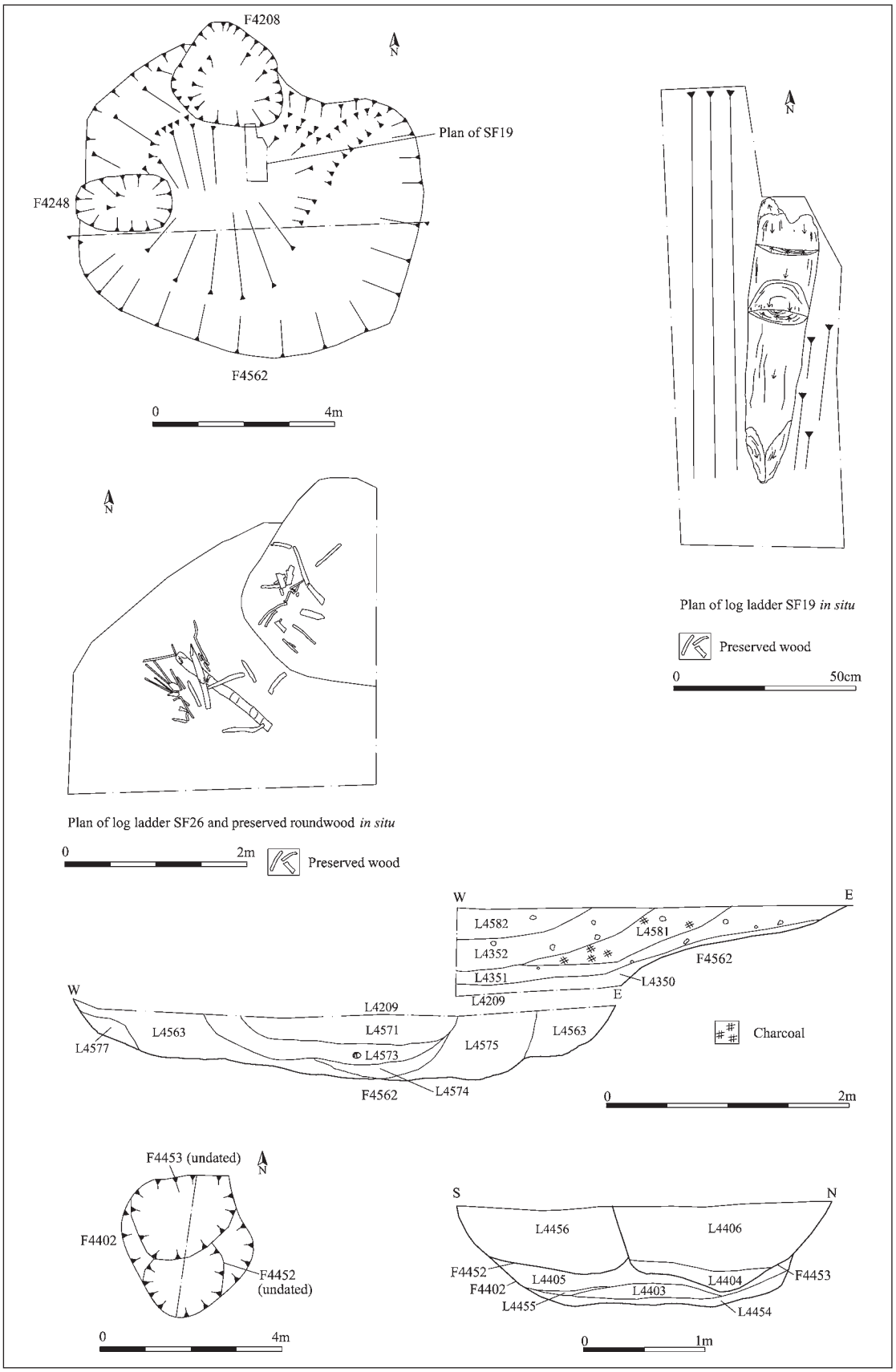
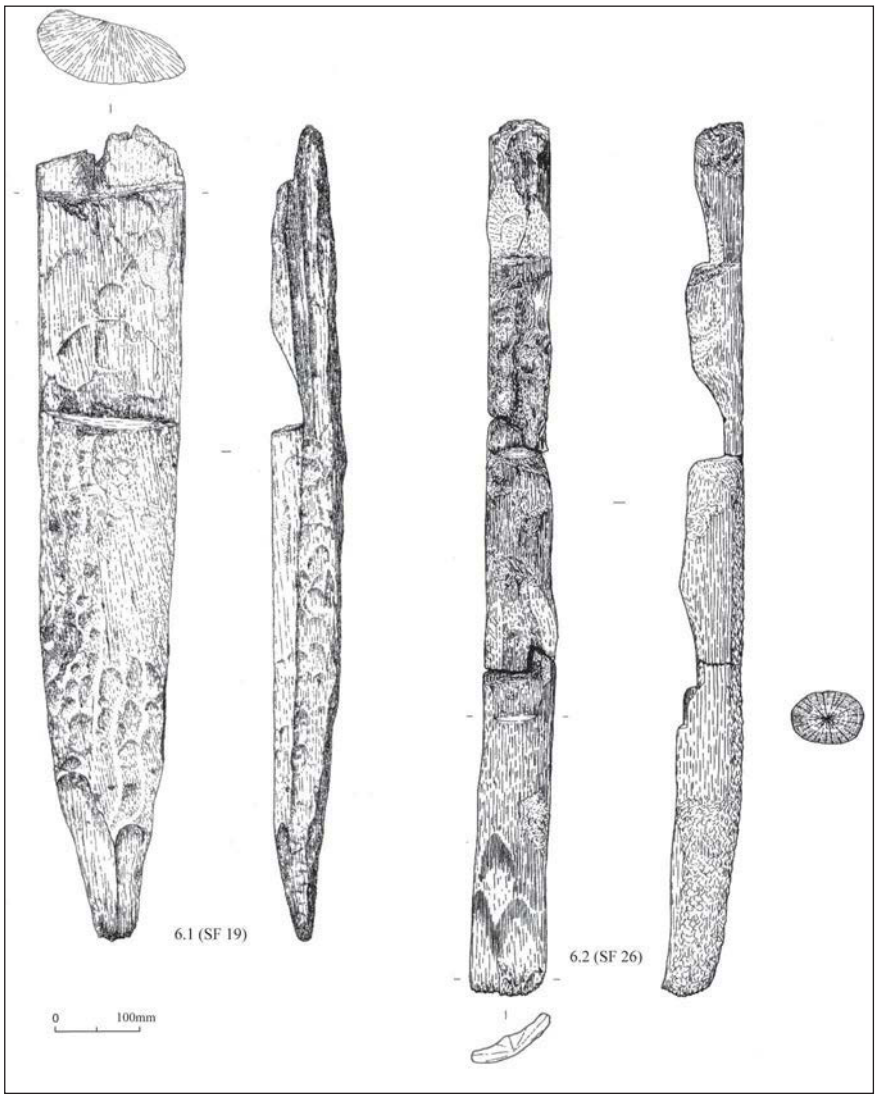


Figure 5. *The Phase 2 waterholes.*



Left, Figure 6. *Log ladders*

Below, Figure 7. *Log ladder SF19*

reasonably mature trees, possibly not attested elsewhere in the preserved wood assemblage. The only other category of preserved wood recovered was timber debris: two derived from roundwood (F4402 and F4562), one hacked from a lump of heartwood (F4402) and a charred stake tip. These pieces are appropriate to roundwood of the size and character recovered from the water-holes.

Toolmarks

The assemblage of toolmarks (two) is too small to discuss in detail, but it is interesting to note that both of the toolmarks recorded on the wood from this site are quite small. Both are only 42mm wide, but one displays a deeper curve on the blade. The mark on the trimmed Roundwood from Water-hole F4402 is almost straight, with a curve only 2mm deep, while the one on the step of the log ladder (SF19) from Pit F4562 is more deeply curved at 6mm deep. Given the dates of the deposits which produced these toolmarks, it is not surprising that the blade width falls centrally within the range for socketed axes in the area (Taylor 2001, table 7.28), so testifying to the probable means/technology of manufacture.

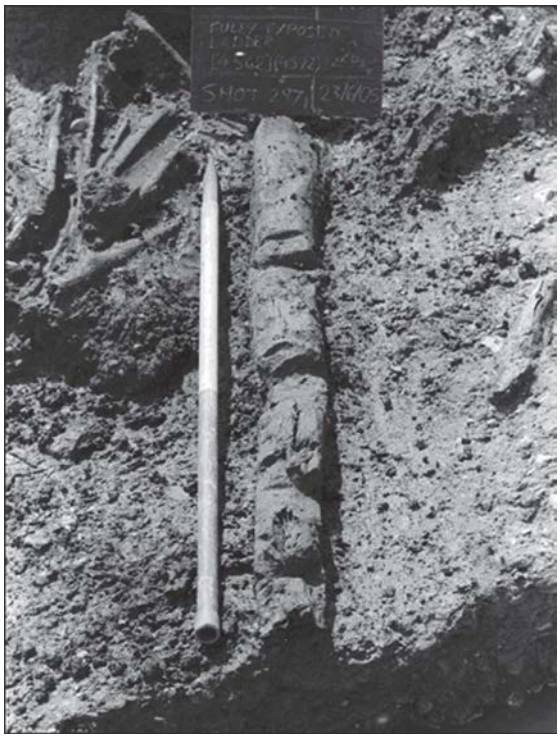


***Figure 8**. Log ladder SF26.*

The burial

The human remains

Carina Phillips

The only human bone recovered from the site was SK4382 (Figs. 3 and 9). The bones of this skeleton were poorly-preserved, exhibiting erosion, splintering and incompleteness. Estimation of sex and stature was not possible due to the condition of the skeleton, related to the poor bone survival.

SK4382 was *c.* 50–75% complete. It was not possible to estimate stature, although the remains were observed to be small and gracile. Although gracile appearance is usually associated with females, it may also be due to the young age of the individual and cannot therefore be used to infer sex. Analysis of dentition and bone fusion (cf. Buikstra and Ubelaker 1994 and Ferembach *et al*. 1980) agree in suggesting that SK4382 was in late adolescence/young adulthood at time of death. Eruption of the mandibular and maxillary 3rd molars, and absence of wear on the 2nd molars gives an age estimate of 15–21 years (Buikstra and Ubelaker 1994).

Most of the long bones were incomplete; it was possible however to record the fusion state of the right distal humerus and right iliac crest. The distal humerus was completely fused, which occurs between the ages of 14–18 years. The iliac crest was unfused; fusion of this element occurs between the ages of 21–24 years. The epiphyseal lines are visible for approximately 1–2 years after ossification (Ferembach *et al*. 1980, 531). It thus seems that the individual was aged 15–21 years. Dental attrition fell in the 17–25 age group (Miles 1963). No other skeletal pathologies or non-metric traits were observed, a factor associated partly with fragmentation of the bone.

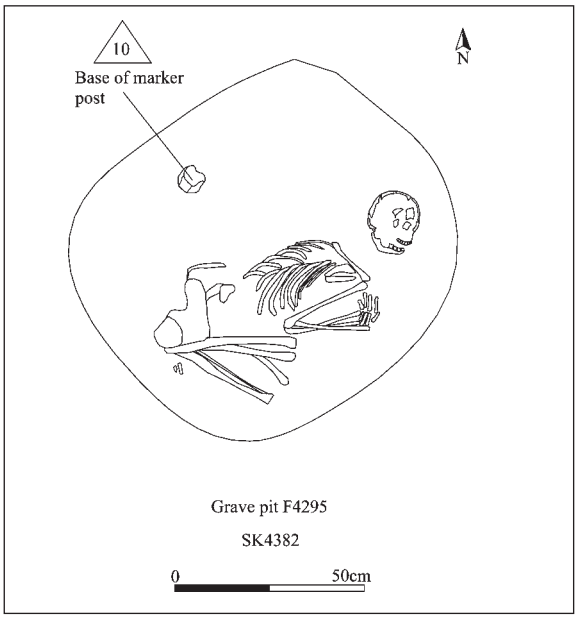


***Figure 9.** The crouched burial.*

Description of the burial

SK4382 was buried in a crouched position in a subcircular pit (F4295), cutting a Phase 1 Ditch, on the eastern edge of the Stage IV area (Figs. 2, 3 and 9; Fig. 10). No items which could be specifically identified as grave goods were found, but the fill of the pit contained a large assemblage (60 sherds; 58 in the same

Figure 10. *The crouched burial.*

fabric) of early Iron Age pottery and two tertiary flint flakes.

The position of the burial was marked by a wooden post, the base of which (SF10) was preserved in the material into which it had been driven, through the base of the pit (Fig. 9 and 11). The grave marker is very soft, partly mineralised roundwood; the grain of the wood towards the base is slightly swirly and it is possible that it has a coppiced end.

Other Phase 2 features

Pits in the north of the site

Pits F1013 and F3072 were both located in the north of the site, in isolation from each other and from other Phase 2 features (Fig. 3); both could potentially post-date other Phase 2 features. The pottery from F1013 comprised 11 sherds of a jar dated to the early or middle Iron Age. Charcoal representing oak and hazel was recovered from samples from Pit F3072 (Gale 2007), which also contained a few fragments of prehistoric pottery and a tanged, leaf-shaped iron knife blade (length 73mm, maximum width 20mm). Traces of organic material adhered to the tang, probably indicating a wooden handle. The section of the blade is distorted by corrosion, but given the outline and centrally-placed tang, it must have been double-edged. Blades of this form are not common in the Iron Age, but there are two of this shape and size among the assemblage from Danebury, Hampshire (Sellwood 1984, fig. 7.10, 2.33; Cunliffe and Poole 1991, fig. 7.11, 2.231). The scarcity of the form suggests it may have had a specialised use. Craft knives are most likely to be single-edged, as is shown by medieval illustrations of blades in use (Cowgill *et al*. 1987, 51–7). Double-edged blades are designed for penetration, and may have been used as hunting knives or daggers.

Pits F4112 and F4317 were also located in isolation from each other, and from other Phase 2 features, in the Stage IV excavation area (Fig. 3). They had similar dimensions in plan (0.95 x 0.80m and 1.40 x 1.00m, respectively), but F4317 was deeper (up to 0.40m) and less regular in both plan and section (Fig. 12). The configuration of fills in F4112 was distinctive (Fig. 12). Both of the initial deposits were described on-site as containing 'burnt material'; samples taken from them were found to contain charred hazelnut shell fragments as well as charcoal (Fryer 2007). Finds were recovered only from L4115, though small amounts of animal bone (including some burnt fragments) were recovered from the residues of samples from L4114 (Phillips 2007). L4115 contained 70 sherds of early Iron Age pottery, all in the same fabric. A similarly large pottery assemblage (74 sherds) from the two fills of F4317 is thought to derive from a single vessel of the same fabric and of similar date. This feature also

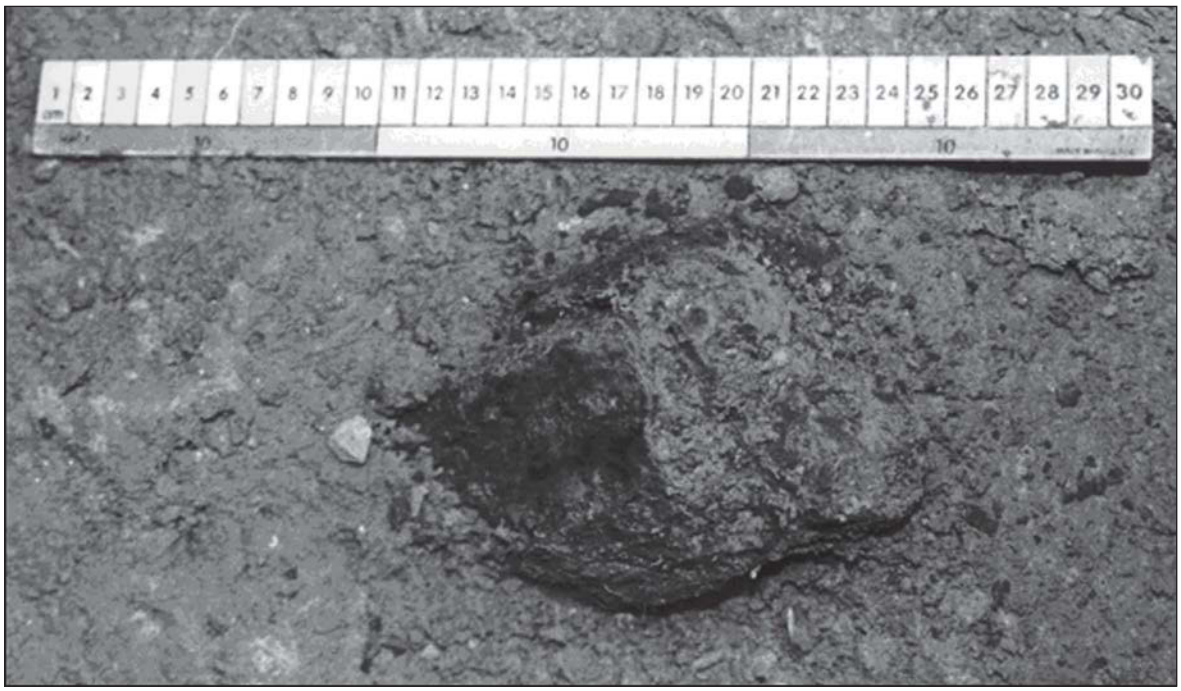


Figure 11. *Preserved grave marker* in situ.

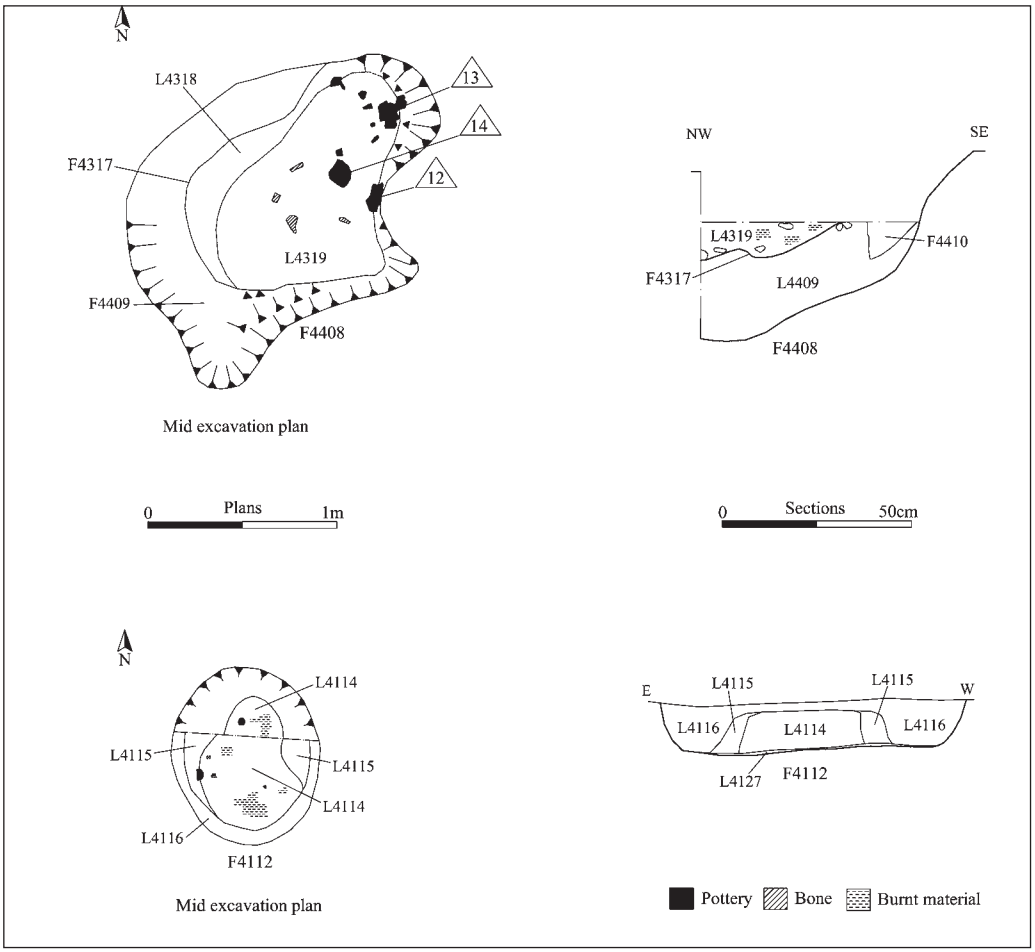


Figure 12. *The burnt pits.*

contained a large assemblage of worked and burnt flint, although this material may have been residual. Charcoal was the only non-contaminant material present in a sample taken from F4317 (Fryer 2007).

The pottery assemblages from these features were two of the largest recovered at the site. Other large Phase 2 assemblages were from the dumped deposit in Ditch F4316 (317 sherds), Grave Pit F4295 (60 sherds) and Water-hole F4402 (39 sherds). Pottery assemblages from the remaining Phase 2 features were generally less than 10 sherds, most less than five sherds.

Pits F4112 and F4317 seem to represent the same kind of activity, characterised by the deposition of pottery (single vessels?) and burnt plant material. The flots and residues of samples taken from these features were carefully examined, but no evidence was found to support the theory that they represent damaged cremations. The nature and significance of these features thus remains unknown.

The animal bone
Carina Phillips

A small assemblage of 133 fragments came from Phase 2 features. Like the assemblages from all phases, the majority of the bone was poorly-preserved, with concretion of salts (caused by a waterlogged anaerobic environment) affecting a large proportion. The friable nature of the bone resulted in much of the assemblage fragmenting during excavation. Poor preservation may also have obliterated butchery marks, particularly cut marks. The hand recovery technique used may be biased towards the recovery of larger bones, possibly resulting in an under-representation of small species particularly birds, fish and small mammals.

Small numbers of cattle (*Bos taurus*; number of identified specimens (NISP) 35, minimum number of individuals (MNI) 4; calculated from the most frequent left or right skeletal element), sheep/goat (*Ovis aries*/*Capra hircus*; NISP 15, MNI 3), pig (*Sus scrofa*; NISP 3, MNI 1) and horse (*Equus caballus*; NISP 1, MNI 1) bones were identified. Two cut marks were the only evidence of butchery in the assemblage. Carnivore gnawing was evident on three bone fragments. Age estimates based on tooth wear were possible for two cattle mandibles, aged respectively as young adult and senile and one sheep/goat mandible aged at 4–6 years.

The fragmented remains of at least three cattle skulls were recovered, in addition to other disarticulated animal bone, from Water-hole F4402 (L4454). One of the skulls was recorded in the excavation records as being substantially complete when recovered. It is possible that these skulls could represent a structured act of deposition, but due to the presence of other animal bone and the fragmentation and mixing of the skulls this cannot be confirmed.

The pottery
Peter Thompson

Introduction
The combined excavations recovered a total of 621 sherds (2401g) of late Bronze Age to early Iron Age pottery. The pottery is generally poorly-preserved, comprising small and often abraded sherds with a mean weight of just 3.87g. The fabrics are predominantly in shelly wares (>97%), although in many cases the actual shell has dissolved due to the acidity of the soil, leaving voids and pitted surfaces. However, some contexts, e.g. F4402 (L4454 and L4561) and F1013 (L1014), contained pottery preserved in relatively good condition; L1014 was also the only context to provide an example of an almost-complete vessel profile.

Fabrics and forms
The late Bronze Age/early Iron Age fabrics are still mainly coarse and shelly (vesicular where shell has dissolved), but the sherds have grey cores and pale brown surfaces and are thinner and generally less coarse than the earlier Deverel-Rimbury wares (see Thompson 2007). However, a fine ware component is also apparent along with an increase in vessel types. Shelly wares are not generally diagnostic of period and appear in the Fengate area in nearly all prehistoric periods, although Barrett notes some trends over time (Barrett 2001, 251; Last 2003, 20).

Although the assemblage is fragmentary, there are a dozen or so partial profiles that are more informative than the rest of the assemblage. In particular, there is a large urn base from Pit F4402, two necked forms from Pit F3021, two carinated jar forms from Pit F3083 and Pit F4402, a small bowl from Pit F4402 and a jar rim with a flaring neck from Pit F1013. The diagnostic sherds are discussed by period below.

Coarse wares
Ditch F4316 (=F4033, F4021) yielded 317 sherds (51% of all prehistoric sherds from the site), of which 302 came from L4533. Many of the latter were pink or red throughout, having been burnt post-firing. The only diagnostic sherd present in this feature is a simple upright rim from a large vessel, possibly of cylindrical shape (Fig. 13.1). This, together with a fairly upright simple rim containing very coarse platy shell from L4209 (Pit F4208 or Pit F4561; The difficulty of ascertaining the relationship between these two pits and L4209 is detailed in the site Research Archive Report (Nicholson 2007, 6), bears similarities to Post Deverel-Rimbury forms of the East Midlands region (Knight 2002, 129). At Aldermarston Wharf in Berkshire an assemblage of this type, one of the relatively few well-stratified assemblages of the late Bronze Age, consisted mainly of undecorated bowls, plain straight-sided jars and rounded jars with little decoration; it was assigned a date, partly through radiocarbon dating, between the 11th–9th centuries BC (Bradley *et al*. 1980, 232–248).

Pit F3083 (L3084) at Broadlands contained three

carinated forms in shell with sand and grog temper (Fig. 13.2); this feature also contained late Iron Age to early Romano-British sherds. Such S-profile or carinated hollow-necked forms can be found both in Post Deverel-Rimbury assemblages and in the Iron Age proper, the latter seen at early Iron Age Fengate sites and at Gretton on the river Welland, Northamptonshire (Knight 2002, 128 No. 9; Hawkes and Fell 1945, 202 No. F2; Jackson and Knight 1985, 78 No. 26).

Pit F3021 (L3022) contained two partial-necked profiles with flattened or expanded rims (Figs. 13.3 and 13.4) and a body sherd with a single fingertip impression, which is almost the only example of decoration from the site. Again, the general lack of decoration suggests Post Deverel-Rimbury 'plain wares', although the profiles are also quite similar to decorated and undecorated early Iron Age examples from Gretton (Jackson and Knight 1985, 78). Similar forms to Figures 13.2, 13.3 and 13.4 were found at the Tower Works site, Fengate, some with fingertip decoration, and it is suggested these date to the period *c.* 900–700 BC (Lucas 1997). A date of 10th century BC is therefore possible as the earliest Post Deverel-Rimbury wares are not typified by angular forms (Last 2003, 21). However, this needs to be treated with caution due to the general lack of decoration on the site, even from the contexts containing typical early Iron Age pottery.

Burnt Pit F4317 (L4318 and L4319) contained a flaring rim profile with a pinched-out lip indicative of a very early Iron Age date, as is a flattened, squared rim from Burnt Pit F4112 (M. Knight pers. comm.).

Finer wares

Fragments from several finer ware vessels were recovered from Broadlands, including black burnished carinated body sherds from Grave Pit F4295 (in sand) and Water-hole F4402 (in sparse, fine shell) (Fig. 13.6). These are in the early Iron Age Fengate-Cromer tradition, with parallels at Fengate including a vessel described as a degenerate situlate jar, although this contained flint temper (Hawkes and Fell 1945, 210 fig. 8 U8). The Broadlands sherds are similar in appearance to burnished shelly wares from the Iron Age settlement at Bradley Fen, on the south-eastern edge of the Flag Fen basin (M. Knight pers. comm.).

Pit F4402 also contained sherds (from L4561 and L4556) of a third fine vessel, a thin-walled cup or tiny bowl (Fig. 13.7). This is also of the Fengate-Cromer tradition, which includes globular bowls with flaring rims and encircling grooved lines (M. Knight pers. comm.). It can be matched with an S-profile example from Fengate (Hawkes and Fell 1945, fig. 7 no. R6). A similar vessel excavated from a roundhouse in a settlement at Kings Dyke West, Whittlesey, provided a radiocarbon date centred on *c.* 500 BC (M. Knight 1999). Another partial fine bowl profile in a fine shelly fabric came from Pit F3072.

The only virtually complete profile of the Broadlands assemblage came from Pit F1013 (L1014), which contained eleven sherds comprising a jar with a flaring neck (Fig. 13.8). This profile could be early or middle Iron Age in date, but is again similar to an early Iron Age example from Gretton (Jackson and

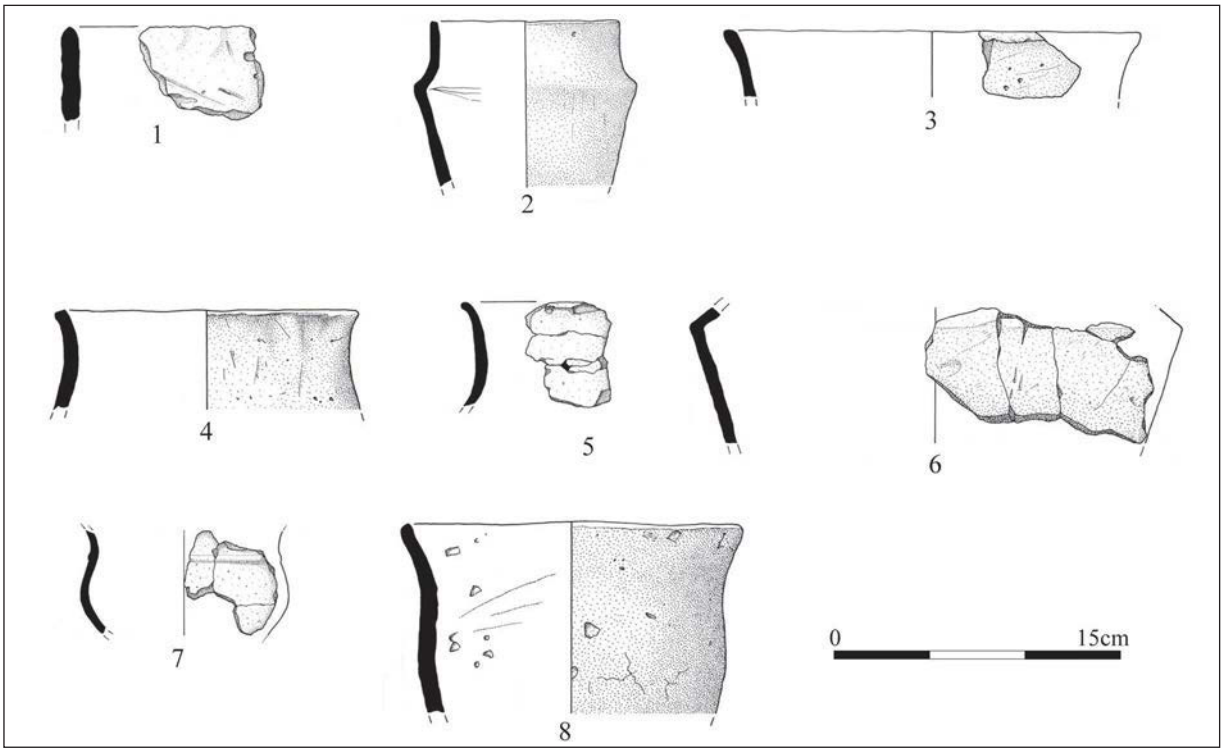


Figure 13. *Late Bronze Age to early Iron Age pottery.*

Knight 1985, 79 no. 64), indicating that it need not be later than any of the Iron Age pottery discussed above.

Discussion

Late Bronze Age to early Iron Age site environment and economy

The pottery
Peter Thompson

Fragments of rim sherds from Ditch F4316 and Pit F4562/F4208 (Figs. 13.1 and 13.2) are possibly of Post Deverel-Rimbury 'plainware' type but could also be particularly coarse early Iron Age wares. The squared rim from Pit F4112 and flaring rim from Pit F4317 (Fig. 13.5) are of a very early Iron Age date. The black burnished carinated body sherds and the thin-walled cup with a single ridged cordon from Pit F4402 (Figs. 13.6 and 13.7) are of the Fengate tradition, which was current from the 8th century BC until the end of the early Iron Age (Barrett 1980, 313). Pit F4402 and possibly Pit F1013 are the latest demonstrable Phase 2 features at Broadlands. The absence of middle Iron Age forms or scored decoration, which first appeared in the 5th/4th centuries BC, in the Broadlands assemblage, indicates that none of the assemblage can be much later than *c.* 500 BC.

One slightly unusual feature of this late Bronze Age/early Iron Age assemblage is the virtual lack of decoration. Pryor (1974, 39) suggests that as the area was separated from East Anglia by the Fens, it should be seen rather as a part of the south-east Midlands and western Fen Margins, with possible contacts further in along the Welland and Nene valleys. This theory is supported to a degree by the similarity of some of the Broadlands pottery with the early Iron Age assemblage from Gretton.

The preserved ecofact evidence
Kate Nicholson, Maisie Taylor, Val Fryer, Rowena Gale and Carina Phillips

Much attention has been given over the last 25 years to the assessment of the nature and development of the palaeoenvironment of the Fengate and Lower Nene Valley area (summarised by French 2001). The investigation at Broadlands has revealed nothing to contradict that interpretation. Evidence of the late Bronze Age to early Iron Age has been gleaned from recovered wood (preserved through waterlogging and, in very small quantities, as charcoal), animal bone and environmental samples.

Most of the roundwood is consistent in diameter with coppice, although the presence of some larger trees was also attested (e.g. the pieces used to make the two log ladders); two thick pieces of bark indicated the presence of still larger trees. Charcoal was present in environmental samples taken from a variety of features; it was probably accidentally incorporated from scattered/wind-blown refuse. Charcoal from Phase 2 Pit F3072 represented oak and hazel (*Corylus avellana*). Hazel nutshell fragments were present in an environmental sample taken from Phase 2 burnt Pit F4112. This evidence is consistent with interpretation of the late Bronze Age/early Iron Age landscape of this part of the fen edge as being essentially open, with areas of scrub and hedgerows, surviving as relics of the earlier field system (French 2001, 402–403; Pryor 2001, 413). Oak and hazel would have grown on the drier ground, whilst alder would have been collected at the fen edge.

The natural woodland of the Fengate area is thought to have been cleared by the early 2nd millennium BC (French 2001, 400). From this time on, people would have continued coppicing and producing material for domestic use from local material. The gradual flooding of the adjacent fen might have affected the quantities and species of coppiced roundwood, but the same type of woodworking (coppicing, hurdling, bodging etc) would have continued. At Broadlands, wood would have been used for any posts, gates or hurdles associated with the Phase 2 stockyard, as well as in the construction of any of the structures which were contemporary with this activity. Its use as a grave marker (SF10) and for the construction of log ladders (SF19 and SF26) is also clearly attested. One piece of roundwood from Water-hole F4562 may have been a piece of wattle, but no others could be identified as such; water-holes at Fengate sites including Vicarage Farm and Storey's Bar Road contained preserved wattle linings (Pryor 1974, 25; 1978, 26–29).

The presence of charcoal (the analysed pieces and further pieces in environmental samples from a variety of features) indicates that, although the site is not thought to have been used for occupation, wood was burnt as fuel in the vicinity. However, the use of alternative fuels such as peat charcoal (which has successfully been used in areas where wood is largely unavailable, e.g. Orkney and Shetland; Fenton 1978), may have been relevant at Broadlands.

The hazel nutshell fragments in Pit F4112 may have been brought to the site accidentally, along with hazel wood, but they could also be indicative of a gathered food resource accidentally preserved through charring in this one feature. The nature of activity represented by F4112 (and F4317) remains unknown. No cereal remains were present in any of the analysed environmental samples, suggesting that no crops were grown or processed at/in the immediate vicinity of Broadlands. Though small, the late Bronze Age to early Iron Age animal bone assemblage was dominated by cattle (*Bos taurus*) and sheep/goat (*Ovis aries/Capra hircus*), consistent with the pastoral activity represented by the stockyard (below). The small size of the assemblage further emphasises the agricultural/pastoral nature of the area during the late Bronze Age to early Iron Age; a settlement landscape would almost certainly have yielded a larger and more complex accumulation of remains associated

with the day-to-day processing of foodstuffs and other primary and secondary resources. Poor preservation is also thought to have affected the quantity and state of the animal bone recovered.

The stockyard

The ditched enclosure and its associated features have been interpreted as a stockyard. According to Pryor's figure of *c.* 0.47m^2/animal as the recommended space for retaining modern sheep (which are larger than prehistoric breeds) within a collecting pen, the Broadlands stockyard (*c.* 1800m^2) could have handled *c.* 3600 sheep at a time. This is approximately the same number as Yard B of the middle Bronze Age 'community stockyards' at Newark Road (Pryor 2001, 417), *c.* 750m south of Broadlands. This system was earlier and undoubtedly far more complex than that at Broadlands, acting as a focus for trade and social interaction and being positioned at the western landfall of the Flag Fen post alignment (see Pryor 1996, 317; 2001, 415–416). Nonetheless, the principles of its use, and that of the Storey's Bar Road stock-handling system, as explored and discussed by Pryor (1996; 2001, 415–420; 2006, 89–109) are of relevance to considerations of how the Broadlands stockyard was used.

The narrow droveways and 'races' around the edges of the yards at Newark Road are thought to have been designed to allow animals to be easily inspected, taking advantage of the tendency of sheep to behave more docilely in restricted spaces; the layout of the entrances/exits to the droveways and races allowed the animals to be sorted into groups following inspection. The use of two- or three- way drafting gates at strategic points would have allowed animals to be directed into the appropriate enclosures. A feature of this system, but more markedly of the simpler stock handling system at Storey's Bar Road, is the location of entrances at the corners of enclosed spaces, allowing animals to be easily channelled.

The spaces between the enclosure and flanking ditches at Broadlands would have formed races, within which animals could be inspected and sorted. Posthole F4413 is thought to have supported a drafting gate, allowing animals to be sorted at this point. The direction in which animals would have been moved is not known. If they approached from the south-west, between F4316 (=F4033, F4021) and F4029, they could have been inspected in this confined space and sorted at the drafting gate into three groups – one channelled into the enclosure, another into the space (maybe a second enclosure, bounded to the east by F4526/F4528) south of the race, and the third into a second race between F4084 and F4328.

The dimensions of the proposed races of the Broadlands stockyard were larger than those of the races at Storey's Bar Road or Newark Road. This could potentially indicate that the Broadlands stockyard was used to manage cattle, rather than sheep/goats. Both species were represented in the animal bone assemblage; it is possible that the cattle skull deposit in the base of Water-hole F4402 had a ritual element, indicative of the importance of this species at the site, although this cannot be asserted with any degree of certainty. A system identified as probably for cattle (or mixed species) management at Welland Bank, Lincolnshire, was characterised by massive ditches and large enclosures, spread over an extensive area (Pryor 2006, 116–117). Although cropmarks *c.* 325m west-south-west of the site resemble the large enclosure at Welland Bank (Pryor 2001, 410) the features at Broadlands do not bear an obvious resemblance to this large-scale system.

The Broadlands stockyard is not contemporary with the other stockyards and droveways of the middle Bronze Age Fengate landscape. Rather, it dates to a period (late Bronze Age/early Iron Age) in which these were being abandoned, as increasingly wet conditions resulted in the flooding of what had been (seasonally) dry pasture land (French 2001, 402). The resultant landscape is thought to have been essentially open, though probably with hedges surviving as indicators of past (possibly maintained) land divisions (Pryor 2001, 413; French 2001, 402–403).

It is possible that activity shifted onto the higher ground during the late Bronze Age/early Iron Age (cf. French 2001, 402). It is notable that, like Broadlands, the Tower Works (late Bronze Age to early Iron Age settlement) and Vicarage Farm (early Iron Age pitting) sites are set back from the fen edge at *c.* 5m OD. No other evidence of late Bronze Age/early Iron Age land division or stock management features has yet been identified in the Fengate area, but investigation to date has been concentrated in the (more southerly and) lower-lying areas. Extensive systems of land partition, similar in appearance to the middle Bronze Age system at Fengate, are known to have been in use in the late Bronze Age and early Iron Age on other parts of the fen edge (e.g. at West Deeping and Welland Bank in the lower Welland Valley; Pryor 2006, 109–123). There is no reason to think that similar activity may not have continued, on suitably elevated land, in the Fengate area. The scale of the system represented at Broadlands is not yet clear: it is possible that it extended westwards, beyond the limits of the investigation.

At Edgerly Drain Road, immediately east of Broadlands, the middle Bronze Age system of land division had gone out of use by the late Bronze Age (Beadsmoore 2005). The cutting of pits through the fills of its ditches began in the middle to late Bronze Age, and continued in the late Bronze Age; the latter period also saw the cutting of postholes (including a possible structure blocking the route of the earlier droveway), the cutting of a ditch on a new alignment, and the laying-down of a large metalled surface (18 x 71m) in the northern part of the site. This may have been related to activity at Broadlands, though Phase 2 features were not located particularly close to the Edgerley Drain Road site; the nature of any such association is not clear.

The crouched burial and Post Deverel-Rimbury mortuary practice

A single inhumation was present at Broadlands.

SK4382 was buried in a crouched position in a discrete, apparently purpose-dug, pit, marked by a wooden post. Sixty sherds of pottery date the inhumation to the early Iron Age, though it was isolated from other Phase 2 features.

In the middle Bronze Age droveways and related features of the Fengate system, human burials occurred in the bases of the large ditches, placed either directly on the ditch bottom, or in shallow scrapes cut through it (Pryor 1980, 5, 39, 168, 175). Two further crouched burials of similar date, deposited in the same manner, were found in a ring ditch at Storey's Bar Road (Pryor 1978, 34). The Broadlands burial bears little resemblance to these earlier examples, being apparently unassociated with the site's landscape division/stock management features, and being placed in a deliberately cut (and clearly marked) subcircular grave. In this respect, it has greater affinities with the six (probable) middle Iron Age crouched burials at the Cat's Water settlement (Pryor 1984, 116–122). Disarticulated human bone was deposited along with the metalwork and other items in association with the Flag Fen post alignment (Halstead and Cameron 1992; Halstead, *et al*. 2001). A single, decayed, human skeleton, thought to be of Iron Age date, was recovered from the fen area *c.* 50m north of the post alignment; it is thought to represent an act of special deposition (Pryor 1992, 524).

The position of the burial, *c.* 100m from the stockyard and 44m from the nearest Phase 2 feature (Water-hole F4402), may have been influenced by the presence of a barrow (HER 3002) *c.* 100m to its north-north-east (Fig. 1). The barrow, known as Herdsman's Hill, was destroyed by gravel quarrying before 1912, but records indicate that it contained a Beaker period inhumation accompanied by two flint daggers and a quartzite axe hammer.

Wooden grave markers may not have been rare in the late Bronze Age and early Iron Age, the mortuary practices of which are not well-attested archaeologically, but it is not thought that any other preserved examples have been identified through excavation. The pottery in the grave fill does not apparently represent a single vessel deposited as a grave good, but the assemblage from this feature stands out clearly as one of the largest at the site. Needham (1995, 166) suggests that potsherds (as opposed to whole vessels) could have been used in rites associated with the dead, but it is unusual for more than a few sherds of pottery to be recovered from inhumations of this period (Brück 1995, 160).

Human remains dating to the Post Deverel-Rimbury, late Bronze Age to early Iron Age, period are not common in the British archaeological record (Wilson 1981; Needham 1995, 165–172; Brück 1995; Taylor 2001, 39–40). Though some examples of crouched inhumations are thought to date to the late Bronze Age, their dating is generally problematic (Needham 1995, 167), and some may in fact be collections of disarticulated bone (Brück 1995, 247). The recognised methods of 'deposition' of un-cremated human remains in the earlier 1st millennium BC involved the deposition of single or fragmentary bones at settlement sites, in 'watery locations' such as rivers, lakes and bogs, with hoards of metalwork, or (more rarely) in caves or at the sites of earlier funerary monuments (Brück 1995, 248–251). The securely-dated crouched inhumation of SK4382 is thus distinctive.

Though most known instances of reuse of early to middle Bronze Age barrows for funerary activity date to the far removed Roman and (especially) Anglo-Saxon periods (cf. Williams 1998; Semple 1998; Taylor 2001, 58), a few Post Deverel-Rimbury examples are also known (Whimster 1981, 33–34; Brück 1995, 251; Taylor 2001, 80). These include a (probable Iron Age) burial close to a barrow at Barrington, Cambridgeshire (Malim and Hines 1998, 64, 67–68), and a middle or late Iron Age burial inserted in a Bronze Age barrow beneath the ramparts of Battlesbury Hillfort, Wiltshire (Wilson 1981, 145, 159). Examples involving fragmented bone, rather than complete burials, are also known (Brück 1995, 251, 274, 275, 277). In the south Fengate area, the reuse of an early Bronze Age ring ditch (originally associated with inhumations) for cremation burials (Hawkes and Fell 1945, 190) has been re-interpreted by Pryor (2001, 7–8) as dating to the Deverel-Rimbury period, rather than the late Bronze Age and early Iron Age, as was originally postulated.

Although it remains possible that the juxtaposition of the crouched inhumation at Broadlands and the barrow known as Herdsman's Hill was coincidental, the barrow would have been a highly visible feature in the early Iron Age landscape. It thus seems likely that this was an influencing factor in the location of the burial, if not in determining the unusual manner in which the body was treated.

The proximity of the site to the ('watery') fen may also have been a significant factor in determining the manner and location in which SK4382 was buried, though it is unlikely that this was unrelated to the proximity of the barrow. Being located significantly east of the stockyard, with only the barrow to the north and the abandoned Edgerley Drain Road area (Beadsmoore 2005; see Fig. 1) separating it from the fen, the crouched inhumation could be said to be in a liminal/transitional area, between the agricultural high ground and the wet expanse of the fen. Brück (1995, 257–262) explores the possible perceived relationship of the transition from life to death (as represented by human remains) to the physical and social boundaries which people would have encountered in everyday life. She suggests that pressure on good, dry agricultural land in the late Bronze Age was behind the emphasis on ancestral connections to the land implicit in the use of human remains to mark boundaries.

Gosden and Lock (1998, 6) postulate that when the objective history of a large landscape feature (such as a barrow) is lost to time, it can retain significance/power in the minds of a population, derived from the perception of its age, and from the potential for a re-creation of the past, based on its obscure origins. Brück (1995, 257) describes the dead of the late Bronze

Age/early Iron Age as "a symbolic resource that could be drawn upon in a variety of contexts…". In view of these theories, it is suggested that the location and manner of the burial of SK4382 were deliberately chosen to resemble remembered past burial practices (i.e. buried whole, crouched, marked and close to a barrow), and so to draw upon a link with the past.

It has been suggested (Pryor 1992, 519–20) that the votive deposits around the Flag Fen post alignment were intended by the occupants of the dry land, seeking to protect their land from the displaced populations of the newly-expanded fen, as the reinforcement of a territorial boundary. It is proposed that SK4382 was a part of that votive activity, positioned at the limits of their dry land territory. Given Brück's ideas about the use of human bone to emphasise ancestral connections to land, the burial may have been intended to strengthen the Fengate occupants' claim to the land by demonstrating a perceived link to the earlier farming community of the Fengate area, the remnants of whose fields (and homes) would have been visible across the landscape (Pryor 2001, 413; French 2001, 402).

If this (tentative) interpretation is accepted, then questions are raised as to the chronological and symbolic relationships of the burial at Broadlands to the Iron Age human skeleton recovered from the fen north of the post-alignment (Pryor 1992, 524), and as to whether further contemporary inhumations remain to be found in/on the edge of the fen in this area.

Conclusions

The Eastern Industry is an area with a well-understood prehistory, having been the subject of several archaeological investigations since the 1970s, as well as in the early 20th century. The significance of the findings of the Broadlands investigation is that the site is located above, rather than on, the fen edge, and that the main period of activity represented (late Bronze Age to early Iron Age) is not one already well attested and understood in the area.

The late Bronze Age to early Iron Age stockyard and related features provide evidence of how pastoral activity shifted onto higher ground when the fen edge features of the Fengate area became inundated. Evidence of pastoral farming/stock management features of this date have not previously been recorded in the area. The crouched burial may be linked to votive deposition around the Flag Fen post alignment and platform, giving us a glimpse of the ways in which people coped with the new pressures brought about by the altered landscape.

Prepared for publication by Antony Mustchin

Acknowledgments

Archaeological Solutions is grateful to Cloverbrook Holdings Ltd and Ideal Shopping Plc for commissioning and funding the project. AS would also like to thank Ben Robinson (Peterborough City Council Archaeology Service) for his input and advice.

Carina Phillips would like to thank Roger Jones for his ongoing support and advice. Peter Thompson would like to acknowledge advice from Mark Knight (Cambridge Archaeological Unit) on pottery dates and contextual evidence.

The excavations were run by Tom Vaughan, Nick Crank, Dan Hounsell and Claire Hallybone. The project was managed by Jon Murray. Finds were coordinated by Louise Woods and Claire Wallace.

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A Landscape Corridor: A14 Improvements Investigations

Christopher Evans and Robin Standring

with Grahame Appleby, Ricky Patten and Adam Slater

This paper presents the results of the first-phase archaeological evaluation fieldwork implemented on behalf of the Highways Agency for the A14 Ellington to Fen Ditton project. The proposed changes consisted of a new route south around Huntingdon, provision of additional carriageways alongside the existing road between Fen Drayton and Girton, widening of the existing Cambridge Northern Bypass and a number of junction improvements. Work on the project was stopped in the Summer of 2010 due to the Comprehensive Spending Review.

The fieldwork was undertaken by the Cambridge Archaeological Unit (CAU) during 2009–10. Extending for 28.75km from Ellington southeastward across the valley of the River Great Ouse and the clay plain to Girton, the route involved a representative sample of the county's main north-of-Cambridge geologies (Fenland aside): some 17km crossing clays and, the remainder, upon gravel terraces (Fig. 1; Patten *et al*. 2010).

This was a very large-scale exercise, involving more than 20km-length of trenching wherein just shy of 720 features were recorded and, in total, some 11,425 artefacts were recovered. As such, it stands in marked contrast to the scale of response that was mounted in the early 1980s to the construction of the M11 (e.g. Cra'ster 1982). Indeed, the programme results should be considered in the light of other recent 'mass-scale' linear investigations within the county, primarily the fieldwork along the routes of the A428 (Abrams and Ingham 2008) and the Guided Busway (Dickens and Collins 2011). Equally relevant, particularly for the A14's southeastern claylands-length, have been the series of landscape-scale investigations in those environs and which includes the excavations at Cambourne (Wright *et al*. 2009) and the evaluation programmes at both Longstanton/Northstowe and the University's Northwest Cambridge development (see Evans *et al*. 2008, 174–81 and Evans and Newman 2010).

Due to the scale of the A14's fieldwork programme, the number of sites found and variety of prospection techniques deployed – and that the resultant multiple-source imagery/data does not readily lend itself to a standard journal format – this paper can only really serve to 'signpost' the project's rich archives. While it includes gazetteer summaries of all the designated sites, there is only the scope to case-study a few in any detail.

Baseline Procedures and Methodologies

It should be stressed from the outset that this was a limited initial-phase evaluation programme, with subsequent second-stage works planned following the scheme's planning determination. In the first instance the length of the proposed road-line was subject to aerial photographic appraisal and fieldwalking (respectively, Palmer 2003 and Anderson *et al*. 2009). Based on transect-collection (over 70km total length), the latter was conducted across approximately 66% of the total off-line portions (i.e. non-present route), the remainder being inaccessible variously due to pasture-cover, the state of crop-growth or landownership issues. In its course, aside from three minor lithic scatters, three distinct scatter sites were identified and these were selected for intense gridded pick-up (6.4ha in total) and their results are incorporated within the relevant site summaries that follow. The vast majority of the road's off-line length also saw geophysical survey. This involved narrow transects along its 'corridor' proper (Pre-Construct Geophysics 2007), which was augmented by larger swathes relating to the proposed location of balancing ponds and borrow pits, etc. (Bartlett 2009 a and b).

Based on these sources, 28 areas were then selected for full trench-evaluation procedures. It proved impossible, however, to gain landowner access to four and, in the end, only 15 of these were evaluated in 2009 (Fig. 1). It had been intended to test the remainder in the following year, but by then, anticipating that the road scheme would not progress, this work was not advanced apart from in two other areas (P and E1). The criteria according to which these areas were chosen for investigation were:

1) Areas with known archaeological sites or probable

Proceedings of the Cambridge Antiquarian Society CI pp. 81–104.

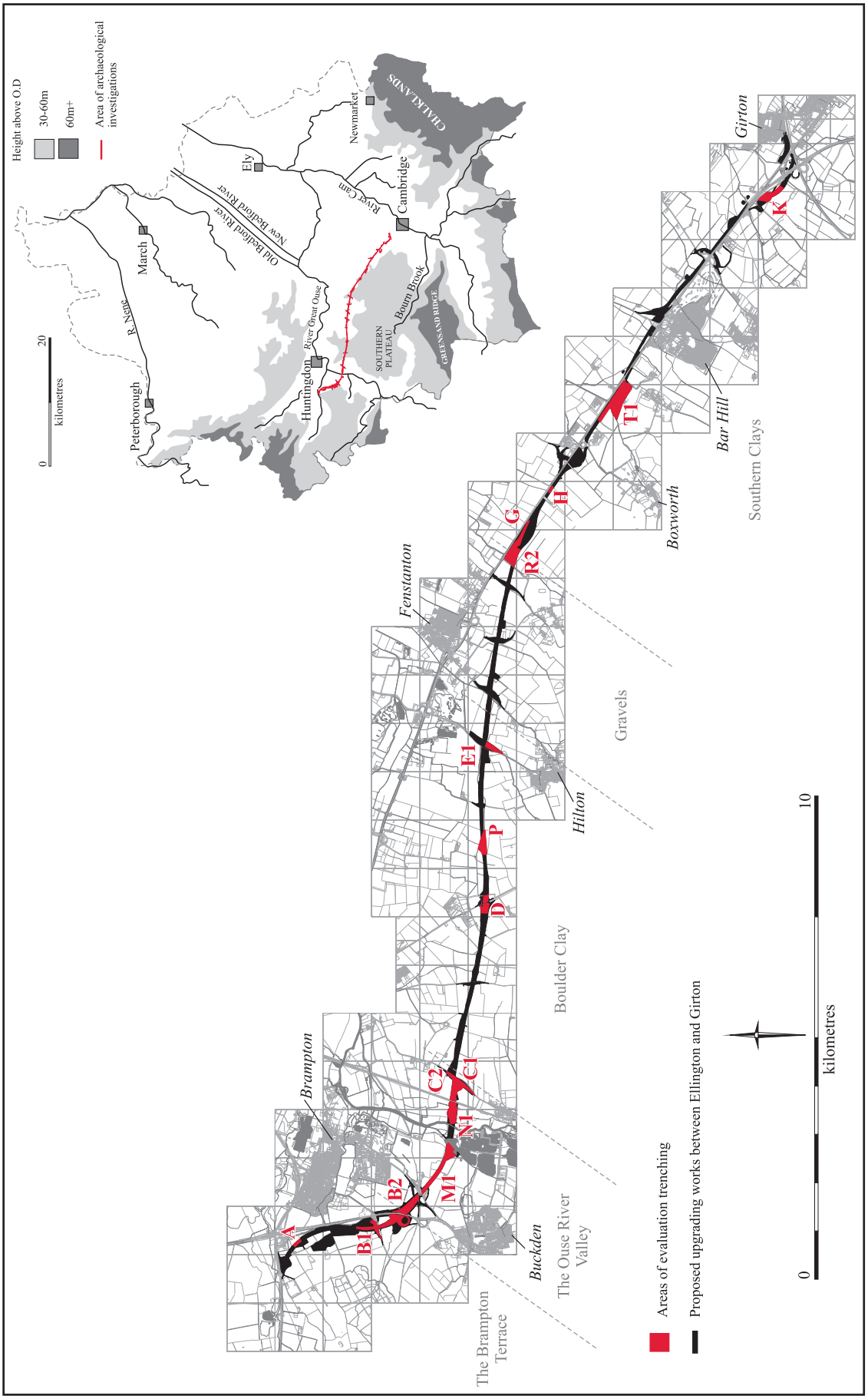

***Figure 1**. The A14 Improvements 'corridor' showing areas of investigation.*

features as shown by previous non-intrusive investigation (Areas A, B1, B2, C1, C2, E1, G, H, K, N1, P, R2 and T1)

2) Areas with a high potential for archaeology based on proximity to known archaeology, geomorphological features and/or suitable topography (Areas D and M1).

The vast majority of the otherwise non-progressed 2010-scheduled investigations fell into a third criteria: areas with some archaeological potential based upon topography.

Mention should also be made that the 2.3km stretch of the route between the Oakington and Bar Hill junctions had previously been evaluated anticipating the Longstanton/Northstowe development and where three main sites were identified (these being separately designated with 'L'-prefixes; Fig. 1; see Evans *et al*. 2008, 174–81):

Site L12. A later Iron Age sub-circular double-circuit ringwork, that joins with a much larger enclosure system. This was subsequently overlain by an Early Romano-British farmstead settlement.

Site L26. A series of Late Iron Age/Roman fieldsystem enclosures/paddocks, possibly related to Site L27.

Site L27. Evidently a high status Romano-British building complex, including a bath-house, and which probably related to either a mansio, post-station or even a villa.

A 4% area-sample trenching programme was initially undertaken, supplemented by a further 1% judgemental coverage. The presence of services affected the ability to trench in certain areas and, where possible, this constraint was addressed by the use of aerial photography and geophysical data. In addition, in order to sample artefact densities within the sub-/topsoil deposits, 100 litre hand-sorted 'bucket' samples were taken. These were retrieved at 100m intervals where the proposed route bisected clay geologies and reduced to a 50m distance on gravel.

Within 15 designated areas, evaluation trial trenching was conducted over *c.* 88.7ha.

As listed in Table 2 below, this resulted in the identification of 21 separate sites, which are duly summarised in the section that follows (two-thirds of these being new discoveries). Also falling within the road corridor-area proper, two other sites – Numbers 22 and 23 – are similarly described below. Due to logistical reasons, trenching could not be conducted at either; their assignation being based upon background/non-intrusive sources.

The Brampton Gravels

Area A (Brampton West Terraces)

Situated at the western end of the road corridor (Fig. 1), geophysical survey revealed a possible ditch and several anomalies, with six trenches and two open areas excavated to test these. Not excavated were a number of features located to the southwest of the evaluation area, beyond the road corridor, which may be part of an Iron Age enclosure. Designated Site 1, a palaeochannel was identified within two of the trenches (relating to the River Great Ouse's braided palaeosystem), with evidence for a ditch-cut along one edge that yielded Middle Iron Age finds. No artefacts were recovered during fieldwalking.

Site 1 (Middle Iron Age; Fig. 2): Evaluation identified early activity within the vicinity of a palaeochannel. Sealed by alluvium, animal bone and Middle Iron Age pottery were recovered from within what appeared to be a linear feature along the channel's edge. The subsequent results from the geophysical surveys to the south highlighted the northern limit of a substantial, probable Iron Age settlement comprising enclosures and linear boundaries. Whilst the survey failed to expose the full extent of Site 1, the plotted enclosures further emphasise the marginal nature of the archaeology within the excavated area associated with the palaeochannel. Their morphology is

Table 1. *Total areas and identified sites.*

Area	Area Size (ha)	Number of Trenches	Trench Sample (m²)	Sites
A	1	6	482	1
B1	11.1	69	5546	2, 3, 4, 5, 6, 7, and 8
B2	6.3	19	1763	6 and 9
C1	8.1	35	3959	13 and 14
C2	1.2	4	401	14
D	4	21	1549	-
E1	1.5	9	921	-
G	4.3	17	1919	-
H	0.5	3	394	17
K	5.8	32	2815	19 and 20
M1	9.5	41	4175	10 and 11
N1	5.6	18	2123	12 and 15
P	4.3	18	2155	21
R2	6.8	26	3228	16
T1	18.6	71	8665	18
Total	**88.7ha**	**389**	**40,095**	

Site No.	Area	Fieldwalking Site No.	Period
1	A		Middle Iron Age
2	B1		Late Iron Age/Conquest Period
3	B1		Romano-British
4	B1		Neolithic
5	B1	1	Anglo-Saxon
6	B1&B2		Middle Iron Age
7	B1		Neolithic
8	B1		Anglo-Saxon
9	B2		Late Iron Age/Early Romano-British
10	M1	2	Romano-British
11	M1		Bronze-Age/Iron Age
12	N1	3 (west)	Middle Iron Age
13	C1	3 (east)	Middle Iron Age
14	C1&C2	3 (east)	Romano-British
15	N1		Late Neolithic/Early Bronze Age
16	R2/G		Late Prehistoric & Romano-British
17	H		Middle Iron Age
18	T1		Middle Iron Age/?Romano-British
19	K		Middle Iron Age
20	K		Romano-British
21	P		Later Iron Age
22	E		Later Iron Age/Romano-British
23	-		Romano-British/?Anglo-Saxon

***Table 2**. Site number by area and period.*

similar to those identified to the northwest of Site 2 (see below) and it is reasonable to assume that they were also of Middle Iron Age date.

Area B1 (Brampton West Terraces)

Surveyed ahead of the evaluation, geophysical prospecting revealed an extensive series of features and anomalies distributed over a distance of *c.* 2km (Fig. 3). Several sites attributable to different periods are discernible. These includes a large probable Middle Iron Age enclosure complex (Fig. 3, Zone 1), whose southern and western edges are denoted by a boundary ditch that follows the local topography; fieldsystem and enclosure ditches extend both downslope and along the gravel terraces, and create, on the northern side, a quasi-radial system. Located less than 200m to the south of this complex is a clearly defined series of later Iron Age and Conquest Period rectangular enclosures (Fig. 3, Zone 2), with ditches seemingly following the local topography of the gravel terraces, and with a clear distinction between smaller, possibly infield enclosures on the eastern side and possible larger paddock-like fields to the west. Less clearly defined within the central swathe of features are a series of pits and probable Roman ditches that hint at rectangular enclosures and paddocks (Fig. 3, Zone 3). Prehistoric and later activity is further evinced by the large number of pits shown on the geophysical survey plot and the cluster of flint and pottery recovered during fieldwalking; the latter dating from the Romano-British, Saxon and Medieval periods. Of note is the large barrow or a henge, some 45m in diameter, located between the A1 and the line of the road corridor (Fig. 3, Zone 4). This feature and the pitting highlights the significance of the area in prehistory, with the former preceded by what could even be a large causewayed enclosure upslope of these (Fig. 3, Zone 5). Newly identified from the geophysical survey results, this measures some 120m across and represent one of a number similar monuments within the wider Ouse River Valley/Brampton area.

Gridded fieldwalking collection was locally made across the southern portion of the route corridor, with prehistoric, Romano-British and Anglo-Saxon material recovered (Figs 3 and 4).

Site 2 (Later Iron Age/Conquest Period; Figs 3 and 5): The evaluation revealed Late Iron Age features comprising the southern margin of the rectilinear system described above, with a southwest-facing entrance extending north beyond the evaluated area clearly identified. A recut northeast–southwest aligned ditch, yielding some Late Iron Age pottery, appeared to respect the large cluster

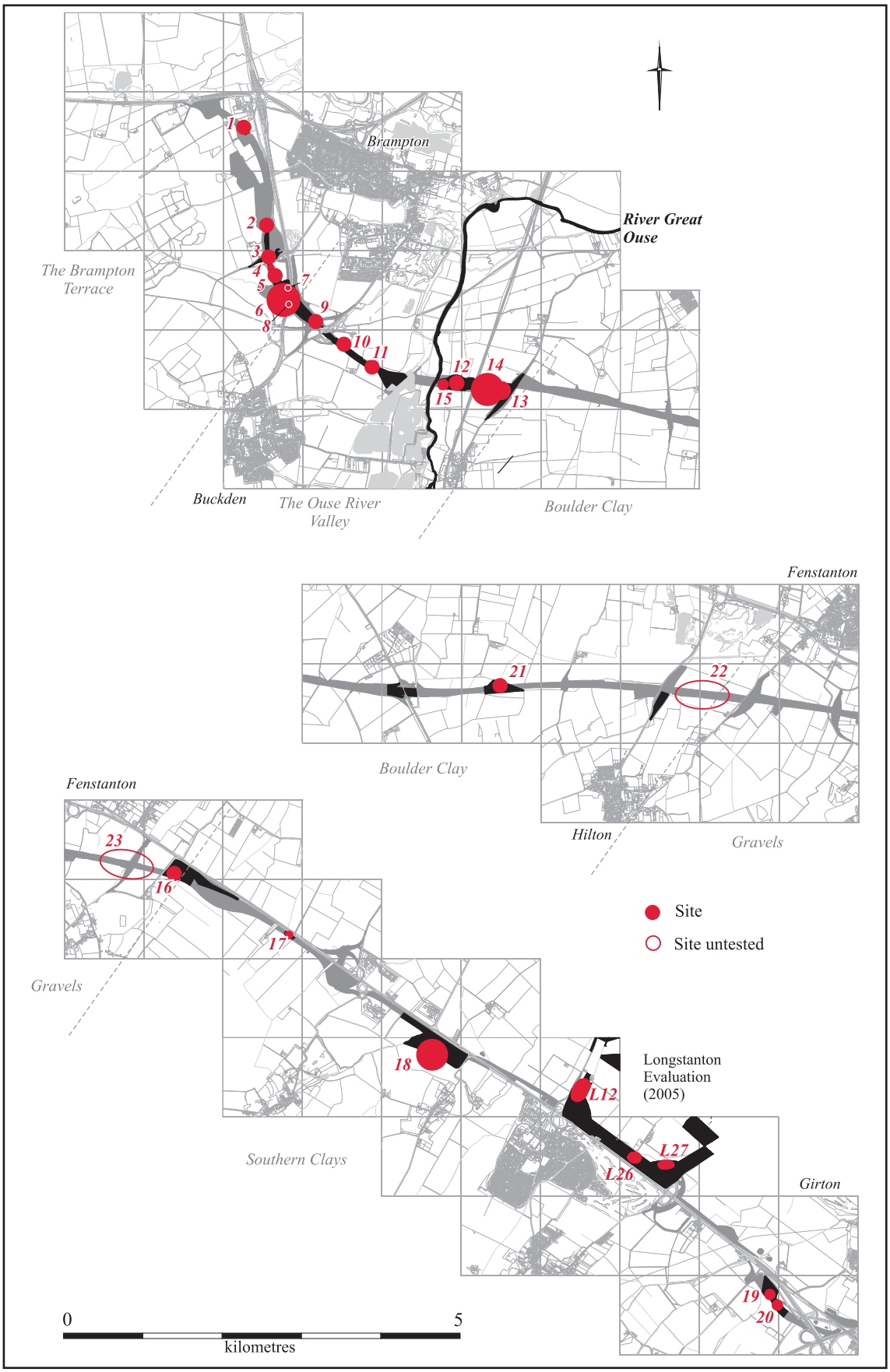

Figure 2. *Area and site locations.*

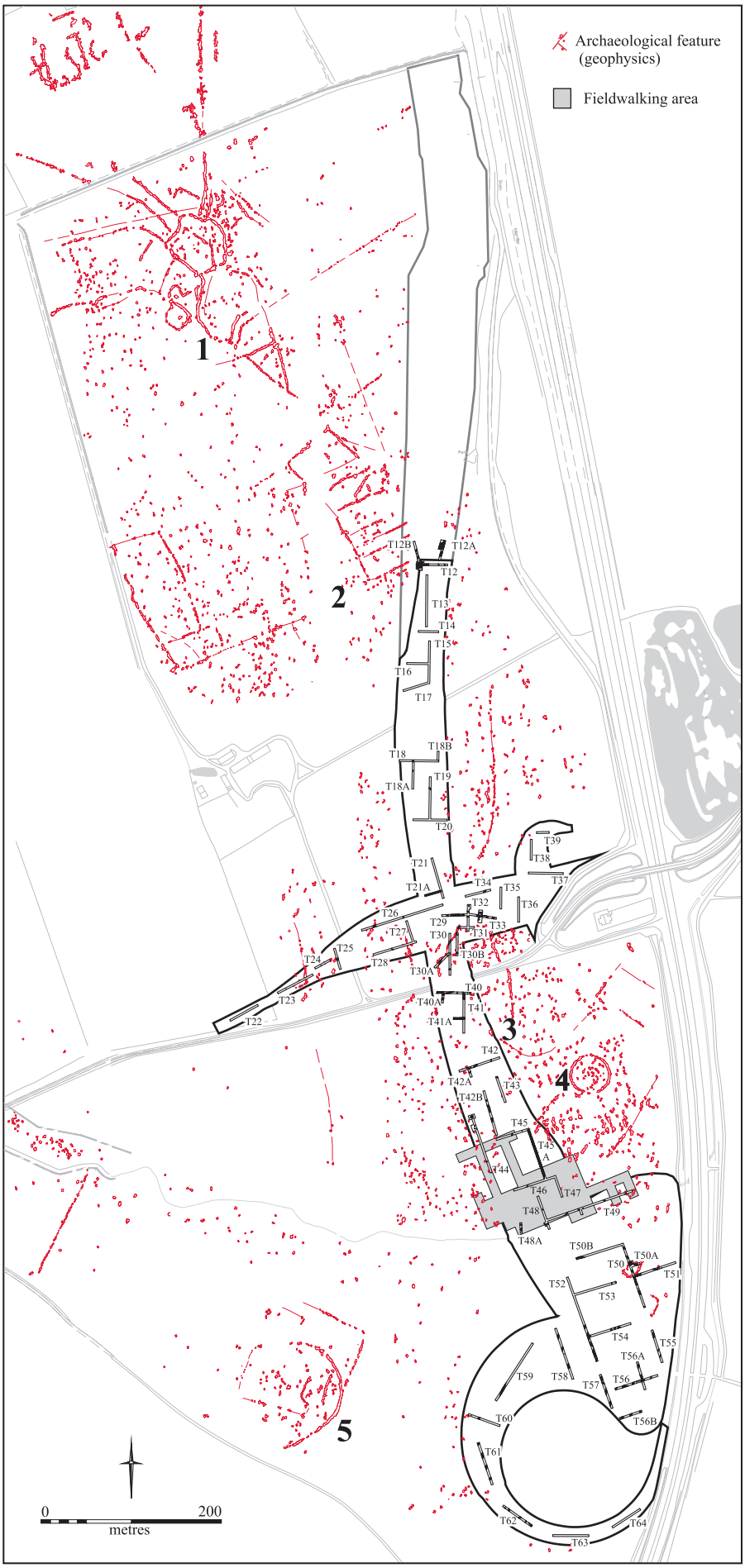

***Figure 3**. Area B1 (Brampton Gravels), geophysical plot and trenching plan.*

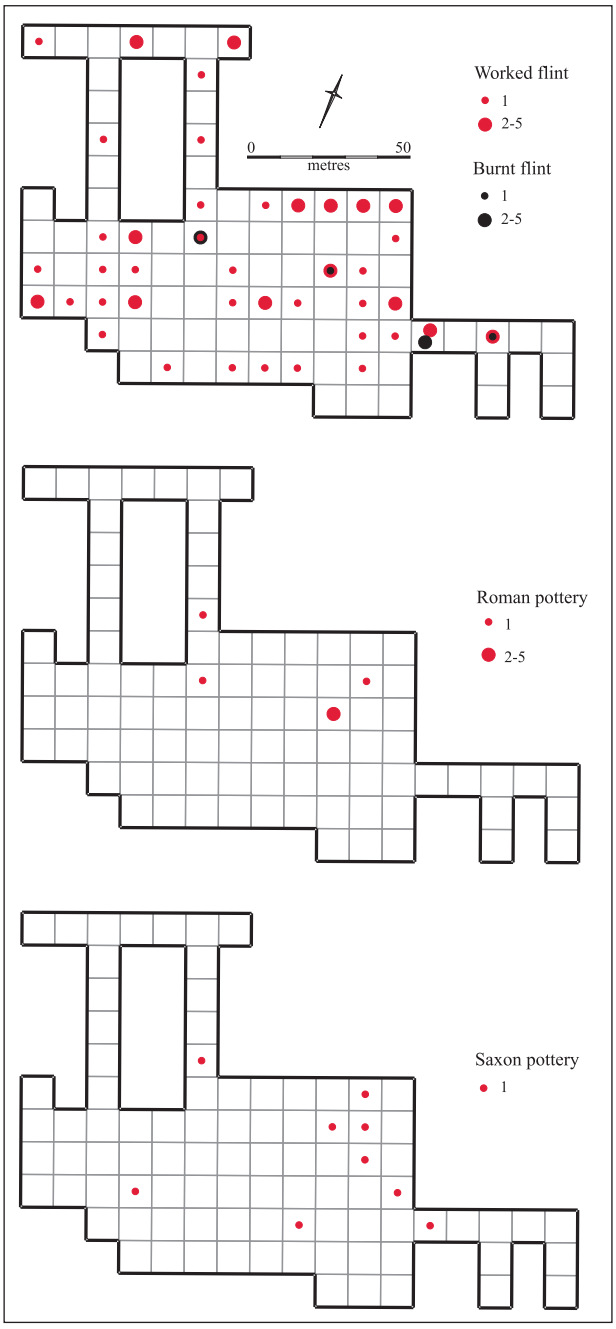

***Figure 4**. Area B1, fieldwalking plots (see Fig. 3 for location).*

of potentially contemporary pits within the area, whilst a second northeast–southwest aligned linear (shallower and recut) was identified that also contained Late Iron Age pottery; four pits or postholes appear to be associated with the enclosure ditches. A series of five northeast to southwest aligned shallow gullies, yielding Late Iron Age pottery, appeared to respect the return alignment of the Middle to Late Iron Age ditches, that most likely represent re-definition of the boundary ditches.

The geophysical surveys indicate that these linear features correspond to the southeastern corner of a large rectangular enclosed area 350m across (Fig. 3, Zone 2). Its eastern side includes a series of smaller rectangular enclosures, also partially visible as cropmarks, 100m in width and between 15 and 25m long; at least one possible eavesgully is also visible on the survey. These enclosures are mirrored on the west side, although without subdivisions and are also clearly represented on the aerial survey. No clear northern boundary of the larger enclosed area is evident, although the eastern boundary appears to extend a further 260m to the northwest before turning to a roughly east-west alignment. Intriguingly, the open-area contained possible ring-gullies and discrete features that may suggest domestic occupation with associated infields situated either side. Centrally located within the evaluation area was a single discrete pit with a bell-profile that contained low quantities of Middle Iron Age pottery and bone; a small cluster of undated, yet potentially contemporary, pits were located nearby. Situated approximately 180m south of the main focus of Site 2, the isolated nature of these features suggests they are not directly associated with the settlement core or the Iron Age activity within Site 3 (see below), but reflect a background landscape spread of prehistoric activity.

As outlined above, north of Site 2 a series of sub-rectangular and sub-circular enclosures, with accompanying linears, extend to the west and north beyond the limit of the geophysical survey, with smaller enclosures and or ring-gullies seemingly respecting them. It is probable that these represent Middle/later Iron Age activity and have clear similarities to the enclosures identified within the area of Site 1.

Site 3 (Romano-British; Figs 3 and 5): Aerial and geophysical surveys registered Site 3 within the evaluated areas, although the density of archaeological features within the adjacent landscape makes identification of any wider associated fieldsystems difficult to determine. Several otherwise undated linears on a generally north–south alignment to the north of Site 3 and 140m to the west may also be associated boundary ditches. Albeit somewhat peripheral in their location, they suggest a site approximately 300m across. Cropmarks forming what appears to be an enclosure on a similar alignment to the northern side of the site were also identified, potentially representing a larger settlement.

Three distinct phases of Romano-British activity were identified within Site 3. These were represented by a small number of late pre-Roman Iron Age (Gallo-Belgic) or Conquest Period rectilinear ditches, which were replaced by 1st–2nd century and, then, later 2nd–4th century features. Two shallow linear features were definitively dated to the earliest Gallo-Belgic or Romano-British phase and these appear to form two sides of an enclosure approximately 40 x 50m. A focus of deposition of pottery was identified within the northernmost side of the enclosure, with the quantity suggesting the existence of a nearby structure.

A second phase of rectilinear enclosure, dated by pottery to the early Roman period (1st–2nd century), was identified to the south of the Gallo-Belgic enclosure; north-south/east-west aligned ditches suggest a rectangular enclosure (*c.* 40 x 80m). A cluster of small, intercutting pits, yielding small quantities of pottery of a contemporary date, were the only internal features identified within the enclosed area. Higher status domestic wares were recovered from the ditches; platters and bowls of

both imported and locally made types suggest a domestic core within or close to the enclosure. A grave was located immediately north of this Romano-British activity; the preserved skeleton (left *in situ*) was extended, on its back with the head to the south.

A series of later 2nd–4th century Romano-British linear features appear to have overlain or extended the 1st–2nd century enclosure-phase a further 50m to the north. Although generally respecting the north–south/east–west alignment, these appeared less formally laid-out. Pits and postholes potentially associated with this later phase were identified within the northern part of the enclosure, though the quantity of pottery and animal bone recovered suggests that, like the previous phase, this was more agricultural than directly settlement-related.

Site 4 (Neolithic; Figs 3 and 5): Site 4, narrowly defined by trenching, was located on a slight plateau within the otherwise moderately steep slope of the remainder of the area. This lies west of the barrow/henge known from the aerial photographic record since the mid 1960s and which strongly registered on the geophysical plot. Three irregular pits were located within the western end of the site, with Neolithic pottery recovered from two. Only one of two linear features located south of these could be traced across more than one trench, suggesting one either terminated or changed alignment along its course; two sherds of Neolithic pottery were present within the fills of one of the ditches. The identification of these pits and the sherds recovered from the ditch lengths attests to Neolithic activity and, along with Site 7, highlights the probability of a dispersed Neolithic presence. This is further demonstrated by the irregular pits/tree-throws containing Neolithic pottery (not identified on either the geophysical or cropmark surveys). Extensive similar geophysical readings, thought to be remnant traces from the ancient 'Brampton Woods', appeared throughout Area B1 and it is possible that some of these could equally relate to Neolithic activity.

Site 5 (Anglo-Saxon; Figs 3 and 5): Excavation revealed sunken floored buildings, representing several *grubenhäuser*, were thus designated as Site 5. These were identified in the central-southern third of Area B1 and contained considerable quantities of Anglo-Saxon pottery and animal bone; further unexcavated examples of these features were also present. A single, seemingly rectilinear post-built structure was also distinguished, with discrete features of a comparable date identified. The confirmed *grubenhäuser* appeared as strong anomalies within the geophysical survey, with a further four similar readings located immediately west and southwest of the proposed road corridor. These suggest a settlement of at least six *grubenhäuser* spanning 200m along the southern slope of the hill here. In light of the strong Anglo-Saxon presence within Site 5, it is possible that some, if not all of the otherwise undated linear features could be associated with a later Saxon-phase settlement.

Site 6 (Later Prehistoric; Figs 3 and 5): Excavated here were a series of linear features and pits dated by relatively scant quantities of pottery dating from the Middle to Late Iron Age. Designated Site 6, they indicate that later Iron Age activity was prominent within the flat base of the slope that formed the south of Area B1. Loosely aligned on a northeast–southwest 'grid', linear features consisted of several large recut ditches defining the northeast edge and forming the northwest 'side' of a possible enclosure; the latter contained internal features or sub-divisions and what appeared to be two sides of a smaller enclosure. The alignment of the probable enclosures was mirrored by a northwest–southeast aligned linear feature identified within the eastern part of the site, which respects the presence of a large pit or pit-well. The fills of the latter demonstrated multiple layers of silting and gravel slumping consistent with use as a well/watering-hole. The relatively high quantity of pottery recovered from the pit, as well as the presence of a worked bone implement, further suggest nearby domestic activity. The presence of a Middle Iron Age cluster of small pits or postholes may relate to this. A small rectilinear feature, 8–10m square with possible entrance to the northwest, was identified and possibly represents a square barrow; this interpretation would, though, certainly require further testing.

Outlying linear features on the same general alignment as the enclosures were identified throughout the southern extent of Area B1 and within the northwest of Area B2; although undated and on a similar alignment with the Medieval and post-Medieval furrows identified across Site 6. It is likely that wider Middle Iron Age landscape activity was present, although this is less well-defined away from the core represented by enclosures and possible settlement. Cropmarks and the geophysical survey indicates that the 'main' enclosed area ended immediately south of the limit of evaluation, suggesting a core of enclosures approximately 150m long utilising a linear feature that continued more than 300m southwest to the edge of the surveyed area. Similarly aligned linear features were identified within the south of the surveyed area, as well as immediately north of Site 6, close to the barrow east of Sites 4 and 5, and appear to be forming a series of 'co-axial-like' boundaries. The definitive dating for cropmarks not immediately associated with features investigated during the evaluation will always be tenuous. The possibility that Iron Age enclosures utilised a pre-existing fieldsystem may, in fact, suggest that the Middle Iron Age presence in Area B1 was confined to Site 6, with the more large-scale earlier, Bronze Age fieldsystem extending beyond the proposed road corridor proper.

Site 7 (Neolithic; Figs 3 and 5): This comprised a single (definite) Neolithic pit that had quantities of 'early' flint and showed signs of *in situ* burning, thus warranting a separate site designation. Fragments of charred hazelnut shell within the fill strongly suggest 'occupation' with accompanying flintworking. Contemporary flint recovered during the bucket-sampling was localised around the immediate area and is further indicative of activity from that time. Significantly, both the geophysical and aerial surveys revealed a large sub-circular enclosure, approximately 120m in diameter, within the southwest of the surveyed area (Fig. 3, Zone 5) that, given the segmented appearance of its ditch, may be a hitherto unrecognised causewayed enclosure.

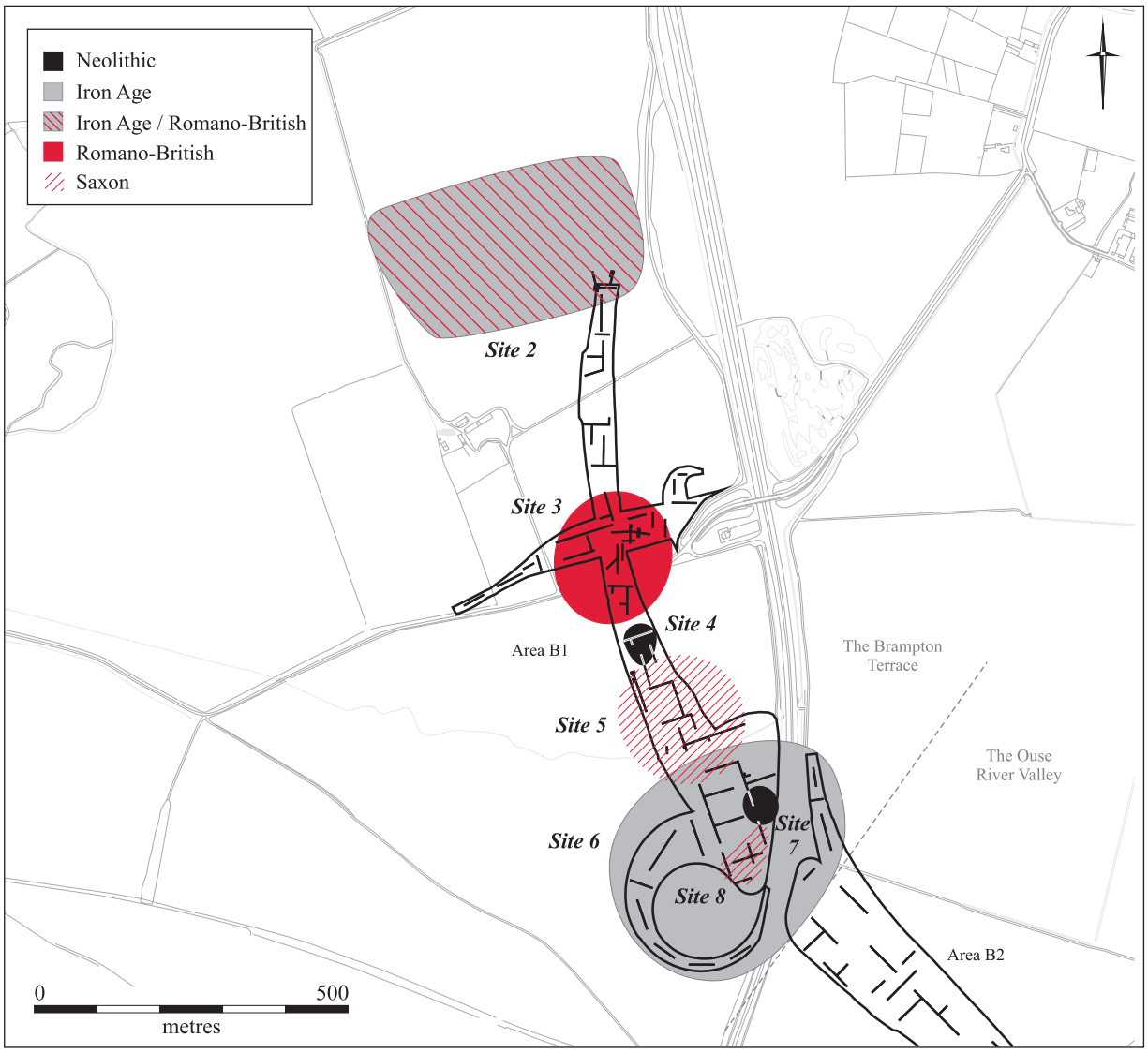

***Figure 5**. Area B1, site-area designations.*

Site 8 (Anglo-Saxon; Figs 3 and 5): This second, smaller area of Anglo-Saxon activity was located in the far southeast corner of the evaluated area and consisted of a deep pit containing a small quantity of Anglo-Saxon pottery and animal bone. Two nearby small hearth-like features were potentially part of a minor settlement. A series of curvilinear gullies and ditches also occurred within the trenches, but lacked dating evidence.

The Ouse River Valley

Area B2 (Ouse Valley West)

Evaluated through the excavation of 19 trenches, Middle to Late Iron Age pits and ditches were recorded within the western half of this area. This was considered to be a continuation of Site 6 (Area B1), although probably on the periphery of that site's core-settlement area. Romano-British enclosures, boundary ditches, a possible trackway and quarrying were also present in the eastern half of the evaluation and consequently distinguished as a separate site (Site 9); fieldwalking within Area B2, and the small number of finds recovered, did not reveal any notable clustering.

Site 9 (Late Iron Age/Early Romano-British; Fig. 6): Features dating to the Iron Age and Roman periods formed the majority of activity recorded. Later Iron Age and Early Romano-British activity, suggestive of a settlement core, was located within the far southeast of the area, denoted by a series of linear features and pits. A series of small rectilinear enclosures, which may have been part of an infield system, were also revealed between the settlement and the more open fields to the northwest; they show a relatively high degree of concordance with features distinguished within the non-invasive surveys.

The aerial photographic and geophysical surveys suggest that Site 9 represents peripheral elements of larger

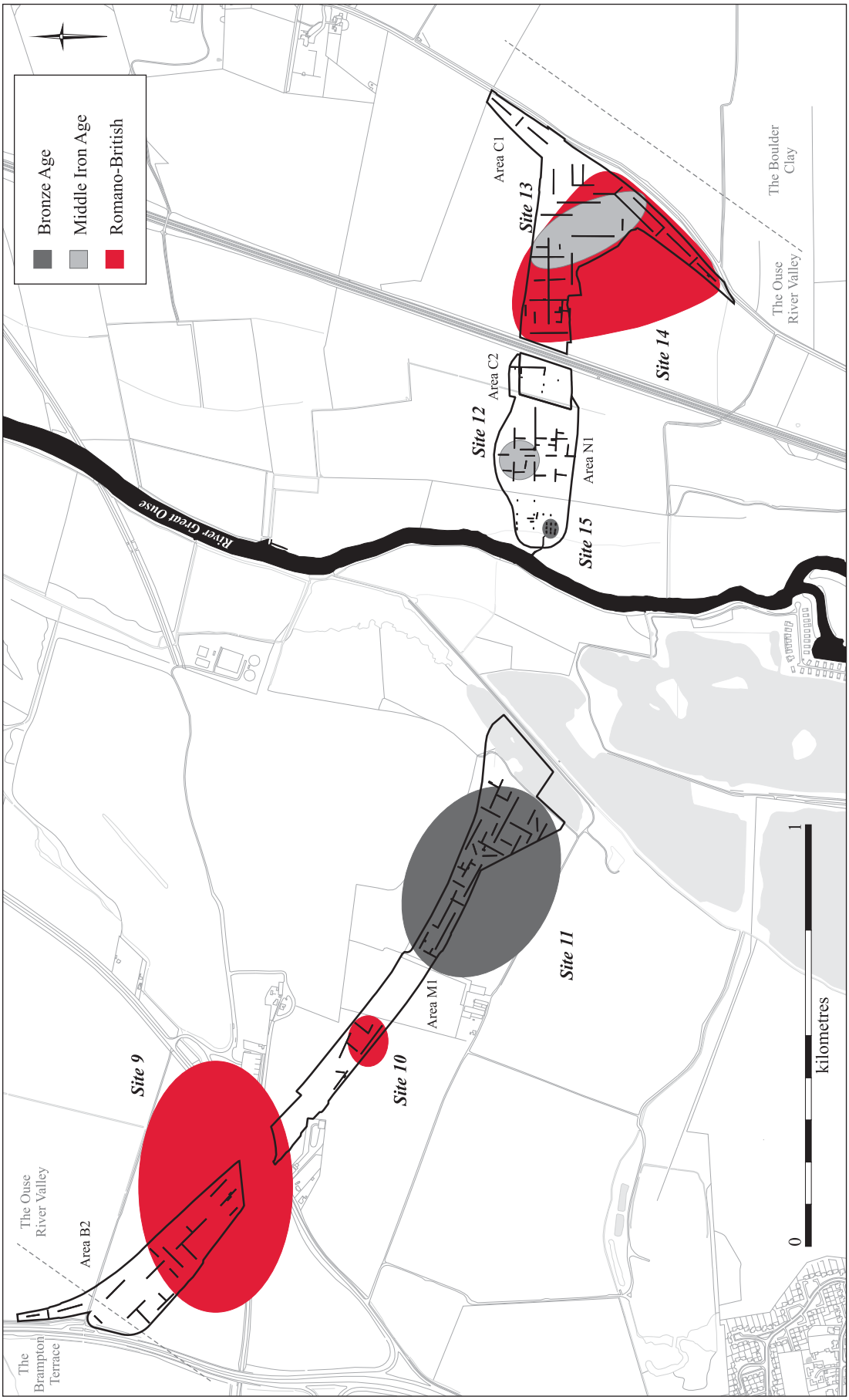

***Figure 6**. The Ouse River Valley (Areas B2, M1, N1 and C1 & 2), site-area designations.*

system of rectilinear enclosures extending to the southwest of the evaluated area. Their results indicate a site extending more than 350m across, with a greater density of enclosures and internal features to the southwest of the road corridor. The probable Romano-British linear features within Site 10, to the southeast of Site 9, as well as the largely Romano-British site previously identified between the two (Burrow and Foard-Colby 2006), suggests the end of Site 9 should be associated with the cluster of Late Iron Age pits and linears at the far southeast of the evaluated area; the core of Site 9 would, therefore, appear to be no more than 300m in length.

Traces of Romano-British gravel quarrying were also identified in the northwest of the site-area. It is likely that their pits were utilised in the construction of nearby settlements and provided metalling for roads/trackways. Two possible linears radiated from these quarry pits, both of which registered on the geophysical survey plots.

Area M1 (Ouse Valley West)

Situated between areas of known higher densities of archaeological features and occupation, trenching across this area revealed an Early Bronze Age barrow, with possible later prehistoric occupation on a ridge overlooking the Ouse basin. Designated Site 11, Middle Iron Age occupation was found downslope of the monument, with possible Romano-British land-use recorded within the western part of the area (Site 10); undated fieldsystems were identified throughout. Importantly, the revelation of the barrow was not anticipated as it failed to register clearly on either the geophysical survey or the aerial photographic plots. Fieldwalking was limited to the north-westernmost portion of Area M1 (the remaining fields were pasture) and resulted in the identification of small clusters of largely Late Neolithic and Early Bronze Age worked flint across the area, whilst burnt flint was concentrated to the northwest of the surveyed area. A small assemblage of Romano-British pottery was recovered corresponding with the western end of Site 10.

It warrants mention that ridge-and-furrow is preserved within this area and its survival restricted evaluation trenching at this stage.

Site 10 (Romano-British; Fig. 6): This consists of two shallow linear features, on a north–south/east–west alignment, and a low density of shallow pits and postholes, apparently representing the eastern extent of the site. The aerial photographic survey identified 'natural frost cracks' that seem to correspond with the alignment of the Romano-British linears discovered during trenching, which suggests a largely open area with a small rectilinear enclosure visible 150–200m to the northeast of the proposed road corridor. The evaluation identified what is potentially the periphery of a Romano-British settlement core exposed during previous investigations immediately to the west (Burrow and Foard-Colby 2006) and indicate a northwest–southeast settlement extent of *c.* 250m; a domestic 'core' located within the western end of the site should more likely be associated with features associated with Site 9.

Site 11 (Bronze Age/Iron Age; Figs 6–8): This previously unrecorded barrow is located on a low floodplain edge overlooking the Ouse. Its initial phase was represented by a shallow ring-ditch (*c.* 1.6m wide) with an estimated diameter of 19.6m. A possible southeastward opening was indicated by a rounded terminus. The ring-ditch enclosed and was filled by material from an eroded mound, which survived to a maximum height of 0.9m and was comprised of upcast pale sandy silts. Darker silty clay, potentially representing turf overlying the collapsed barrow material and the mound, sealed a compact buried soil horizon. The second phase was marked by a deeper and wider ring-ditch, with an estimated diameter of 49.6m; its mound material consisted of a thick gravelly matrix that overlay the primary barrow's buried turf-line. A cluster of 12 cremations (unexcavated) were identified within this second phase. Two cremations contained within Deverel-Rimbury vessels set into pits were recorded.

Further Middle Bronze Age activity within Site 11 was represented by of a series of co-axial ditches, evidently fieldsystem-related. The only datable material recovered from them consisted of a comparatively large assemblage of Middle Bronze Age pottery from the trench along the eastern edge of the site nearest to the river. The site's extent beyond the evaluated area could not be assessed by geophysical survey as this was limited to the proposed road corridor-width. That said, aerial survey highlighted cropmarks on the brow of the gravel ridge 100m to the south of Site 11 that potentially represents a rectilinear enclosure of indeterminate date.

A minor Middle Iron Age presence was also revealed within the eastern end of the evaluated area: a narrow, roughly east-west aligned ditch truncating the Bronze Age cremation deposits and barrow material. This probably formed a peripheral Iron Age enclosure/field boundary. A second linear feature, on a noticeably different alignment to the Bronze Age fieldsystem, ran downslope from the end of the gravel ridge to a possible 'pond-like' feature in the northeast corner of the site, where the gravel terrace dropped into the floodplain deposits. The quantity of pottery recovered from a cluster of Middle Iron Age pits located immediately upslope of the 'pond' certainly suggested adjacent settlement.

Area N1 (Ouse Valley East)

Located between the palaeochannel identified in Area C2 and the current course of the River Ouse, a series of test pits and trenches were excavated; Sites 12 and 15 were identified from both earlier non-invasive surveys and trial-trenching.

Site 12 (Middle Iron Age; Fig. 6): Situated on the larger of the gravel ridges or 'islands' identified within Area N1, this site had dispersed features dating from the Iron Age; linear ditches across the northern half of the ridge appeared to represent part of an enclosure with a series of associated pits. A paucity of finds from these features suggests that they represent small-scale activity, possibly the utilisation of the river-edge rather than permanent occupation.

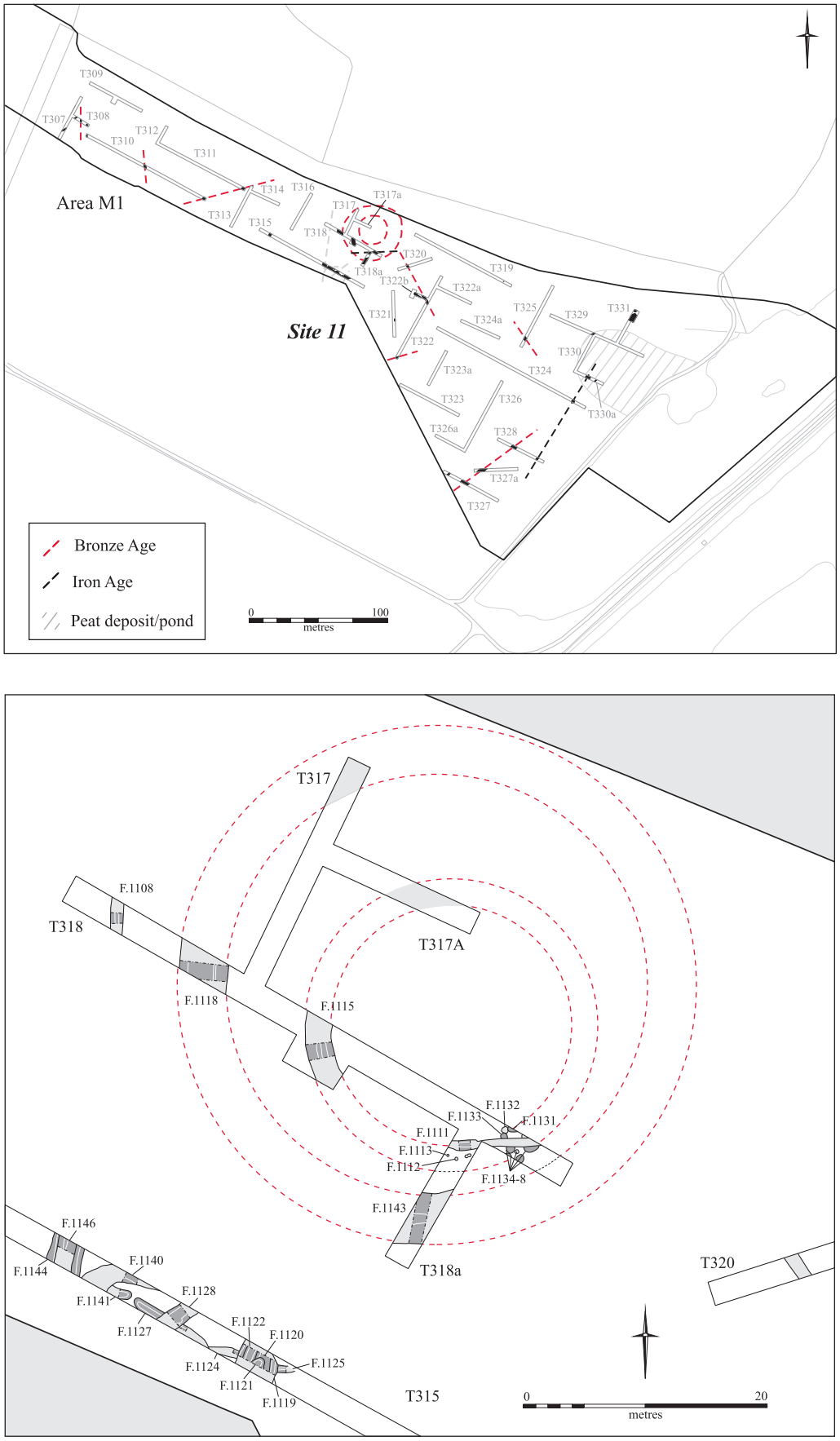

***Figure 7**. Site 11 (Area M1); top, trench investigations and, below, detail of barrow.*

***Figure 8**. The Site 11 barrow mound.*

Site 15 (Late Neolithic/Early Bronze Age; Fig. 6): Revealed in two trenches and through test pits, Late Neolithic/Early Bronze Age activity was recorded along the river-edge. The discovery of burnt flint and a wooden post sealed by substantial alluvial deposits highlights the area's potential for the preservation of significant remains. The recovery of burnt flint may indicate the presence of a localised burnt mound, but an insufficient area was exposed to confirm this; the wooden post attests to localised waterlogged conditions. Although Mesolithic and Neolithic flint was also recovered from the field within the area, no associated archaeological features were identified. Their recovery, nonetheless, indicates that earlier prehistoric activity occurred within this 'wet' zone and upon the terrace gravels to the east (the deep alluvial deposits effectively preserving this earlier landscape).

Areas C1 and C2 (Ouse Valley East)

Earlier aerial and geophysical surveys here revealed a series of circular and rectilinear features and trackways, identified as of probable Iron Age and Roman origin, the latter on a general north–south/east–west orientation. These two areas were respectively designated Sites 13 and 14.

Investigated by the excavation of 35 trenches, at Site 13 (Area C1) the presence of a Middle Iron Age settlement was confirmed by sub-circular enclosures and boundary ditches. Romano-British settlement was identified within the western half of the area, with features comprising possible structures and industrial activity associated with a palaeochannel (Site 14). Areas C2 and N1 were located adjacent to each other, separated only by a modern field boundary. Revealed through the trenching exercise, and confirming the geophysical and aerial photographic surveys, was the continuation of the Romano-British settlement at Site 14.

The fieldwalking survey identified two notable finds spreads: Site FW3 West (correlating with Iron Age Site 12 within Area N1; see above), and Site FW3 East corresponding with Middle Iron Age Site 13 and Romano-British Site 14 within Area C1. Finds of later Neolithic and Bronze Age flint were predominant within the east, whilst a greater component of flint of a Mesolithic and earlier Neolithic date was identified within the west (Fig. 9). Romano-British pottery was recovered from throughout the fieldwalked areas, with a notable core within the eastern side that was complemented by minor quantities of Romano-British tile. Medieval pottery was found throughout both areas, likely associated with later agricultural practices.

Site 13 (Middle Iron Age; Figs 6 and 10): The site's earliest features, of Middle/Late Iron Age date, were two interre-

***Figure 9**. Areas N1 and C1 & 2, fieldwalking plot (with inset location plan).*

lated enclosures, one 12m in diameter and the other 45m, and a series of boundary ditches extending across the evaluated area. These features displayed a remarkably high degree of concordance between projected inter-trench alignments to those plotted from the aerial and geophysical surveys. The paucity of artefactual material from them suggests they were most likely part of a more open agricultural landscape, rather than settlement-related. The smaller enclosure may have been for a small farmstead, while the larger was an associated paddock or infield arrangement. The occurrence of ditches extending away from these enclosures indicates that they are part of a larger boundary system, as was evinced from the area's aerial photographic survey.

Site 14 (Romano-British; Figs 6 and 10): Romano-British activity appeared to be focused around a roughly north-south aligned palaeochannel along the western edge of the evaluated area. Here, an intensive arrangement of ditches and gullies was identified, along with charcoal-rich features indicating industrial activity. Fragments of tile and mortar were recovered from features within this area, indicating that a substantial building may have been located close by. The quantity of material and the number of Roman coins found (14) suggests that this was a small, but intensively utilised settlement focused upon production (possibly metalwork). A 'dark earth' deposit was also present within the upper fills of a number of the features associated with the palaeochannel.

Aligned with the channel were several linear features that could all be traced between successive evaluation trenches and which matched features plotted from the non-invasive surveys. These formed a series of settlement-related Romano-British enclosures seemingly associated with the channel. To the east of the settlement core, two trenches exposed several close-spaced linear features with little material culture and there was none of the 'dark earth' deposits as in the west of the site. These may have been the remnants of a series of horticultural plots (i.e. 'lazy beds'), suggesting that this area was located on the margins of the settlement; these failed to clearly register on the aerial or geophysical surveys.

Site 14 continued into Area C2 on the western edge of the gravel terrace, with two Romano-British ditches appearing to mark the boundary between the eastern settlement and the western river channels. The western edge of the site-area was evidently determined by palaeochannels; the eastern edge, some 500m away, being demarcated by linear features. Aerial photography shows a number of features to the south of the road corridor that may represent the southern extent of the settlement; two parallel north–south linears suggest a road or trackway and indicate a settlement extent of *c.* 450–500m. The distribution of the features, both those investigated during trenching and plotted from the surveys, indicates that occupation was limited to the higher, gravel-capped area.

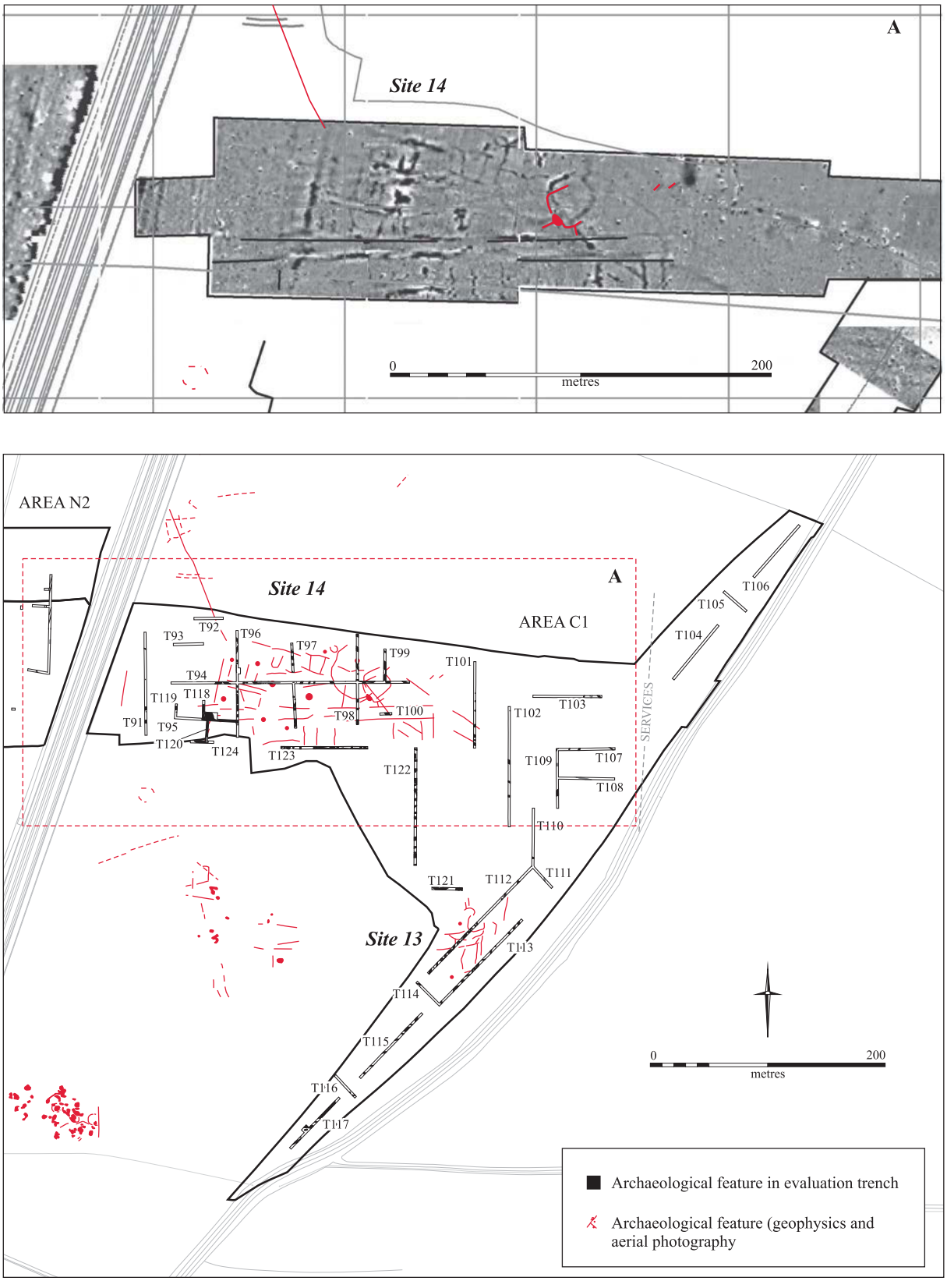

***Figure 10**. Site 14 (Areas C 1 & 2), trench plan, with geophysical plot above.*

The Boulder Clays

Area D (Hilton West Clays)

Here, no evidence for Romano-British activity associated with *Ermine Street*, nor any traces of the original road were found (Fig. 1). Within the area a colluvial deposit at the base of a rise had incorporated a small quantity of prehistoric pottery suggesting that the landscape was being utilised in some manner, at least during the Middle Iron Age. A single possible feature was recorded in association; however, its location at the base of the rise and its shallow profile indicate that it was a natural depression within which pottery had been caught. The paucity of material from across this area suggests that any early activity occurred beyond the investigated area, potentially in fields to the south where cropmarks and prehistoric finds (identified in the Historic Environment Record) are associated with a localised gravel terrace rise.

Area P (Hilton West Clays)

Located within the central section of the road corridor and on Boulder Clay (Fig. 1), geophysical survey results for Area P showed several pit-like anomalies in the eastern end of the area, plus two northeast–southwest aligned linear features and ridge-and-furrow. Investigated through the excavation of 18 trenches, later prehistoric activity was recorded in three (Site 21). Post-Medieval agricultural activity was most apparent and was encountered within eight of the trenches; seven were completely devoid of any features.

Site 21 (Later Iron Age; Fig. 2): This was distinguished by a pit in the central-southern part of the evaluated area and ditch sections on the same northwest–southeast alignment within three eastern trenches. A few sherds of Iron Age pottery came from the 4m-wide and 0.25m-deep pit. Due to the size and condition of this material, these may have been residual; further Middle Iron Age pottery recovered from the easternmost ditch section may have been of similar status.

Area E1 (Hilton North Clays)

Across the area's *c.* 1.5ha the features identified during evaluation fieldwork provided a relatively high degree of concordance with anomalies oriented west-northwest/east-southeast (including traces of ridge-and-furrow) identified through the geophysical survey (Figs 1 and 11). Within lower-lying parts of the area, five trenches revealed riverine deposits and gravel-filled palaeochannels cutting the Boulder Clay. These channels were sinuous, lay on a rough south–north and southwest–northeast alignment and were between 10–20m wide.

An undated 'hollow' and probable post-Medieval pit were recorded from the northern part of the site, within the area closest to the gravel ridge. Lacking any notable features to designate this as a site *per se*, the area is located southwest of a large swathe of enclosures and boundary ditches that are clearly visible on the aerial photographs; it is likely that the braided nature of the palaeochannels found here made it unsuitable for settlement or agricultural activity until relatively recently.

The evaluated area lay immediately southwest of the definite cropmark-/geophysical survey-distinguished settlement cluster, which is duly outlined below.

Site 22 (Iron Age/Romano-British; Figs 2 and 11): While the immediate corridor-area was subject to geophysical survey and it lies adjacent to the Area E1 investigations, trenching was not undertaken at this location. Confirmed by the geophysical results, the cropmark plots show what must be a series of Middle/later Iron Age sub-circular enclosures crossed by a network of more rectangular paddocks/compounds; the latter presumably being of Romano-British attribution. Nearby, the aerial photography registered two apparently comparable settlement clusters, both lying alongside a channel of the West Brook system (Fig. 11, Zones 1 and 3); north of Site 22 is the cropmark of what is distinctly a 'Banjo-type' enclosure (Fig. 11, Zone 2).

The Fenstanton Gravels

For reasons already outlined, no trenching whatsoever was conducted across this *c.* 3.5km–long stretch of terrace gravels. The one definite site complex that has there been distinguished is duly described below and the status of this 'inland gravels'-area is further explored within the paper's final discussion.

Site 23 (Romano-British/?Anglo-Saxon; Fig. 2): Due to problems of landowner-access, neither trenching nor geophysical survey could be undertaken at this locale. Over a distance of some 900m (east–west) the proposed road corridor crosses a network of rectilinear cropmarks, which probably involves more than one system. While surely also having prehistoric components, these must largely be of Romano-British attribution and this is confirmed by the local farmer's findings; Anglo-Saxon material is also reported.

The Southern Clays

Areas G and R2 (Fenstanton East Clays)

With little registering in the geophysical survey of these areas, 17 trenches were excavated within Area G and confirmed that pre-modern activity was scarce: two undated linear features and postholes within the northwest correspond with the transition from Ampthill clays to 1st/2nd Terrace gravels. A narrow gravel ridge, forming a localised 'spur', was located towards the southeast end of the evaluation area.

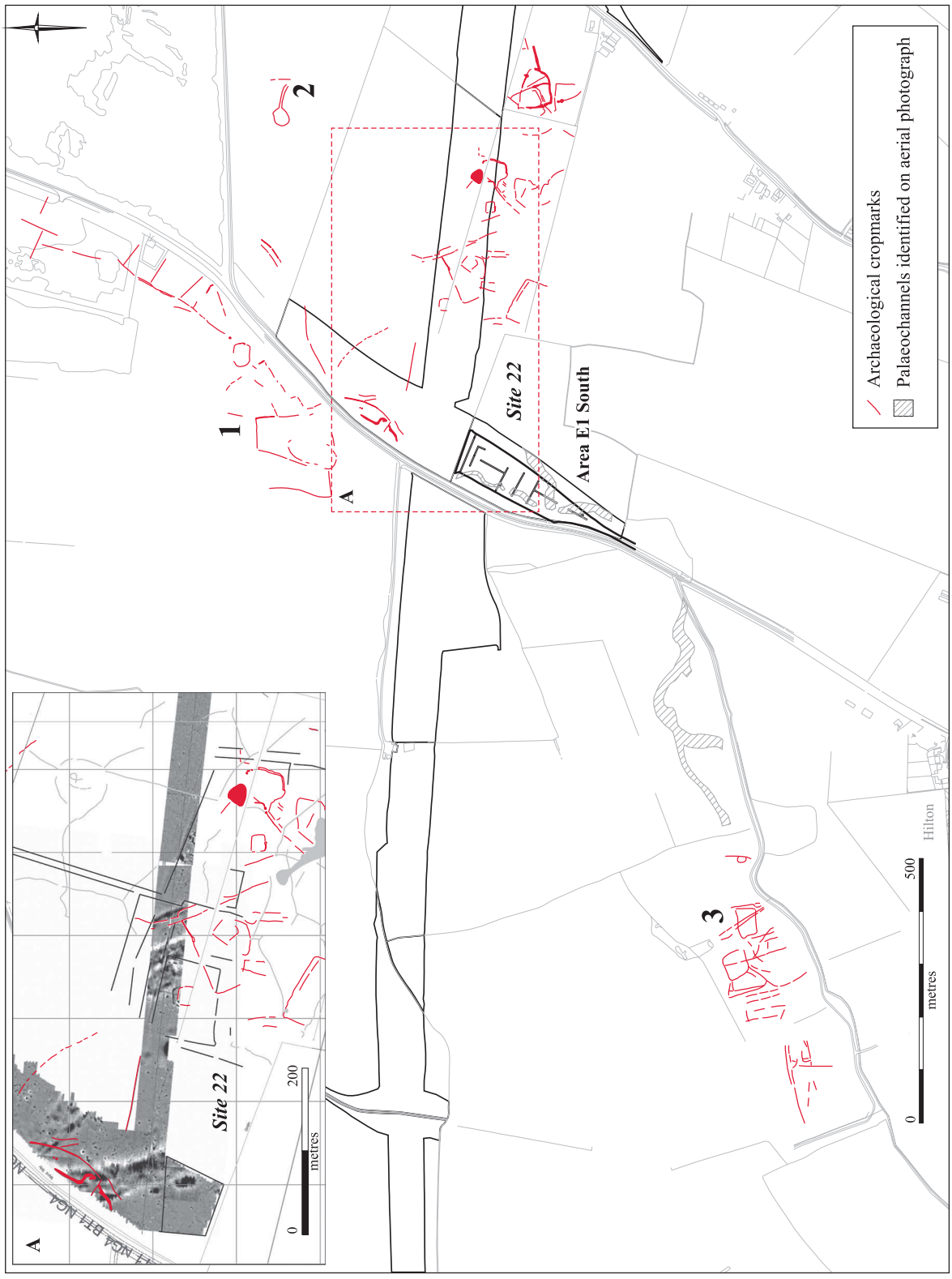

Figure 11. Site 22 (Area E1) and adjacent area cropmark plot (with road corridor's geophysical plot inset).

There, several undated tree-throws were present, but no features as such; what features were present have been incorporated with Site 16, the bulk of which lay in Area R2.

Within the latter, 26 trenches were excavated to test geophysical anomalies and potential features, which were found to comprise prehistoric boundaries and settlement-related activity, as well as evidence of Romano-British occupation, agricultural boundaries and quarrying. Numerous undated linear features were identified throughout, aligned roughly northeast–southwest. An alluvial spread, potentially associated with the stream forming the western site boundary, was distinguished within six trenches and provides scope for potentially preserved and sealed archaeological features and environmental deposits. The fieldwalking survey recovered no material culture from either area.

Site 16 (Late Prehistoric/Romano-British; Fig. 2): A limited geophysical survey was undertaken within Area R2, with further features within and beyond the evaluated area identified through aerial photography, largely to the north and west. The extent of the stream course and raised gravel – the latter seeing a very high density of enclosure/structural components – is distinct, suggesting that Site 16's archaeology was essentially restricted to a small 'island' (240 x 260m). A second, smaller gravel rise, 100m to the northeast, appears to have several linears and possible enclosures.

Site 16 saw chronologically dispersed use of the gravel terrace's edge prior to the less well-drained and generally more difficult clays forming the majority of Area G to the southeast. Two phases of potentially late prehistoric activity were identified. The earliest represented elements of an early boundary restricted to the southern area of the highest central gravels. A pit possibly associated with this 'boundary' displayed evidence of standing water. The second phase of later prehistoric activity was represented by 'double' northwest–southeast ditches; the easternmost has evidence of an associated bank.

A building eavesgully and pit cluster towards the alluvial spread and river channel lay within the enclosed area of the 'double-ditches' and southern, deeper ditches. Finds of small quantities of burnt clay and animal bone from the ditches suggest contemporaneity, although the near-sterile nature of the boundary ditches, pits and eavesgully further emphasise the peripheral nature of the evidence here. The main settlement locale is suggested by the intensity of the cropmarks adjacent to Site 16. Whilst appearing to respect the boundary of a gravel rise, features plotted from the aerial survey attest to a much more expansive site; the late prehistoric 'double-ditch' appears to be mirrored immediately to the west by a similarly pair of linears that form the eastern side of a large rectilinear setting. A second such enclosure on the same general alignment is located adjacent, with a series of partial linears and segments of smaller enclosures also recorded. Further to the west (1km) is a narrow band of cropmarks suggesting a much wider spread of archaeological features. Importantly, these linears and partially exposed rectilinear enclosures suggest a much broader expanse of archaeology, with deeper soils masking intervening cropmarks.

Three features are tentatively dated to the Roman period by small fragments of pottery; two northwest–southeast and a northeast–southwest aligned linear features. The alignments correspond well with similar, otherwise undated ditches throughout the site and it is possible that these mark agricultural usage. The remnants of a possible Romano-British structure, represented by a shallow 'beam' slot and possible floor surface in the north-central part of the site, are likely to be associated. Evidence of Romano-British quarrying activity was also present within the north of the site.

Area H (Fenstanton East Clays)

Limited to three trenches to test the archaeological potential of features identified during the geophysical survey, Middle Iron Age linear features, possibly representing the southernmost periphery of an enclosed settlement, and two pits with Middle Iron Age pottery were identified. Designated as Site 17, the fieldwalking survey here recovered no artefactual material.

Site 17 (Middle Iron Age; Fig. 2): Comprising two linears, these most likely formed the sides of a rectilinear enclosure extending northward. Two pits containing Middle Iron Age pottery were located between the ditches. Only minor quantities of burnt clay and charcoal were present within the pits and ditches, which could suggest that they were only settlement-marginal. No cropmarks within or near to Site 17 were identified during the aerial photographic survey, although three irregular linear features registered on the geophysical plot within the proposed road corridor.

Area T1 (Boxworth North Clays)

A significant series of enclosures and boundary ditches were identified from the geophysical survey and suggest a pronounced 'arc' or 'ladder-like' settlement. Investigated through the excavation of 71 trenches, features were found to be located along the edge of the old floodplain of Boxworth Stream where the topography of the southwest area rose as a series of terraces. It was upon these that the archaeological remains were encountered: a probable Middle to later Iron Age site, Number 18. Fieldwalking recovered a small quantity of prehistoric worked flint within the southern end of the area. A more concentrated scatter was recovered from the far northwest of the surveyed area, within an area where no sub-surface features were present.

Site 18 (Middle Iron Age; Figs 2 and 12): No features were identified within the area during the aerial cropmark survey other than Medieval ridge-and-furrow and a headland. In contrast, the geophysical survey indicated that a 'ladder-like' arrangement of small sub-circular/-square enclosures extended along its southern side. This directly corresponded to where the majority of archaeological features were encountered, along the base of the

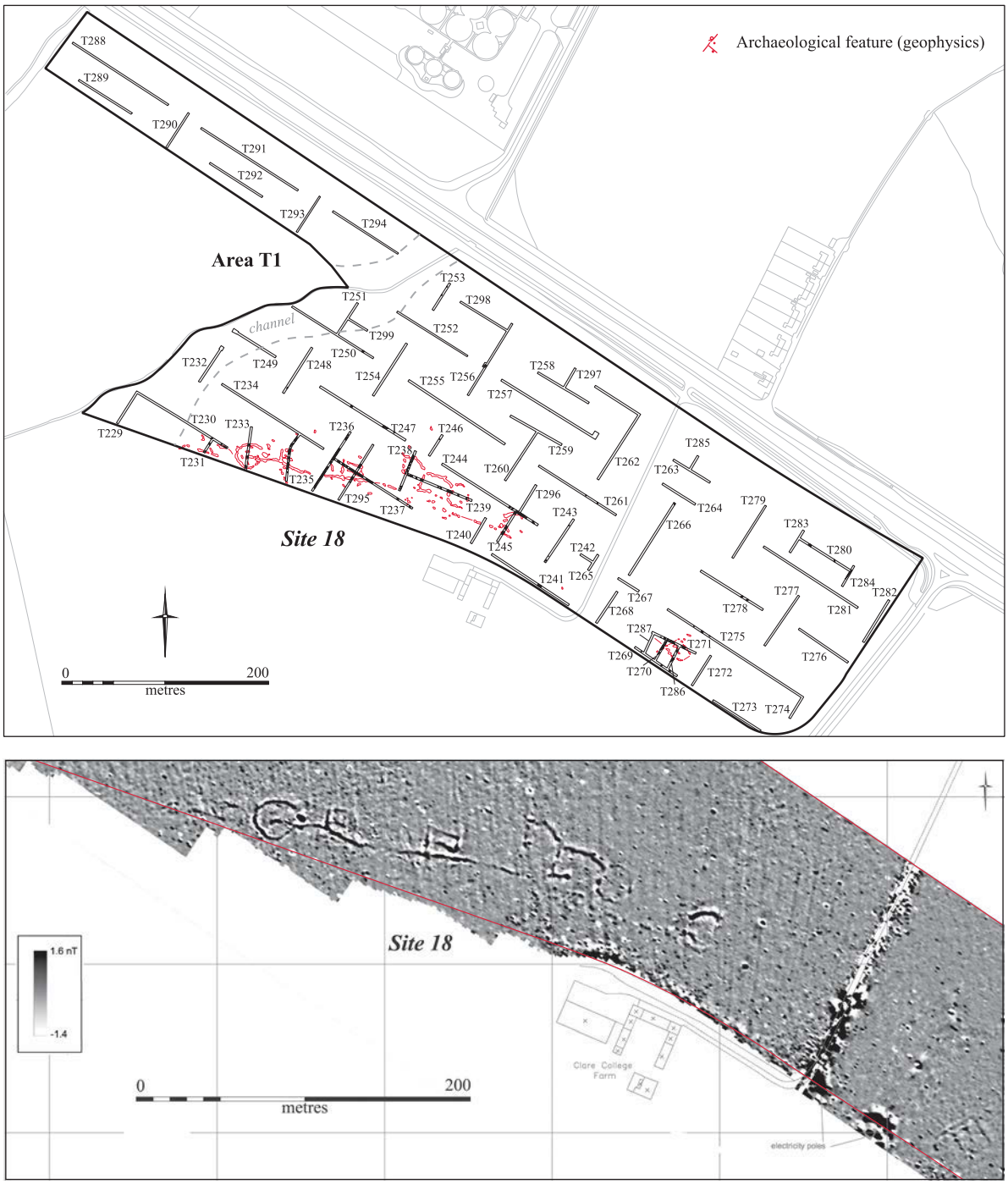

***Figure 12**. Site 18 (Area T1): top, trench plan and, below, geophysical plot.*

terrace rise. The enclosures represent the northern edge of a Middle Iron Age settlement. Quantities of animal bone and pottery were recovered, from notably dark occupation deposits. By combining the evidence from both the evaluation and the geophysical survey, it was possible to determine that there were, at least, 11 separate enclosures and that these attest to two different phases of activity: one a series of circular compounds and, the other, rectilinear enclosures aligned along a central boundary.

The earliest series comprised four circular compounds, 12–14m across. The second, Middle Iron Age phase consisted of, at least, seven sub-rectilinear enclosures. These were arranged off of a central boundary line that seemingly followed the lower terrace contour. The enclosures appeared 'organic', with portions extending from either side of the central boundary. Intriguingly, clearly visible on the geophysical plot and located towards the southeastern limit of the evaluation area – and separated from the 'quasi-ladder-like' arrangement – is what ap-

pears to be a rectangular-shaped building *c.* 25m across; this, though, lacked any direct dating evidence and the excavated features would not necessarily confirm its existence.

Area K (Girton West Clays)

Despite the limited results from the geophysical and aerial photographic surveys, activity spanning the Middle Iron Age through to the Roman period was identified within the 32 trenches excavated across the area. A sub-circular Middle Iron Age enclosure (with human remains) was recorded within the central part of the evaluated area and was subsequently designated Site 19; to the south, a series of boundary ditches and artefact-rich deposits suggested a more extensive Romano-British settlement and agricultural activity, and this was separately distinguished as Site 20. No significant material culture was recovered during the area's fieldwalking.

Site 19 (Middle Iron Age; Fig. 2): A circular 'ring-ditch' (*c.* 15m dia.), clearly visible on the geophysical survey, was located in the site's north-central area. From a recut of it, sherds of Middle Iron Age pottery and a small quantity of human skull fragments were recovered; the latter appear to relate to an earlier grave located along the inner circumference of the ditch. A wider network of Middle Iron Age boundaries and enclosures was also exposed, with a series of linears identified within the north. Failing to register on the geophysical survey results, these did, however, show on the aerial survey plots. That being said, the Iron Age enclosure proper did appear within the area's geophysical survey; though, wider survey to the immediate east of the area indicated high levels of modern disturbance. The latter attests to the possible effects of spoil-spreading during the construction of the current A14/M11 junction, which has evidently masked underlying archaeological features.

Site 20 (Romano-British; Fig. 2): Geophysical survey highlighted the presence of the north–south/east–west alignment of linears forming the core and more peripheral components of Site 20. The wider survey to the east of the evaluated area indicated high levels of modern disturbance and a cluster of features, possibly pitting. The majority of the features within the evaluated area dated to the Roman period and most likely represent settlement enclosures with associated fieldsystems.

The settlement *per se* was identified within trenches towards the southern third of the area. The features within these appeared to represent the southern half, or southeast corner of a settlement core. Across much of the area was an artefact-rich 'dark earth' deposit that capped many of the features. No direct evidence for structures was found within the trenches, but their presence is certainly suggested by both the 'dark earth' and the quantity of pottery recovered. It would seem likely that any associated structures were located to the west, probably just beyond the evaluated area. The cropmark evidence reveals a high number of linears, largely on a north–south/east–west orientation, 300–900m to the northeast. Whilst these may be associated with the adjacent Medieval Grange Farm, they could equally be a continuation of the Site 20's Romano-British boundaries.

Discussion: Settlement/Landscape Variation

Providing what, by *de facto*, must be a rather blinkered transect-like perspective upon the north-central half of the county's archaeology, any discussion of linear-based projects such as this are invariably drawn to geographically determined modes of interpretation. That being said, the variation in site distribution-densities over the route's length across the Ouse River Valley and the Brampton Terrace gravels, when compared to the southern clayland-portion, is certainly marked. This is, of course, furthered by the much greater degree of evaluation sampling conducted along the northwestern stretch. It, nevertheless, attests to the fact that the latter clearly saw semi-continuous landscape-use and with one site merging into another; along the route's southeastern length, the sites there are far more discrete.

This discrepancy equally extends to the type and chronological range of sites within the respective areas. Along the northwestern length was recovered the full temporal gamut, with all periods represented from the Mesolithic/Neolithic to Saxon times. In contrast, the project's southern clayland sites were all basically either of Iron Age and/or Romano-British date. The paucity of the southeastern length's earlier prehistory is indeed striking, with only 11 worked flints from it as opposed to the over 200 from the gravel sites. When these figures are factored to account for their differential sampling cover, they suggest that there is nine-times the worked flint density on the gravels than the clays.

The recovery of this material at all, nonetheless, still serves to illustrate that these 'heavy' lands were utilised and visited during the preceding periods. Though probably attributable to the programme's relatively low sampling on the clays, based on recent precedent it is surprising that further evidence of later prehistoric activity was not forthcoming. Fieldwork on, for example, the Isle of Ely has demonstrated to what degree its then presumably forested clays were extensively visited during the Neolithic and Bronze Ages (see Evans 2000 and 2002). Equally, investigations at Papworth Everard, Longstanton, Northwest Cambridge and at Stansted (Gilmour *et al.* 2010, Evans and Patten 2011, Evans and Newman 2010 and Cooke *et al.* 2008) shows that there were clearly Middle/later Bronze Age in-roads into the region's claylands, with settlements of the period now recovered.

The widespread adoption – if not the 'invention' – of deep pit-wells at that time that would have greatly facilitated the use of the inland clays (see Evans and Patten 2011 for overview). Given what would have surely been some of the lands' seasonal standing-water conditions, somewhat ironically, in such off-river valley locales the realisation of daily water sources would have otherwise been problematic. Of course, their spring-lines, natural ponds and streams would

have been utilised, but their frequency would not permit 'blanket' or landscape-wide settlement distributions. The area's stream courses may, indeed, have served as communication/access 'corridors' through what would then have been heavily forest stands. In, for example, the case of Longstanton/Northstowe, the only major early scatter sites were found on the Greensands flanking Oakington Brook (both Mesolithic, Sites 1 and 28; Evans *et al.* 2008, 176, fig. 3.21). These streams would have maintained their locational attraction and this is apparent in the distribution of what appears to be the Iron Age/Romano-British settlement clusters strung-out beside early channels of the West Brook within Area E1/Site 22's environs (Fig. 11).

Despite limited evidence for earlier prehistoric activity, it would actually appear that it was during the Middle Iron Age that the region's claylands were first colonised at any scale. Presumably drawn by the availability of highly fertile land (if one's agricultural capability and settlement 'architecture' could cope with heavy soils) – whose uptake and clearance may well have resulted in accelerated lower river valley alluviation – the evidence suggests a distinct 'arrival horizon'. The picture thereafter generally seems one of continuity, with the settlement sequences at most sites seeing no obvious disjunction/displacement with the Roman Conquest, such as at Sites 16, 19/20 and L12 here.

In contrast to the 'near-void status' of the county's claylands in Fox's day (1923), given just how high their Iron Age/Roman settlement densities now appear to have been, this amounts to a sea-change in the understanding of the region's early land-use history. Whereas, until of late, much of this area (at least north of Cambridge) was usually regarded as some manner of 'fen hinterland' and thereby marginal, today we can be assured of just how intensely utilised it was. Clearly fully part of a Roman/ised countryside, this has now been brought home by the recent recovery of what were major, probably stone-footed building complexes at both Longstanton/Northstowe (Site L27 and L36; see Evans *et al.* 2008, fig. 3.23) and Northwest Cambridge (Evans and Newman 2010). The argument could, in fact, be mounted that, in the light of the area's settlement densities, during the later Iron Age/Romano-British periods its population levels may have even exceeded those of Medieval times (see e.g. Luke and Preece 2011, 168–70, figs 9.17 and .18 for general regional comparison).

The quality of these lands (i.e. enhanced carrying capacity) and its settlements is further apparent in the sites' comparative finds recovery table (Table 3), as the most substantive Middle Iron Age and Romano-British pottery assemblages were actually recovered from the clayland-area: Sites 18 and 19/20.

When undertaking such transect-type programmes as this, there is an inherent tendency to understand their distributions 'linearly'. This is certainly the case with the route's southeastern clayland stretch and the temptation to accept their seemingly 1.5–2km interval as reflective of settlements strung-out along the Roman road supposedly running from Cambridge to Godmanchester is considerable. This would be erroneous on a number of accounts. First, of course, is that at Sites 17 and 18 there was no actual indication of Roman settlement (though, see below) and, rather, they are of Middle Iron Age date. Second is that insufficient trenching occurred along this length to provide any firm basis of any site stand-off and, accordingly, we must be wary of misreading an apparent linear interval as a source of causation. If anything, recent work has shown that across much of the region Iron Age/Roman settlements generally had a closer, *c.* 300–500m interval (Evans 2000; Evans *et al.* 2008, 181–6). Finally, apart possibly from Site 16's quarry pits, in neither the A14's or Longstanton/Northstowe's fieldwork has any direct evidence of the Roman road itself been found. Based on recent exposures within Cambridge proper, it has been postulated that this route might, in fact, have run south of Huntingdon Road and its A14 projection (Evans and Ten Harkel 2010). In truth, its exact alignment is currently uncertain; it need not have necessarily been straight and its route could well have kinked.

The morphology of the enclosure-types that have been recovered largely conform to expected norms; generally, organic-plan sub-circular Iron Age compounds superseded by more rectangular Roman layouts. In this regard, Site 13/14's sequence can be held to be 'typical', with its large, 45m-diameter circular compound replaced by a rectilinear Romano-British fieldsystem and enclosures. Equally, in Area B1, the formal/regular rectangular arrangement of Site 2's probable Conquest Period-system markedly contrasts with what must be the Middle/later Iron Age conjoining double-circle/'barbell-like' enclosures to the north (*c.* 60 and 70m dia.; Fig. 3, Zones 1 and 2)

Naturally, there are variations to this. This would include the smaller sub-circular Iron Age enclosures at Sites 18 and 19 (Fig. 12). At *c.* 20m across, in all likelihood these probably enclosed individual roundhouses. Also intriguing at Site 18 are its series of broadly comparable-scale, sub-rectangular ditch settings that were also assigned to the Iron Age. Particularly significant is the easternmost as, having much more tight right-angle corners and a complex multi-part plan (and lying markedly off-alignment with the rest of the 'ladder-arranged' settlement), it certainly appears building-related. If so, while Middle Iron Age pottery was recovered from a boundary that one of its ditches cut, no direct dating evidence was forthcoming from its features; based on precedent, it would certainly appear to be of Romano-British attribution.

One of the most informative enclosures is that shown on the aerial photographic plots as lying *c.* 250m north of Site 22 (Fig. 11, Zone 2). With 'avenue-like' ditches conjoining a large quasi-circular compound, this is a 'classic' 'Banjo-type' enclosure, such as has been found at Longstanton/Northstowe (Evans *et al.* 2008, Site L38, fig. 3.23.4) and are now widely known across the region's claylands (e.g. Mills 2007, see also Kenny and Lyons 2011). With their origins probably being in Wessex and/or the west-centre

Area	Period	Site	Early Prehist Pottery (No./wt.)	Later Prehist Pottery (No./wt.)	R/B Pottery (No./wt.)	A/S Pottery (No./wt.)	Animal Bone (No.)	Flint (No.)	Metal (No.)	Other (No.)
A	Middle Iron Age	1		9/20g			8	1		
B1	Neolithic, Late Iron Age, Romano British, Anglo-Saxon	2-8	45/192g	568/6958g		53/1482g	508	60	7	
B2	Middle Iron Age, Late Iron Age/ Romano-British	6 and 9		75/461g			101	2		
C1	Middle Iron Age, Romano-British	13 and 14		163/3376g			294	54	43	R/B Tile: 35
C2	Romano-British	14			1/4g		3		1	
G	Late Prehistoric	16							1	
H	Middle Iron Age	17		87/770g			82			
K	Middle Iron Age, Romano-British	19 and 20		13/111g	644/8159g		128	2		R/B Tile: 7; R/B Glass: 1
M1	Bronze Age/ Iron Age, Romano-British	10 and 11	54/111g	20/68g	8/31g		15	74		
N1	Middle Iron Age	12 and 15			98/785g		2	25		
P	Middle/later Iron Age	21		6/12g				1		
R2	Late Prehistoric	16					6		1	R/B Tile: 1
T1	Middle Iron Age	18		713/3499g			236	9	18	
Total:			**99/303g**	**806/10795g**		**53/1482g**	**1383**	**228**	**71**	
				848/4480g	**751/8979g**					

Table 3. *Finds by Area (R/B: Romano-British; A/S: Anglo-Saxon).*

of the country, their occurrence upon the north-of-Cambridge-clays might, in fact, suggest a westward source for the area's Middle Iron Age colonisation.

Of the route's northwestern river valley/terrace gravel-length, though the recovery of Site 5/8's Saxon settlement evidence is certainly significant, perhaps even more so are its pre-Iron Age findings. This would certainly have to include both the probable Bronze Age fieldsystem and the definite barrow at Site 11. The latter resonates with the large, *c.* 45m-diameter barrow – or possibly even a henge (the geophysical plot suggesting that its circuit might have a southern entranceway) – alongside the route at Area B1 (Fig. 3, Zone 4). Equally noteworthy, on the western side of the corridor there, is the possible causewayed enclosure that registered on both the geophysical and cropmark plots. (Fig. 3, Zone 5). Approximately 120m across, while it is conceivable that this was some manner of Late Bronze/Iron Age ringwork, its apparently segmented circuit would rather suggest a Neolithic date. Be this as it may, the findings within this portion fully accord with known prehistoric monument complexes of the Huntingdon/Godmanchester-area (McAvoy 2000; Malim 2000) and the archaeology of the middle reaches of the Ouse Valley generally (Evans and Knight 2000 and 2001; Dawson 2000).

Finally, that the A14's programme was only partial and didn't see all of its intended phase-stages must be stressed. Should its construction proceed, it is crucial that this additional work be undertaken. Given

its focus thus far, what the fieldwork has actually achieved is to largely confirm what is rapidly becoming a caricature of the region's main geological subdivisions: river valley/gravel terrace sequences vs. claylands. With the hindsight that the results to date now afford, what is singularly imperative is the need for further work along the *c.* 3km-long stretch of the terrace gravels south of Fenstanton and west of Areas R2/Site 16 (e.g. Site 23). There, coinciding with the West Brook tributary-route of the River Great Ouse and effectively amounting to an 'off-mainstream' or 'inland' terrace, it may well have had quite a different early settlement/land-use (pre-) history. In this capacity, the largely undated, or at least unspecified, later prehistoric activity at Site 16 must be counted as amongst the project's most intriguing findings.

Acknowledgements

The phases of archaeological assessment and fieldwork were funded by the Highways Agency (HA), through Costain Skanska Joint Venture (CSJV), and the involvement of the following individuals is acknowledged: Mike Hall (HA), David Freke (HA), Mark Berg (CSJV), Rob Harrison (CSJV), Jarod Williams (CSJV) and Keith Sleightholme (CSJV).

Overall archaeological project management was undertaken by Atkins Heritage on behalf of CSJV, headed up by Janet Miller and with on-site support provided from Mark Hewson and Rob Sutton. The geophysical survey was undertaken by Pre-Construct Geophysics and Bartlett Clark Consultancy and air photo plotting by Rog Palmer of Air Photo Services. Thanks are given for permission to reproduce their figures.

The co-operation and insightful comments of Kasia Gdaniec of Historic Environment Team of Cambridgeshire County Council have been crucial and are duly acknowledged.

At the CAU the fieldwork was directed by Ricky Patten, Adam Slater, Matt Collins and Kerry Murrell, and was managed by Robin Standring and Christopher Evans. The graphics herein reflect the skills of Andrew Hall at the Unit and the text has greatly benefited from Grahame Appleby's participation.

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Addenbrooke's Hospital Excavations, 2007 & 2010: The Last of the Cra'ster's Enclosure

Christopher Evans, Jacqui Hutton and Simon Timberlake

With contributions by Katie Anderson, Rachel Ballantyne, Matt Brudenell, Vida Rajkovača and Anne de Vareilles

As far as can be gathered, the conditions under which Mary Cra'ster and her team excavated the Iron Age enclosure at Addenbrooke's Hospital in 1967 were atrocious (Figs 1 & 2). It had only been discovered during the course of construction and, accordingly, was dug under dire rescue circumstances, with much of the ground-surface churned by machinery (Cra'ster 1969; see Evans *et al.* 2008, fig. 1.5). The site, nevertheless, was crucial for the development of the County's archaeology. On the one hand, they were able to reconstruct the form of a La Tène-style decorated pot from one of its ditches (*ibid.* fig. 1.4; Cra'ster 1969) and, given the rarity then of such vessels within the region, it assumed a rather iconic role and hinted at the site's status. On the other hand, the very fact that they were able to achieve a complete plan of its main sub-square enclosure was important, as it presented a convincing 'picture of the past' at a time when most excavation was limited to small hand-dug trenches.

Following the Cambridge Archaeological Unit's (CAU) large-scale excavations at the Hutchison Site along the western side of the hospital's ground in 2002–03 (Fig. 1), the opportunity that subsequent development afforded to further investigate Cra'ster's enclosure was welcomed. The fieldwork was staged and involved two phases. The first was in 2007, when the construction of the multi-storey NCP Car Park allowed for limited trenching across 0.8ha, at which time the enclosure's northeastern side was located and dug along the plot's western limits (Figs 2–4; Hutton & Evans 2007). Thereafter, in 2010, anticipating the construction of the neighbouring Cambridge Centre for Applied Learning building (CCAL) immediately to the west, the enclosure's northern corner and an adjoining length of its northwestern circuit were dug (Fig. 2; Timberlake 2010). Indeed, the excavations had something of a leapfrog-like quality, as the second phase only progressed when the car park was completed and we were able to take full advantage of its height for site photography (Fig. 5).

As is outlined in the CAU's *Borderlands* volume concerned with the Hutchison Site and the archaeology of the Addenbrooke's/Trumpington Environs generally, due to its network of interconnecting tunnels the hospital's construction in the 1960s was undertaken on a mass-area scale and in a manner almost akin to an open-cast mine (Evans *et al.* 2008, 8, fig. 1.6 & .8). Given the degree of downcutting this involved, it unfortunately means that the 2007/10 investigations do, indeed, mark the last of Cra'ster's enclosure and no more of it is likely to survive. Equally, the scale of the '60s building programme meant that both of our recent site-areas were severely affected by lateral truncation and suffered from localised machine disturbance. Mention should be made that we had intended to expose more of the enclosure's interior within the 2010-area, but were prevented through the location of large oil storage tanks (Fig. 3).

Cra'ster's findings were summarised in the 2008 volume (*ibid.*, 3–7, figs 1.4–6) and, therefore, only a brief appraisal is necessary here. Its main feature was a rectangular ditch enclosure, with rounded corners, some 340ft across (*c.* 103m). Its 'V'-shaped profile was 7ft (2.10m) across and four feet deep (*c.* 1.20m; Figs 2 & 6; Cra'ster 1969: fig. 1–3). A few pits were exposed within its interior (apparently unexcavated) and it was remarked that many others probably went unnoticed. Much domestic refuse was recovered from the ditch's basal fills and there can be little doubt that the enclosure's interior had been occupied. The pottery recovered was held to be of 'Iron Age A' type and thought comparable to the assemblage from Barley (Cra'ster 1961).

Aside from the main enclosure, a series of parallel ditches ran along its southern side (Cra'ster 1969, fig. 2.'B' & 7). These were not firmly dated and only one seems to have been fully excavated (ibid, fig. 4). This yielded pottery of the same general type as the main enclosure, but also had the fine, La Tène-style decorated pot (*ibid.*; see Evans *et al.* 2008, fig. 1.4). The only definite settlement evidence *per se*, was found outside of the main enclosure and south of the parallel ditches (also location 'A' on Cra'ster's 1969 plan). There the remains of sub-circular building ('hut'), as defined by postholes and a prepared floor were recovered.

The site's finds are held by the University of Cambridge Museum of Archaeology and Anthropology (Acc. No. 1968.345, 348, 349, 351, 352 &

Proceedings of the Cambridge Antiquarian Society CI pp. 105–114.

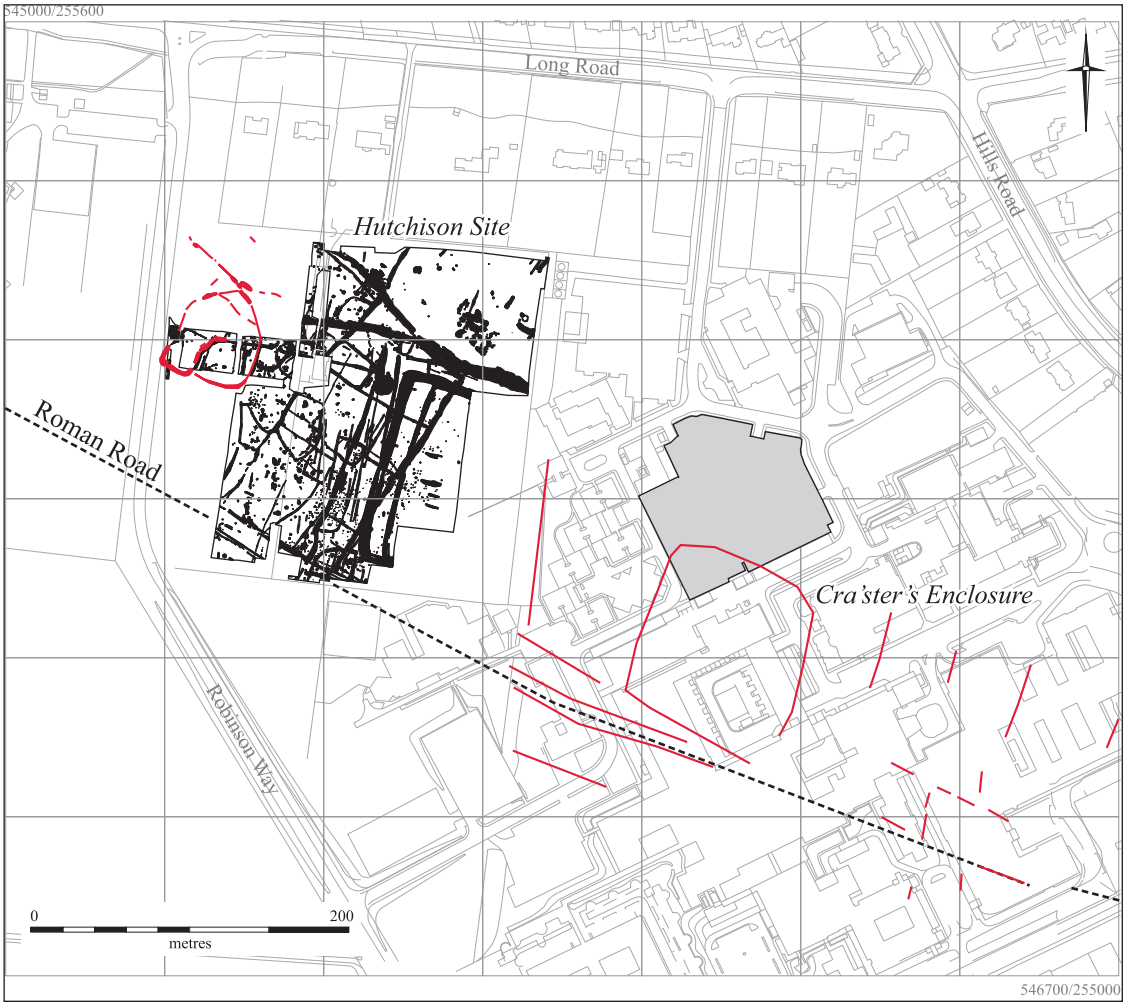

***Figure 1**. Addenbrooke's Hospital Investigations base-plan (with red indicating cropmarks).*

ZZZ015), and its Middle/later Iron Age pottery has been reviewed and is further discussed below (the assemblage includes a few Romano-British sherds and a piece of roof tile, which apparently derived from the upper profile of the main enclosure ditch). The bone from the '67 excavations cannot be located and was probably discarded. It was, however, studied for Cra'ster's report and of the 107 pieces recovered, 57% were cattle and 38% sheep/goat; three horse (3%) and two pig (2%) bones were also noted (Cra'ster 1969, appendix).

Before progressing to discuss the recent programme's results, the quality of Cra'ster's surveying warrants special notice; by the standards of the day, it proved to be extraordinarily accurate (Fig. 2).

The 2007/10 Excavations

Knowing the area was truncated and that any minor settlement features were unlikely to survive, the main aim of the programme was to achieve substantive finds and environmental assemblages from the enclosure to provide greater context for the earlier fieldwork. Indeed, it had also been hoped to achieve pollen results, but appraisal of the ditch's fills indicated that this would not prove successful.

Aside from a possible pit within the north-centre of the CCAL Site (yielding only a worked flint; F. 1) and, otherwise, plough furrows and geological hollows, Cra'ster's main enclosure ditch (F. 2) was the only significant feature present (Fig. 3). In total, approximately eight metres of its fill were excavated. Its 'V'-shaped profile varied from between 1.90–2.50m wide (*c.* 3.50m across at the north corner proper) and it was 0.75–1.20m deep (Figs 4–5). Evidence of recutting was apparent. The profiles of more shallow gullies/ditch segments, *c.* 0.40 and 0.85m deep (F. 4 & F. 11) were held in the circuit's exterior profile at the northern corner and may relate to an early version of it. Two slight, trough-like gully lengths also lay immediately beyond its line at that point (F. 5 & F. 6) and while also possibly pertaining to this putative earlier layout, alternatively they might have related to some manner of entranceway setting (Fig. 3).

Beyond this, there was also evidence that the main enclosure's ditch had, at one time, itself been recut with a broader more 'U'-shaped profile (F. 3; *c.* 0.60m

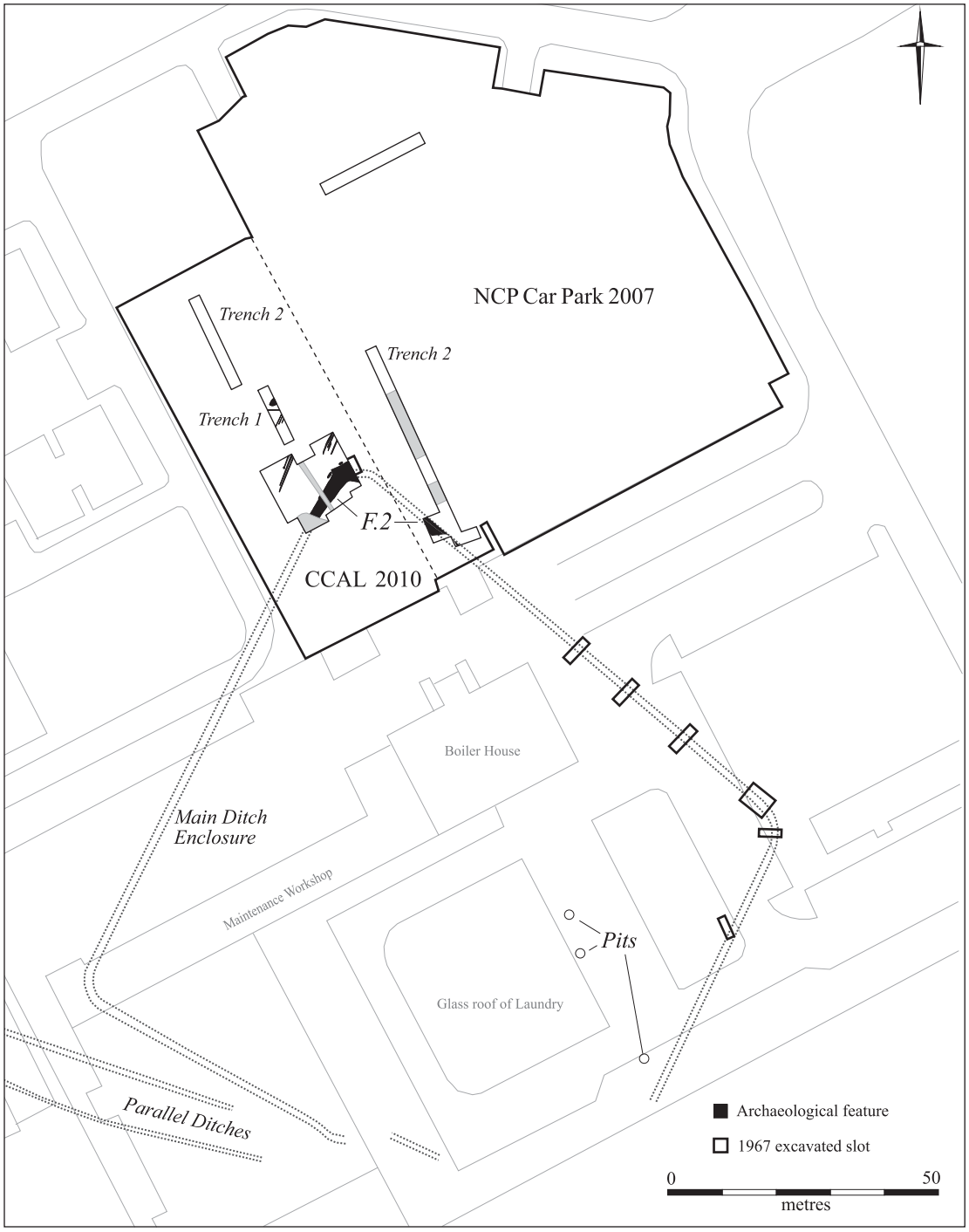

Figure 2. *2007/10 excavations base-plan, with Cra'ster's features imposed.*

deep; Fig. 6).

Of the ditch's fill sequence, this varied somewhat between the two areas. The eastern 2007 cutting essentially saw basal silting and secondary weathering consisting of marl-mottled light grey clay silts (Figs 4 & 6). This was followed by a tertiary, very dark grey/black clay-silt loam with ash, charcoal and burnt stone inclusions, which in all likelihood represents the F. 3 recut's infilling and it was from this that the majority of the finds derived. Within the 2010 exposures, the main lower/upper fill division was somewhat less distinct as the recut's deposits lacked the same black charcoal- and ash-derived discolouration – being instead a dark brown loam – and in the lower profile there was evidence of bank-slippage along the ditch's interior side (Fig. 6). There, while most of the bone also derived from the F. 3 uppermost fill, substantial quantities of pottery were also present in the lower deposits.

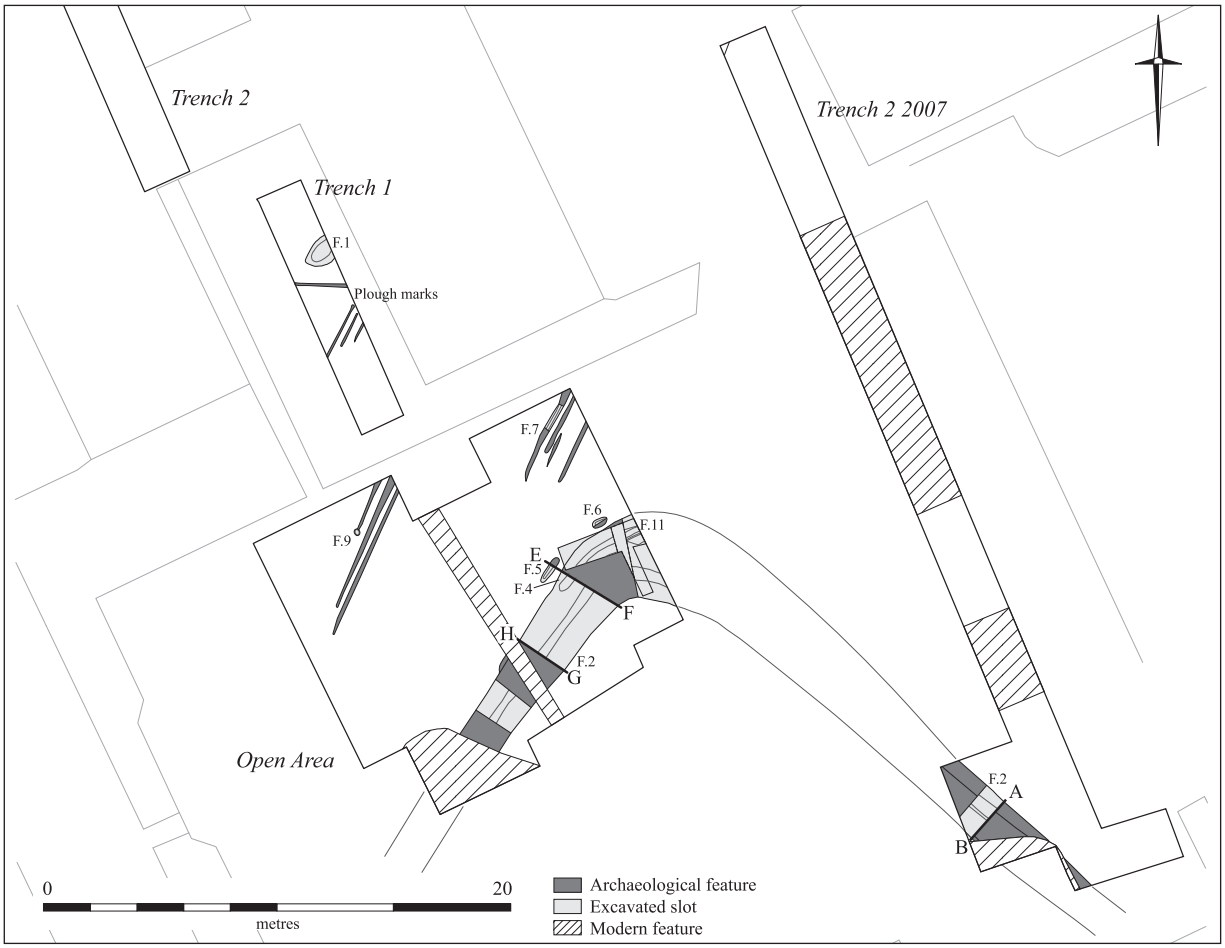

Figure 3. *2007/10 excavations main area base-plan (with section location).*

Finds Assemblages and Environmental Data

Aside from the material outlined below, 11 flints were recovered. These were of residual status and, apart from a single Mesolithic/earlier Neolithic blade, were of later Neolithic/Bronze Age manufacture. Otherwise, ignoring what modern building material was present, also found were pieces of non-diagnostic fired clay (11; 13g), burnt stone (22; 3636g) and two lumps of probable iron smithing slag (F. 3; 99g).

Pottery
Matt Brudenell and Katie Anderson

A minor assemblage of handmade Iron Age pottery, totalling 127 sherds (1160g) was recovered from two phases of excavation: nine in 2007 (353g) and, in 2010, a further 118 (807g). With the exception of a single sherd of undated pottery, all of the material was recovered from the large enclosure ditch (F. 2) and its later re-cut, F. 3 (Fig. 7).

Material from the 2007 excavations were predominately medium-sized (<8cm), with moderately abraded edges; its mean sherd weight is high at 39.2g, though this figure is skewed by the presence of one large sherd. The pottery from the 2010 phase was more fragmented, with a lower mean weight of 6.8g and smaller sherds (most <4cm), although the condition of the material in terms of abrasion was comparable to the earlier excavations.

The assemblage was dominated by dense sandy fabrics, which represented 93.2% of all the pottery by count. Other fabrics represented much smaller percentages of the assemblage (shell, 3.9%; flint, 0.78%; and grog, 2.3%). All of these wares are typical of Iron Age assemblages in Southern Cambridgeshire.

The majority of sherds were non-diagnostic, with just six vessel forms identified, of which three were rims, two were bases and there were two refitting sherds from the shoulder of a slack-profiled vessel. One ditch context produced 45 sherds (516g), which including 39 from a single vessel: a round shouldered jar/bowl with heavy carbonised residue on the interior. This broadly dates to the Middle Iron Age, and is one of the few groups of pottery from the 2010 excavation that comprise fairly large, 'fresh' sherds. Decoration was also scarce, with only two combed sherds and ten burnished sherds from a single vessel.

Feature 3, the re-cut of ditch F. 2, contained 73 sherds (291g). These included two everted rim vessels and two pinched bases. There were also two body sherds with a light combed decoration on the exterior and another

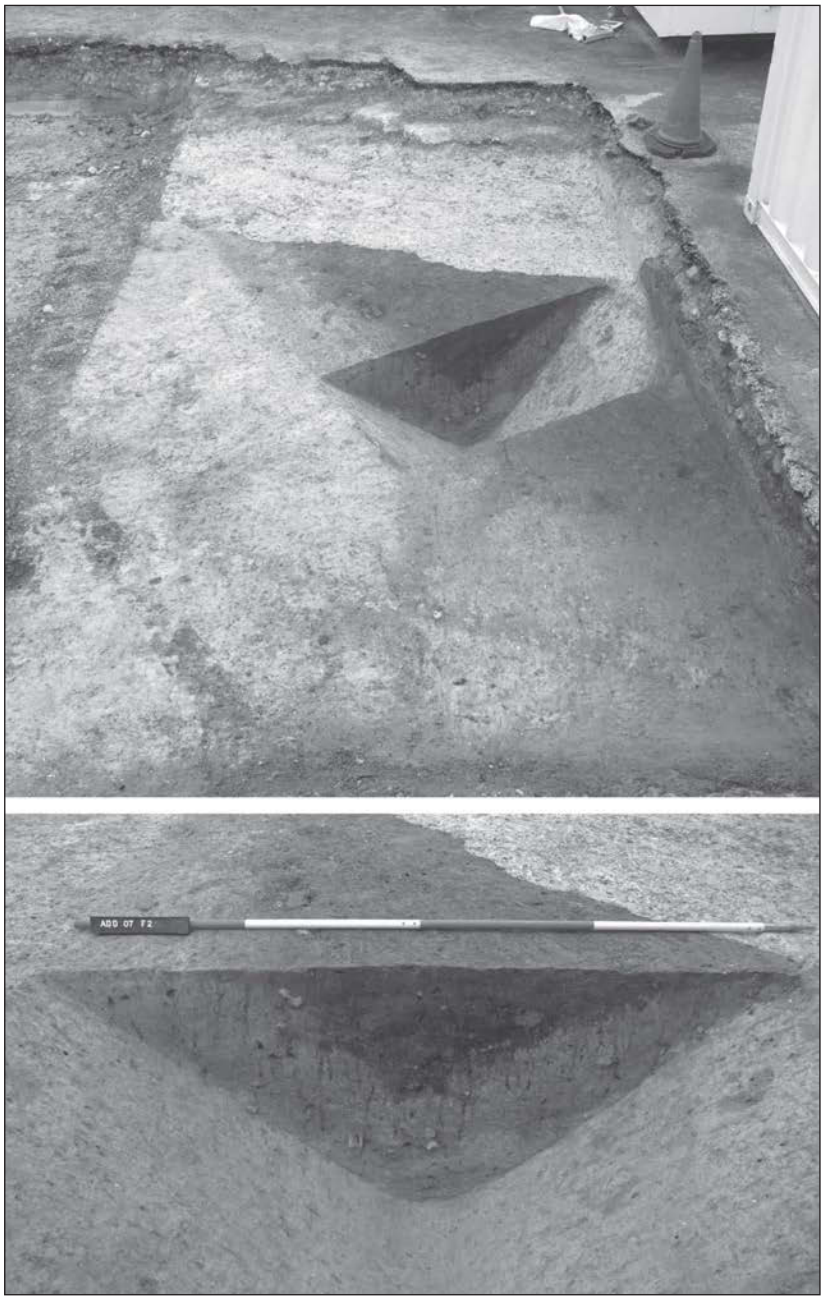

Figure 4. *2007 site, looking south, with enclosure-ditch sectioned (D. Webb).*

ten sherds (16g) from a burnished vessel. Several of the sherds from F. 3 were fired hard and the fabrics suggest a Middle/Late Iron Age date, although a more specific attribution is not possible.

The pottery belongs to the Middle/Later Iron Age, conventionally dated *c.* 300 BC – AD 50. The absence of wheel-turned wares, sherds with vertical combining, or 'late' handmade forms (such as the internally thickened rims of pronounced 'S'-profiled bowl/jar forms), suggests that the pottery pre-dates the first century AD and a date bracketing the third to first century BC would seem appropriate. More broadly, the pottery compares well with that recovered from Cra'ster's 1967 excavations (Cra'ster 1969). A further review of the ceramics collected from the '67 site has confirmed that the forms and fabrics are identical. Of note are a small number of flint-tempered sherds amongst Cra'ster's Middle Iron Age material, which indicate a previously unrecognised or unpublished Late Bronze Age/ earliest Iron Age presence in this area.

Faunal Remains
Vida Rajkovača

Totalling 386 assessable fragments (4136g), the faunal assemblage came from the enclosure ditch's upper and lower ditch fills. The marked distinction between the two deposits would indicate that the settlement activity was more intensive during the later stages

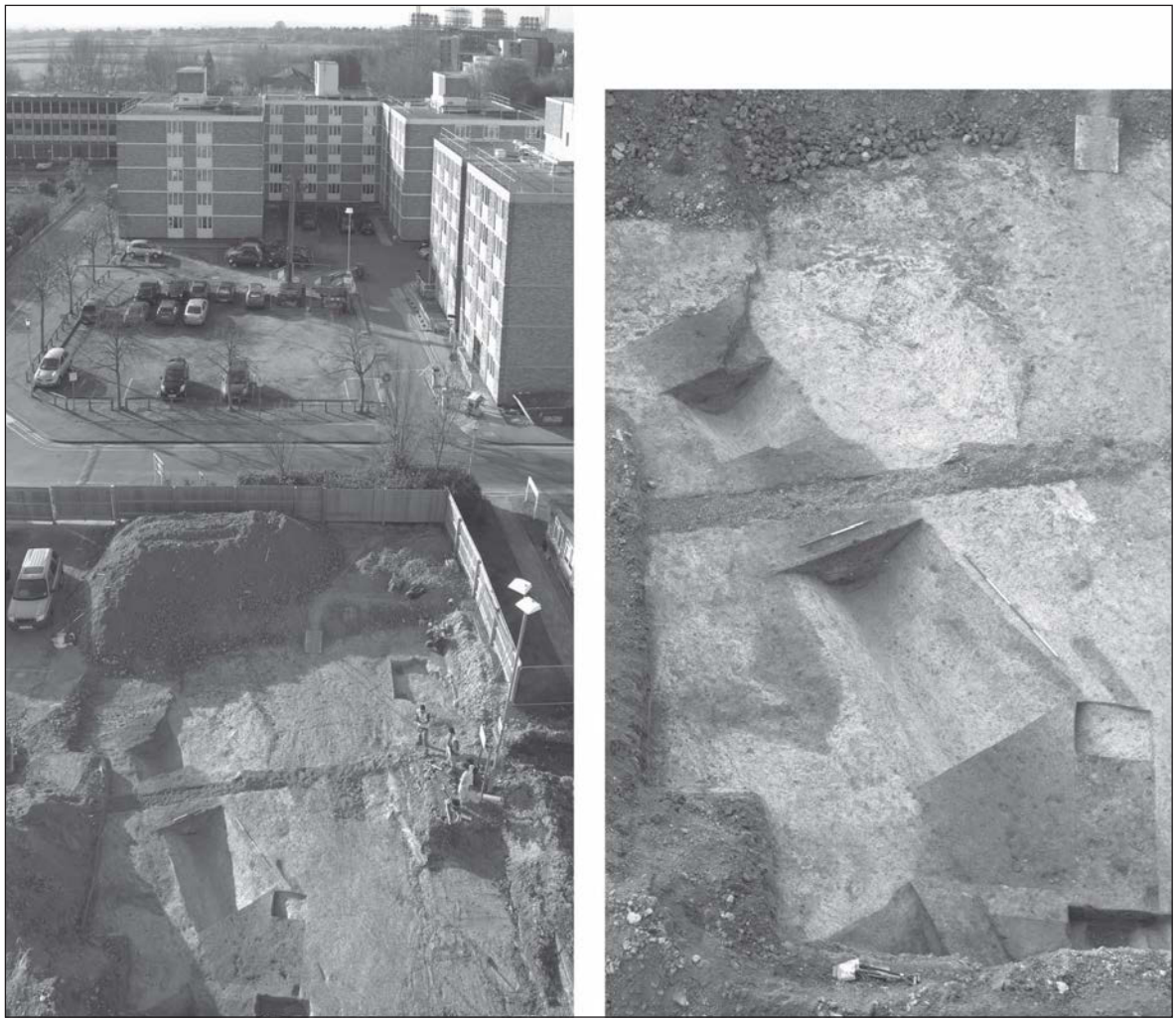

Figure 5. *2001 site, looking west along excavated enclosure ditch (taken from atop the NCP Car Park; right, detail of F. 2/3; D. Webb).*

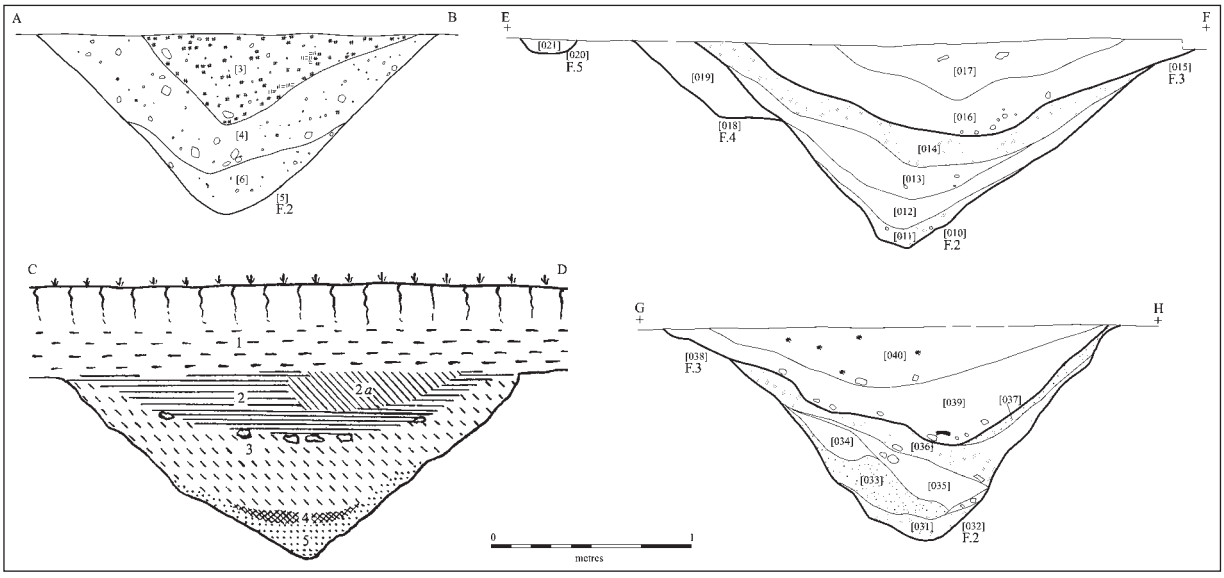

Figure 6. *Enclosure ditch section (see Fig. 3 for location; C–D is representative of Cra'ster's sections).*

of the enclosure's usage. This was corroborated by the evident difference in the quantity of animal bone recovered from each of the fills. Of the 386 bone fragments, 96 came from the lower fill (24.9%), whilst 290 (75.1%) came from its upper deposits. The only two species identified from the primary fill were cattle and horse. The other species include dog and ovicaprid (sheep/goat). While pig is absent, the original report cites that two such specimens were recorded (Cra'ster 1969, 28, Appendix).

The assemblage showed an overwhelming prevalence of cattle (Table 1), both within the NISP and MNI counts. Horse accounted for 14 specimens, 13 of which were loose teeth and tooth fragments. Similar skeletal element representation was recorded in the ovicaprid cohort, where 70% of the elements were mandibles and loose teeth. Dog was represented by a skull and maxilla fragment, both probably from the same animal. Extracting these leaves us with a cattle cohort amounting to 157 specimens, corresponding to 85.8% of the identified species sub-set. The predominance of cattle within the assemblage is reflected in high numbers for cattle-sized elements amounting to 175 specimens (45.3% of the assemblage).

***Table 1**. Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI) for all species from the Middle Iron Age enclosure ditch (ADD07 and CAL10 assemblages combined)*

Taxon	NISP	NISP%	MNI
Cow	157	85.8	5
Ovicaprid	10	5.5	1
Horse	14	7.6	1
Dog	2	1.1	1
Total ID to species	**183**	**100**	**.**
Cattle-sized	175	.	.
Sheep-sized	28	.	.
Total	**386**	**.**	**.**

Although it is widely held that British Iron Age communities favoured sheep to cattle (e.g. Albarella 2000; Cunliffe 2005, 416; Serjeantson 2007, 91), and findings from numerous excavations corroborate this (e.g. Grant 1984, Davis 1995, Serjeantson 2006), this is rather an over-generalisation. Certainly, there are Middle Iron Age assemblages from enclosed settlement sites where cattle take on a major role (Legge *et al.* 1989; Higbee forthcoming), as well as in many other assemblages from other settlement- and site-types.

Charred Plant and Mollusc Remains
Rachel Ballantyne and Anne de Vareilles

Four bulk samples have been analysed from the enclosure ditch (40.5 litres total). Two are from the 2007 excavations of upper and basal fills of F. 2 ([03] and [06], respectively), with two further samples excavated in 2010 from F. 2 ([031]) and of re-cut F. 3 ([030]).

All samples have been flotation sieved at the CAU, using a modified version of the Sīrāf tank (Williams 1973). Flots (> 300μm) and heavy residues (>1mm) have been dried, then sorted using a Leica MS5 (x6.3 – x50) binocular microscope for flots and by eye for residues greater than 4mm; full raw data is summarised in Table 2. Taxonomic names follow Stace (1997) for plants and an updated version of Beedham (1972) for molluscs.

The plant remains are all charred. Mollusc shell is well preserved and frequent, as consistent with the calcareous geology. Numerous *Cecilioides acicula*, a burrowing snail, are likely to be intrusive and so bioturbation may have also moved other smaller ecofacts down the profile.

Charred plants are rare, with low amounts of comminuted charcoal in all the samples. Single seeds of buttercups (*Ranunculus acris/bulbosus/repens*) and henbane (*Hyoscyamus niger*) in re-cut F. 3 have no clear origin. Only the upper fill [03] of F. 2 contains charred cereals and wild plant seeds. The cereals are poorly preserved, with two grains identifiable to emmer/spelt wheat (*Triticum dicoccum/spelta*) and two glume bases identifiable to spelt wheat. The wild seeds are types from disturbed and/or arable ground; goosefoots (*Chenopodium* sp.), knotgrass (*Polygonum aviculare*), clover/medick (*Trifolium/Medicago* sp.) and selfheal (*Prunella vulgaris*). The range is too limited to interpret crop husbandry.

Moderate quantities of mollusc shell provide some indication of the local environment in both ditch phases. Terrestrial habitats are consistently represented, with the open land types *Pupilla muscorum*, *Vallonia pulchella/exentrica* and *Helicella itala* common in all samples. Infrequent *Lymnaea truncatula* and *Anisus leucostoma* indicate episodes of shallow standing water, particularly in ditch re-cut F. 3, which also contains several ostracod valves (tiny aquatic crustaceans). Shady conditions are suggested by occasional *Aegopinella/Oxychilus* sp. and *Vitrea* sp. There are two charred shells in [03] F. 2, of *Vertigo* cf. *pygmaea* and *Tricia* sp.

The limited range of charred plants in [03] F. 2 is likely waste from spelt wheat crop processing, but cannot be interpreted further. Ditch fills usually contain biota that are *in situ* (autochthonous) and from the surrounding area (allochthonous). Frequent molluscs of open-land species probably represent the local environment, perhaps dry calcareous turf on the ditch flanks and the adjacent ground. Occasional molluscs of wet and shady conditions probably represent leaf litter and standing water within the ditch bases, notably re-cut F. 3.

The molluscs are very similar to those from later Iron Age features at the nearby Hutchison Site (Roberts 2008), where a predominantly open grassland environment was inferred with damper habitats in some cut features.

Discussion

While the animal bone species-representation from the neighbouring Hutchison Site suggested a fairly stable economic basis throughout its Bronze Age to Saxon phases (e.g. cattle 47.6–54.4%; sheep 35.4–40.9%), the evidence from both Cra'ster's '67 enclosure and the recent fieldwork there would indicate a higher cattle component, significantly so in the case

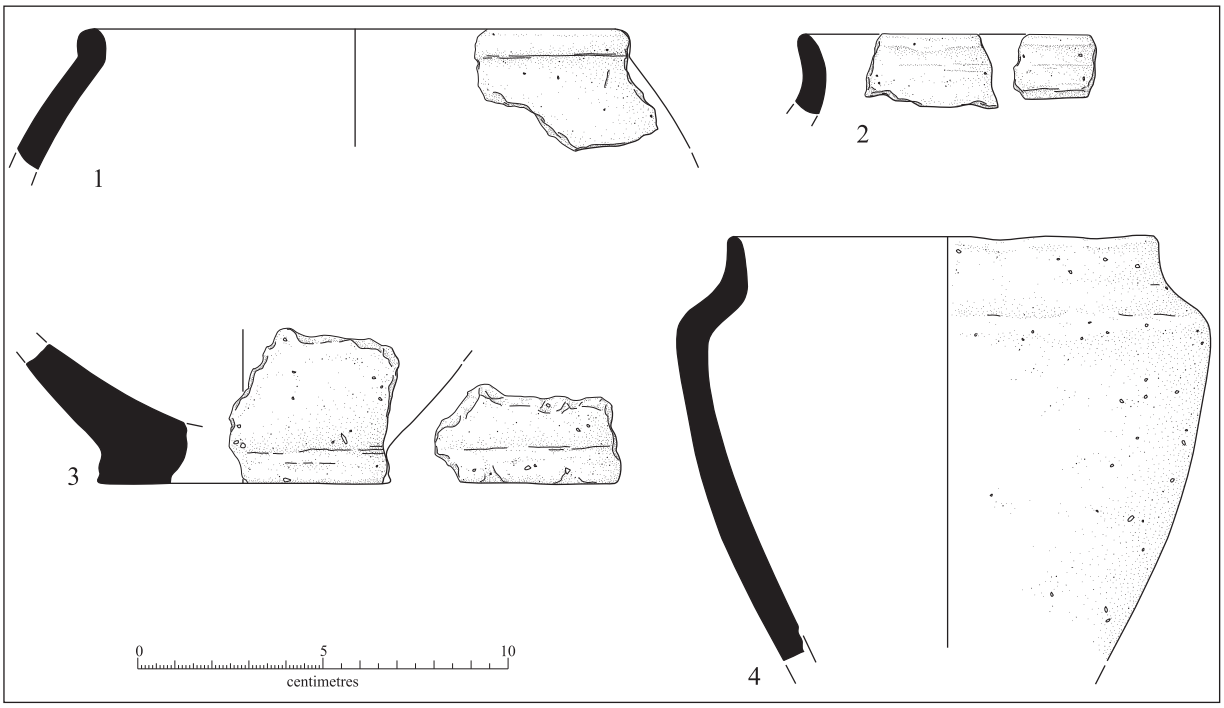

Figure 7. *Iron Age pottery: 1–3) F. 3; 4) F. 2.*

of the latter (respectively, *c.* 57 and 86%). Given that Cra'ster's assemblage apparently saw sheep levels comparable to the Hutchison Site's figures – 38% – their very low values in its CAU-phase excavations (5.5%) can only be accredited to immediate depositional variability rather than any markedly different economic practices. Nor does the recent sites' environmental samples – aside from attesting to a largely open landscape with localised wet conditions – greatly add to the wider knowledge of the area.

What is, however, important from recent phases of work is the tying down of the enclosure's pottery-dating evidence. That no wheel-turned wares occurred within its assemblage clearly indicates its Middle/later Iron Age attribution and that the enclosure's usage did not continue into the first century AD. As no further La Tène-decorated pottery was recovered this would equally imply that there are no grounds for seeing the enclosure as in any way 'special' and it must essentially be ranked as a fairly typical domestic compound of the period. Indeed, any reading of status from the occurrence of such decorated wares would now have to turn upon their mass-recovery, as they are known to occur in very low numbers on a wide range of the period's sites in the county (e.g. Evans 2003).

With so much fieldwork currently underway and otherwise anticipated across the western side of the hospital and around Trumpington (see Evans *et al.* 2008, 141–66), it would be rash at this time to speculate upon its landscape's early development. Given, however, that no further substantive fieldwork is likely within the hospital's core comments are warranted concerning its archaeology, especially as regards the interrelationship of Cra'ster's enclosure and the Hutchison Site's sequence (Fig. 1).

The crux issue here is the status of the 'parallel ditches' arranged along the southern side of the enclosure; unfortunately, their interrelationship is ambiguous. While the pair seem broadly sympathetic with the 'square's' layout, if projected the northern of the two would actually have overlain the enclosure's southern corner. Given this, and the fact that the La Tène bowl was apparently recovered from one of these southern ditches, it is reasonable to assign them to the later/Late Iron Age, if not to the Conquest Period. As shown on Figure 1, if we project this pair north-westward they would correspond to the route of the Roman road that was excavated along the southern side of the Hutchison Site. This would require a slight north-over-west kinking of its straight-line projection (it being the main Colchester road), but then, based on precedent, this is probably quite likely. (As indicated by its exposure within the Perse School early last century, Cambridge's northward *Via Devana* approach-road theoretically should have passed through the interior of Cra'ster's enclosure, but of which no trace was evident and it, also, may well have kinked along its length; see Evans *et al.* 2008, fig. 1.12.).

Based on the arrangement of the early-phase roadside paddocks at the Hutchison Site it was postulated that its east-west road may have had an Iron Age precursor. This is a suggestion that, again, finds further credence from the layout of Cra'ster's site. Given this, it maybe relevant that there was an Early Roman cemetery beside this road-line at the Hutchison Site and, by this, it is possible that Cra'ster's La Tène bowl

actually derived from a cremation beside its earlier precursor. Unfortunately, the '67 site conditions were such that this possibility will forever remain unresolved.

Acknowledgements

With the fieldwork undertaken on behalf of Addenbrooke's Hospital, the NCP Car Park investigations were organised by David Bryant of RG Carter and Roger Cutting of the hospital's management. In the case of the 2010 CCAL excavations (jointly commissioned by Cambridgeshire County Council), we were grateful for the support of Rachel Northfield throughout, and the co-operation of Nolan Smith (Fusion Project Management) and Andrew Tatlock (Keir Marriott) must also be acknowledged.

The fieldwork was monitored throughout by Andy Thomas of Cambridge County Council (CAPCA) and managed by Christopher Evans. The CAU field-staff variously consisted of Illanith Pongolini, Richard Newman and Adam Slater. Bryan Crossan, Iain Forbes and Vikki Herring undertook the digitising and graphics work; Donald Horne, the surveying; and the photographs reflect the skills of Dave Webb. Finally, it must be mentioned that over the years we have been grateful for relevant discussions with both Kate Pretty and JD Hill concerning the site.

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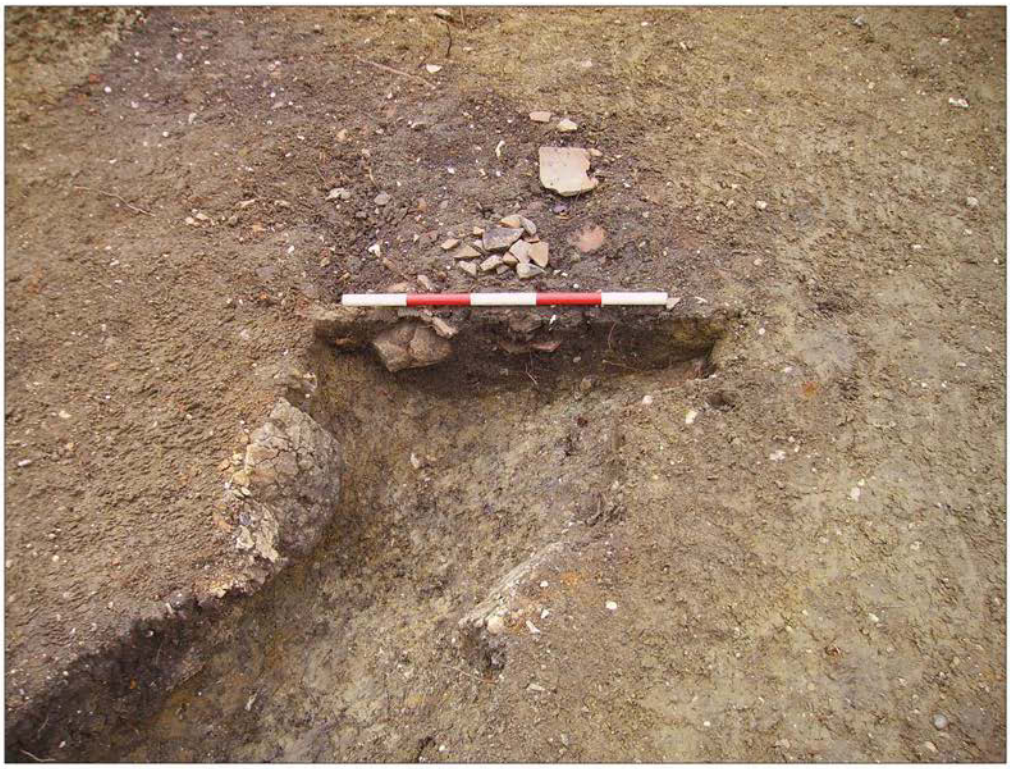
Table 2. *Environmental Remains*
*Key: * 1 or 2 items, + <10 items, ++ 10–50 items, +++ >50 items, ch charred mollusc shell*

Feature		**F.2**	**F.2**	**F.2**	**F.3**
Context number/year		[03]/07	[06]/07	[031]/10	[030]/10
Volume/ litres		9.5	6	13	12
CHARRED CEREAL GRAIN					
Triticum dicoccum Schübl./*spelta* L. caryopsis	Emmer or Spelt wheat grain	2			
Triticum sp. *caryopsis*	Wheat grain	5			
Hordeum/Triticum sp. *caryopsis*	Barley or Wheat grain	1			
Cereal indet. caryopsis	Indeterminate grain	8			
CHARRED CEREAL CHAFF					
Triticum spelta L. glume base	Spelt wheat glume base	2			
Triticum sp. glume base	Wheat glume base	2			
CHARRED WILD FRUITS/SEEDS					
Ranunculus acris L./*bulbosus* L./*repens* L.	Large-seeded Buttercup				1
Atriplex patula L./*prostrata* Boucher ex DC. seed		1			
Chenopodium album L. seed	Fat-hen	1			
Fallopia convolvulus (L.) Á. Löve	Black-bindweed				
Polygonum aviculare L. seed	Knotgrass	5			
Trifolium/Medicago sp. seed	Clover/Medick	2			
Prunella vulgaris L. nutlet	Selfheal	1			
Hyoscyamus niger L. seed	Henbane				1
Cyperaceae indet. fragmented trigonus nut	Sedge Family				
Bromus cf. *secalinus* caryopsis	Rye Brome	3			
Indeterminate wild seed		2			
Estimated charcoal volume/ millilitres		2	<1	< 1	< 1
Charcoal >3mm		+			*
Charcoal <3mm		++	*	+	+
Vitrified charcoal		*	*		
Charred concretion		*			+
Poaceae culm node	Grass stem joint	1			
MOLLUSC SHELL					
Lymnaea truncatula (Müller)	Marshy, very shallow water	*	*	+	++
Anisus leucostoma Millet	Seasonal ponds and ditches	*			
Cochlicopa lubrica (Müller)/*lubricella* (Porro)	Generally distributed	*			
Vertigo pygmaea (Draparnaud)	Marshes, meadows, woods	* 1ch			*
Columella edentula (Draparnaud)	Damp places and woodlands		*		
Pupilla muscorum (L.)	Turf, walls and dry places	+	*	++	++
Vallonia pulchella (Müller)/*excentrica* Sterki	Open land, dry to damp	++	*	+	+
Cecilioides acicula (Müller)	Burrowing, probably intrusive	+++	++	++	+++
Trichia sp.	Generally distributed	++ 1ch	*		+
Helicella itala (L.)	Dry, grassy, calcareous places	+	+	++	++
Vitrea sp.	Shady damp places	*			+
Aegopinella/Oxychilus sp.	Shady damp places	*	*	*	
OTHER BIOTA					
Ostracod valve	Tiny aquatic crustacean				+

Plate 1. *Quartzite pebble hammer found at Littleport.*



Top, Plate 2. *Waterbeach Romano-British kiln S2171, mid-excavation. View east.*

Below, Plate 3. *Waterbeach Romano-British pit F2039 and kiln S2020. View north-west.*

Plate 4. *Sample of Hayward's 1604 map at reduced scale of 0.6 inch to the mile, north to the right. Wisbech is at the right hand margin. Waterways in blue, major embankments red and lesser embankments green. Land shaded dark green denotes 'islands' of dry ground. See text for the straight dotted line shown bottom left. Reproduced by permission of Cambridgeshire Archives and Local Studies (R59/31/40/1).*

Plate 5. *The seventeenth-century brass of the Rev. William Lee in St. Andrew's Parish Church, Stapleford.*

An Iron Age and Roman Settlement at Summersfield, Papworth Everard

Ricky Patten

With contributions by Katie Anderson with Matt Brudenell, Grahame Appleby and Andrew Hall, David Hall, Vida Rajkovača, and Anne de Vareilles

This paper details the excavation of a small rural settlement situated on a clay ridge at Summersfield, Papworth Everard. The ridgeline was first settled during the Iron Age, with the construction of five roundhouses and three enclosures. During the Late Iron Age/early Roman period the settlement developed further with a series of enclosures representing different forms of activity, including habitation, horticulture, crop processing, and the management of livestock. Possibly representing two distinct farmsteads, the settlement remains lay either side of a partially metalled routeway. Although this may have branched off the presumed route of Ermine Street, it is possible that this is the Roman road itself. There was a hiatus in activity from the end of the Roman period until the 10th century AD, when settlement to the north of the excavation area, centred on the church of St. Peter, encroached into Summersfield. Five separate enclosures and the remains of two structures located on the edge of the settlement were revealed. The focus of this paper will be on the Iron Age and Roman phases, revealing the character of the later prehistoric and Romano-British settlement on the clay lands; this further supports evidence from other recent excavations that have indicated that settlement was not confined to the river terraces.

Although the claylands of Cambridgeshire were long assumed to have been sparsely populated through later prehistory and the first millennium AD (Fox 1923; Clay 2002), recent fieldwork and survey have demonstrated that settlement intensity in these regions began to increase in the early Iron Age (Mills & Palmer 2007; Evans & Standring this vol.). The nature of identified Middle to Late Iron Age ditched farmsteads and field systems has been argued to reflect settlement activity revolving around animal husbandry, garden plots and woodland management, although stock-keeping and horticulture are thought to have been small-scale (Mills & Palmer 2007). Clayland settlement continued and expanded in the earlier Roman period, although landscape reorganisation in the second and third centuries AD is thought to have led to a decrease in numbers of settlements on the clay, with settlement once again broadly confined to the river valleys and gravel terraces (Taylor 2007).

On the clay uplands to the west of Cambridge, a series of recent excavations have shed more light on later prehistoric and Romano-British settlement on the Cambridgeshire claylands. Excavations along the A428 revealed four Iron Age or Roman farmsteads; all were small, dispersed and of low status. Animal husbandry during the Iron Age was evident, although there was no direct evidence for arable cultivation. By the Roman period the economy appeared to be more mixed, with livestock enclosures and drove-ways present along one side of Roman Ermine Street and arable fields on the other (Abrams & Ingham 2008). Ten of the twelve sites excavated at Cambourne revealed evidence for Romano-British activity, four of which also revealed later Iron Age features (Wright *et al*. 2009). All of the settlements revealed through these excavations were farmsteads, dispersed and predominantly located close to a watercourse in a sheltered position. The economy of these farmsteads appeared to have been mixed agriculture dominated by pastoral farming. As will be seen, the settlement remains excavated at Summersfield displayed similar characteristics.

To the east of Summersfield work by the Cambridge Archaeological Unit (CAU) at Longstanton has revealed further settlements on a gravel ridge flanking the claylands (Evans *et al*. 2008: 186). The settlements identified were generally small and consisted of 'organic' sub-rectangular or sub-circular enclosures, and it is thought that the layout was determined by the degree to which the landscape had been deforested and cleared. The inference here was that the more 'organic' systems were representative of a wooded environment, while the more rectangular enclosures were suggestive of open land. These settlement sites situated on the claylands were probably supplying larger settlements located on the gravel 'hinterlands' (Evans & Newman 2010). Studies of the Romano-British settlements around northern Cambridge have suggested that they were arranged at approximately 400m to 600m intervals. These intervals are thought to indicate the range of any associated agricultural or pastoral land for each settlement, which themselves appeared to extend onto the clays, and further indicates the utilisation of cleared woodland (Evans *et al*. 2008).

Proceedings of the Cambridge Antiquarian Society CI pp. 115–142.

The Excavation

During 2008 and 2010 the CAU undertook an excavation in advance of housing development at Summersfield, to the southwest of Papworth Everard. The small Romano-British farmsteads were identified during an archaeological trench evaluation in late 2006 (Essex County Council Field Archaeology Unit), which revealed a Romano-British enclosure (Pocock 2007). Commissioned by CgMs for Barratt Eastern Counties, the excavation was centred on NGR 528500 262500 and covered a development area of approximately 21 hectares (Figure 1). The site lies between 41.5m OD and 51m OD along the crest of a ridge, on geology comprising Oxford Clay overlain by Boulder Clay drift (British Geological Survey Sheet 187). The excavation was divided into three distinct areas totalling 4.7ha, Areas A, B and C (see Figure 1). The majority of the work was undertaken in 2008; however, an area under a series of overhead cables was excavated in 2010 in conjunction with an extension to Area A.

Human activity spanning the Mesolithic through to the post-Medieval period was identified during the course of the excavation, activity that began with the seasonal use of the ridge during the Mesolithic period. A small Middle Iron Age settlement subsequently developed into a Romano-British farmstead, with a further example 500m to the south. Following the decline of these farmsteads, elements of an early Medieval settlement were recorded to the north around the church of St. Peter (see Figures 1 and 2). Although the excavation at Summersfield provided a tantalising insight into a large swathe of human history, it was during the Middle Iron Age and Roman periods that the ridge was most intensively occupied. Consequently this paper will focus on these periods.

Phase 1: Later Prehistoric Summersfield

Small scale activity at Summersfield dates back to the Mesolithic. Flint recovered from natural features such as tree-throws, and residually within later features, probably represents the periodical or seasonal use of the landscape. A cluster of features, F.315, F.418, F.464, F.465, and F.477 (Figure 3) and residual material from later structures (such as Structure 1 see below) also indicates that the ridge was potentially occupied during the Late Bronze Age/Early Iron Age. However, the limited evidence suggests it was not being extensively utilised and it is during the Middle Iron Age that the first permanent settlement appears. This pattern of occupation appears to have been typical.

The Middle Iron Age settlement remains comprised five structures (1–4 and 6) and a series of four enclosures (I, II, III and XXIX), which would appear to represent two distinct phases of occupation (Figure 3); one comprising roundhouses forming part of an 'open settlement' with no contemporary enclosures and another characterised by enclosed compounds. Within the 'core' of the settlement there seems to have been a one to one replacement of each structure with an enclosure, with Structures 2, 3 and 6 being replaced by Enclosures II, III and XXIX.

Phase 1a: The Open Settlement

In terms of the layout of the open settlement, three of the structures (2, 3 and 6) were clustered together just off the ridge's northeastern edge and appear to represent the core of the settlement, while the remaining two structures (Structures 1 and 4) were situated to the north and south respectively. Structure 1 lay within the area of Late Bronze Age activity (and produced residual pottery of this date); its location could indicate that it was one of the earliest structures.

Each of the five roundhouses was of a comparable construction with a circular ring-gully encompassing an area of 80m² to 109m² (see Table 1). There was no evidence for any arrangement of posts either inside or outside the gullies, and there were few associated internal features. Burnt stone pits were recorded within two of the structures (1 and 3), and the remnants of a single posthole were identified near the entrance to Structure 6. Although each structure was constructed in a similar manner, three different orientations were identified from their entrances with Structures 2, 3 and 6 broadly the same; this might suggest that these particular structures were constructed at similar times.

Table 1. *Comparative dimensions of the ring gullies forming the five roundhouses.*

Structure	Max Width (m)	Max Depth (m)	Diameter (m)	Area (m²)	Orientation
1	0.55	0.25	10.40	80	NW
2	0.75	0.25	12.25	109	E
3	0.40	0.20	10.50	106	ESE
4	0.49	0.17	9.50	85	SE
6	0.75	0.35	10.69	108	WNW & ESE

The structures were all very similar in their morphology and preservation, with the only real difference being in the elements that survived. Structure 6, however, was slightly different in that it had two opposing entrances facing northwest and southeast. Although its size was similar to the other roundhouses the defining ring gully was very well preserved, representing a deep cut gully which produced a greater quantity of material than any of the others, with 90 sherds (313g) of pottery, 35 fragments (110g) of animal bone, and 63 pieces (119g) of burnt clay. In addition pit F.507 contained 262 sherds (501g) of pottery, a marked contrast to the other structures, and possibly a result of the better level of preservation, although the reasons for this were not clear.

Eleven small burnt stone pits were also located across the ridge (see Figure 3). Three of the pits appeared to be directly associated with structures (F.80, F.350, and F.481); another six were located in two clusters of three; F.306, F.309 and F.313 to the north of Structure 1, and F.443, F.444 and F.445 to the north of Structure 6. Although only one of the pits contained datable material, two were located within Middle Iron

Figure 1. *Site location. (TOP) Summersfield in the wider landscape; (BOTTOM) the excavated areas and all excavated features.*

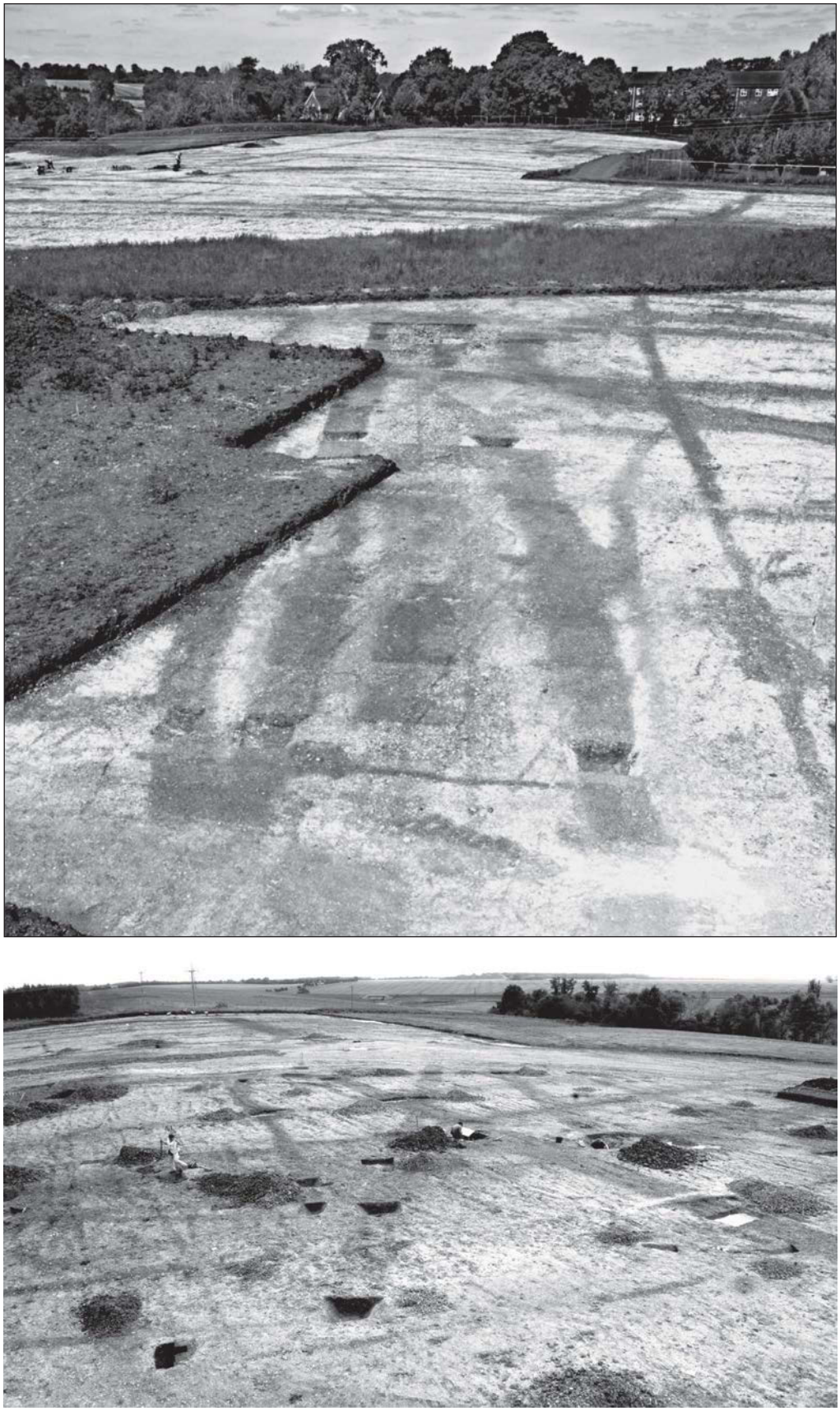


Figure 2. *Top: Excavation of Area A with the Roman track in the foreground and St. Peter's church in the distance. Bottom: Excavation of the 'nested' Roman enclosures.*

Age structures (F.350 in Structure 1 and F.481 in Structure 3), whilst one of the cluster of three to the north of Structure 6 (F.443) was cut by Enclosure XXIX's ditch (F.442), strongly suggesting the features belong to the 'open settlement' phase. There was little indication of the function of these pits, but the fact that they contained only burnt and fire-cracked stone may suggest they were cooking pits, associated with the Iron Age settlement.

Phase 1b: Enclosed Settlement

The unenclosed roundhouse settlement was replaced by a series of compounds (Enclosures II, III and XXIX) sited within the core of the preceding open settlement. The compounds survived as a series of three enclosures (see Figure 3), located in the northeastern corner of a fourth, much larger, enclosure (Enclosure I), which may represent the remains of a more extensive field system (see Table 2).

Table 2. *Iron Age enclosures (numbers in italics represent partially exposed sections).*

Enclosure	N-S (m)	E-W (m)	Area (m^2)
I	*40*	*80*	3200
II	20	22	289
III	12	16	223
XXIX	13	12	195

Enclosures II, III and XXIX were all of similar sizes but with differing characters. Enclosure II was almost triangular in form with a curved northwest corner and an entrance at the southern tip. A single re-cut was recorded along the centre of the original enclosure ditch, which on occasions extended outside the original ditch line, suggesting that any bank was inside the enclosure. Enclosure III was 'C'-shaped with its entrance/open side to the east. The ditches of Enclosure II and III ranged from 1.97m to 2.6m wide and 0.99m to 1.48m deep, much more substantial than any of the other enclosures. The western side of Enclosure III also formed part of a later Early Roman trackway, suggesting that either the track existed during the Iron Age and continued into the Roman period or that it incorporated and respected a pre-existing boundary that was still extant. Enclosure XXIX was a small sub-square enclosure formed by a single ditch (F.442) with a northeast-facing entrance; once again the western edge of the enclosure had been subsumed by the later trackway.

Only Enclosure XXIX had any internal features providing potential evidence for an internal structure – the remnants of a shallow gully (F.503) – and it is possible that, as with Structure 6, which it 'replaced', it represented the 'heart' of the settlement. Enclosures II and III may have been 'domestic', although they may also have been either for livestock corralling, or for grain storage (a sample from Enclosure II contained silicified awns representative of the first stages of cereal processing).

Enclosure I was significantly bigger than any of the others and was the only enclosure not fully exposed. This appeared to be part of a much larger boundary and drainage system, which extended down the slope and would have funnelled water off the ridge, and away from the settlement. Enclosures II and III cut Enclosure I and it is possible that it formed part of a field system with the enclosure compounds (II and III) located within its western corner. With no direct relationship to Structures 2 and 3, which were also cut by Enclosure II, it is possible that Enclosure I represents the corner of a field that was present throughout both Phases 1a and 1b.

Phase 2: The Romano-British Farmsteads

The area saw the adoption of a more 'structured' layout towards the end of the first century BC. Settlement activity was at its height during the Early Roman period (mid first to second century AD) and declined in the later Roman period (second to fourth century AD). The earlier Iron Age roundhouses and enclosures gave rise to a well-defined farmstead and associated routeway, and a probable second farmstead to the south (see Figure 4).

The track is assumed to have forked off Ermine Street at the southeast end of the site, following the contour of the ridge to the northwest over a distance of at least 541m. It comprised two sets of parallel ditches set *c.* 5m to 8m apart with traces of a metalled surface. The surface only survived within Area A, where it was very patchy, with excavated sections revealing a series of successive layers of gravel overlain by much larger pebbles. The track followed the contours of the ridge within each area and the parallel ditches comprised multiple segments with causeways and re-cuts. Within Areas A and C where the track was adjacent to a series of farmstead enclosures, the ditches were larger than elsewhere. Although the route of Ermine Street is assumed to have always been in its current location to the east, it is possible that this trackway represents the original line of the Roman road.

A total of 20 ditched enclosures extending from the track were recorded (Table 3). The enclosures can be divided by function into four differing types; settlement related, horticultural, crop processing zones, and paddocks for the management of livestock, collectively these represented two farmsteads, the cores of which were *c.* 500m apart.

The Northern Settlement (Area A)

Nine settlement enclosures were identified within Area A (Enclosures IV to XII), representing at least four successive phases of activity. Enclosures IV, V, and VI were 'nested' together towards the northern edge of the trackway, and represented the earliest three phases of the northern farmstead (Phases 2a (V), 2b (VI), and 2c (IV)): a succession of enclosures spanning the Late Iron Age into the early Roman period, with each enclosure marking a slight shift in the orientation from the NW-SE alignment of the Iron Age settlement to the E-W alignment of the early Roman farmstead. The remaining enclosures were assigned to a fourth, early Roman phase (Phase 2d) when the farmstead was at its height with all of the different elements noted above. By the later Roman period the scale of the settlement had diminished with few of the settlement enclosures still in use. The cutting of a large quarry pit, F.48, through the trackway in Area C suggests that this too was no longer in use.

The core of the farmstead appears to have been Enclosures

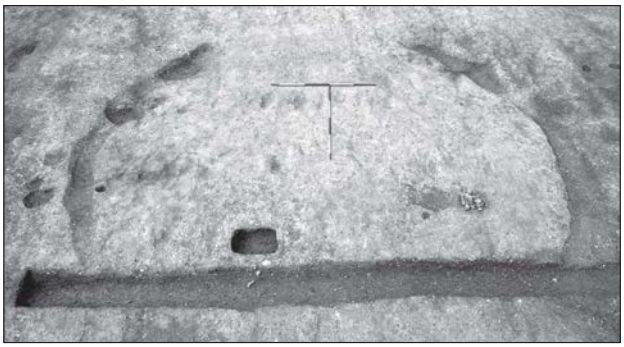


Figure 3. *Later Prehistoric Summersfield. Top: the spread of activity across the ridge is apparent from Area A to C with the settlement core showing the development from open core to enclosed settlement; Above: Structure 1 showing the burnt stone pit F.350 and the stones recovered from it, in the foreground is the Roman ditch that cuts through it; Right: Structures 2 and 3 with the later enclosure ditch F.242 cut between them.*

	Enclosure	N-S (m)	E-W (m)	Area (m²)	Area	Function
Northern Settlement	IV	68	80	5440	A	Settlement
	V	52	32	1664	A	Settlement
	VI	48	40	1920	A	Settlement
	VII	20	64	1280	A	Settlement
	VIII	8	8	64	A	Settlement
	IX	*12*	40	*480*	A	Settlement
	X	8	10	80	A	Settlement
	XI	*24*	*60*	*1440*	A	Settlement
	XII	44	60	2640	A	Settlement
Southern Settlement	XIII	41	37	1517	C	Processing
	XIV	31	46	1426	C	Processing
	XV	*20*	22	*440*	C	Processing
	XVI	13	30	390	C	Processing
	XVII	*60*	*35*	*2100*	C	Processing
	XVIII	49	*80*	*3920*	C	Horticulture
	XIX	*46*	*68*	*3128*	C	Horticulture
	XX	*17*	*29*	*493*	C	Stock
	XXI	*11*	*26*	*286*	C	Stock
	XXII	*17*	*9*	*153*	C	Stock
	XXIII	*29*	*9*	*261*	C	Stock

Table 3. *Romano-British enclosures, component features and area enclosed (numbers in italics represent partially exposed sections).*

VII to XII, while Enclosures VII, VIII and XII appeared to form the main 'settlement compound'. Enclosure VII was a narrow rectangular enclosure, which potentially enclosed the primary building while a smaller structure could have been located in Enclosure VIII. At some point this compound was expanded and Enclosure XII was constructed, the small fragmented ditches and gullies within possibly indicating the presence of further structures in this enclosure.

A series of gullies (F.224, F.392, F.399, F.403, F.404 and F.405) within Enclosure XII probably represented a series of successive alterations to its layout. Evidence for a possible timber structure in this area was recorded, with a series of shallow beam slots identified during the evaluation; however, no direct evidence for any structures or buildings was encountered in the main excavation (Pocock 2007). Despite the absence of definite structural features, a comparatively large quantity of material was recovered from Enclosure XII, which is indicative of settlement and suggestive of the presence of a structure. A total of 341 sherds (2288g) of pottery and 1625 fragments (11,731g) of animal bone were recovered from the enclosure ditches, along with 11 pieces (62g) of burnt clay, a fragment (48g) of tile, and a fragment (3500g) of quernstone. Artefact densities also suggest that a structure may have been located within Enclosure VIII. The material recovered from its boundary ditch (F.212) included a glass bead (a single early Roman melon bead of turquoise frit; Fig. 8.9, identified by V. Herring), 131 sherds (1185g) of pottery, 108 fragments (358g) of animal bone and four pieces (39g) of burnt clay, with a greater concentration of animal bone recovered from this enclosure than elsewhere (8% of the total animal bone recovered) representing probable 'household' waste (Rajkovača, below).

The Southern Settlement (Area C)

Horticultural activity was identified in Enclosures XVIII and XIX as a series of parallel northeast-southwest gullies within the southern half of Area C. Seven gullies had survived (F.14–F.18, F.20 and F.21) within Enclosure XIX that were aligned obliquely to the track, *c.* 4–5m apart. The remnants of only four gullies (F.106–F.108 and F.119) survived within Enclosure XVIII located towards the northeast edge of the excavated area, although in the absence of any divisions or other features it seems probable that the short lengths of gullies once extended across the entire enclosure. The linear features within both enclosures were part of a horticultural system; the remnants of raised or 'lazy-beds'. 'Lazy-beds' can be used on poorly drained soils such as clay, as the additional depth of soil helps to improve the drainage, and allows the soil to become warmer enabling a greater range of crops to be grown.

While evidence of crop processing was recovered from across the site in the form of fragments of quernstone (see Enclosure XII, for example), deposits containing large amounts of chaff suggest a defined crop processing zone was located in the northern half of Area C. The crop processing zone comprised five different enclosures, XIII to XVII, each varied in shape and size (Table 3) and was separated by a series of boundaries enabling access between the individual enclosures (Figure 4).

Within Enclosures XIII and XIV the remnants of two middens (F.127 and F.147/148) had been heavily truncated and survived only as shallow hollows (Figure 4). Despite the level of truncation, a large quantity of material was recovered from the charcoal rich deposits within the hollows (Table 4). The majority comprised pottery, which accounted for 90% by weight, whilst animal bone accounted for 4%. The low percentage of animal bone suggests that the enclosures had

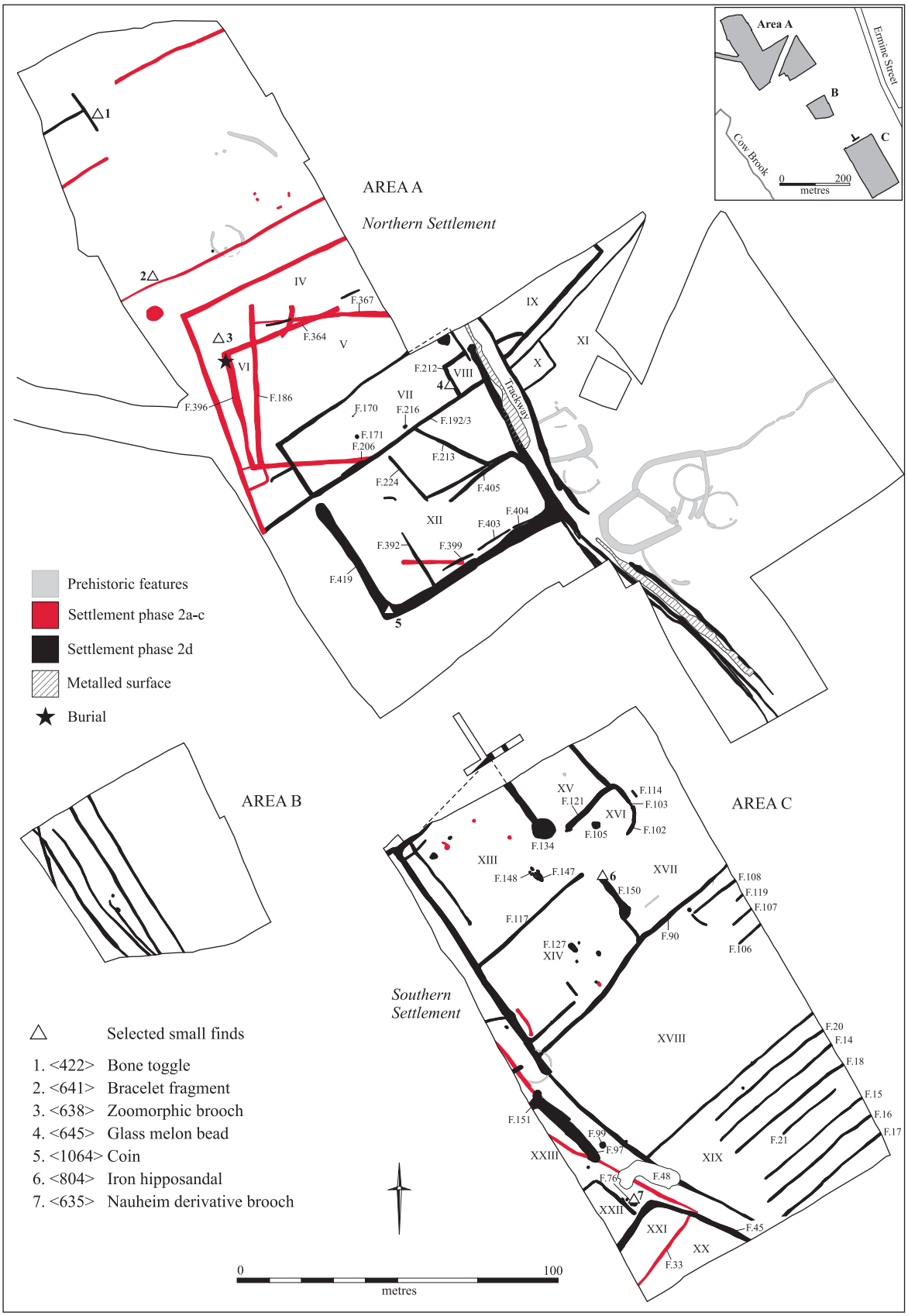


Figure 4. *The Romano-British farmstead. The areas have been shown disjointed to better illustrate the features within, it is still possible to distinguish the settlement and non-settlement enclosures and the connecting track that forms the spine of the site.*

no domestic function and there were no obvious structures within either of the enclosures to account for the midden material, although it was possible they may have been lost through truncation. Both midden remnants were situated towards the eastern edge of the enclosures, away from the track and towards Enclosure XVI and may represent dumping episodes or processes associated with the activities occurring within the centrally located Enclosure XVI.

Table 4. *Finds quantities from the middens.*

	Pottery	Bone	Burnt Clay	Metal	Glass
F.127	74 (376g)	8 (54g)	-	2 (8g)	-
F.147	42 (258g)	5 (4g)	3 (6g)	-	-
F.148	176 (858g)	3 (5g)	20 (52g)	7 (30g)	1 (1g)

Environmental assemblages suggest that the crop processing activity was centred on Enclosure XVI. Pit F.105 was purposefully backfilled with waste material from cereal processing, (predominantly spelt, see deVareilles below), including large amounts of chaff. The enclosure ditches also contained charcoal/chaff rich deposits with higher concentrations in the entrance terminals. To the northeast of the enclosure, and cut parallel to the entrance, was a short ditch F.114. The deposit within this feature was charcoal/chaff rich, as was also recorded for pit F.105. At some point the entrance to the enclosure was sealed when a short linear feature F.103 was cut across the entrance. In addition to cereal processing, the burnt deposits appear to indicate that the crop processing waste may have been burnt as a fuel for some other industrial activity, possibly malting. Quantities of brick and tile recovered from pit F.105, although in small quantities, could be the remains of a small brick built structure, possibly where the cereal was being processed.

A further four enclosures (XX to XXIII) were identified towards the southwest corner of Area C, abutting the track, which appeared to represent part of the core of the southern farmstead, although may also have been partly reserved for stock, with the settlement area lying further to the south. Each enclosure had an entranceway enabling access to the track. The close proximity to Ermine Street would have made it easier to move livestock over greater distances and to make use of potential trade routes. A single horse skeleton was recovered from the juncture of F.97 and F.151, which was the only articulated animal skeleton recovered from the site. Horse bone was evident in significant quantities in the faunal assemblage, accounting for *c.* 19% of the total number of bones recovered. Along with the presence of a hipposandal from F.150 (Appleby below), the material suggests that horses may have played an important role in the economy of the southern settlement at least.

Together, the two settlement areas indicate a mixed economy with specialist crop production and processing. The enclosures within Area A represent the focus for the northern farmstead, with the farm buildings located on the higher ground. The settlement was serviced by a track that appears to have forked off Ermine Street, aligned along the top of the ridge. The settlement within Area C may suggest a more mixed economy, with horticultural and cereal processing practices evident, whilst the animal bone recovered shows that livestock, and in particular cattle, were managed and poultry was kept (Rajkovača, below). All of this suggests that the settlements were probably small and self-sufficient farmsteads with family compounds that may have continued for several generations.

A single burial was recorded during the excavation within Area A, cut into the northwest corner of Enclosure VI (see Dodwell 2009); an adult male [1634] was buried within a shallow sub-rectangular grave F.396 with head to the NW (see Figure 5). The skeleton was positioned in a flexed position on its right side facing west. The soil conditions resulted in poorly preserved bone, while the head had been crushed post-deposition. The teeth were worn, with some calculus and antemortem loss, but no other patholo-

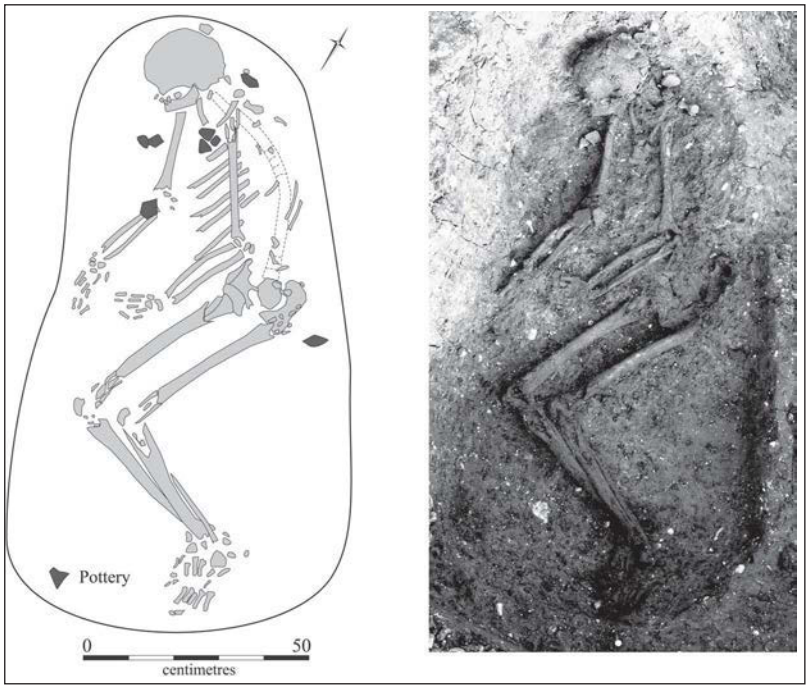


Figure 5. *The only burial encountered during the excavation was that of an adult male who had been buried with a 'sprinkling' of pottery.*

gies were recorded. Several body sherds of broken Romano-British pottery were recovered with the skeleton and the relationship between the pottery and bone suggests they were deposited together with the pottery spread around and over the body.

The settlement continued in use into the late Roman period and elements of the trackway were still being recut, especially within Area C, which suggest that it was still being used as a routeway. The stock enclosures also appear to have continued in use. Towards the end of the settlement's lifespan, a large amorphous pit F.48, 18.75m long by 6.25m wide and 1.35m deep (Figure 4), was excavated across the trackway. Cut into the boulder clay, the pit may have been excavated to extract clay. A similar feature was recorded at Childerley Gate, Cambridgeshire where it was interpreted as a marl quarry (SG45 in Abrams & Ingham 2008). What the material extracted from the pit was used for is unclear, however, it does indicate that the track may have been waning in significance, and that indeed the importance of the farmstead was diminishing. It was not until the early Medieval period that activity occurred again at Summersfield.

Phase 3: The Early Medieval Village

Activity spanning the tenth to eleventh centuries AD was confined to Area A and did not extend to the south. A total of five enclosures and two structures were identified, which appeared to represent the fringe of settlement focused around the Church of St. Peter with two phases of enclosure evident (Figure 6). There was no evidence for the continued settlement of the ridge between the Romano-British period and the tenth century. The settlement at this time was probably small and its core located beside the Cow Brook to the south of the church and west of the site where the Historic Environment Record records the earthwork remains of a shrunken Medieval village (HER 02469). However, a degree of landscape continuity is evident in that the large boundary ditch of Enclosure XII survived as an earthwork and was incorporated into the early Medieval system.

Five enclosures were assigned to the early Medieval period with one assigned to Phase 3a of the enclosure system and four to Phase 3b (Table 5).

Table 5. *Early Medieval enclosures, component features and area enclosed (numbers in italics represent partially exposed sections)*

Enclosure	N-S (m)	E-W (m)	Area (m^2)	Area	Phase
XXIV	14	*18*	*252*	A	3b
XXV	60	24	1440	A	3b
XXVI	102	58	5916	A	3b
XXVII	*21*	*40*	*840*	A	3b
XXVIII	120	48	5760	A	3a

The first phase of the enclosure system (Phase 3a) was evidenced by one enclosure, XXVIII, which had undergone several re-cuts. Although not a direct continuation of the Roman enclosure system, the enclosure occupied the same alignment and elements of the earlier system did survive. A sample from a small pit F.335 within Enclosure XXVIII was grain-rich, yielding predominantly free-threshing wheat (de Vareilles below). In close association with the pit was F.352, a small sub-rectangular pit that contained a single sherd (4g) of residual Romano-British pottery and six fragments (8g) of animal bone. A sample from the pit had a comparable assemblage of free-threshing wheat. The assemblage from F.352 was suggestive of 'household' waste (*ibid*.) and it would seems feasible that together these features may have formed the remnants of an early Medieval structure (Structure 7), which coincidentally occupied the same space as Iron Age Structure 1.

Phase 3b marked a subtle shift away from the Romano-British alignment and comprised Enclosures XXIV to XXVI, each of varying size (Table 5). These enclosures represented smaller land divisions, possibly indicating the expansion of the settlement core around the Church of St. Peter and its slight encroachment into Summersfield. Enclosures XXIV and XXV were situated at the northern end of Area A where activity was densest. Enclosure XXIV was rectangular in form and despite the lack of internal features, the quantity of artefactual material recovered (Table 6) suggested that it was in close proximity to the settlement. Immediately to the east Enclosure XXV was an 'L'-shaped enclosure. A single narrow linear gully (F.287) was the only internal feature and appeared to represent the beam slot (*c.* 6m long) of a rectangular structure (Structure 5) situated within a corner of the enclosure; the rest of the structure had been lost. Structure 5 was one of only two structures dated to this period and represented the margins of the settlement. The deposits associated with these two enclosures were all 'dark' and indicative of settlement, potentially middening activities.

Table 6. *Artefact numbers from early Medieval occupation enclosures and F.287.*

	Pottery		Bone		Other
	Number	Weight (g)	Number	Weight (g)	
Enclosure XXIV	80	516	51	310	2x burnt clay, 1x tile, 2x iron nails
Enclosure XXV	104	1230	157	1686	1x spindle whorl fragment, 1x oyster shell, 2x mussel shell
F.287	64	1394	22	40	2x burnt clay, 1x mussel shell

To the south the land appeared to have been divided for a different use as represented by Enclosures XXVI and XXVII, which were larger and more open than the settlement related enclosures. The enclosures were probably agricultural in function and were arranged along the ridge utilising aspects of the earlier Romano-British system. The southern corner

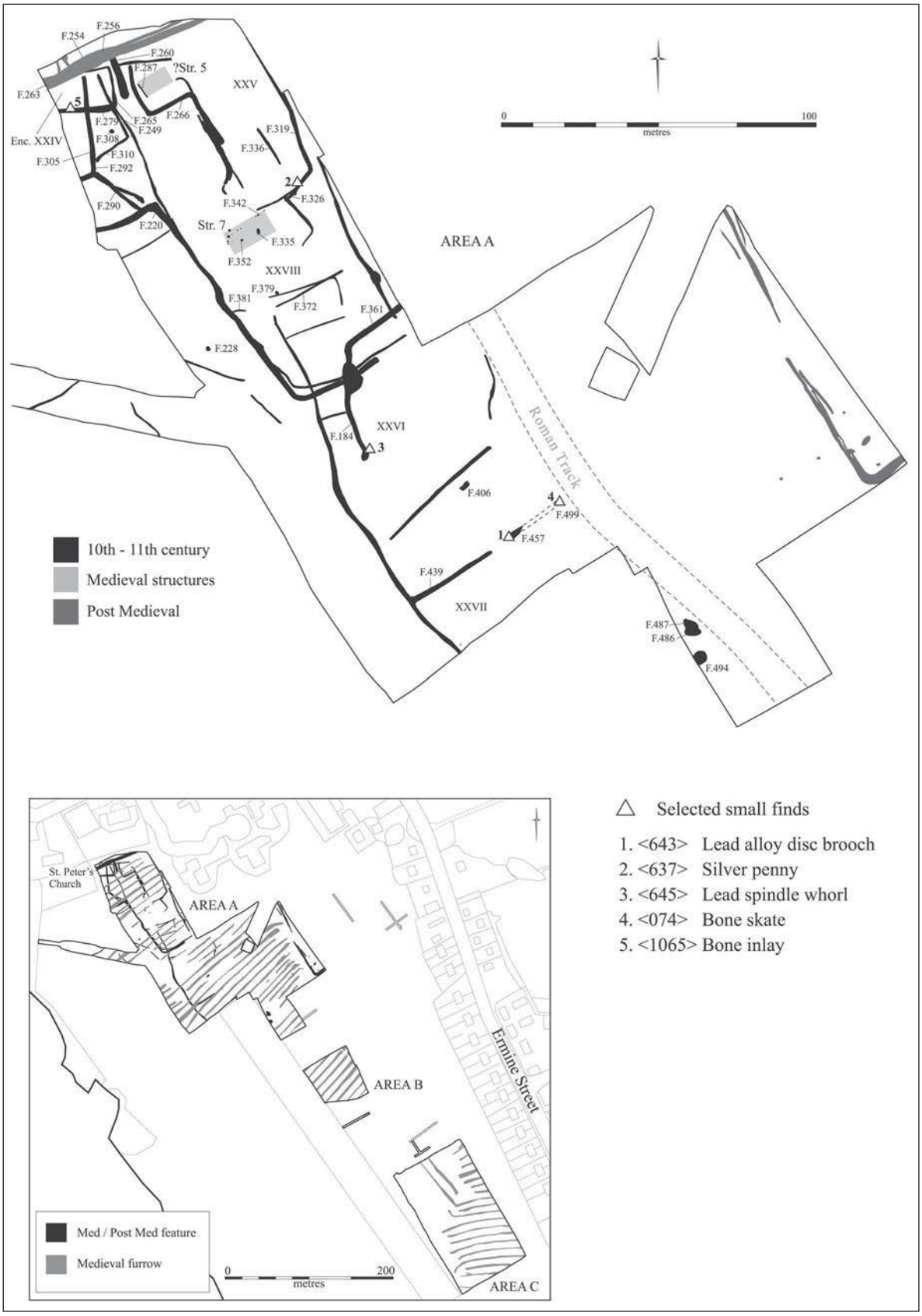


Figure 6. *The Early Medieval village. The course of the Roman track is shown, although its presence at this time cannot be confirmed, local tales of a track existing in the Medieval and later periods would suggest that it did in some form. The inset shows the later ridge and furrow system that imposes itself upon Summersfield.*

of Enclosure XXVI incorporated the large Romano-British Enclosure XII ditch, which must have remained as some form of earthwork. The lack of any early Medieval activity to the south within Areas B and C could suggest that these areas were used for pasture, whereas Enclosures XXVI and XXVII were potentially cultivated.

During a metal-detector survey of the site a bent and clipped silver penny dating to the reign of Æthelred II (AD 978–1016) was recovered from F.319. The coin was minted *c.* AD 978/979 and may be a *First Small Cross* type of the Norwich moneyer Osferth (Blackburn & Allen in Patten 2009). Of comparable date to the silver penny, and also recovered during metal detection, was a section of lead-alloy decorated circular disc brooch or pendant from F.457. The brooch is comparable to examples from Coppergate in York (Mainman & Rogers 2000), Barwick in Norfolk (*ibid*.), and Winchester (Biddle 1990), which are all dated to the ninth to tenth century AD (see Appleby & Hall below).

Phase 4: Medieval Farming
(with David Hall)

The focus of the tenth- to eleventh-century settlement shifted during the remainder of the Medieval period, when it contracted around the Church of St. Peter and the Cow Brook to the west. Furrows of medieval strip fields covered the whole site and the dating of these systems has been of interest for more than a century (Gray 1915, 403–418; Hall 1981). In the 1970s it became clear that in parts of the East Midlands medieval fields lay over Middle Saxon sites, and were therefore later (Hall 1995, 129–31). The site at Summersfield shows that, as the main post-Roman features date from the tenth to eleventh century, the strips were probably being laid out in the late eleventh or twelfth century. This is a late date for field genesis at the core of a settlement, since national historical evidence shows that strip fields lying in intermixed holding occur by the tenth century. Perhaps Papworth is best explained as the result of settlement re-planning that left this part of the village unoccupied in terms of dwellings and tofts, the 'space' being added to the existing open fields. Saxon settlement re-planning occurred at Cottenham and has been found elsewhere. At West Fen Road, Ely, the eastern part of the Saxon and Medieval site, abandoned in the twelfth century lay under ridge and furrow, so there is a parallel for settlement relocation and land being taken into the open fields (Mortimer *et al*. 2005, 45 & fig. 3.11). The site at Summersfield provides another example of this process occurring in about the twelfth century.

The Finds

Due to restrictions of space only the main artefact assemblages are reported here, along with a brief summary of other material recovered. The methodologies of the specialist contributions and the full specialist reports, including the detailed tables of results, are available in the site archive (SPA08).

The Prehistoric and Roman Pottery
Katie Anderson with Matt Brudenell

A total of 3065 sherds of pottery (22,852g) were recovered from the excavations, representing an estimated vessel equivalent (EVE) of 34.9. The pottery ranged in date from the Late Bronze Age/Early Iron Age through to the later Roman period, the bulk of the assemblage being of mid first- to second-century AD in origin (Table 7). For the purposes of this report the prehistoric pottery is described very briefly, with greater emphasis given to the Roman component.

Table 7. *All pottery by date. MSW= mean sherd weight.*

Date	No.	Wt. (g)	MSW (g)	% of Total
LBA or EIA (*c.* 1100–350 BC)	121	424	3.5	3.9
MIA (*c.* 350–50 BC/AD 50)	574	2251	3.9	18.7
LIA (*c.* 50 BC–AD 50)	155	993	6.4	5.1
Latest IA/ER (first century AD)	481	2598	5.4	15.7
ER (mid first–second AD)	1098	9955	9.1	35.8
Second–fourth century AD	636	6631	10.4	20.8
TOTAL	**3065**	**22852**	**7.5**	**100.0**

Late Prehistoric pottery

A small quantity of Late Bronze Age or Early Iron Age pottery was recovered from five features, none of which can be closely dated, and some of which have been illustrated (see Figure 7). The material was characterised by small sherds in a combination of flint-, shell- and/or grog-tempered fabrics (Table 8). F.418 yielded 59 sherds (103g), most of which appeared to derive from a single plain rimmed coarseware bowl or jar, with flint, shell and grog inclusions. The only other assemblage of note was recovered from F.464. This contained 44 sherds (247g) of a similar flint-, shell- and grog-tempered fabric, most belonging to a large, doubled-handled coarseware jar.

The Middle Iron Age component was significantly larger, and accounted for 18.7% by number of the total assemblage. The pottery was dominated by small, fragmented body sherds (mean sherd weight of just 3.9g), few of which were diagnostic. Sandy wares with calcareous inclusions were most prolific, representing 56% of the Middle Iron Age assemblage. Other major fabrics included plain sandy wares (19%) and shell-tempered ware (18%). A number were decorated with scoring (16 sherds, 176g) or burnishing (68 sherds, 196g). Due to the poor condition of the pottery, only a small number of vessel forms could be identified, including a plain rimmed bowl and a series of slack-shouldered jars.

Pottery assigned to the Late Iron Age included both handmade and wheel-turned/thrown vessels. A number of fabric types were identified, but sandy ware dominated (48%), followed by shelly wares (19%) and grog-tempered wares

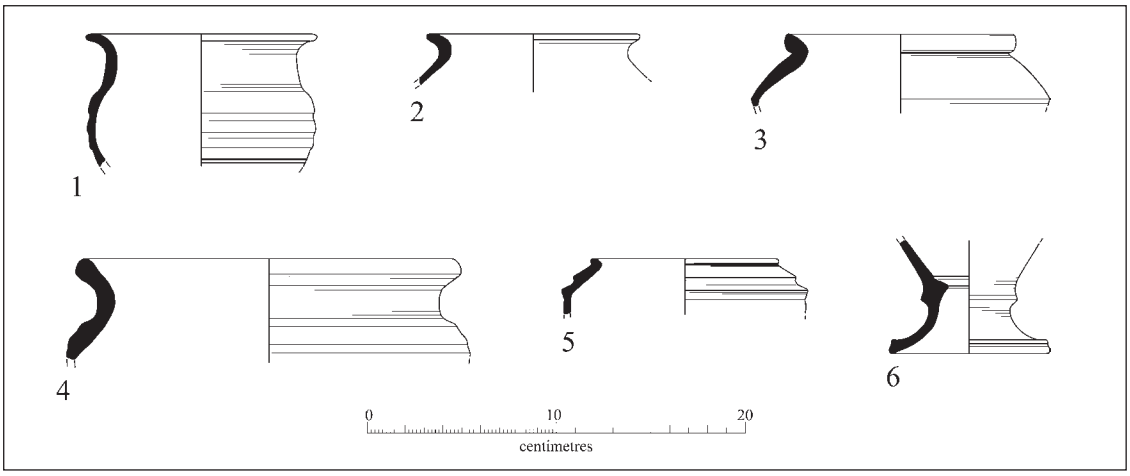


***Figure 7**. Examples of Iron Age pottery forms.*

(17%). As with the Middle Iron Age assemblage, few vessel forms were identified. These comprised a single carinated bowl, a dish and series of plain, combed and cordoned jars with everted rims. Two vessels were burnished, two displayed combed decoration, and three sherds had surviving carbonised residues.

***Table 8.** All Iron Age sherds by fabric.*

Fabric	LBA or EIA No./Wt (g)	MIA No./Wt. (g)	LIA No./Wt. (g)
Calcareous and sand	-	323/996	19/57
Flint and shell	44/247	10/58	-
Flint	18/74	-	1/1
Flint, shell and grog	59/103	-	-
Grog	-	12/51	27/136
Sand	-	108/419	74/629
Shell	-	106/663	30/148
Vegetable and sand	-	15/64	-
Other	-	-	4/22
TOTAL	**121/424**	**574/2251**	**155/993**

Most of the pottery derived from the enclosures on the site. In total, 96 sherds (302g) were recovered from contexts associated with Enclosure II; the balance of material suggests an origin in the first century BC, with activity continuing into the early first century AD. A further 68 sherds (356g) were recovered from Enclosure III, including the partial profile of a scored jar. This compound can only be broadly dated to the Middle Iron Age, *c.* 350–50 BC, as could Enclosure XXIX. However, this yielded a slightly larger assemblage of 107 sherds (527g), including two slack-shouldered jars as well as fragments of a further four vessels.

Few of the other individual Middle to Late Iron Age feature assemblages warrant discussion, since each yielded less than 100g of pottery. The only exceptions were Structures 3 and 6. Structure 6 contained a relatively large assemblage, totalling 199 sherds (749g). The material comprised mainly small fragmented sherds, with most of those from F.505 deriving from a single flat-topped, angular rimmed jar. The ring-gully of Structure 3 yielded 68 sherds of pottery (112g) in shell- and sand-tempered fabrics, a small number of which were scored.

Roman pottery

Pottery dating to the Late Iron Age/early Roman period (mid–late first century AD) accounted for 15.7% by number of the total assemblage. Material in this category was characterised by predominantly wheel-made vessels (although this sometimes included handmade sherds), which have either Iron Age fabrics with Romanising forms, or Romanising fabrics in Late Iron Age forms. This material broadly dates *c.* AD 30–70, although in Cambridgeshire it is common for 'Romanising' material to appear as late as the 60s AD, rather than immediately after the Roman conquest. Sandy fabrics were the most commonly occurring, representing 75% of the pottery (by number), while shell-tempered wares totalled 18%. The mean sherd weight of this group was still relatively low (5.4g), although there were more diagnostic sherds, including three bowls, two beakers, one dish and 12 different jars. A small number of sherds were decorated with burnishing and/or combing, whilst useware evidence was limited to one sherd with thick interior limescale.

Early Roman pottery (mid first–second century AD) accounted for the largest quantity of material representing 35.8% by number of the assemblage, with the second highest mean weight of 9.1g. There was a large increase in the number of vessel fabrics and forms, including non-local wares and imported wares. The variety of vessel fabrics not only reflects the increase in production seen at the beginning of the Roman period, but access to wider trade networks via Ermine Street. Coarse sandy greywares were the most commonly occurring fabric type with a total of 420 sherds (2793g), representing 40% of the early Roman pottery. Other fabrics likely to have been made locally included sandy whitewares (85 sherds, 766g), black-slipped wares (65 sherds, 508g), buff sandy sherds (52 sherds, 319g) and shell-tempered vessels (29 sherds, 667g). Non-local wares in this period included Verulamium whitewares, which totalled 61 sherds (1321g). There were also early Roman imported wares, comprising 30 South Gaulish Samian sherds (244g)

and four Gaulish amphora sherds (2793g). One of the Samian vessels had been repaired with a rivet and resin. In total, 60 vessels were identified, and although the assemblage was essentially jar-dominated, a variety of other forms were present: three amphora sherds (it is unclear whether these were from a single vessel), five beakers, 15 bowls, two cups, three dishes, seven flagons, three lids, three mortaria and two platters. A higher incidence of usewear was noted in this assemblage, although this is likely to be due to the larger quantity of pottery. Two sherds had interior limescale, while there were several sherds with carbonised residues. A small number of sherds were also noted as having post-breakage burning, though there was no evidence that this was *in situ*.

A total of 636 sherds, (6631g) were recorded as later Roman (second–fourth century AD), including pottery that could only be given a broad 'Romano-British' date. As with the Early Roman material, a variety of vessel fabrics and forms were represented. Sandy greywares dominated, which is typical of the period. Also present within the assemblage was material from some of the large Romano-British industries, including Nene Valley colour-coats (179 sherds, 844g) and Horningsea greywares (17 sherds, 382g). Notable too is the increase in the number of shell-tempered sherds (68 sherds, 1841g), which is a common pattern seen in the later Roman period across Cambridgeshire. Furthermore, a relatively large number of imported wares were recovered, comprising primarily Central Gaulish Samian (82 sherds, weighing 856g) and including two vessels with complete stamps. Both were Dragendorff 33 cups, one with a stamp 'MARTIANI.M' (Figure 8.5), which has a broad date of AD 120–210 (www.terra-sigillata.org), the other with the stamp 'ALBVCIANI' (Figure 8.4), dating AD 140–190 (*ibid.*). Two of the Samian vessels showed evidence of repair: one Dragendorff 31 dish with a repair hole and one Dragendorff 18/31 dish with three rivets (see Figures 8.1 and 8.2). The assemblage also contained a trimmed base and several sherds with exterior sooting.

Overall, a range of vessel forms were identified, including eight beakers, five bowls, six cups, 27 jars and three mortaria. The pottery in this group is broadly dated second–fourth century AD. The bulk of the material, however, belongs to

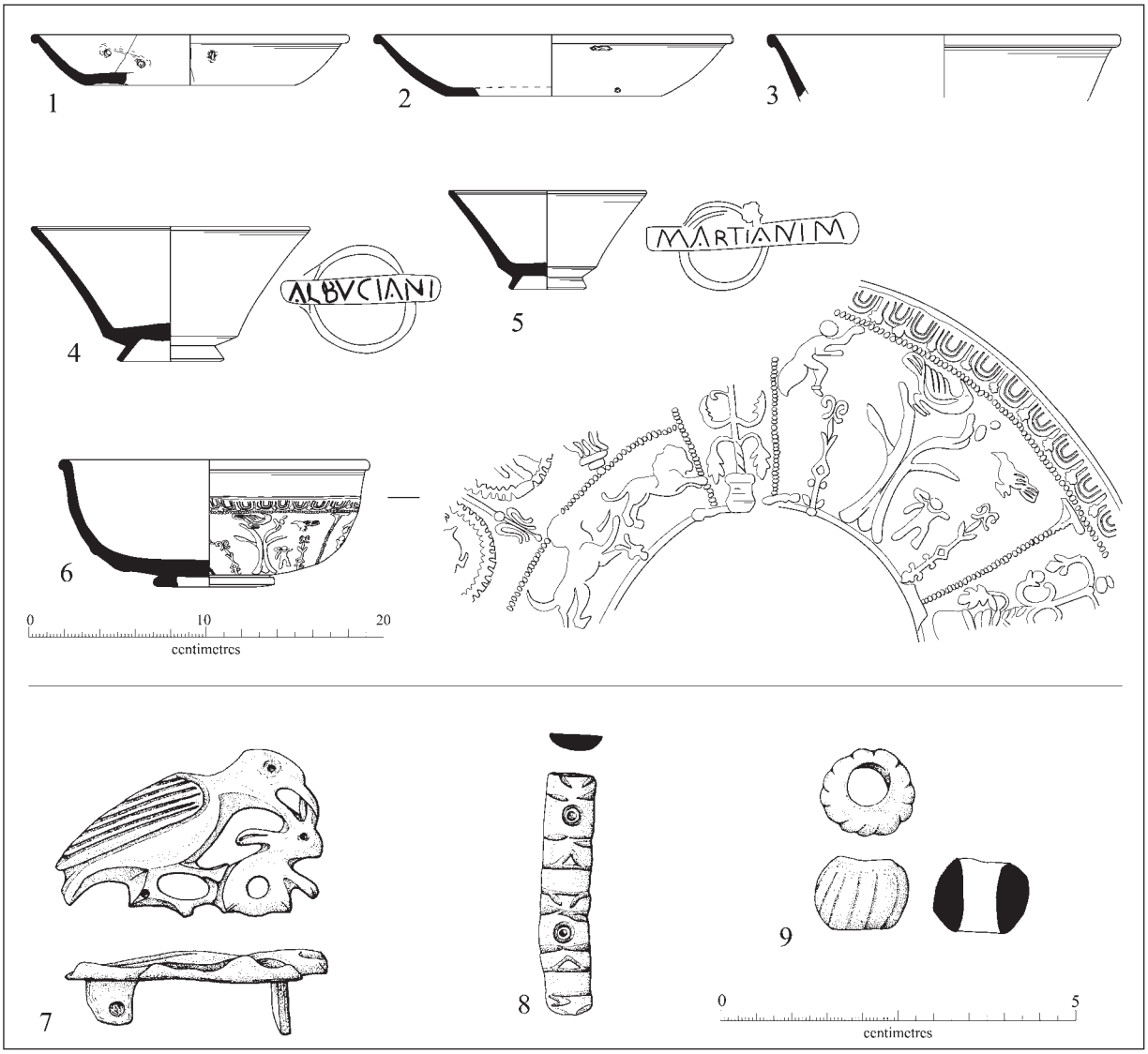


Figure 8. *Roman finds. Top, the Samian ware pottery recovered; bottom, Eagle and Hare zoomorphic brooch (7), a fragment of ring-dot traverse and chevron decoration (8), and a melon bead (9).*

the second–third century AD, with just a few sherds that could be dated third–fourth century AD, including two Nene Valley vessels. That being said, the condition of the assemblage may skew the results somewhat, as even though this group had the highest mean weight at 10.5g, this is still relatively low figure, and approximately 50% of the pottery was non-diagnostic.

The bulk of the pottery recovered from Papworth dates from the Middle Iron Age to later Roman period, with only a minor Late Bronze Age or Early Iron Age component. Whilst this earlier material hints at sporadic (seasonal?) activity on the site, the quantities of pottery deposited from the Middle Iron Age onwards testify to more permanent modes of occupation. The overall character of the Middle Iron Age assemblage is fairly typical for southern Cambridgeshire, and includes a relatively narrow range of mainly open, ovoid and globular vessels with weakly defined shoulders. Most of these handmade forms continued to be made through the Late Iron Age, where they occur alongside wheel-made vessels and grog-tempered 'belgic' pottery at Summersfield. Because of the co-existence of these two ceramic traditions, it can sometimes be difficult to untangle the internal chronology of sites, particularly when dealing with assemblages of modest size. Though it seems likely that some component of the site was in use during the second or possibly third centuries BC, the balance of evidence suggests that activity intensified towards the end of the first century BC, and continued to do so until the second century AD.

Although a relatively large quantity of Roman pottery was recovered, the assemblage suggests a fairly typical rural settlement, with a dominance of locally made coarseware vessels. Having said that, Samian represented approximately 7% of the assemblage (by number), which is actually slightly higher than the national pattern for rural sites, where frequencies are typically less than 5% (Willis 2005). This could be due to wealth, but is more likely to reflect the close proximity of Ermine Street, and the site's access to wider trade networks from early on in the Roman period. More broadly, it may also explain the relatively diverse range of vessels identified in this context.

In general, the ceramics suggest that the early Romano-British activity was concentrated in Areas A and C, while the later Romano-British activity was more focused on Area A, with some material entering pits in particular in Area C. This might reflect slightly different trajectories for the two settlements. At a more detailed level, there is little evidence from the distributional patterning of the pottery to suggest that specific areas of the site were being used for specific functions. Admittedly, in some parts of the site, a number of vessels are identified as having usewear evidence linking them to cooking activities. Notable in this respect are the midden features in the northwest corner of Area C, which contain a number of vessels with carbonised residues and/or limescale. Similarly, in Area A there was a wider dispersion of vessels with these forms of usewear. However, although those from Area C could be said to 'cluster', the vessels were located away from any structures and were generally found alongside larger quantities of pottery, suggesting they formed part of more generalised dumps of rubbish-type material.

The Post-Roman Pottery
David Hall

A total of 800 sherds (5912g) were recovered and of these 42 were seventeenth-century Glazed Red Earthenware (514g) and 10 were of nineteenth-century date (82g) leaving 748 early Saxo-Norman sherds (5316g). The bulk of the sherds consist of the three standard Saxo-Norman fabrics: St. Neots, Stamford and Thetford. They are well known, and fully described with references in the Cottenham Report (Hall 2000). Most pieces (701) consisted of a fairly uniform St. Neots type fabric. The vessel forms were typical; bowls with inturned and hammer-head rims, and jars with a variety of everted rims. There was one curfew piece from a medieval furrow (Figure 9.9).

Eight contexts in six features contained 27 sherds in a fabric similar to Lyveden (F.220, F.256, F.266, F.287, F.305 and F.310), with coarse shell fragments that distinguished them from the fine texture of normal St. Neots. A few had some shells partly leached out and were fired to an oxidised pink colour. Although superficially similar to Lyveden fabrics, typically dated thirteenth century, there is a marked absence of other twelfth- or thirteenth-century ceramic material at Summersfield. From their stratigraphic distribution in both early and late features it is concluded that the 'Lyveden' sherds are most likely a local form of St Neots fabric, and of similar date. There were eight pieces of Stamford Ware and 12 Thetford Ware types. The low number of these fabrics is consistent with Summersfield lying at the edge of their normal distribution area.

The dating of the sherds appears to be fairly early within the Saxo-Norman period (AD 850–1150). Seven contexts yielded St. Neots jar rims from small vessels (F.260, F.263, F.265, F.292, F.326, F.376 and F.439). These vessels are comparable to those found in pre-Conquest collections elsewhere (e.g. St. Neots (Hurst 1956, 67) and Cottenham (Hall 2000, 24)). At Cottenham, Stamford Wares did not appear in the earliest Late Saxon phase, but were present by the eleventh century.

Most of the collection seems to date from the tenth and eleventh centuries, and this is supported by the dating of the coin and brooch. The coin of Athelred II, 979/80, is unstratified, but is most likely to derive from the site rather than being a random stray object. The lead disc brooch is also likely to be of tenth century date according to its parallels (see Appleby & Hall below).

Metalwork
Grahame Appleby and Andrew Hall

Copper alloy
A total of nine pieces of copper alloy were recovered, primarily during metal-detecting. These included brooches, buttons, and a coin. Although the number of Romano-British metalwork finds was low, it is a

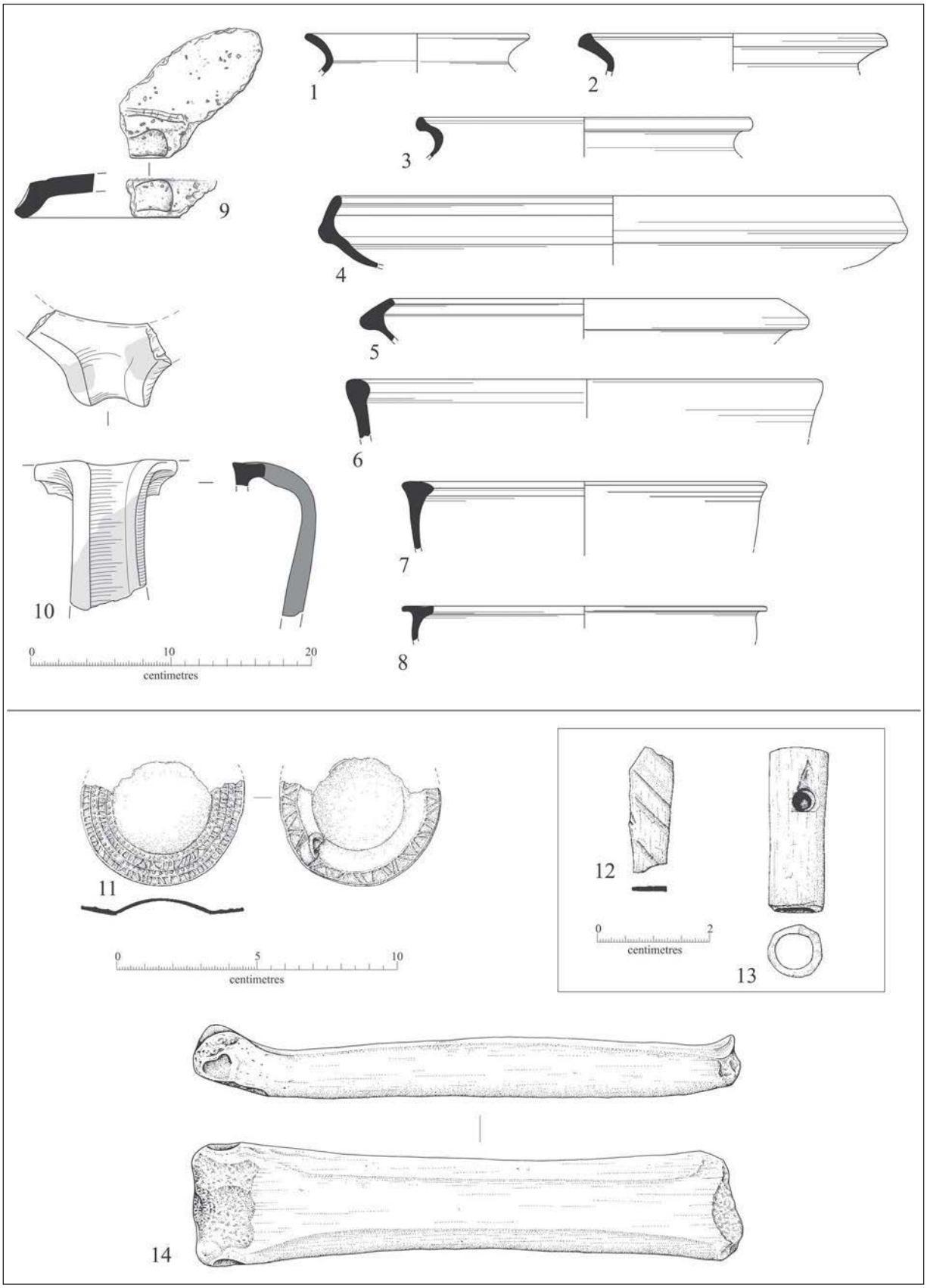


Figure 9. *Post Roman finds. Top, examples of pottery forms; bottom, the lead brooch (11), fragment of a bone inlay (12), the complete bone toggle/fastener (13), and a bone skate (14).*

small but interesting group. The majority of the copper alloy finds are late Medieval or post-Medieval in date and included three buttons, a possible harness fitting, a crotal or rumbler bell fragment, and a possible buckle tongue.

The coin (<1064>) was a probable *Antoninianus* of Gallienus dated AD 253–268. It was worn and partially clipped with Pax on the reverse holding an olive branch in the right hand and a sceptre in left; the obverse is less worn than the reverse. A second coin was recovered during the evaluation, also of *Antoninianus* (Pocock 2007).

Of the two brooches one was a small, one-piece copper alloy brooch of Nauheim derivative type, a variant of the La Tène III form (<635>). 39mm in height, the brooch is formed from a single length of wire tapering slightly at one end towards a flattened catch plate. The opposing end forms the four coil spring and the tapered pin missing its terminal; otherwise the brooch is in excellent condition. The bow lacks any visible decoration. Such brooches date from the first century AD (Bayley & Butcher 2004: 147) and this example belongs to the 'rod bow' sub-group, as opposed to the flattened bow group. Evidence from Baldock suggests these tended to date from throughout the first century AD (Stead & Rigby 1986: 123). A close parallel is illustrated within Hattatt's visual catalogue (Hattatt 2000: fig. 149.10).

The second brooch was a very fine cast copper alloy openwork zoomorphic plate brooch in the form of an eagle devouring a hare (<638>). The brooch measures 37mm in length by 23mm in width and is in excellent condition, with the exception of a missing pin. The detailing of the brooch is fine with a series of parallel grooves representing the eagle's wing and ring and dot eyes for both the eagle and its prey (see Figure 8.7). The quality of this example appears to surpass that of the limited number of published parallels. Hattatt illustrates two from Norfolk and Wiltshire, but both are crude castings (Hattat 2000: fig. 220.1161, 165). An example from the PAS online catalogue from Sleaford in Lincolnshire is closer in detailing, but clearly not of the same standard or from the same mould (PAS LIN-4E23D6). A further crude example is noted from Wiltshire Museum and this clearly suggests that this type of brooch is not common. Bird brooches as a wider group are discussed in regard to the Richborough assemblage (Bayley & Butcher 2004: 174–5). It is suggested that such brooches may have associations with religious cults, as is the implication with horse and rider type (*ibid*). Alternatively this could also just be a fine item of fashion, an identifier of good taste rather than religious affiliation. A late second-century date seems to be the consensus within the published material.

A fragment of a bracelet with ring-dot, transverse and chevron groove decoration was also recovered (<641>). D-shaped in profile and possibly with a surviving terminal, the transverse break is clean (see Figure 8.8). This bracelet form dates from the late second to forth centuries AD (Crummy 1983).

Ironwork

A total of 244 pieces of iron metalwork were recovered from archaeological features and during metal-detecting. Preservation of the assemblage is variable, with many items delaminating and friable. 134 pieces (58%) consisted of nails, studs and tacks, and their form dates from the later Iron Age to the mid nineteenth century AD. Although not described here in detail, the recovery of large, structural nails indicates the presence of nearby structures, or nearby manufacture. In addition, 10 hobnails were recovered; these are commonly found on Romano-British sites. Used to provide sole protection for leather footwear, hobnails were used by both civilians and the military. Of note is the recovery of a hipposandal, from F.150, and further fragments from the same feature possibly representing a second example. Hipposandals were used to protect horses' hooves from metalled road surfaces and were in use from the mid first century AD to the later fourth century AD (Manning 1985). Two knives and several probable small bladed instruments were also recovered. On initial inspection, the ironwork assemblage from the site would seem unremarkable.

The iron hipposandal (<804>) was fragmentary and very corroded, measuring *c.* 160mm long and 84mm wide. The front hook and wings were missing, although several fragments (including a hook and wings?) were recovered, possibly relating to this or a second example. At the heel, the sole terminates in a down-turned hook. This example corresponds with Manning's type 2 (Manning 1985). In summary, they appear to have been used as protective shoes for lame horses or as temporary shoes for unshod animals (*ibid*.). Similar examples are from Site 18, Longstanton (Hall 2006), the King Harry site at Verulamium (Stead & Rigby 1986), and from Colchester (Crummy 1983).

Also of note was a small roughly lozenge-shaped appliqué with two spaced perforations measuring 3mm and 4mm in diameter (<730>). Possibly pre-dating the Roman period, this may be a decorative shield-shaped appliqué.

Lead

Eight pieces of lead, or lead alloy were recovered. Of these, only two items were identifiable, a decorative disc brooch and a possible spindle whorl. The majority of the remaining six objects are pieces of scrap (clipped and reduced) and casting spills/runnels. The scrap varies in size, measuring between 15mm and 42mm and weighing between 14g and 20g.

The decorative disc brooch or pendant (<643>) was made of a lead-alloy and was incomplete (see Figure 9.11). The complete brooch would have measured 58mm in diameter, with an average thickness of 2mm. The collar is decorated with four alternating concentric bands of beading and chevrons. This surrounds a central domed boss lacking in further decoration. Of particular note is the reverse, which is also decorated with a band of chevrons around the circumference. This decoration on both front and back appears to have been part of the original casting rather than embossed or chased. A crude suspension loop formed from a cut strip of lead alloy is attached to the reverse. Several examples of similar lead alloy disc brooches are published from Coppergate in York. These examples have similar decorative motifs, such as the chevron border (10600) and beading (10601) and another displays a comparable suspension loop (10629). A further brooch from Barwick in Norfolk has five bands of beading around a similar central boss (Mainman & Rogers 2000: 2572). A further pewter example is recorded from Winchester (Biddle 1990: 634). These parallels date from the late ninth to tenth century.

The spindle whorl (<645>) was a flat, circular disc with bevelled edges and a large central perforation, with a diameter of 25mm, a perforation of 7mm and a weight of 16g. Similar spindle whorls have been recovered from Medieval sites, such as Winchester, dating from the eleventh century AD (Woodland 1990: 225, no. 196).

The Plant Remains

Anne de Vareilles

Forty-five bulk soil samples from 34 features spanning the late Bronze Age to the early Medieval period were analysed using standard CAU methodologies (Patten 2009).

Middle Iron Age

Samples from the Iron Age structures 1, 2, 3, 4 and 6 were processed. The ring-gully of Structure 1, along with two internal postholes and ditch F.418 produced very few botanical remains: one wheat grain (*Triticum* sp.), four cereal grain fragments, two wheat glume bases (chaff of *Triticum* sp.) and the occasional wild plant seed were found. The ring-gullies of Structures 2, 3 and 6, and pit F.481 produced a similar range of samples to Structure 1 and F.418. Charcoal densities were low and only three cereal grains with just a few wild plant seeds were recovered. A sample from ditch F.466 (Enclosure II) was unusual in containing a large proportion of wheat, barley or rye awns. The sample's matrix was quite ashy and composed almost entirely of silicified awns. Unlike crop processing waste assemblages commonly found on prehistoric settlement sites, glume bases were not the most frequent element. The awns were found with only five cereal grains and 16 glume bases of wheat including spelt (*Triticum spelta*), and low numbers of wild plant seeds, mostly of wild grasses. There was a complete absence of straw which suggests that it was either harvested separately to the ears, or that it was carefully reserved for other uses whilst the remaining waste (i.e. awns, other loose chaff and arable weeds) was burnt *in situ* or collected for a particular fuel. Four samples were analysed from the Structure 4 ring-gully and were comparable to those of the other Iron Age round structures in containing only a sparse scatter of loose botanical remains.

Late Iron Age/Romano-British

A total of 22 samples were taken from Late Iron Age/Romano-British contexts, 16 from Area C and six from Area A, six of which were botanically rich. From the burial F.396 a few small fragments of charcoal and one grass seed fragment were found, providing no evidence for burnt food offerings. The absence of molluscs suggests the body was quickly buried in a freshly dug grave. Three of the horticultural ditches were sampled and a few plant remains were recovered but no obvious indicators of what may have been grown. Half a seed head and two stem fragments of flax (*Linum usitatissimum*) were seen in F.17. Although flax was probably cultivated for both its fibres and oil, it is not usually grown in ditches. Linear features F.97, F.419, F.121 and pits F.99, F.48, F.134 had low density assemblages, with a little grain, chaff and seeds scattered amongst them. The six samples with high concentrations of cereal and non-cereal remains were from Enclosures XVI and XVII (F.105, F.102, F.114, and F.90), Enclosure XVIII (F.212) and a small gully (F.404) within Enclosure XII. An extensive layer of fine charred remains was found in association with Enclosures XVI and XVII. The assemblages should therefore be seen as small portions of a widespread, though not necessarily homogenous, deposit.

Spelt was a common Romano-British crop and was clearly the dominant (if not the only) cereal found in these samples (preservation has precluded the exact identification of all caryopses). Possible contamination of the spelt crop with the occasional plant of rye (*Secale cereale* L.) and hulled barley appears to have been unintentional, but of no undesirable consequence. Spelt is a hulled wheat always found to have been stored in its glumes that were later removed by pounding, further winnowing and sieving as and when naked grain was required (Hillman 1981, 1984; Jones 1984; Stevens 2003). The results show how, in all six features, quantities of glume chaff clearly dominate over grains and wild plant seeds, an occurrence that was also obvious during the analysis despite the numerous grain fragments. Consequently, the carbonised remains seem to represent waste generated during the last stages of crop-processing performed after storage and before cooking/grinding. Feature 105 (a large pit in the centre of Enclosure XVI), however, also contained a large proportion of silicified awns but no straw, generated during the first stages of crop-processing — as was also noted in the aforementioned Middle Iron Age ditch F.466. The combination of fine chaff, rachis internodes and delicate coleoptiles (the sprouted or germinated grain embryos) demonstrates how excellent the preservation has been, and suggests that the ash was either found *in situ* or in a primary context, deposited into the pit shortly after carbonisation. The fine condition of the botanical remains also suggests that the large concentration of broken grain was mainly produced before carbonisation.

Following Jones' (1984) physical categorisation of arable weed seeds, *c.* 46% of the seeds are small, free and heavy, whilst *c.* 36% are big, free and heavy. These findings support the information revealed by the chaff in suggesting that waste from the very last stages of crop processing is present, including the final hand sorting. The remaining 18% or so is made up of small, free, light seeds, which, along with the awns, are usually lost during threshing and winnowing. There is an interesting absence of seeds representative of intermediate crop-processing phases. The range of wild plant seeds is relatively short and they all seem to represent arable weed seeds. The few wetland species, such as spike rushes (*Eleocharis* sp.) and a sedge (*Carex* sp.) may not originate from the harvest, though there are numerous examples of their associations with grain, suggesting they were indeed arable weeds of poorly drained fields (Jones 1988). Oraches (*Atriplex patula/prostrata*) and stinking chamomile (*Anthemis cotula*) occurred frequently and must be associated with the agricultural practices. Oraches were also common at the New Cambourne Settlement sites (Stevens 2009) and at Vicar's Farm and Langdale Hale (Ballantyne 2008). Stinking chamomile, however, was common at Vicar's Farm but almost completely absent from Langdale Hale and the New Cambourne Settlement sites. The latter weed is an indicator of damp, clay-rich soils and is associated with the introduction of mouldboard ploughs capable of turning the sod (Jones 1988).

As noted in Table 9, all but Sample 9 had germinated spelt grains. There are two possible interpretations for this:

1. Malting: to make spelt beer. Spelt beer is thought to have been produced on several of the Cambourne New Settlement sites (Stevens 2009). Indeed germinated spelt

grains are quite common on Romano-British settlements, especially those close to roads. The large proportions of fragmented grain could represent accidental loss during milling when the grain is cracked before being soaked in hot water (in order to release and convert the starch produced during germination into sugars for fermentation). In contrast to several assemblages from the Cambourne New Settlement sites, however, loose coleoptiles and germinated grains do not appear to outnumber non-germinated grains in all except the sample from F.105. One might expect a higher proportion of germinated grain if the remains were indeed malting waste.

2. Storage: germination can occur during storage if conditions are damp. Such occurrences can be intentional and beneficial when grain is stored underground; if the pit is securely capped the growing grains will use up any available oxygen thereby creating excellent storage conditions for the non-germinated majority (Reynolds 1974). The archaeological evidence for storage structures (pits, granaries or otherwise) is scant however, and offers no suggestions as to the preferred method.

Early Medieval

Two of the features sampled, ditch F.266 and pit F.228, produced very few botanical remains and those that were recovered probably accumulated from surface debris. The samples contained two and three unspecific wheat grains each (*Triticum* sp.) and about 50 unidentified grain fragments in total. No chaff was found and the seeds of wild plants were only recovered from F.228: a wild grass seed, up to three oat caryopses (possibly cultivated), a red bartsia (*Odontites verna*) and a medic or clover (*Medicago/Trifolium* sp.) seed. A fragment from a hazelnut shell and a black mustard seed (*Brassica nigra*) were also found, offering a glimpse into the range of herbs, spices and wild foods that would have complemented the cereal diet.

Pit F.335, associated with potential Structure 7, produced grain rich assemblages with free-threshing wheat predominating, followed by similar quantities of hulled barley (*Hordeum vulgare* sl.) and spelt (and possibly emmer wheat) grains. Fruit stones and possibly cultivated pulses provide further details into the inhabitants' diet. The crop assemblage may include oat (*Avena* sp.), though the absence of floret bases has prevented the distinction between wild and cultivated forms. Cereal chaff was almost non-existent, but wild plant seeds suggest the crops had not yet been fully cleaned. Most of the arable weed seeds are grasses but, as in the Romano-British samples, also include stinking chamomile. The rectangular pit F.352, also associated with Structure 7, had 16 whole caryopses, including four free-threshing wheat grains (*Triticum aestivum sensu lato*) usually attributed to post-Roman agriculture. The occasional find of free-threshing wheat was also true of the extensively sampled Romano-British farmsteads at Langdale Hale and Vicar's Farm, Cambridgeshire, where spelt was the predominant cereal (Ballantyne 2008). The almost complete lack of chaff and small arable weed seed assemblages in F.352 suggest the burnt cereals were domestic waste generated during the daily use of such crops. Two fragments of hazelnut shell (*Corylus avellana*) and a probably cultivated pulse (Fabaceae fragment) support the interpretation of this assemblage as domestic food waste.

Large assemblages of free-threshing wheat are uncommon until the late Romano-British/early Anglo-Saxon period in Britain, before which spelt is the dominant crop (Greig 1991; Murphy 1985; Stevens 2009; van der Veen 1991). Unlike F.335, the Romano-British samples analysed from this site are indeed rich in spelt with almost no free-threshing wheat present (only four grains in F.352).

Practically all of the 45 samples contained some plant-macro remains, though all the very rich assemblages were Romano-British. The Iron Age structures contained very little material and they were either not used for routine processing or waste was carefully managed, not burnt and/or discarded elsewhere. The rare find of silicified awns in Middle Iron Age Enclosure II (F.466) attest to the first stages of cereal processing which is, through lack of evidence, often assumed to have occurred outside the settlement zone and away from post-storage crop-processing activities. Overall, the prehistoric assemblages had very low densities of plant remains, including charcoal. Findings indicate that spelt, barley and possibly emmer were consumed on site but provide little evidence for the practices and whereabouts of the crop-processing stages.

The Romano-British samples fall into two distinct groups: those that produced chaff-rich assemblages and those with scant, probably residual debris. There is no marked difference between Areas A and C in the latter category where low densities of charcoal, the odd grain and a little chaff were found in most samples. The chaff-rich assemblages were found in a specific zone in Area C where excavations revealed a prolific area of burnt debris; and two locations in Area A *c.* 40m from each other and both not far from the track (Figure 4). Whereas the zone in Area C seems to have been an area of intensive activity fuelled by crop-processing waste, the samples from Area A may represent actual areas of crop-processing events generating clean grain for consumption.

Awns and fine chaff indicate that a combination of waste from both the very early and late stages of

Table 9. *Quantities of germinated and non-germinated spelt grains.*

Sample number		**24**	**38**	**9**	**7+8**	**17**	**73**
Context		**316**	**862**	**423**	**337**	**365**	**1668**
Feature		**102**	**212**	**90**	**105**	**114**	**404**
Triticum c.f. *spelta* - germinated	germinated spelt	20	27		53	19	1
T. c.f. *spelta* - not germinated	not germinated spelt	116	5	7	12	20	9
T. c.f. *spelta* - unknown germinated	not known if germinated	73	17		39	20	3

crop-processing was used in Area C. Since the condition of delicate elements was excellent adverse preservation cannot explain the complete absence of straw (usually also a by-product of early crop-processing stages), even if it was reserved for other uses after winnowing. It seems likely, therefore, that ears were harvested separately to the straw, unlike at the Cambourne New Settlement sites where evidence for low sickle harvesting was found (Stevens 2009). The presence of stinking chamomile throughout the samples in Areas A and C indicates that clay-rich soils were cultivated, possibly from the Middle Iron Age, but certainly in the Roman period, when the introduction of iron shares and asymmetrical ploughs would have made it possible. Interestingly, arable weeds from the New Cambourne Settlement sites suggest that most of their grain was grown on dry, calcareous soils (*ibid*.), leaving one to conclude that each settlement produced their own crops. Evidence from the clay uplands west of Cambridge led the authors to suggest that damp soils in the lower valleys were cultivated whilst the drier slopes were kept for pastoralism (Abrams & Ingham 2008).

Although the southern Romano-British settlement at Summersfield was an agricultural site, most probably cultivating cereals as well as other crops in its horticultural ditches, it may not have been growing enough grain for market. Ballantyne (2008) concluded that by *c.* AD 120 both Langdale Hale and Vicar's Farm were active farmsteads producing surplus grain. The evidence for crop-processing at Summersfield is dense, but restricted to a relatively small area where the waste appears to have been burnt as a specific fuel. There is no clear evidence therefore, that grain processing was one of the site's main functions. Another possible activity was that of making spelt beer, although the evidence is rather slight and inconclusive.

Faunal Remains

Vida Rajkovača

A total of 1477 fragments (50,981g) of bone were recovered from the investigation, 1423 fragments (50,907g) from excavation and 54 fragments (74g) from the sieving of bulk soil samples. Based on the chronology of the material, seven sub-sets were created in order to study the site (Table 10) and the following report concentrates on the dominant Romano-British component of the site. The methods of quantification, species identification, ageing and biometrical analyses follow standard CAU methodology.

Cattle appear to have been the predominant species in all phases of occupation, with the exception of the early Medieval period. By number of specimens identified to species (NISP) 42% of the Middle Iron Age assemblage was cattle, 20% of the Late Iron Age/early Romano-British, and 28% of the Romano-British in comparison to 8% of the early Medieval. Sheep/goat and horse were identified as well as other commonly found domestic species such as pig, dog and cat. There is an indication that poultry was kept on site as evidenced by the remains of chicken and domestic goose. An articulated horse skeleton found in Enclosure XXIII (F.97) was counted as one specimen.

Table 10. *Quantity and provenance of faunal remains (hand-recovered only).*

Period	Contexts	NISP	%NISP
Pre Iron Age	2	5	0.4
Middle Iron Age	14	52	3.7
Late Iron Age/ early Romano-British	69	394	27.7
Romano-British	137	655	46
Early Medieval	51	266	18.7
Post-Medieval	6	11	0.8
Undated	21	40	2.7
Total	**300**	**1423**	**100**

The Middle Iron Age sub-set recovered from ten different contexts produced 52 fragments, 28 of which were identifiable to species. Domesticates are a dominant group (93% of those identified), with some evidence for exploiting wild faunal resources (red deer representing 7%). Twenty-two bone fragments (78% NISP) were assigned to cattle with the majority of them being loose teeth and teeth fragments.

The Late Iron Age/early Romano-British sub-set (Table 11) is comprised of poorly preserved and highly fragmented animal bone recovered from 69 different contexts. The total number of fragments analysed was 395, 175 of which were identifiable to species. Based on a complete metacarpus, sheep was positively identified (Boessneck 1969: 355), and an articulated horse skeleton was found in association with Enclosure XXIII (F.97). There is evidence for the keeping of poultry on the site, which was confirmed by the remains of goose (Anser anser) and chicken (Gallus gallus). A domestic fowl specimen was positively identified as male, based on the presence of a spur on a tarso-metatarsus (Cohen & Serjeanston 1996: 79).

Seven examples of butchery were noted in this sub-set, mostly showing carcass dismemberment or disarticulation. Several examples were recorded as bone breaking and pot-sizing, especially cattle ribs. One large mammal cervical vertebra displayed signs of extensive butchering, probably in an attempt to disarticulate the head of a large cow or bull from the rest of the body. Marks were deep and imply the use of large and heavy blades to perform this.

Despite the great fragmentation, it was possible to age two ovicaprid (sheep/goat) mandibles to three and six years respectively and a femur to just over three years. Cow radii gave the age at death of between 18–36 months. As evidenced by the number of juvenile specimens, pigs were killed before maturity. The articulated horse skeleton was aged to around 15 years based on teeth attrition (Levine 1982). Biometrical data for the horse was drawn from the measurements of the third metacarpal bone and withers height calculations follow the conversion factors of Kiesewalter (see Von den Driesch and Boessneck 1974). The animal stood 13 hands high which classifies it as a pony by modern standards.

Romano-British contexts produced the largest quantity of bone, totalling 654 fragments, 316 (48%) of which were iden-

tifiable to species; the prevalence of cattle, horse and large domesticates is in keeping with the period. Canid gnawing marks were noted on 16 fragments, suggesting the presence of dogs on site, although dogs were not retrieved osteologically from Romano-British contexts. Butchery marks were rare and recorded on *c.* 2% of all bones. Chop marks are more common than cut marks and this probably indicates butchery techniques needed for managing big carcasses, such as cattle and horse. The general characteristics of the type of butchering actions performed include: chop and cut marks on the diastema and ascending ramus of mandibles which can be attributed to disarticulation from the skull; chop marks at joints, which can be attributed to primary dismemberment, as well as scoops and fine marks which could be related to meat removal or pot-sizing. It is surprising, however, that none of the cattle scapulae showed marks indicative of the curing process. Very little butchery evidence might reflect the fact that the carcasses were dismembered with a sharp knife, a practice that leaves very few marks if carried out by a skilled butcher. Withers height estimates followed the conversion factors of Matolsci for cow (see Von den Driesch & Boessneck 1974) and came at the top end of the size range, measuring some 126 cm. This sub-set, although very big, did not produce considerable ageing data. Only seven ageable specimens were recovered for all species. The data available shows that cattle were culled around 3 years. One ovicaprid mandible was aged to 6–12 months and two pig specimens were both aged to 14–21 months.

Faunal remains recovered from 51 different contexts dated to the early Medieval period totalled 266 bone fragments, 179 (67.3%) of which were assigned to element, and a further 100 (37.6%) to species level. The preservation ranged from moderate to poor (209 specimens/78.6%), with a significant portion of porous, eroded and fragmented bones. Canid gnawing marks were recorded on *c.* 10% of the bones and a dog mandible and pelvis osteologically confirm the presence of dogs on site. Butchery evidence was noted on post-cranial elements, the cut and chop marks reflecting disarticulation, pot-sizing and meat removal. The available ageing data has been useful for indicating that the majority of ovicaprids were slaughtered around their third year. Four pig specimens were all aged to under 2 years, all from the same context possibly implying they all came from the same individual. Only one cow metacarpal was recorded as juvenile and one horse mandible aged (Levine 1982) to 12–20 years of age.

Bones from the sieved samples offered only one type of data, which were the smallest unidentifiable elements/ fragments of large mammals. The majority of features sampled were of Romano-British date. The only two species identified were sheep/goat and horse. The remainder of the assemblage was made up of the sheep-sized mammal fragments. Interestingly, a number of bird and fish bones recovered during the course of hand-excavation were completely absent from the sieved material.

The relative proportions of major species by period are presented in Table 12, and the pattern obtained from minimum number of individuals (MNI) values fits very well with these results. Pig proportions show an increase through time, with a very small number of pig specimens recovered from Romano-British features. There is a slight increase in the proportion of sheep relative to cattle in the early Medieval phase of occupation. The prevalence of cattle recorded during

Table 11. *Number of specimens identified to species (or NISP) by phase from Summersfield Papworth Everard site. The abbreviation n.f.i. denotes that the specimen could not be further identified. *includes one articulated skeleton.*

Taxon	Phase							Total
	LBA/ EIA	MIA	LIA/ER	Romano-British	Early Medieval	Post-Medieval	Undated	
Cattle	.	22	81	186	22	4	4	319
Ovicaprid	.	2	52	59	42	.	1	156
Sheep	.	1	1	1	.	.	.	3
Horse	1	1	27*	58	21	3	1	112
Pig	.	.	11	7	13	.	4	35
Dog	.	.	1	1	2	.	.	4
Cat	.	.	.	1	.	.	.	1
Domestic fowl	.	.	1	.	.	.	1	2
Domestic goose	.	.	1	.	.	.	.	1
Red deer	.	2	.	1	.	.	.	3
Fox	.	.	.	2	.	.	.	2
Sub-total to species	**1**	**28**	**175**	**316**	**100**	**7**	**11**	**638**
Cattle-sized	4	14	90	130	62	2	11	313
Sheep-sized	.	10	82	124	84	1	14	315
Rodent-sized	.	.	3	.	1	.	.	4
Mammal n.f.i.	.	.	39	83	17	1	4	144
Bird n.f.i.	.	.	3	1	2	.	.	6
Fish n.f.i.	.	.	3	.	.	.	.	3
Total	**5**	**52**	**395**	**654**	**266**	**11**	**40**	**1423**

the Middle Iron Age continued into the Late Iron Age and Romano-British period, and poultry keeping was also another trait of the period. Domestic fowl has been recorded from a number of Roman sites in the region: Stonea (Stallibrass 1996) and Orton Hall Farm (Harman 1996) as well as on the majority of Romano-British sites (Parker 1988: 209) across the country.

Table 12. *Major species relative proportions by period (MNI).*

Period	Taxon			
	Cow %	Ovicaprid %	Pig %	Horse %
Middle Iron Age	83.9	11.8	.	4.3
Late Iron Age/ Early Roman	47.2	30.7	6.4	15.7
Romano-British	59.7	19.2	2.3	18.8
Early Medieval	22.4	42.9	13.3	21.4

King's (1999) study of Roman animal bone assemblages showed that Romanised sites tend to produce higher numbers of cattle and to a lesser extent pig, whereas non-Romanised sites were likely to continue with the native Iron Age economy which favoured mutton consumption. A slight increase in cattle proportion reflecting the preference for beef is likely to demonstrate that the site was Romanised. The majority of domesticates of all the periods were culled at the optimum age for the production of prime beef and mutton. Fox and red deer remains are present, proving the continuing exploitation of local wild faunal resources.

The spatial distribution of faunal material across the site suggests that ditches and enclosures contained greater quantities of animal bones than the ring gullies or pits. Enclosure VIII contained a slightly greater concentration of animal bone compared to other areas of the site with a total of 114 fragments (cattle, horse, sheep, pig and red deer), and this corresponded to c. 18% of the Romano-British faunal record and *c.* 8% of the assemblage as a whole. Skeletal element distribution demonstrated that both meat and non-meat elements were recovered, suggesting that this represents household waste. The single largest isolated bone assemblage (bone 'dump') was recovered from amorphous pit F.48. This feature produced 55 bone specimens, a figure which corresponds to *c.* 9% of the Roman sub-set. The remains of cattle, horse, ovicapra, pig and fox were identified, as well as a number of other unidentifiable specimens. Based on their size and age, a number of horse hind limb and foot elements were thought to belong to the same individual. Given that the material was quite dispersed across the site, it was difficult to establish where different forms of the activity took place, i.e. skilled butchery/processing waste or household/ food waste.

Composition of the assemblage from Cambourne New Settlement is similar to that from Summersfield, with the relative importance of species showing slightly higher proportions of ovicaprids than observed elsewhere. The relative importance of species at Cambourne (combined values for all phases) showed that cattle accounted for 52.7%, followed by ovicaprid 40% and pig at 7.3% (Hamilton-Dyer 2009). Archaeological evaluations at North West Cambridge (Site II) resulted in the recovery of an assemblage with high percentages of cattle and horse, mainly originating from ditches and peripheral features. Cattle accounted for 47.5% and horses for 38.5%, followed by ovicapra at 11% and pigs at 3% of the four main species (Rajkovaca in Evans and Newman 2010). A similar pattern of species representation was found on a Romano-British villa/farmstead at Bottisham. This site had a much higher proportion of cattle and horse and very little sheep and other taxa (Baxter 2001). On the same site, larger waste was often disposed of in peripheral features. It could be proposed that the relatively high number of horse specimens is due to the site's roadside position. Horse was common in all phases at Haddon (Baxter 2003: 125), a steady 10% in the Romano-British period. King (1978) suggested that higher percentages of horse in the Fens during the Romano-British period may reflect ranching practices, with horses being sold off by the Roman army once they proved obsolete as mounts (Baxter 2003).

The process of Romanisation has influenced the content of many faunal assemblages; yet on another level the changes in the structure and functioning of the economy facilitated the change that is reflected in the faunal record (Hamshaw-Thomas 1993: 168). The ratio of the main livestock groups here showed the prevalence of cattle with 73.5%, followed by ovicapra with 23.6% and pigs with 2.9%. When plotted on the tripole graph presented by King (1988: 54), relative percentages of all three main groups appear to portray the economy of a Romanised settlement. King further argues that it is military sites that have a general tendency to cluster around the high percentages of cattle bones (70% or more). A secondary characteristic of military sites, however, is a higher percentage of pig bones (around 20%) and that is not the case here. The low pig count could be indicative of the local environment lacking extensive woodland for pannage (Albarella 1999). As for the other domestic species, horse is particularly well represented in almost all phases of occupation.

The great fragmentation and the dispersed character of bone deposition imply that most of the deposits at Summersfield represent the general accumulation of refuse where meat was produced as small joints by individual households.

Worked bone objects

Vida Rajkovača

Three worked bone objects were recovered from the site, two of which appear to be complete. These comprised a skate, toggle and an inlay, all from post-Roman contexts.

One of the complete objects was a skate (<074> F.499) fashioned from a horse third metacarpus with the anterior face

smoothed from wear (Figure 9.14). The distal end is upswept and the centre of condyle is trimmed on the posterior side. The smoothed surface on the anterior face would have been in contact with the ice. This surface was checked for longitudinal wear traces to enforce the idea that this object represents a skate; however, no wear patterns were recorded.

The second was a complete toggle/fastener (<422> F.249) probably fashioned from an ovicaprid metatarsus; 28.6mm long by 10.7mm wide (Figure 9.13), representing a fragment of a mid-shaft that was sawn off. A circular perforation on the anterior face is *c.* 4mm in radius. The object is polished and could be of Roman or later date (I. Riddler pers. comm.).

The third was a fragment of a bone inlay (<1065> F.279) of irregular/rectangular shape 22.5mm long by 7.9mm wide (Figure 9.12). This appears to be knife-cut and slightly polished.

Collections of similar objects were recovered from the late Anglo-Saxon and Medieval contexts from London and York. Comparable objects were also recovered from a similarly dated site of West Fen Road, Ely (Mortimer *et al*. 2005). One example of a skate, similar to the one recovered at Summersfield, was found within Enclosure 13 (object 275; F.501) at West Fen Road. Much like the Summersfield object, the distal end is not tapered. Whilst some skates used securing holes for straps, others are entirely devoid of any such fixtures (Riddler 2005: 85).

Discussion

The excavation at Summersfield has provided an insight into the genesis of the current settlement of Papworth Everard, in particular its Iron Age and Roman antecedents along with a glimpse of the early Medieval settlement which was to evolve into the current village. By the later prehistoric periods people had begun to settle at Summersfield with the construction of five distinct roundhouse structures and three enclosures. The enclosures appeared to inform and demarcate at least part of the later trackway and subsequent Romano-British settlements.

The Middle Iron Age settlement was concentrated in the southeast of Area A where three of the five roundhouses (Structures 2, 3, and 6) were identified. The structures were all of a similar size ranging from 9.5 to 12.25m in diameter. In their study of the structures at Hurst Lane, Ely and Cats Water, Fengate, Evans *et al*. (2007) characterised Iron Age roundhouses into three groups: small (5–8m in diameter), medium (8–12m), and large (12–15m). The pattern identified at Hurst Lane incorporated all three categories, but with a predominance of mid-range sized structures, a trend also identified at Cats Water (*ibid*.). At Summersfield the structures are best classified as medium, with only Structure 2 being slightly larger, at 12.25m (Figure 10). This classification of roundhouse dimensions can also be applied at the Cambourne New Settlement (Wright *et al*. 2009) and Scotland Farm, Hardwick (Abrams & Ingham 2008). Excavations at the Cambourne New Settlement identified variability in structure size; while the roundhouses at Knapwell Plantation and Little Common Farm were predominantly mid-range in size; those at Lower Cambourne and Poplar Plantation were predominantly large. The lack of a similarly broad range of structure size at Summersfield could indicate that this was a small, marginal settlement that did not require such a variety of structures. Although the function of the settlement or the structures was not determined, the association of each structure with at least one burnt stone pit suggests that they represented domestic occupation. The settlement at this time was unbounded with the structures situated within an unenclosed landscape, a practice that was typical of this period in the eastern region (Bryant 1997).

At Summersfield, the pattern of unenclosed roundhouse settlement was replaced by one of enclosed compounds, these defining spaces slightly larger than the roundhouse gullies. A similar evolution in Iron Age settlement has been recorded at Broom, Bedfordshire (Cooper & Edmonds 2007), where Iron Age roundhouses were replaced by enclosures, offering a more flexible use of space (*ibid*, 182). The function of the enclosures is difficult to determine and their construction and associated assemblages can be interpreted in a number of different ways. That the enclosures replaced the earlier structures, which were most likely domestic, could suggest that a similar function of domestic usage continued. The enclosures could have surrounded post built structures, the remnants of which did not survive. The enclosures at Summersfield occupied only a small portion of the ridge, and Enclosure I particularly seemed to form one corner of a larger tract of land, potentially part of a more extensive field system. Enclosures II, III and XXIX may represent a change in function, with the deep ditches of the enclosures defining small areas as corrals or paddocks for livestock rather than domestic enclosures (perhaps representing a change in the economy of the site). At Broom it has been suggested that the enclosures were for exclusion, with large boundaries such as those for Enclosures II, III, and XXIX providing an effective barrier between internal dwellings and stock, with Enclosure I defining a large stock enclosure.

On the clay uplands of the region it is thought that the Iron Age economies were generally mixed. It has been postulated that livestock were traded and that small settlement enclosures would have been associated with numerous paddocks, either in direct association with the settlement or as isolated corrals or enclosures a short distance away (Medlycott & Brown 2008). Summersfield fits this model comparatively well. Enclosure II also revealed evidence for the first stages of crop processing, which could indicate that the enclosure defined an area of crop storage or early stage processing. Consequently it is clear that the site represents a small mixed settlement probably set on the fringes of areas of more intense Iron Age settlement.

Summersfield is in many ways comparable to the Iron Age settlement evidence from Broom, a predom-

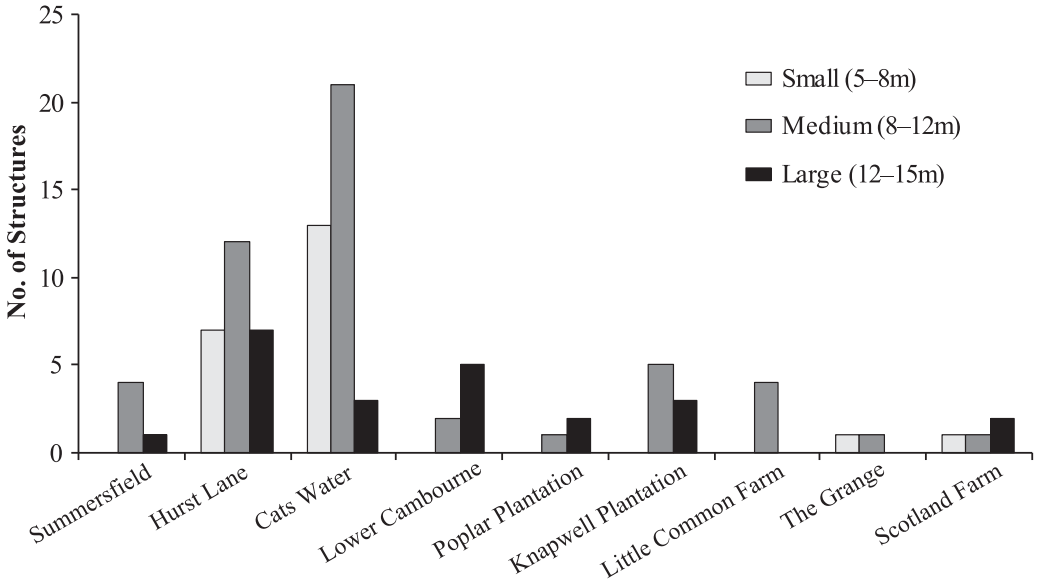


Figure 10. *Comparison of Iron Age roundhouse diameter based upon Evans* et al. *2007.*

inantly gravel landscape, and this shows similarities between sites located on differing geologies. At both Broom and Summersfield there was an evolution in the character of the settlement from roundhouses to compounds. This suggests that the movement onto the claylands at this time did not bring large variations in the character of the settlements. It was apparently not the geology that determined the settlement type and the inhabitation of the claylands was more a reaction to rises in population and increased competition for resources, rather than the deliberate exploitation of a different environment.

Even though there was some evidence of possible activity in the period between the Middle Iron Age and the Roman period, this was unlikely to have been continuous. Although the ceramic material spans the Early Iron Age to the late Roman period there was not a large enough quantity of material to suggest settlement continuity. With 18.7% of the total number of prehistoric and Roman pottery dating to the Middle Iron Age and 15.7% to the Late Iron Age/early Roman period, only 5.1% was dated to the Late Iron Age, and the nature of this activity is uncertain.

During the Roman period the settlement activity intensified and appeared to expand with large tracts of the ridge becoming enclosed. This intensification was also evident in the pottery and faunal assemblages, which became significantly larger. By the mid to late first century AD the pottery had become more diverse with the introduction of both non-local and imported wares. This expansion in activity may have been the result of the importance of Ermine Street, which (if it was located to the east of Summersfield) would have facilitated trade and the movement of materials and livestock (Millett 1996: 145). The location of the settlements in the vicinity of Ermine Street must have been a contributing factor in its expansion and to the apparent mixed economy that arose here. At Tort Hill, Sawtry settlement activity was evidenced either side of Ermine Street and this appeared to comprise several different economies, including crop processing and horse breeding, along with the small scale production of pottery (Ellis *et al.* 1998).

The 'nested' Enclosures IV, V and VI represented a series of gradual shifts from the alignment of the later Iron Age enclosures to the established pattern set out during the Roman period. To the south of Papworth Everard the Roman farmstead recorded at Ash Plantation and the field systems between Caxton Gibbet and Childerley Chapel were recorded on different alignments to that elsewhere within the landscape (Abrams & Ingham 2008). These sites were situated in close proximity to Ermine Street and it was suggested that this main routeway had a bearing upon the alignment of the nearby settlements. The site at Summersfield was situated between 150m and 260m from the presumed course of Ermine Street (if not actually along it) and it is possible that the construction of the road in the mid first century AD (Branigan 1987: 63) may have had an effect upon the alignment of the enclosures and the Roman settlements themselves. If the proposed route of Ermine Street to the east is correct then the farmsteads at Summersfield were not roadside but rather set away from it, on higher ground. Any main settlement may have been located roadside with direct access to Ermine Street.

Initially, the northern settlement was comprised of Enclosures IV, VII and VIII, which were aligned on the track. Along the southern edge of the compound, Enclosure VII appeared to contain the primary farmstead building, with a further small building in Enclosure VIII. At some time the compound was expanded with the large ditch of Enclosure XII forming a second compound to the south. A series of short linears along the southern edge, along with traces of possible beam slots identified during the evaluation

indicates the presence of a second building along the southern edge (Pocock 2007). Together the compounds formed a single complex with a series of internal divisions and spaces for probable structures. Evidence for structures on non-villa rural Roman sites are notoriously difficult to find and many rural buildings would have been constructed of posts on beam slots which would have rested either on/or just below the ground surface. Modern agricultural methods and archaeological excavation techniques mean that many buildings which would survive only as very shallow features in the natural substrate are lost in the attempt to clarify the nature of the archaeology as a whole (Evans *et al*. forthcoming). However, at Summersfield, the location of further buildings was also suggested by the material recovered from the settlement enclosures: the large quantity of pottery and animal bone, along with the Roman coin of *Antoninianus*, the melon bead, and the zoomorphic brooch. The material also indicated that the site remained a rural farmstead, as the pottery assemblage was dominated by locally made coarseware vessels. The Roman coins, along with the two brooches and a small quantity of Samian ware pottery, suggest a level of prosperity, albeit small. In his recent work Evans has characterised Roman settlement sites based upon site finds densities into rural settlements, major farms, 'centres', shrines, and towns (Evans & ten Herkel forthcoming). Based on this model, the site at Summersfield would not even be classified as a rural settlement, as the quantity of material recovered per hectare is too small (see Table 13). Such a small quantity of material potentially represents the farmstead of an extended family (Hingley 1989: 55). At this time the northern settlement appeared almost self-sufficient, with Enclosures IV, VII, VIII and XII representing its heart.

Table 13. *Comparative Roman site finds densities with quantity of material per hectare (from Evans & ten Herkel forthcoming). The numbers for Summersfield also include material recovered during the evaluation and not directly reference in the text (see Pocock 2007).*

	Summersfield	**Rural Settlement**
Pottery	644	2500
Bone	448	2305
Coins	0.4	18.3
Cu alloy small finds	3	18.65
Glass	1	1.45

In contrast to the northern settlement enclosures in Area A, those within Area C represent another farmstead to the south, and reflect slightly differing forms of activity (see Figure 11). Along the eastern side of the track this activity was focused predominantly on crops. The closely spaced linear features within Enclosures XVIII and XIX represent horticultural plots (or 'lazy beds'), although despite sampling, it was not possible to determine what exactly was grown. Immediately to the north, Enclosures XIII to XVII were associated with the processing of spelt wheat and other crops, which, however, appears to have been relatively small-scale. The farmstead was primarily concerned with producing enough grain for its own consumption rather than to trade. The environmental analysis has revealed a high percentage of grain and glume bases with a very low percentage of wild plant seeds in the area, suggesting the continued agricultural use of the site.

The evidence of awns and fine chaff in Area C revealed that a combination of the very early and late stages of crop processing was occurring. The presence of germinating spelt grains may suggest that they were also malting the grain, possibly to produce spelt beer. Spelt beer is thought to have also been produced at Cambourne New Settlement (Wright *et al*. 2009), and highlights the mixed economies and apparent self-sufficiency of farmsteads in the area.

The enclosures on the western side of the track were markedly different. Each with an entranceway, Enclosures XX to XXIII appeared to be associated with the management of livestock and the edge of a settlement area. The track was aligned along the edge of the ridge at this point and as a result the enclosures were situated on the slope. The entrances onto the track would have facilitated the movement of animals, with the large ditches better enabling their control. Cattle were the most dominant species and, although typical for the Roman period, also represented a continuation from the Iron Age activity at Summersfield where cattle dominated. The increase of animal bone in the Roman period and the diversity of enclosures show that by this time the local area's economy also relied upon skilled livestock management. There was a high proportion of horse in the assemblage and it has been suggested that this was the result of the site's location near Ermine Street. Activities associated with horses have been suggested for a series of sites excavated alongside Ermine Street to the north between Alconbury and Peterborough (Ellis *et al*. 1998). At Tort Hill East it has been suggested that a metalled area and series of enclosures may be associated with stables, and that horses may have been bred here (*ibid*). At Summersfield the remains of a fully articulated horse in the corner of Enclosure XXIII and the presence of a hipposandal associated with Enclosure XIV support the idea that some of the enclosures were being utilised as paddocks. The dramatic increase in settlement in the early Roman period, and subsequent apparently rapid decline, might be linked to the wider progress and priorities of the Roman state (Taylor 2007: 101).

By the 10th and 11th centuries settlement activity at Summersfield was centred upon St. Peter's church to the north. The presence of enclosures within Area A, but not within areas B and C, is further evidence that the medieval settlement did not extend to the south and that its core was located to the north. The low density of structures, (Structures 5 and 7) which represented outlying buildings and the high number of finds from the early Medieval period, including the silver penny, suggests that the southern extent of an

Figure 11. *Roman zones of activity showing the track acting as a spine through the site joining the many facets to Ermine Street. The distinction between the settlement and its 'working' zones is apparent.*

early Medieval settlement of some importance was revealed, whilst the enclosures throughout the rest of the area represented the settlement's associated infields. The shifting and reorganisation of the settlement was echoed in the slight alterations to these enclosures and subtle changes in boundary alignments; these eventually gave way to open fields, probably in the late eleventh to twelfth centuries.

These open fields were evidenced by a series of furrow remnants. These failed to respect any of the earlier features and truncated the late Saxon features as well as those of the Romano-British and prehistoric periods, and where they were exposed in Area A crossed the entire width of the ridge. A western boundary was identified in Area C with the furrow remnants curving to the south, suggesting that this particular field was bounded at this point. On the 1825 Parish map a track was recorded which left the main road (Ermine Street) and crossed the site along the ridge to the church (Dickens 1998). This appeared to roughly follow the course of the Romano-British track, suggesting that it had continued in use in some manner, with its course shifting over time, and it was this track that the furrows appeared to respect. The furrows were apparently still extant during the Victorian period when clay field drains were laid along their lengths, only later being obliterated and levelled by more recent agricultural practices.

With the advent of developer-funded archaeology, and the expansion of modern settlement and infrastructure, more investigations have occurred on the claylands of Cambridgeshire and bordering counties. With this increase in investigation we have seen an increase in the number of later prehistoric and Roman sites within a landscape that was once thought of as being inhospitable and uninhabited. The emphasis of past investigations on gravel river terraces has biased our understanding of settlement during the Iron Age, and as the results of more work on the clay uplands is disseminated, a better understanding of the dynamics of these settlements is being generated.

Acknowledgements

The CAU are sincerely grateful to the developer David Wilson Homes and Duncan Hawkins of CgMS, as well as the positive contribution made to the fieldwork programme by Kasia Gdaniec of the Cambridgeshire County Council (Historic

Environment Team). The project was managed at the CAU by Emma Beadsmoore and the author greatly appreciates all of her help and guidance throughout, as well as that of Christopher Evans, Dr. Sam Lucy and Jonathan Tabor. The work of the many site assistants who participated in the excavation is, as always, greatly appreciated by all. At the CAU's offices Dr. Jason Hawkes and his team processed and managed the site's finds; the surveying was undertaken by Donald Horne, with the digitisation done by Iain Forbes. The papers graphics reflect the skills of Andy Hall and Vicki Herring, with Dave Webb undertaking the site photography.

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Romano-British Horningsea Ware kilns at 12 Pieces Lane, Waterbeach, Cambridgeshire

Andrew A. S. Newton and Andrew Peachey

Excavation at 12, Pieces Lane, Waterbeach revealed two Romano-British pottery kilns of the Horningsea ware industry. These kilns add to the corpus of information regarding this industry in Cambridgeshire and increase understanding of the character of the industry and the sites at which this pottery was produced. Evidence from these kilns indicates that kiln form varied between the Horningsea production sites. The pottery assemblage recovered from, and in association with, these kilns suggests Horningsea ware production had begun in Waterbeach by the early 2nd century AD, earlier than previously thought. Evidence to indicate that earlier kilns may have existed at the site was recorded and this, coupled with the dateable evidence, suggests that the layout of the site was altered repeatedly with kilns being built, demolished and rebuilt several times over in approximately the same locations.

Introduction

In June and July 2010, Archaeological Solutions Ltd (AS) conducted an archaeological excavation of land at 12 Pieces Lane, Waterbeach, Cambridgeshire (National Grid Reference (NGR) TL 4994 6558; Fig. 1). This followed a trial trench evaluation conducted at the same site in February 2010. The excavation site comprised a widened area focussed on and incorporating the two trial trenches excavated during the preceding evaluation. The evaluation revealed Romano-British archaeology to be present at the site and recovered substantial quantities of Romano-British pottery. The excavation that followed identified a small number of middle Iron Age features and a dense area of intercutting Roman features with kilns present at either end of the excavated site. The majority of this Roman period activity appears to have occurred within the first quarter of the 2nd century AD.

Background

Waterbeach is located *c.* 8km north northeast of the centre of Cambridge and 15km south southwest of Ely. The site lies on the northern side of Pieces Lane (to the rear of the existing No. 12), on the eastern edge of the village of Waterbeach (Fig.1). It comprises a long narrow lot, bounded by Saberton Close to the east and the rear plots of Hartley Close to the west.

The Parish of Waterbeach is situated on the west bank of the river Cam, with the village located at the southern end of the parish. The site lies at an average of 4m AOD on Gault Clays mainly overlying Greensand with alluvial deposits around the River Cam. The surrounding area remains fairly flat, dropping gently to Ordnance Datum level at Swaffham Prior Fen only rising, to a height of 18m AOD at Church Hill to the north of Swaffham Prior, *c.* 7km to the east. The soils of the area are the deep peat soils of the Adventurers' 1 association (Soil Survey of England and Wales 1983).

The identification of Middle Iron Age activity within the village of Waterbeach itself is of note as Iron Age activity is poorly represented in the area surrounding the site. Four sherds of Belgic pottery (Cambridgeshire Historic Environment Record (CHER) 05405a), no later than AD 50 in date, have been recovered from the area of the Car Dyke, suggesting a *terminus post quem* for the monument. This represents the only evidence, so far recorded, for Iron Age activity within a 1km radius of the excavation site. However, at Stony Hills, c.2km to the north, Early and Late Iron Age pottery has been recorded along with Roman occupational debris covering an area of 5.4ha on a low gravel peninsula just north of Denny (Hall 1996, 123). Iron Age archaeology has also been identified within a 4km radius of the site during work associated with the Histon to Waterbeach Cable (Dickens *et al.* 2003), the Cottenham to Landbeach pipeline (Hall 1999) and along the Great Ouse gravel terrace (Masser 2000). Iron Age settlement is well represented in the area to the south of Waterbeach and to the north of Cambridge, especially around Milton (Taylor 1998, 3; i.e. CHER MCB 17882).

In the Roman period there was fairly widespread settlement in the area with concentrations to the south, where a large pottery industry was located over *c.* 12 to 16 hectares on land around Horningsea, and to the north, around Denny and Stony Hills (Evans 1991, 33). Another Roman site is known in the approximate area

Proceedings of the Cambridge Antiquarian Society CI pp. 143–160.

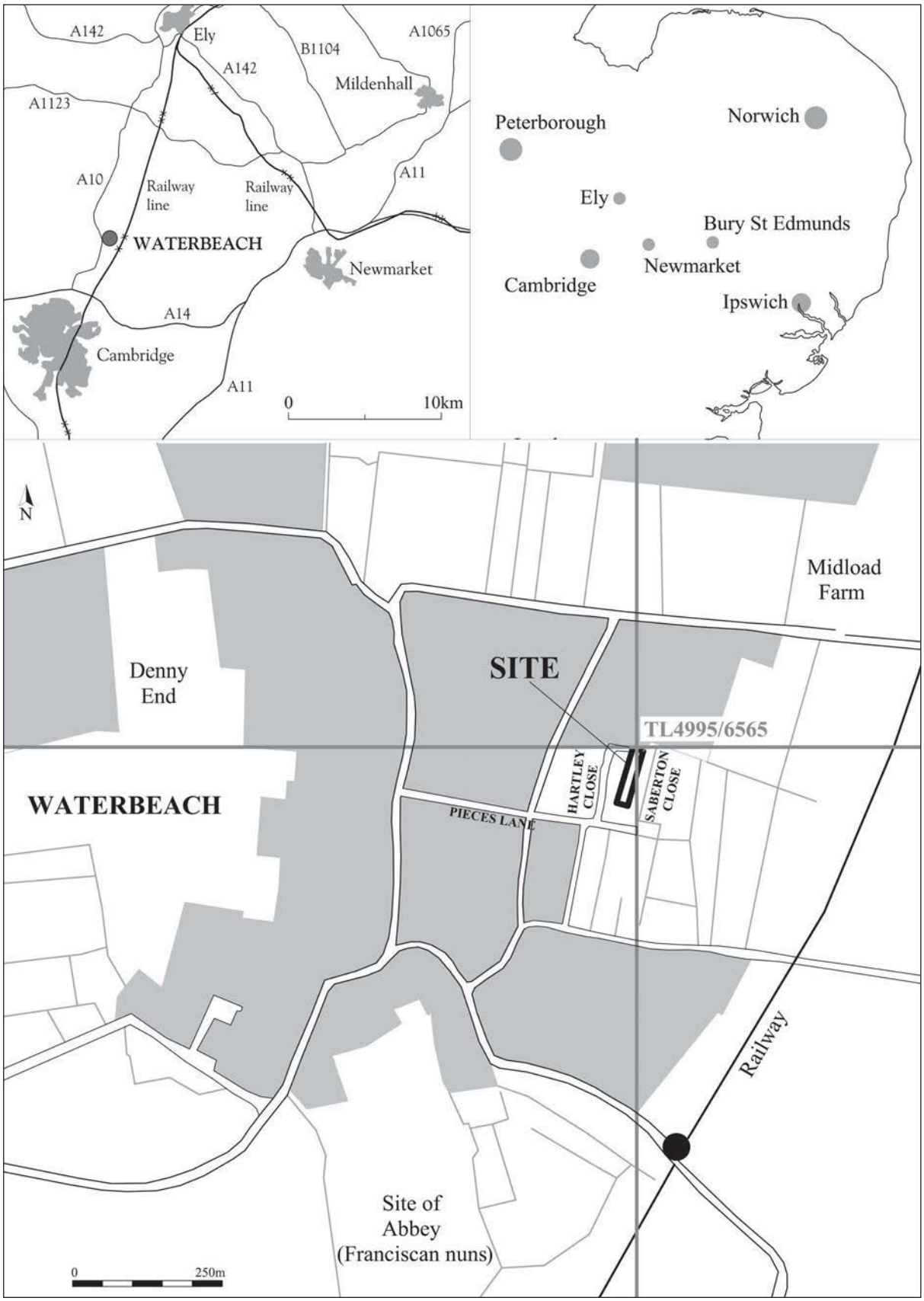

Figure 1. *Site location.*

of the airfield to the north of Waterbeach. The site is located in an area that may have been reclaimed from the fenland during the Roman period. Despite this, Roman archaeology is comparatively limited in the vicinity of the Pieces Lane site. The most important Roman archaeology within the immediately surrounding area is the Car Dyke (CHER 05405) which is a Scheduled Monument. The dyke or canal was built in the early Roman period bounding the western edge of the Fen and ran for 140km into Lincolnshire, with at least the stretch between the Nene and Lincoln interpreted as navigable. Archaeological investigation of the Car Dyke Canal (Old Tillage) *c.* 500m to the south-west of the site proved that in the 2nd century AD the canal, with an adjacent possible warehouse and kiln, ran directly into the River Cam and may have included locks and a barge-turning/docking area at the convergence of the two water courses (Evans *et al. forthcoming*). In 2004, an evaluation approximately 300m to the north-west of the site found gullies, containing Roman pottery, interpreted as enclosure boundaries (CHER MCB 17241).

The A10, which passes to the west of Waterbeach is thought to follow the route of Roman Akeman Street. To the north-west, in the area of the Waste Management Park at Ely Road, Waterbeach an evaluation in 2008 recorded the edge of two Romano-British enclosures with associated settlement and quarrying evidence (Ranson 2008). This added to an already well known Roman landscape in this area. A Roman temple to the north of the Waste Management Park has been identified on aerial photographs; coins and a votive axe have been recovered from the site of this temple and a Roman cremation cemetery has been identified adjacent to it (Cooper and Whittaker 2004). Cropmarks in the area surrounding the temple have been destroyed by quarrying but ditches and waterlogged pits containing a variety of artefacts were excavated. Previous investigations at the Waste Management site recorded Roman period settlement activity. Further quarrying and rural settlement evidence has also been recorded in this northern part of Waterbeach parish (Whittaker 1997; Hall 1999; Dickens *et al.* 2003).

To the south of Waterbeach, Romano-British settlement, industrial activity and a cemetery have been identified between Horningsea and Clayhithe. A villa site is known at Arbury and farmsteads and industrial activity have been identified at Milton (Connor 1999). A large well preserved settlement and field system has been recorded along the route of the Car Dyke (Browne 1977).

The excavation

In excess of 80 archaeological features (Fig. 2) were recorded during the excavation; detailed archaeological descriptions and discussion of these features, their chronology and phasing can be found in the Research Archive Report produced for this project (Newton 2011).

The excavation revealed two clearly distinct phases of activity (Fig. 3). The first of these, Phase 1, was activity of Middle Iron Age date (3rd–1st century BC) found in four features limited to the southern half of the excavated area. These comprised two intercutting pits (F2109 and F2111; Grid Square C8) and two discrete pits (F2131; Grid Square D4 and F2181; Grid Square C2) which lay further to the south. Iron Age pottery was also found as residual material in numerous features dated as Romano-British. Notable concentrations of residual Iron Age pottery occurred in Roman Ditches F2133, F2117 and F2066. This, and the large assemblage recovered from Pit F2131, suggests that there may have been a significant level of Iron Age activity at or close to this location which may have been almost completely obscured by the fairly intense Roman activity that eventually succeeded it.

The second phase of activity was dated on ceramic evidence to within the early 2nd century AD, the Trajanic/Hadrianic period, and appears to have occurred within a very short time frame of *c.* 25 years. The Roman archaeology comprised a series of intercutting features that may be proposed to represent 12 sub-phases of activity (Phases 2.1–2.12; Fig. 3). This interpretation is based on the distinctions that can be drawn from the stratigraphic relationships between the dense concentrations of features within the narrow excavated area, principally ditches, some of which extend substantial lengths through the site providing stratigraphic horizons before or after which inter-cutting features must date. In a very small number of instances, spatial relationships have been used in the sub–phasing to bridge gaps where the stratigraphic matrix provides no conclusive information regarding the inter-relationship of features; in these cases some margin of error must be allowed for. The sub-phases represent an attempt to construct a functional structure for the features, which cannot conceivably have been directly contemporary within the Roman period if enclosures containing the apparatus of pottery production were active in the area excavated. Analysis of the pottery assemblage has been unable to provide any differentiation in date between the stratigraphically identifiable sub-phases of Phase 2. The intercutting nature of the Phase 2 features, within what the dateable pottery indicates was a short timeframe, suggests that the layout of the site was subject to constant, or at least repeated, remodelling.

The main focus of activity within the Phase 2 archaeology was the pottery kilns and the associated waster deposits recorded at either end of the length of the excavated area. The first of these kilns, S2171, occurred in Phase 2.4 and the second, S2020, in Phase 2.11. In addition, evidence to suggest that earlier kilns had existed in the approximate locations of S2171 and S2020 was recorded in Phases 2.1, 2.2 and 2.3. This would suggest that the kilns were frequently replaced and that those identified *in situ* were merely the most recent in a succession of such features. Both of the identified kilns and all of the possible earlier kilns appear to have been associated with ditches deliberately cut to allow access to the subterranean flues and

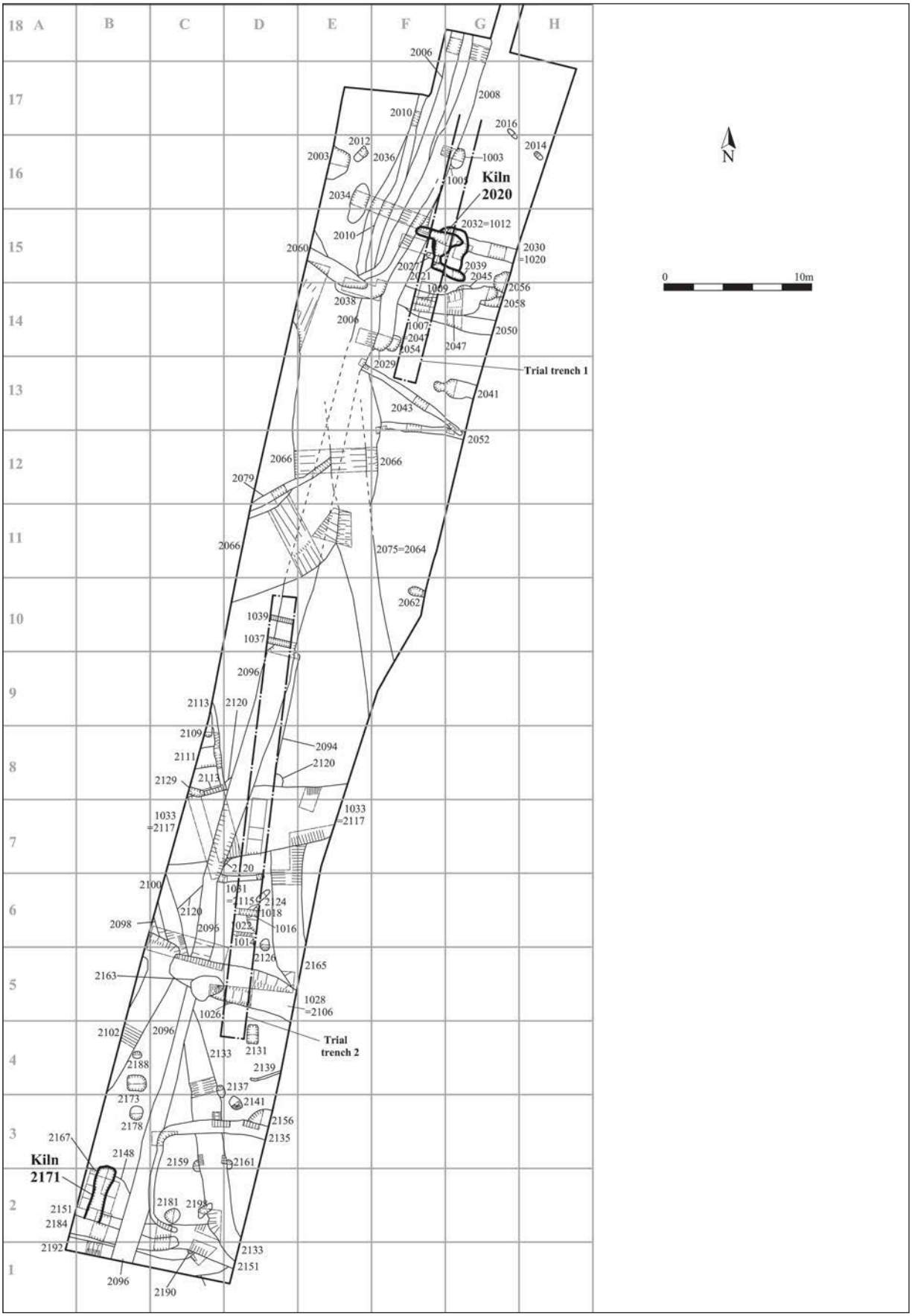

Figure 2. *All features.*

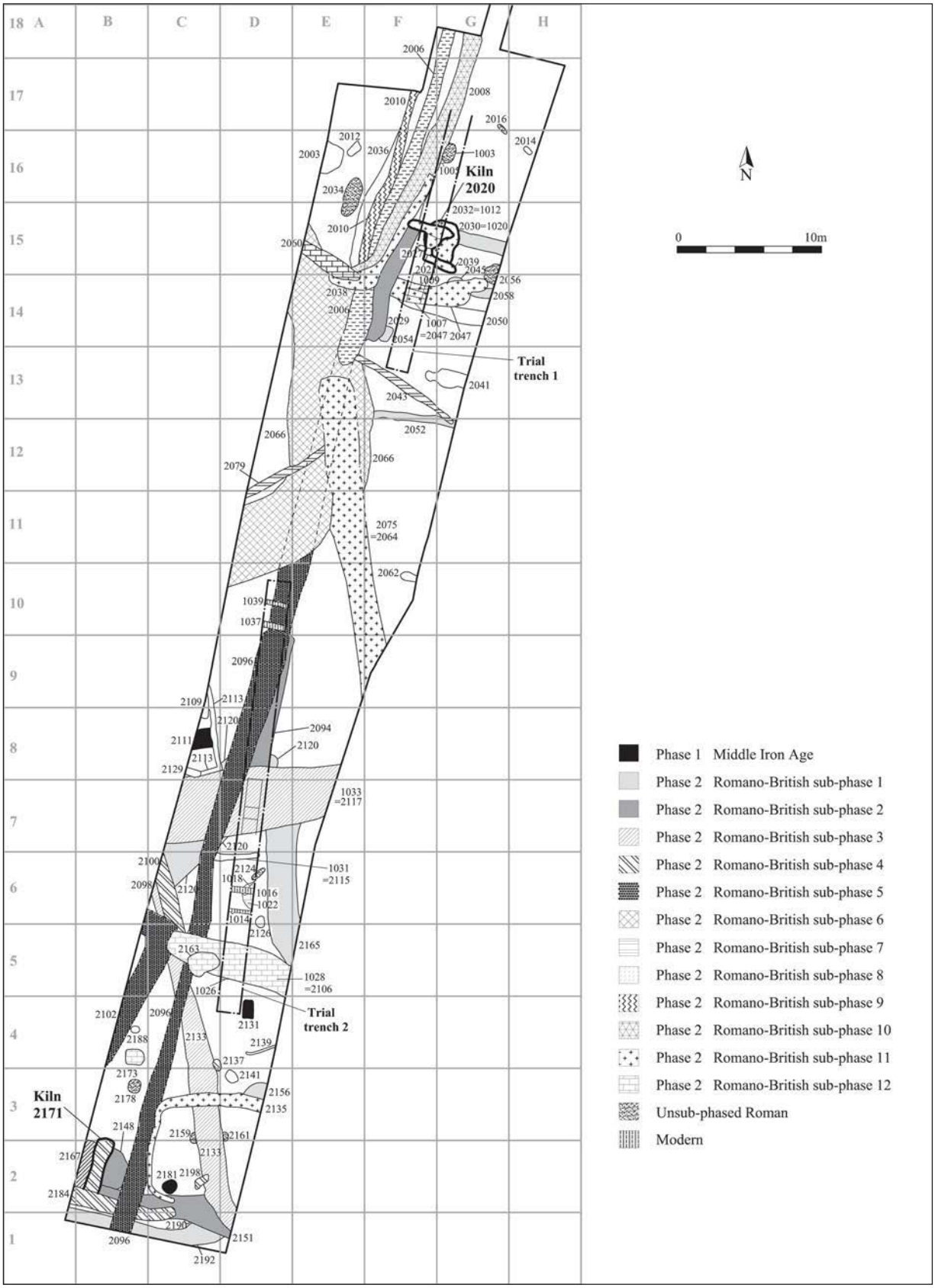

Figure 3. *Phase plan.*

stoke-holes of the kilns and possibly to shield them from the wind.

Most of the Phase 2 features not directly associated with the kilns are most likely to have formed boundaries or enclosures associated with the division of the industrial space. The limited size and shape of the excavated area have made it difficult to trace the full extents of most of these features and therefore to develop an understanding of the way in which the land was partitioned. Hearth/Pit F2173 (Grid Square B4) is one of the few interesting features aside from the kilns. Its basal fill, a very dark grey brown firm charcoal-rich clay silt, contained worked stone and medium to large lumps of fired clay that appeared to have been arranged on the base of the feature so as to form a hearth. Burnt stone and animal bone were also recovered from this feature. Also of interest is Gully F2135 (Grid Squares D3–C2), located to the east of Kiln S2171, which could date to Phase 2.6 or later in Phase 2 as it was not cut by any other features. Gully F2135 (L2136) contained a pre-Flavian, copper-alloy Roman military belt plate with traces of decoration, a bone stylus, pottery, burnt flint and animal bone.

The Kilns

Introduction

The limited size of the excavated area and the density of the Phase 2 features afford a less than clear picture of much of the Roman archaeology. The main research importance of the site is, therefore, the kilns, their output and the contribution that they make to furthering understanding of the Horningsea pottery industry.

Two kilns were identified at the site, the Phase 2.4 Kiln S2171, located at the southern end of the site, and the Phase 2.11 Kiln S2020, which was located towards the northern end of the excavated area. A series of earlier features in the same approximate location as Kiln S2171 are considered to represent possible predecessors to the Phase 2.4 kiln. It is also possible that Phase 2.1 features truncated by Kiln S2020 may have been associated with an earlier kiln at that end of the site.

Kiln S2171 (Fig. 4; Plate 2)

At the very southern end of the site Phase 2.4 was represented by Pit F2146, which contained Kiln Structure S2171, and the associated Ditch F2184. Pit F2146 (Grid Square B2) was elongate in plan, tapering slightly in the middle with moderate to steep sides and a flattish base. The basal fill, L2147, recorded as L2176 where it

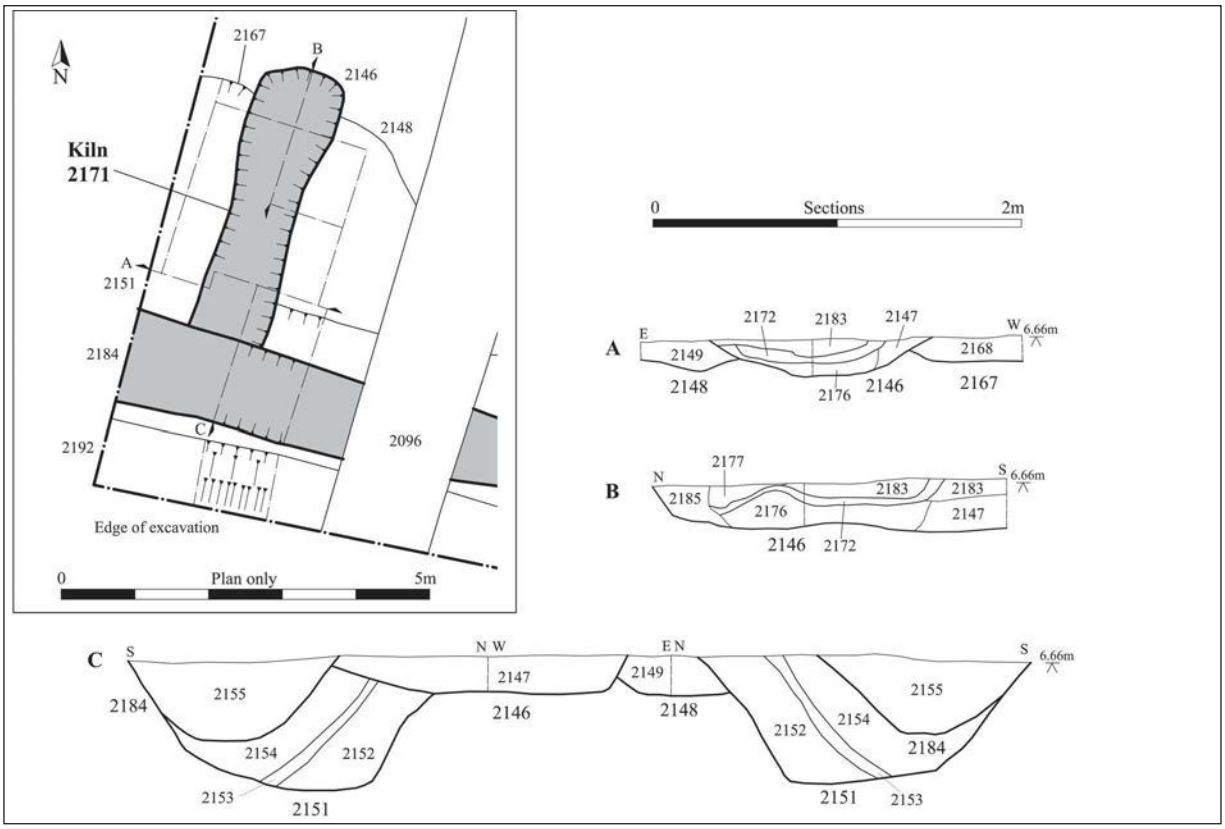

Figure 4. *Kiln 2171 and associated ditch 2184.*

occurred within the kiln structure, was a dark brown to black compact clayey silt with moderate small stones and occasional charcoal. This contained pottery, fired clay, burnt stone and animal bone. It was overlain by L2172, which represented the demolished superstructure of Kiln S2171 and comprised a layer of mid brown orange compact burnt and fired clay. This in turn was overlain by a light brown-grey compact silty clay (L2183) and a possible levelling layer, L2177, was identified overlying this. Pottery was present in only limited quantities in Kiln S2171, contained in Pit F2146 (L2147 and L2176).

Ditch F2184 (Grid Squares A2–C1) was linear in plan and aligned approximately east to west. It lay immediately adjacent to Pit F2146, to the south. It clearly functioned in conjunction with Kiln S2171 as the flue of the kiln opened out into this ditch. A large waster deposit, comprising 1129 pottery sherds (25,599g), was recovered from Ditch F2184 (Seg. A) in the zone where the two communicated.

Kiln S2171 and the associated waster dump in Ditch F2184 (L2155 Seg. A) contained significant quantities of kiln lining and fragments of kiln furniture (Table 1). The bulk of the kiln lining (*c.* 86%) was, naturally, recovered from the collapsed and raked out superstructure of Kiln S2171 contained in Ditch F2184 (L2155 Seg. A) and included fragments of integral pilasters. These, however, were too fragmentary to deduce the number of pilasters or their size in the kiln chamber. A single, more complete, integral pilaster was contained in Ditch F2184 (L2155 Seg. A), while two fragments (92g) of perforated clay plate remained contained in the kiln chamber. It is also notable that Pit F2146 contained the large complete base (but not body) of a Horningsea storage jar that may have been re-used as a clay plate inside the kiln.

Table 1. *Quantification of fired clay and kiln furniture in Kiln S2171 and the associated Ditch F2184 by number (No.) and weight (Wt, in grams).*

Feature/Group	Fired Clay (Kiln Lining)		Kiln Furniture (Clay Plates)	
	No.	Wt.	No.	Wt.
Kiln S2171	38	1451	2	92
Ditch F2184 (L2155 Seg.A)	219	8202	0	0
Total	**257**	**9653**	**2**	**92**

Kiln S2020 (Fig. 5; Plate 3)

Pit F2030 formed the base into which Kiln S2020 was cut. F2021 lay within this pit and represented the construction cut for the kiln structure. It was lined with kiln lining L2022, a light pinkish-white baked clay 0.10m thick. The interior of Kiln S2020 was filled with L2023, a black-brown compact silty clay with occasional medium angular stones and a concentration of bluish yellow clay towards the upper reaches. Immediately adjacent to the south was the sub-rectangular Pit F2039; this feature clearly communicated with the kiln structure and must have comprised a stokehole for the kiln. Leading from the kiln structure in a west-north-westerly direction, and communicating with Ditch F2038 was Flue Gully F2032. A second gully, F2027, led to the east-south-east and would appear to have performed a similar function. In excess of 33kg of pottery were recovered from features forming Kiln S2020, the vast majority of this was Horningsea reduced or oxidised ware, though a very small quantity of imported pottery types was identified within this assemblage.

Ditch F2038 was located to west of Kiln S2020, running north to south. Ditch F2047 lay to the south of the kiln; this was recorded as two separate gullies, F1007 and F1009, during the preceding trial trench evaluation. Like Ditch F2184, which was associated with the Phase 2.4 Kiln S2171, Ditches F2038 and F2047 appear to have been excavated to allow access to, and aid operation of, the kiln with which they were associated. Flue Gully F2032 opened out into Ditch F2038 and Gully F2027 lay in very close proximity to Ditch F2047. Over 20kg of pottery was recovered from F2047 and a further 7kg was found in F2038; the vast majority of this was Horningsea ware and occurred primarily as waster deposits. Kiln lining and kiln furniture was also present amongst this material, especially in Segment A of Ditch F2047. This material would have been raked from the firing chamber of Kiln S2020 and was seemingly left in the ditch when the feature was in-filled.

Kiln S2020 and the associated waster dump in Ditch F2047 (L2049 Seg. A) contained significant quantities of kiln lining and fragments of kiln furniture (Table 2). High concentrations of kiln lining were, expectedly, present within construction cut F2021 (L2022), Stoke Pit F2039 (L2040) and Flue Gully F2032 (L2033) but did not include any integral pilasters that would indicate the internal structure of the kiln chamber. However, Stoke Pit F2039 (L2040 Seg. C) did contain three fragments (256g) of prefabricated, probably circular, clay plate that are likely to have been raked out of the kiln chamber. The waster deposit contained in Ditch F2047 also included a relatively large fragment (385g) of integral pilaster, also probably raked out of the kiln chamber.

Table 2. *Quantification of fired clay and kiln furniture in Kiln S2020 and related features by number (No.) and weight (Wt, in grams).*

Feature/Group	Fired Clay (Kiln Lining)		Kiln Furniture (Clay Plates)	
	No.	Wt.	No.	Wt.
Kiln S2020	168	3162	3	256
Ditch F2047 (L2049 Seg.A)	56	1751	0	0
Other Ditch F2047	5	117	0	0
Ditch F2038	36	237	0	0
Total	**265**	**5267**	**3**	**256**

Kiln furniture and lining

Seven fragments of pre-fabricated kiln furniture

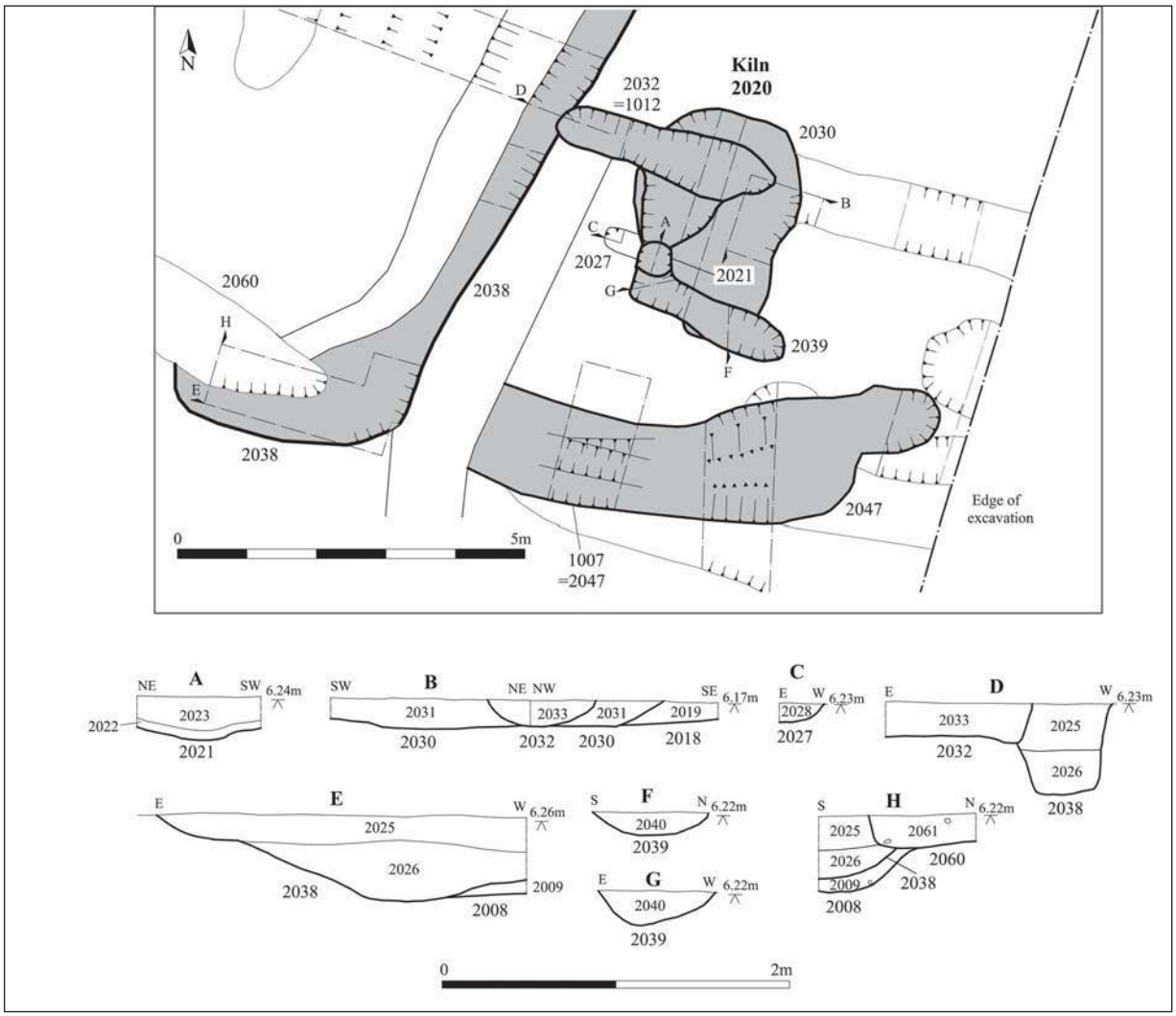

Figure 5. *Kiln 2020 and associated ditches 2038 and 2047.*

(388g) and 667 fragments (28,966g) of kiln lining, including integral pilasters, were recovered during the archaeological excavation. This material was not limited to Kilns S2171 and S2020 and their associated features. It was present in 10 of the 12 stratigraphic sub-phases of Phase 2, with a single intrusive fragment also contained in the middle Iron Age, Phase 1, Pit F2131, while a concentration of 55 fragments (11189g) including integral pilasters was also present in Phase 2.12 Hearth F2173.

The kiln furniture and lining is entirely associated with the production of pottery on and in the vicinity of the site in the Roman period (Phase 2). The prefabricated kiln furniture comprises clay plates that may have been used to construct and insulate the dome of a kiln, or to form a temporary floor in a kiln, while the kiln lining was also used to form integral pilasters attached to the kiln wall that would have supported kiln furniture (i.e. clay plates or bars). The kiln furniture and lining can be viewed as an industrial by-product of the firing process, at the end of which it is re-used, re-cycled, left *in situ* in the kiln chamber or raked out into a waster or refuse deposit.

Kiln furniture

The seven fragments of kiln furniture were all clay plates, far fewer than the 661 fragments from the kiln recorded at the Car Dyke, Waterbeach (Evans *et al.* forthcoming). In addition to that recorded in Kiln S2171 and Kiln S2020, fragments of clay plate occur in Phase 2.1 whose features may be associated with the ephemeral remains of a kiln truncated by Kiln S2020.

The clay plates in this assemblage have a thickness of *c.* 10mm with slightly irregular, uneven surfaces, but, unlike the examples from Eye Hall Farm, do not exhibit any grass or cereal impressions (Walker 1912, 48). A fragment contained in Stoke Pit F2039, part of Kiln S2020 exhibits a curvilinear edge. The fragment is of insufficient size to indicate the original shape of the plate. If the clay plate was circular it would have had a diameter of 44cm, significantly larger than examples previously recorded in association with Horningsea ware kilns, but identical to the

dimensions of the base of a storage jar contained in Phase 2.4 Kiln S2171, suggesting that such a base may have been used as a template. A separate fragment contained in Phase 2.1 Gully F2058 exhibits a typically uneven 'upper' surface but is noticeably smooth and flat on the opposing side, suggesting that a storage jar base may even have been re-used as a crude mould or cutting block. Furthermore, a fragment of clay plate from Phase 2.4 Ditch F2184, in the waster deposit associated with Kiln S2171, exhibits a 20mm wide pre-firing circular perforation.

Kiln Lining, including Integral pilasters

The kiln lining would have comprised tempered wet clay that was applied to the kiln chamber, flue and dome prior to firing and, where necessary, was 'sculpted' to form integral pilasters attached to the kiln wall that would have supported pre-fabricated kiln furniture. The kiln lining that was not used to form integral pilasters is typically less than 30mm thick and usually exhibits smearing marks on the 'interior' surface. Fragments in Pit F2141 and Posthole F2190 exhibit parallel rod impressions, 15–20mm wide and spaced 10mm apart, which indicate that the kiln dome was formed using a wattle frame, around which the kiln lining was packed. The principal concentrations of kiln lining, not associated with integral pilasters, are limited to the collapsed superstructure of Kiln S2171, and construction cut F2021 and Stoke Pit F2039 of Phase 2.11 Kiln S2020.

The highest concentration of recognisable fragments of integral pilaster, sculpted by hand from the kiln lining, was contained in Phase 2.12 Pit F2173, where they had possibly been reused, arranged so as to form a hearth surround, and comprised a total of ten fragments (6,817g) representing at least six individual pilasters. Further fragments of integral pilaster were contained in the collapsed superstructure of Kiln S2171 and in the waster deposit associated with Kiln S2020 in Ditch F2047. Sparse fragments were also contained in Phase 2.3 Pit F2167 and Ditch F2133.

The integral pilasters are all tongue-shaped and would have projected at an approximately perpendicular angle to the concave wall of the kiln chamber. They all appear to have a slightly 'waisted' profile, and although none are complete, they appear to have stood at least 140mm high. The integral pilasters in Kiln S2171, those associated with Phase 2.11 Kiln S2020 and those contained in Phase 2.3 Pit F2167 would have projected 50–60mm from the kiln wall and are 110–120mm wide where they were fixed to the kiln wall. However, at least one example in Phase 2.12 Pit F2173 appears to project 160mm and have a width of 160mm, raising the possibility that it was part of central (oval in horizontal section) pedestal or extended from the rear towards the centre of the kiln chamber as a tongue shaped pedestal. Like the smaller pilasters, it was not pre-fabricated and was formed from the kiln lining. It remains unclear how many pilasters would have been used in either of the excavated kilns.

The Roman pottery assemblage

A total of 7960 fragments (119,299g) of Roman pottery were recovered during the trial trench evaluation and the excavation. Significant waster deposits were present in the kilns and their associated ditches in Phase 2.4 and 2.11 (Table 3), while further small concentrations of pottery in Phase 2.1, 2.3 and 2.6 were also informative of activity on the site.

Table 3. *Quantification of Roman pottery in select stratigraphic phase groups by sherd count (SC), weight (Wt, in grams) and rim estimated vessel equivalents (R.EVE)*

Stratigraphic Sub-phase	**Roman Pottery**		
	SC	Wt.	R.EVE
2.1	151	1377	0.63
2.3	424	6006	1.27
2.4	1198	27378	9.95
2.6	335	4030	1.48
2.11	4989	69059	18.69
Other Sub-phases	*863*	*11449*	*2.39*
Total	**7960**	**119299**	**34.41**

The production of Horningsea ware is well attested in the area surrounding the Roman Car Dyke and Akeman Street, and this assemblage provides a further valuable contribution to the corpus of knowledge regarding the industry. The kilns described here were associated with waster dump deposits in adjacent ditches, indicating that the ditches may have been used to access sub-surface flues or stoke-holes, possibly situated to minimise wind interference and allow a more controlled firing. The bulk of the assemblage is comprised of Horningsea ware fabrics with occasional sherds of samian ware and regionally imported wares also present. Characteristic Horningsea ware form types in this assemblage include carinated bowl-jars with everted bead rims and plain neck cordons, jars with rilled decoration, and narrow-neck jars with plain neck cordons, while other jar types, storage jars, bowls, beakers, platters and lids are also present.

The Horningsea Ware Kiln Products

Both recorded kilns were producing Horningsea ware fabrics (Tomber and Dore 1998, 116) and sherds in these fabrics form the bulk of the assemblage, accounting for 99.6% of the Roman pottery by sherd count (99.5% by weight). No difference could be discerned at x20 magnification in fabric composition between the products of the two kilns. Potential subdivisions within Horningsea ware fabrics have been explored (Evans 1991, 35) but have been abandoned on the basis that they represent no more than points on a continuum of inclusions, sorting and coarseness (Evans *et al.* forthcoming, 28). The Horningsea ware vessels all appear to have been made on a wheel, although the storage jars may have been coil-built be-

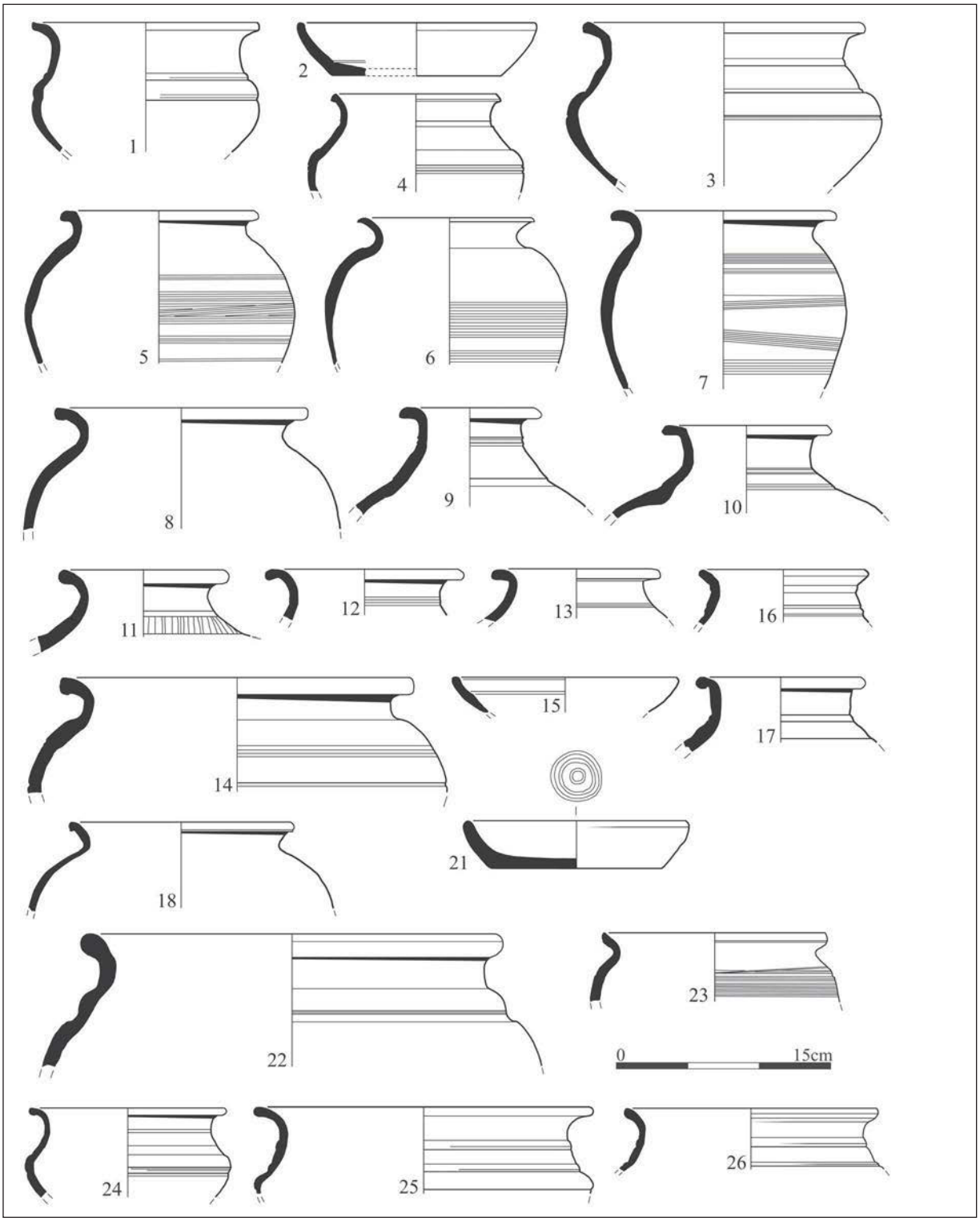

Figure 6. *Pottery.*

fore being finished on a wheel. The Horningsea ware fabrics in this assemblage have been divided into reduced (HOR RE1) and oxidised variants (HOR OX1), although this division is slightly arbitrary as many sherds have been misfired or repeatedly fired resulting in reduced surfaces with a contrasting oxidised core, or vice-versa.

HOR RE1: Horningsea reduced ware. A reduced mid-grey core and darker reduced surfaces, and inclusions of common quartz (0.1–0.5mm) with sparse limestone and grog/ironstone (generally <2mm) and occasional flint (0.5–5mm).

In total: 4113 sherds (65,218g).

HOR OX1: Horningsea oxidised ware, as HOR RE1 but occurring in oxidised pale to mid-orange tones.

In total: 3816 sherds (52,887g).

Horningsea Ware Form Types

The form types present in this assemblage appear to represent the products of the two kilns, with the bulk of forms directly associated with kiln or waster dump deposits. The form classifications and alpha-numeric codes are drawn from the type series developed for the Horningsea industry (Evans *et al.* forthcoming), which includes a much greater range of forms than is present in this assemblage. The type series makes comparisons with numerous sites in the Waterbeach area to establish overall form type chronologies, and while it has been attempted not to repeat these, additional comparisons with other potentially contemporary Trajanic-Hadrianic pottery groups in the region are made, notably those at Great Chesterford (Miller 1995) and Cambridge (Hull and Pullinger 1999). The occurrence of form types in individual Phase 2 subphases is summarised in Table 4 and key groups discussed below, but the relevant entries in the type series are included with additional comment in this report to facilitate ease and brevity in the subsequent discussion. Only a single platter or dish (D2.5) does not appear in Evans *et al.*'s (forthcoming) typology, while numerous fragments of everted plain or bead rim jars were too small to be assigned a specific type.

B1.1 A carinated bowl or bowl-jar with an everted rim and neck cordon. The examples in this assemblage generally have a plain rim, although bead rims also occur. The cordon also generally appears plain with one example exhibiting a burnished lattice, although this may be an issue of preservation or over-firing resulting in the removal of decoration. In contrast to the examples in Evans *et al.* (forthcoming) typology, the examples in this assemblage have an additional groove beneath the carination, creating a plain shoulder cordon. This is the most common form in the assemblage, first occurring in Phase 2.2, and present in both Phase 2.4 Ditch F2185 associated with Kiln S2171 and Phase 2.11 Kiln S2020. This vessel type is extensively paralleled in late 1st to early 2nd century AD deposits at Great Chesterford (Miller 1995: vessels 22, 27, 29, 34), Teversham (Pullinger and White 1991: vessels 62 and 104), and Cambridge (Hull and Pullinger 1999: vessels 364, 517 (plain), and 514 (with burnished lattice)). Figs. 6.1, 6.3, 6.4, 6.24, 6.25, 6.26, 7.27, 7.28 and 7.29.

B2.1 A segmental bowl with a small bead and thick flange. One example has widely spaced rilling or grooves on the exterior. Occurs in Phase 2.11 Gully F1009 (L1010), associated with Kiln S2020, and also in Phase 2.12. Figs. 7.46 and 7.47.

B7.2 A bowl with splayed, slightly incurving sides and a bead rim, often slightly undercut. Occurs in, and associated with, Phase 2.11 Kiln S2020. This vessel is paralleled in late 1st to early 2nd century AD pit deposits at Great Chesterford (Miller 1995: vessel 10). Figs. 7.48 and 7.49.

CJ1.1 A constricted neck jar with a short everted/splayed plain rim and a neck cordon. The neck cordon is generally plain with one example exhibiting burnished vertical lines although this may be an issue of preservation or over-firing resulting in the removal of decoration. The form first occurs in Phase 2.1 and is also present in Phase 2.11 Kiln S2020.This vessel is paralleled at Cambridge (Hull 1999: vessel 426). Figs. 6.9, 6.10, 6.11, and 7.30.

CJ1.2 A constricted neck jar with an everted slightly cordoned rim and a neck cordon. Occurs in Phase 2.4 Ditch F2184, associated with Kiln S2171. This vessel is paralleled at Cambridge (Hull 1999: vessel 437). Fig. 6.16.

CJ1.5 A constricted neck jar with a horizontal flanged rim and two grooves or a cordon on the neck. Occurs in Phase 2.4 Ditch F2184, associated with Kiln S2171. Figs. 6.12 and 6.13.

CJ1.6 A constricted neck jar with a short everted/splayed bead rim and a neck cordon. The cordon on all examples in this assemblage is plain; decoration may have been obscured by over-firing. This vessel is paralleled in a Claudian ditch at Cambridge (Hull and Pullinger 1999: vessel 268). Figs. 6.17, 7.31, 7.32 and 7.33.

D1.1 A shallow dish with a simple, slightly incurving rim. One example has burnished concentric circles on the interior of the base. This form first occurs in Phase 2.6 and is also present in Phase 2.11 Gully F1009 (L1010). This vessel is paralleled at Cambridge (Hull and Pullinger 1999: vessel 587). Figs. 6.21 and 7.45.

D8.1 A copy of a Gallo-Belgic platter with a slight offset at the junction of wall and base; may be white-slipped. Occurs in Phases 2.3, 2.4 & 2.6, including in Phase 2.4 Ditch F2184, associated with Kiln S2171. This form type is extensively paralleled in early Roman deposits at Cambridge (Hull and Pullinger 1999: vessels 325, 340, 490 and 538). Figs. 6.2 and 6.15.

J1.1 A shouldered jar with a bifid rim. Only occurs in Phase 2.4 Ditch F2184. This vessel type was recorded in the early Roman fort ditch at Cambridge (Hull and Pullinger 1999: vessel 405). Fig. 6.18.

J6.2 A jar with a down-turned bead rim, slight shoulder and straightish sides. Only occurs in Phase 2.11 Kiln S2020. Fig. 7.50.

J6.4 A neckless, shouldered jar or beaker with a short, straight, pointed rim. Only occurs in Phase 2.11 Ditch F2047 (L2049 Seg. A), associated with Kiln S2020. This form type was recorded in the Claudian ditch and early Roman palisade at Cambridge (Hull and Pullinger 1999: vessels 330 and 530), also produced at Greenhouse Farm (Gibson and Lucas 2002: vessels 34–6) and Cherry Hinton (Evans 1990: vessel 8). Fig. 7.51.

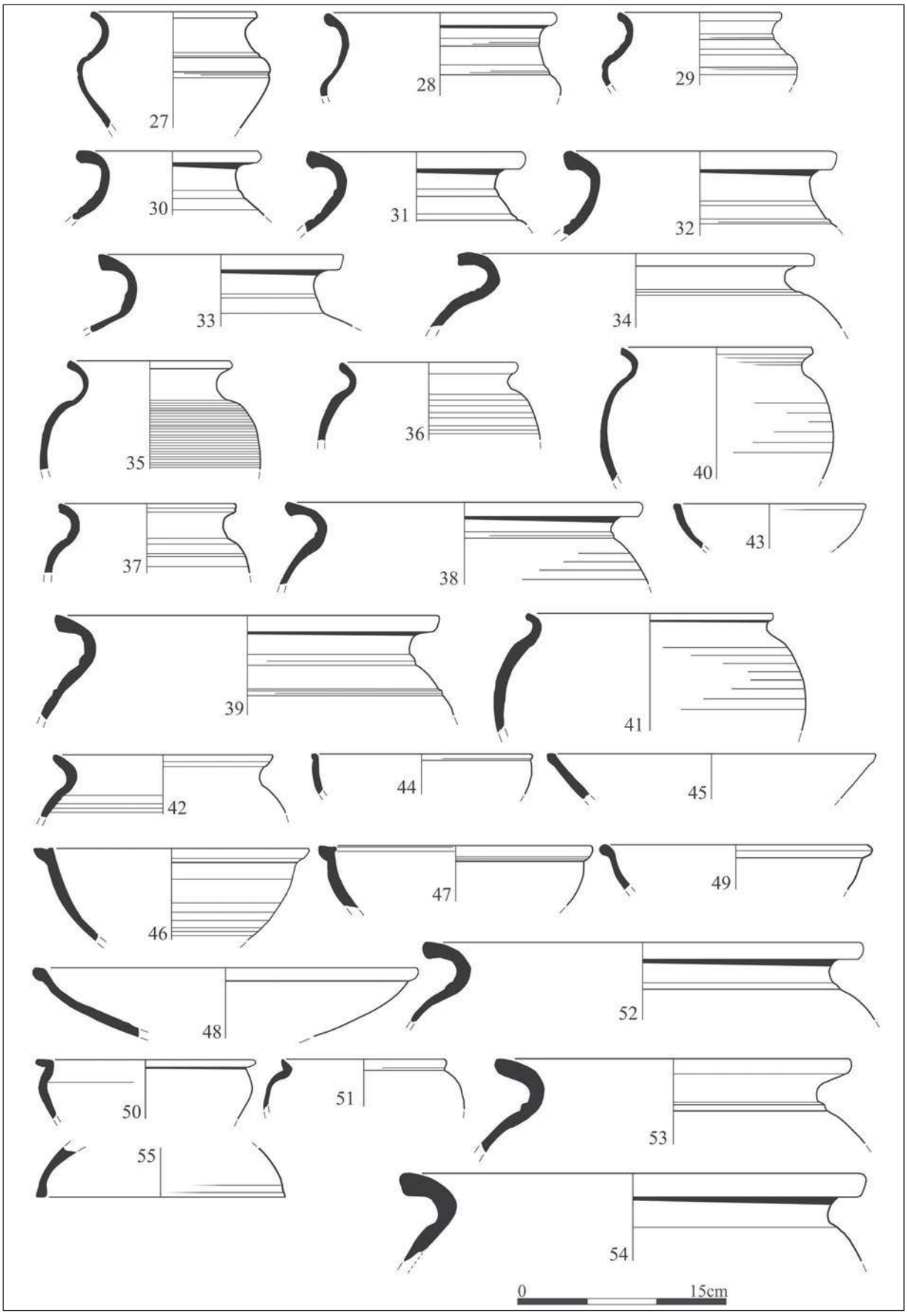

Figure 7. *Pottery.*

J9.1 A necked jar with an everted swelling rim and a plain shoulder cordon. Occurs in Phase 2.11 Ditches F2038 and F2047, both associated with Kiln S2020. Figs. 7.52 and 7.53.

J9.2 A necked jar with an everted swelling rim and a ridge-like shoulder cordon. The single example is significantly larger (diam. 30cm), than the typical entries in the type series (diam. 15cm). This form type only occurs in Phase 2.6 and is similar to handmade, wheel-finished examples at Greenhouse Farm (Gibson and Lucas 2002: vessel 8). Fig. 6.22.

J9.3 A necked jar with a strongly everted, sometimes slightly hooked rim and plain shoulder cordon. Occurs in Phase 2.4 Ditch F2184, associated with Kiln S2171, and with Phase 2.11 Kiln S2020. Fig. 6.14 and 7.34.

J10.5 A necked jar with an everted plain or bead rim and rilled body. Relatively common in this assemblage, it first occurs in Phase 2.2, and is also present in both Phase 2.4 Kiln S2171 and Phase 2.11 Kiln S2020. Figs. 6.5, 6.6, 6.23, 7.35, 7.36 and 7.37.

J10.7 A necked jar with a slightly undercut, everted bead rim and a shoulder cordon. Most examples have a plain cordon, but one example is decorated with oblique comb strokes. This form type first occurs in Phase 2.2, and was also contained in Phase 2.4 Ditch F2184, associated with Kiln S2171 and Phase 2.11 Kiln S2020. Figs. 7.38 and 7.39.

J10.14 A necked jar with a plain everted rim and a slightly shouldered ovoid body, possibly a copy of a black-burnished ware form type. This form type occurs in both Phase 2.4 Ditch F2184, associated with Kiln S2171 and Phase 2.11 Kiln S2020, as well as in Phase 2.12. Figs. 6.7, 6.8, 7.40, 7.41 and 7.42.

J15.1 A necked jar with an everted bead rim, plain shoulder cordon and mid-body rounded carination (not visible on the single example in this assemblage). This form type only occurred in Phase 2.2. Not illustrated

L6.1 A lid with incurving sides and an internal bead phase. A single example was recorded in Phase 2.11 Kiln S2020. Fig.7.55.

SJ1.1 A storage jar with a plain everted rim. This form type was only recorded in Phase 2.11 Ditch F2047, associated with Kiln S2020. Fig. 7.54.

SJ1.2 A storage jar with an everted bead rim. This form type was only recorded in Phase 2.3. Not illustrated.

Previously Uncategorised

(D2.5) (*Proposed type series code*). A shallow dish with slightly incurving sides and a small bead rim, probably a copy of samian form Drag. 18 or 18/31. Comparable dishes in reduced coarse wares have been recorded in a Claudian ditch in Cambridge (Hull and Pullinger 1999: vessel 347) and in a late 1st to early 2nd century AD pit at Great Chesterford (Miller 1995: vessels 9–10). Examples of this form type were contained in and associated with Phase 2.11 Kiln S2020. Figs. 7.43 and 7.44

Table 4. *Quantification of Horningsea form types in Phase 2 sub-phases by minimum number of vessels.*

	Stratigraphic sub-phase group										
Form	**2.1**	**2.2**	**2.3**	**2.4**	**2.6**	**2.7**	**2.8**	**2.10**	**2.11**	**2.12**	**Total**
B1.1		1	1	5	1		1		15		24
B2.1									2	1	3
B7.2									2		2
CJ1.1	1			3					1		5
CJ1.2				1							1
CJ1.5				2							2
CJ1.6				1					6		7
D1.1					1				1		2
D8.1			1	1	2						4
J1.1				1							1
J6.2									1		1
J6.4									1		1
J9.1									2		2
J9.2					1						1
J9.3				2					2		4
J10.5		1		7	1				3		12
J10.7		1		1					2		4
J10.14				4					3	1	8
J15.1		1									1
L6.1									1		1
SJ1.1									4		4
SJ1.2			1								1
misc. everted bead rim	2		5	15	4			2	27		55
misc. everted plain rim	1		4	23	1	1	2		56	2	90
pedestal base					1						1
Uncategorised (D2.5)									3		3
Total	**4**	**4**	**12**	**66**	**12**	**1**	**3**	**2**	**132**	**4**	**240**

Commentary on Key Sub-Phase Groups

The Horningsea ware contained in the heavily truncated Phase 2.1 Gullies F2018, F2050, F2058 and Pit F2045 represents the earliest Roman pottery production on the site and possibly the remnants of a truncated kiln. Gully F2058 included a CJ1.1 constricted neck jar that is unlikely to pre-date the early 2nd century AD.

Ditch F2117 and Gully F2133, in Phase 2.3, were the stratigraphically earliest features to contain significant quantities of pottery, in total 424 sherds (6,006g) including a channel-rim jar in Roman shell-tempered ware (Tomber & Dore 1998, 212) that was probably produced at Harrold, Bedfordshire in the late 1st to mid 2nd centuries AD (Brown 1994: vessels 41–3 and 116–9). The bulk of the Roman pottery in Phase 2.3 is comprised of Horningsea wares including a B1.1 bowl (Fig. 6.1), a white-slipped D8.1 platter (Fig. 6.2) and very small fragments of a SJ1.2 storage jar.

The Roman pottery from Phase 2.4 features is entirely comprised of Horningsea ware sherds associated with Kiln S2171 (Table 5). The sparse sherds from inside the kiln included the base of a storage jar that may represent waster material left in the kiln chamber, or may have been re-used as portable kiln furniture, or as a clay plate that formed part of the kiln superstructure. The bulk of the Phase 2.4 pottery, including all of the diagnostic sherds that could be assigned a form type, occurred as part of a waster deposit contained in Ditch F2184 where the flue of the kiln opened out into the adjoining ditch. At least 55 sherds (1,614g) of Horningsea ware in this deposit exhibited a white-slip, while further sherds may have had their slip removed by over-firing.

Table 5. *Quantification of Roman pottery in Phase 2 Sub-Phase 4 features sherd count (SC), weight (Wt, in grams) and rim estimated vessel equivalence (R.EVE)*

Feature/Group	SC	Wt.	R.EVE
Kiln S2171	42	1418	0.30
Ditch F2184 (L2155 Seg. A)	1129	25599	9.65
Other segments if Ditch F2184	14	135	0.00
Other Ditch and Pit Features	16	239	0.00
Total	**1201**	**27391**	**9.95**

This waster deposit comprised a minimum number of 66 vessels, of which 28 could be assigned a specific form type (Table 4). The most common forms are B1.1 carinated bowls or bowl jars (five examples), J10.5 rilled jars (seven examples) and J10.14 jars with plain everted rims and shouldered bodies (four examples), with the bulk of the miscellaneous everted plain and bead rims probably derived from vessels of these form types. The B1.1 bowls or bowl jars contained in Ditch F2184 vary in rim diameter between 12cm and 30cm, with four examples exhibiting a white-slip (Figs. 6.3–6.4) and one example remaining plain, suggesting a diverse range of potential domestic uses. In contrast, the J10.5 jars (Figs. 6.5–6.6) exhibit a more standardised rim diameter of 12 to 16cm, with shallow or poorly-incised rilled decoration, that often exhibits traces or patches of white-slip. The production standards and quality of the J10.5 type appear to suggest a precise utilitarian function, possibly as cooking pots and they may have been stacked at the bottom of the kiln load because the regular size provided uniform support. Aesthetics appear not to have been the most important consideration for the end vessel; it is possible that slip would have dripped onto the jars from vessels above. The J10.14 jars (Figs. 6.7–6.8) occur with a comparable profile and size range to the J10.5 jars but with plain, undecorated bodies. The remaining form types contained in Ditch F2184 comprise a diverse range of constricted neck jars (Figs. 6.9–6.13, 6.16, 6.17), jars (Figs. 6.14 and 6.18) and platters (Fig. 6.15). Form types B1.1, J10.5 and D8.1 were produced from the late 1st century AD, while the remaining form types did not enter production until the early 2nd century AD. Conversely, the D8.1 platter went out of production in the early 2nd century AD, indicating that the waster deposit in Ditch F2184 was removed from Kiln S2171 in the early 2nd century AD.

The Phase 2.6 Roman pottery was predominantly contained in multiple fills of large curvilinear Ditch F2066, including Roman shell-tempered ware and basal sherds from a white-slipped, fine oxidised mortarium that is probably a product of the kilns at Cherry Hinton (Hartley 1960, 23–5; Evans 1990, 24). The mortarium sherds exhibit heavily worn trituration grits that suggest that the vessel was used in some form of food or material preparation and was not a product of the kilns. The Horningsea form types in this group include D8.1 platters imitating Gallo-Belgic types, a D1.1 platter with burnished concentric circles in the centre of the interior (Fig. 6.21), further jars (Figs.6.22–6.23) and a pedestal base, which suggest that Phase 2.6 does not post-date the early 2nd century AD. The presence of a pedestal base in Horningsea ware is notable, as like examples previously recorded at Horningsea (Evans 1991: fig.5.73–4), it cannot be assigned to a specific vessel type.

The Roman pottery contained in features assigned to Phase 2.11 forms the largest single group in the assemblage, primarily distributed in waster deposits contained in Kiln S2020 or Ditches F2047 and F2038 adjacent to the flue of the kiln (Table 6). The group includes two non-Horningsea ware forms; Drag.18 and 18R platters in Les-Martres-de-Veyre samian ware (Tomber & Dore 1998, 30) and a hemispherical bowl with a curved flange (Perrin 1999, 111: vessels 348-50; Evans 1990, 26) in a white ware possibly produced at Cherry Hinton or the Lower Nene Valley. All three vessels date to the early 2nd century AD. The Drag.18 platter was notable as it had a 3mm post-firing hole drilled through the wall. This post-firing modification of the vessel, more common on 'open' samian ware forms such as platters (Willis 2004: 11.2) may have been to facilitate repair with lead rivets, or to allow a secondary use of the vessel.

Table 6. *Quantification of Roman pottery in Phase 2.11 features sherd count (SC), weight (Wt, in grams) and rim estimated vessel equivalence (R.EVE)*

Feature/Group	SC	Wt.	R.EVE
Kiln S2020	2234	33449	8.7
Ditch F2047 (L2049 Seg. A)	1432	21175	5.48
Other segments of Ditch F2047	507	7100	3.29
Ditch F2038	816	6735	1.22
Other Ditch and Gully Features	78	878	0.63
Total	**5067**	**69337**	**19.32**

The Horningsea ware in the Phase 2.11 waster deposits represents a minimum of 132 vessels, including a significant proportion of warped or misfired sherds. The most common Horningsea ware form types found within or associated with Kiln S2020 mirror those recorded in association with Phase 2.4 Kiln S2171, though in greater quantities. The most numerous of these forms by a significant margin is the B1.1 carinated bowl or bowl-jar (Figs. 6.24–6.26, 7.27–7.29), which accounts for at least 15 vessels in the group and probably a large proportion of the miscellaneous everted rims. Like the examples from Phase 2.4, these B1.1 bowls or bowl-jars exhibit considerable variation in size but, in contrast, no examples from Phase 2.11 exhibit any traces of white slip. The other form types in this group that are also present in features forming or associated with Phase 2.4 Kiln S2171 comprise a CJ1.1 constricted neck jar (Fig. 7.30), CJ1.6 constricted neck jars (Figs. 7.31–7.33), J9.3 jars (Fig. 7.34), J10.5 jars with rilled decoration (Figs. 7.35–7.37), J10.7 jars (Fig. 7.38–7.39), and J10.14 jars (Fig. 7.40–7.41). Of the 20 form types that were identified in features forming or associated with both Phase 2.4 Kiln S2171 and Phase 2.11 Kiln S2020, 7 form types (or 35%) are common to both groups. The remaining form types recorded in the Kiln S2020 waster deposits (Table 3), comprising platters (Fig. 7.43–7.44), dishes (Fig. 7.45), bowls (Fig. 7.46–7.49), jars (Fig. 7.50–7.53), storage jars (Fig. 7.54) and lids (Fig. 7.55) are represented by only one or two examples and, with the exception of one dish type, were only recorded in this group. They were, therefore, either less prone to spoiling during firing, produced in less volume, or not produced prior to Phase 2.11.

Platter D2.5 is significant because it is a form type not previously categorised in the Horningsea form type series (Evans *et al.* forthcoming) that appears to be imitating samian form Drag.18 or 18/31. Examples of platter D2.5 were recorded in Stokehole F2039 of Kiln S2020 and in Ditch F2047. Ditch F2047 also contained the most notable concentration of Horningsea storage jar fragments, comprising fragments of at least four jars. Storage jar fragments are relatively rare in this assemblage, possibly reflecting their robust nature which meant that they were less likely to fracture during firing, in contrast to the likelihood of being broken on a domestic site. The Horningsea ware form types with the Les-Martres-des-Veyre samian ware indicate that Phase 2.11 Kiln S2020 has a chronology comparable with Phase 2.4 Kiln S2171 and does not post-date the early 2nd century AD

Discussion

The nature of the Roman activity

The Romano-British archaeology recorded at this site represents a pottery production site dating to the early 2nd century AD. There appears to have been no domestic occupation within the excavated area, though the presence of small quantities of imported pottery, clearly not produced in the site's kilns, suggests that such activity may have occurred nearby. The pottery assemblage is indicative of industrial scale pottery-production.

Peña (2007, 32) states that there were three basic distinct models for the manufacture of pottery in the Roman world. These range from individual potters working on a part-time basis within the context of rural households producing small amounts of cookwares and utilitarian wares for both domestic use and for sale at market; to, small urban, suburban and rural workshops staffed by a few full-time craftsmen manufacturing a wide array of products for local markets; to, very large urban and suburban workshops staffed by large numbers of highly specialised workers engaged in the intensive production of goods for a mass market. From the quantity and extent of Horningsea ware found at this site it would appear most likely that the site at Pieces Lane conformed to the second of these models.

Reasons for the apparent shift in the focus of activity at the site and the constant remodelling of the site layout during Phase 2 are difficult to identify. The geological conditions of the site, lying on Gault clays, should not have made the ground unstable for the construction of kilns and any associated structures that may have lain in the vicinity, beyond the limits of the excavated area. Neither should a high fenland water table have been a problem as during the Roman period the water table was generally lower than during the Iron Age (Coles and Hall 1998 49). Indeed, if either of these factors were problems at this location, it seems unlikely that the Phase 2 activity would have reached the density that it did.

Technological aspects of the pottery production site

The evidence from this site suggests that the types of kiln furniture, and therefore the kilns themselves, used at this site differed from those used at other sites associated with Horningsea ware pottery. Kilns at Eye Hall Farm have been identified as varying in their internal arrangements, utilising between four and eight pilasters arranged as opposed pairs or diametrically opposed (Evans 1991, 43), while the arrangement of the integral pilasters in Kilns S2171 and S2020 may have included a central pedestal or tongue-shaped

pedestal extending from the rear of the chamber. The prefabricated clay plates used at the Pieces Lane site would have been portable and may have been used several times over in different kilns. This type of kiln technology fits well with the stratigraphic evidence which suggests the repeated replacement of kilns at fairly short intervals, often in approximately the same location, as is suggested by Kiln S2171 and the features which preceded it.

The clay plates in this assemblage appear to differ from those previously recorded in association with Horningsea ware kilns, although the low quantity and small size of fragments should be seen as a limiting factor in drawing this conclusion. Clay plates from other Horningsea ware kilns are 15–23cm wide with no perforations, and have been interpreted as components of the kiln dome used to aid insulation and heat retention (Walker 1912, 46; Evans *et al.* forthcoming, 16–17), and this remains a possible function for the clay plates in this assemblage. However, the larger size and perforation of the clay plates in this assemblage suggests they may have been components in a portable kiln floor, in which they were supported by integral pilasters, strategically placed portable pilasters, or pots (possibly part of the kiln load or re-used waster vessels). In contrast to other Horningsea ware kilns, this assemblage did not include any evidence for prefabricated portable pilasters, clay fire bars or pedestal blocks, supporting this conclusion. However, the nature of these types of prefabricated kiln furniture dictates that they are likely to have been moved and re-used in successive kilns, almost certainly located in the intensive industrial area that extends beyond the extent of this site. It may also be an indication that individual potters or workshops within the Horningsea industry utilised slightly different kiln technology, with varying shapes and pillar arrangements already noted at Eye Hall farm (Evans 1991, 43).

Regularly spaced parallel rod impressions in fragments of kiln lining from this site may indicate that the kiln domes were formed using a wattle frame, around which the kiln lining was packed. This would suggest a permanent or semi-permanent kiln dome. At Eye Hall Farm, however, Walker (1912, 47) suggested that the kiln dome was formed from layers of grass, straw and reeds, and then a layer of roughly circular clay plates. This sequence may have been repeated and then covered with earth or clay. This would form a temporary kiln dome that Walker (1912, 47) states was intended to 'retain the heat, to colour the vessels by means of the fumes from the fuel, and to permit the dome to be taken down easily after each firing to remove the pottery without destroying the kiln'.

The relationships between Kiln S2020 and Ditches F2038 and F2047 and Kiln S2171 and Ditch F2184, where the sub-surface flues of the kilns opened out into the adjoining ditches, are further aspects of the Pieces Lane kilns that do not appear to have been identified at other sites belonging to the Horningsea industry. The use of a partially backfilled ditch as a stokepit for a battery of three kilns is attested at Kelvedon in Essex (Rodwell 1988, 26) but the ditches directly associated with the kilns at Pieces Lane appear to have been purposefully cut to allow access to the sub-surface portions of these kilns. The Kelvedon examples appear to make opportunistic use of a pre-existing ditch whereas the ditches associated with the Pieces Lane kilns may be considered to be deliberately created features forming part of the overall kiln structure.

These examples would appear to indicate that individual potters or workshops within the Horningsea industry utilised slightly different kiln technologies. Evans (1991) used kilns from Brampton, Norfolk with central pilasters and a permanent vent-holed floor, (see Swan 1984, 121) as a model for the internal arrangement of the Horningsea kilns. Evans *et al.* (forthcoming, 27) state that evidence from the Waterbeach Car Dyke excavation casts considerable doubt on this. The kilns at Pieces Lane would also appear not to conform to this model. Overall, the differences in kiln structures at the various Horningsea sites may not be unusual; within each of the known Romano-British pottery industries, a variety of kiln structures are often present.

The pottery assemblage in the context of the Horningsea ware pottery industry

The production of Horningsea wares is already known at 19 kilns (Evans *et al.* forthcoming, 12) situated in the area of the intersection of the Roman Car Dyke and Akeman Street (present day Waterbeach, Landbeach, Horningsea and Milton). The two kilns recorded at Pieces Lane, and their associated products, may be added to this group. The earliest Horningsea kilns were operating from the late 1st century at the Eye Hall Farm site on the south side of the Car Dyke, with current evidence suggesting production began in the Waterbeach area to the north of the Car Dyke in the early/mid 2nd century AD, however, this assemblage expands the current interpretation and suggests Horningsea ware production had begun at Waterbeach by the early 2nd century AD.

The full extent, organisation and number of kilns involved in the Horningsea industry remains open to conjecture but further kiln sites on land close to the Car Dyke and Akeman Street can be reasonably postulated, especially given the intensive degree of pottery production evident on this site and in this assemblage. Stratigraphically, 12 sub-phases could be isolated within Phase 2 of this site, but despite significant quantities of pottery associated with seven of these sub-phases it was not possible to discern any form of progression in the pottery between sub-phases. Kilns and waster groups could be definitively identified in Phases 2.4 and 2.11, and it remains possible other sub-phases, notably Phases 2.1, 2.2 and 2.12 may be associated with truncated kilns or kilns beyond the excavated area. The pottery groups from Phase 2 clearly characterise the intense degree of exploitation through industrial-scale pottery production of the land in the vicinity of the Car Dyke and

Akeman Street in the early 2nd century AD. They suggest an unwillingness or inability to re-locate, although as the full scope of this landscape was not revealed by the elongated window the excavation area provided, this interpretation is by necessity limited. The waster deposits recorded in this assemblage highlight the volume of pottery produced on the site, but the highly inter-cutting nature of the industrial features may indicate that this output was achieved by a relatively small team of unskilled labourers to construct and re-cut kilns and ditches on the same area of land with a very small group of potters to manufacture vessels between firings. This production process would have required an input of raw materials and an output transport network for pottery vessels, both provided by Akeman Street and, if navigable, the Car Dyke, that support the theory that these kilns and the Horningsea pottery industry as a whole, operated on a scale vastly exceeding local markets.

The range of pottery products from the excavated kilns encompasses a range of utilitarian form types including platters, dishes, bowls, jars, storage jars and lids, although several types can be identified as particularly characteristic of the two excavated kilns, such as the B1.1 carinated bowl and J10.5 rilled jar. Constricted neck jars (CJ1.1 & CJ1.6) also frequently occur. The identification and quantification of some bowl and jar form types may have been slightly biased by the varying degree of breakage that would have occurred on different form types during the firing process resulting in numerous everted bead and plain rims that were too fragmented to be assigned a form type.

The range of form types in this assemblage, associated with the early 2nd century AD Kilns S2171 and S2020, exhibits some broad similarities and key differences with the kiln recorded as being cut into the western bank of the Car Dyke at Waterbeach dated *c.* AD150–160 (Evans *et al.* forthcoming, 13). As with Kilns S2171 and S2020, this kiln produced B1.1 carinated bowls and J10.5 rilled jars but in much lower proportions, whereas in contrast the common products of the mid 2nd century kiln comprised jar types which are absent from this assemblage. A further contrast exists in the absence of B2.1 and B7.2 bowls, D8.1 dishes (platters), and CJ1.1, CJ1.2, CJ1.5 and CJ1.6 constricted neck jars from the mid 2nd century AD kiln. These differences are almost certainly a reflection of the chronological progression in production of form types within the Horningsea industry from the early 2nd century AD (Kilns S2171 and S2020) to the mid 2nd century AD (Car Dyke, Waterbeach), but may also in part reflect the nature of production or specialisation of different potters or workshops within the Horningsea industry.

The socio-economic status of the pottery production site

The recovery of a copper-alloy early Roman military belt-plate from Ditch F2135, to the east of Kiln S2171, may be entirely coincidental; given its early date it may already have been antique by the time it was deposited in Gully F2135, but it may suggest that the site had military links. The Roman military did organise their own production and supply of pottery and other materials (Dark and Dark 1998, 126). This is demonstrated at Longthorpe, near Peterborough, where a pottery production site is considered to have formed part of the Claudio-Neronian military complex located there (Dannell and Wild 1987, 61). Military production, however, tended to be short-lived. When frontier zones were stabilised, supplies could be brought safely from non-military sources in the surrounding area (Greene 1999, 13). Military potteries dating to after the early 2nd century are rare in Britain (Welsby 1985, 137). In light of the degree of Roman control over the province of Britannia at the time that pottery production at Pieces Lane appears to have been established, it is more likely that it was of the civilian sphere of society.

The number of kilns producing Horningsea ware known in this area suggests that the Horningsea pottery industry was an important part of the local economy. In general, the civilian pottery industry appears to have been in the hands of small producers, manufacturing primarily for local markets, but from the 1st century onwards, mergers appear to have led to production increasingly being carried out by larger firms, whose products ranged more widely (Wacher 1978, 203). The importance of local markets to the Horningsea industry is indicated by the high number of Horningsea ware storage jars at Bannold Lodge, Chittering (Whittaker 1997) *c.* 4km to the north which reflect the position of this site on the trade routes into the Fens, where these storage jars were heavily marketed (Hartley and Hartley 1970, 168). Evans (1991, 37) states that the main distribution of Horningsea ware would appear to be throughout the Fenland, as far as Wisbech and Downham Market, to the south as far as Great Chesterford and to the west as far as Godmanchester.

Acknowledgements

Archaeological Solutions would like to thank Hayler Developments Ltd for their co-operation and funding of the archaeological evaluation, in particular Mr Derek Haylock and Mr Barry Fuller.

Archaeological investigations were directed by Gareth Barlow. Finds were co-ordinated by Martin Brook. Pottery, kiln furniture and kiln lining was analysed by Andrew Peachey, small finds were analysed by Nina Crummy. The figures were produced by Kathren Henry.

Andrew Peachey would like to gratefully acknowledge Elizabeth Popescu, Jeremy Evans, Phil Mills and Steven Macaulay for their advice and assistance regarding previous work and forthcoming publications on the Horningsea pottery industry.

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William Hayward's 1604 map of the Fens

Michael Chisholm and Philip Stickler

Hayward was commissioned to map the Fens and conduct a survey of land holdings, a cadastre, both of which he submitted to Commissioners of Sewers in 1605. They determined on a comprehensive drainage scheme for the peat fens that, although not implemented, closely resembled Vermuyden's scheme undertaken some decades later. The original map has been lost and we rely upon a 1727 manuscript copy of a 1618 copy of the 1604 document, at a scale of one inch to the mile. Scholars have not paid much attention to this seemingly incomplete map, largely, it would seem, because the purpose of the map as a planning tool has not been adequately recognised. Comparison with modern Ordnance Survey mapping shows that the 1604 map provides a commendably accurate representation of the waterways that can be matched and also the location of churches, which were presumably used for triangulation purposes. The map deserves to be more widely recognised as a valuable resource for studying the fenland waterways prior to the seventeenth century drainage works.

William Hayward was a notable surveyor whose professional life spanned almost fifty years from the late sixteenth century but little is known about the man and his life (Skempton *et al*, 2002, 308–309). Among the thirty-odd maps and plans attributed to him is the first map of the entire Fens, from the Ouse catchment in the east to the Welland in the west, generally dated 1604, and drawn at a scale of one inch to the mile, the map measuring 52×37 inches. Unfortunately, the original has apparently been lost and our knowledge is preserved as the 1727 copy by Payler Smyth of what appears to be an earlier copy. Subsequent unqualified references to the 1604 map are to the 1727 copy and a sample from the map is shown as Figure 1 (and Plate 4). Four other maps have been described as versions of the original (Silvester 2002), but inspection shows that these are more appropriately regarded as maps 'based upon' Hayward, not as renderings of the lost original.

The 1604 map has not hitherto been accorded the attention it deserves. Indeed, the list of Fenland maps published by Lynam (1936) in the Victoria History of the Counties of England dismisses the Smyth version as 'a very faulty copy', whereas a smaller scale map incorporating Hayward's survey, known as the Cotton map, he attributed to 1604 and describes as 'a very accurate, artistic and important map' (292 and 296). As will become apparent below, these assessments are mistaken.

The present paper has its origins in a study of the medieval network of navigable fenland waterways (Chisholm 2010). It was desirable to identify an early map as a point of departure that could be checked against place-name and other documentary evidence, for which purpose the earliest suitable proved to be Hayward's 1604 map of the Fens. One of the referees for the 2010 paper queried whether this was in fact the most appropriate rendering of Hayward's work and therefore the present paper examines that question in a manner not possible in the paper considered by the referee.

The purpose of the present paper, therefore, is to examine whether the 1604 map is indeed the most appropriate version of Hayward's work to use for enquiries about the Fens' rivers prior to drainage in the seventeenth century. Several issues will be discussed in the following order: the provenance of the 1604 map; the purpose for which it was drawn; the nature of the information portrayed thereon; a discussion of the other versions of the Hayward's work; and an assessment of the accuracy of the 1604 map.

Provenance of the map held by Cambridgeshire Archives

Cambridgeshire Archives (R59/31/40/1) holds Payler Smyth's copy of Hayward's map, drawn at a scale of one inch to the mile, covering the whole of the area generally known as the Fens. The map came to the Archives in 1959 from the office of the Great Ouse Catchment Board, successor to the Bedford Level Corporation and its predecessor bodies responsible for draining the Fens in the seventeenth century and then maintaining the drainage works. In 1727, the Corporation had commissioned Payler Smyth to make a copy of Hayward's work. Smyth claims that it is an exact copy of the 1604 map but, as Lynam (1934)

Proceedings of the Cambridge Antiquarian Society CI pp. 161–172.

***Figure 1**. Sample of Hayward's 1604 map at reduced scale of 0.6 inch to the mile, north to the right. Wisbech is at the right hand margin. See text for the straight dotted line shown bottom left. Reproduced by permission of Cambridgeshire Archives and Local Studies (R59/31/40/1). See also Plate 4.*

points out, there is an inconspicuous date of 1618 by the line scale, from which he infers the 1727 version was made from a copy dated 1618. The date occurs in the middle of the following text: 'A Scale of Milles Furlongs and Perches Ano 1618 at 16 ft Demie to ye Perch'.

So far as is known, the 1727 copy by Smyth is the only extant version of Hayward's map that is directly attributed to him. However, there is a record of other copies in existence in 1938 in the Fen Office of the Great Ouse Catchment Board at Ely. Palmer (1938) provides a selected list of the holding, derived from the inventory compiled by a Mr H I D Moore in 1934, beginning his account thus:

> *The chief treasures of the office are Payler Smith's copies of the maps of William Hayward, 1604, and Jonas Moore, 1654, both made in 1727. The list shows that the Fen Office has fifty-seven printed copies of Hayward's map ... The maps of 1604 and 1654 were thought to be originals until critically examined in recent years.* (Palmer 1938, 144.)

There then follows a listing of Hayward's maps that accounts for 54 of the 57 maps mentioned:

1. Five lithographed copies of Hayward's old map on canvas and 46 of the same on paper, giving a total of 51. These are described as maps of reduced size and of little importance.
2. A 'Plan of Fens by Hayward', 1604 on canvas.
3. A lithograph copy by Smyth of Hayward's survey (1604), 1727 on paper.
4. Hayward's original map of the Great Level undrained, 1604 on canvas.

The fourth item matches the description previously given by Fordham:

> *There is now hanging in the Fen Office a copy of Hayward's map described as "exact", by Payler Smyth, dated 1727* (Fordham 1908, ix).

Following this opening sentence, Fordham's, description precisely matches the map held by Cambridgeshire Archives, including the definition of a statute mile complete with the date 1618. No description of the second item on Palmer's list, 'A Plan of Fens by Hayward", has been found. As for the lithograph copies, these must be later than about 1798, because that was when lithography was invented (Singer *et al.* 1958, 626). With one exception, noted below, it appears that all these lithograph copies have also disappeared. Consequently, the focus of interest is the fourth item in Palmer's list, 'Hayward's original map of the Great Level undrained, 1604 on canvas'.

Fordham clearly recognised that the 1604 map is a copy, as did Palmer, and Lynam (1934, 1974) is right to point out that it was copied from a 1618 version. The inventory description of it as 'original' is to be interpreted as distinguishing the original copy from the other copies held at the Fen Office.

Fordham does not list any other Hayward maps at the Fen Office but a brief 1922 manuscript list of some documents there confirms the existence of the first three items recorded by Palmer and provides some useful further information relating to the fourth (Cambridgeshire Archives R.59.31). The map described by Fordham was hanging on the wall in the Board Room on rollers, described as 'Original Map of the Great Level (undrained) Hayward 1604'. Also included in this list is Moore's map, on rollers and hanging in the Office, listed as 'Original Map of Great Level (undrained) Moore 1654' (the Hayward copy noted by Palmer). This confirms that two maps, one each by Hayward and Moore, known to be Payler Smyth copies, were treated as originals to distinguish them from copies that must have been made after 1727.

Palmer based his list on a 1934 inventory re-arranged into three volumes, typed and bound (Tebbutt 1937). Volume three contains a list of maps that, for all practical purposes, contains material identical to the information reported by Palmer, including the error of identifying 3 above as a lithograph copy, instead of just 'copy', as in 1922. The map by Jonas Moore had been moved to the Board Room. As in 1922, the main Hayward map and the Moore map are described as 'original'. However, the 1937 list does not mention any Hayward maps other than the 54 listed by Palmer; presumably, therefore, Palmer's figure of 57 is wrong – the total should read 54.

The map acquired by Cambridgeshire Archives in 1959 is the map that hung on the wall, described above as 'original' (Philip Saunders pers. comm.). The Archives retain its box, which is clearly visible in a photograph of the Fen Office published by the Ministry of Agriculture and Fisheries (1948, 32), bearing the following title: 'Hayward's original map of the Great Level undrained 1604'. It is clear that Commissioners of the Bedford Level in 1727 considered Smyth's copy to be an accurate rendering of Hayward's original even though a 1618 version had, apparently, been used.

Skempton *et al.* (2002) suggest that the 1618 copy was made for the benefit of Atkins and Edmond, who in that year toured the Fens and submitted reports on the state of the waterways. Whether that was the case or not, the more relevant matter is that Hayward was still alive and active locally, subsequently becoming a Commissioner of Sewers. Therefore, it is reasonable to suppose that the 1618 version was accurately done, and it may be that it was a corrected map made by Hayward himself.

Some further brief comments about provenance are in order. First, Lynam (1936, 297) notes that the Ordnance Survey had reproduced Hayward's 1604 map. This must be a reference to the full-scale black-and-white photographic copy held by the British Library (BM Maps 1308. (9)). Another copy, in a very poor state, is held by the Wisbech and Fenland Museum, which also holds an unmounted lithograph copy, made by 'Martin Hood Lith. 8 Great Newport Street, London W.C.' (both maps catalogued as DII. 38); the scale of the lithograph is much reduced and the content simplified compared with the 1604 map. Presumably, the lithograph is one of the 46 unmounted lithographs noted by Palmer; if so, it is the only copy of any of Hayward's maps from the Fen Office

known to have survived other than the 1604 map held by Cambridgeshire Archives.

Lynam (1934, 1936) does not mention the other copies of Hayward's work at the Fen Office and evidently assumed that 'original' mistakenly meant original Hayward. This erroneous assumption is probably the basis for his dismissive assessment that Smyth had produced 'a very faulty copy' (Lynam 1936, 296). That assessment does not seem appropriate in the light of the preceding discussion. Given that Smyth also copied the 1654 map of the undrained Fens by Moore, it is clear the Commissioners wanted to preserve records of the area before the seventeenth century drainage works had been undertaken, and regarded the two maps made by Smyth as important documents for that purpose.

Purpose of the 1604 map

Although the existence of the Smyth map has been known for a long time (e.g. Fordham 1908; French 2001), scholars have hitherto been mainly interested in the route by which Hayward's work influenced later cartographers who published maps of the Fens, such as Hondius and Blaeu. Two other questions have been very largely ignored: what was the purpose for which the 1604 map was constructed; and what place did Hayward have in the development of surveying and cartography? For example, Barber's (2007) contribution to Woodward's monumental *The History of Cartography* emphasises the utilitarian nature of sixteenth and seventeenth century cartography in England, from defence of the realm to estate management, but altogether ignores Hayward and the potential significance of his work for large scale land drainage. Delano-Smith and Kain (1999, 80) mention the 1604 map but say nothing about its significance. Similarly, Darby's classic study of the draining of the Fens contains but one reference to the map, mentioning its location and part of the inscription but saying nothing about the map itself (Darby 1956, 30). In his later book (1983, 57 and Figs 31 and 32), he confuses the 1604 map with the reduced version drawn by Badeslade in 1724 (see below). At no point in either book does Darby discuss the nature and significance of the map made in 1604.

Recently, a start has been made in considering the context in which Hayward undertook his survey, its purpose and reliability, and therefore its significance in the history of the draining of the Fens. The earliest reference in this vein that has been identified is Silvester (1988–9, 40), who somewhat enigmatically notes that the map was made 'to accompany a survey of the Fens commissioned by Sir John Popham and others'. At the end of his essay, Silvester notes that:

> *It is through his efforts both drawn and written that the pattern of the southern fens was recorded and their reclamation and division plotted* (p. 42).

However the intervening text says nothing about the quality of the map, concentrating instead on the accompanying land and the survey Hayward undertook in 1636, of which Silvester notes that 'despite its inaccuracies' it was used for land allocations when the first drainage scheme was declared successful (p.41). The wording suggests that Hayward played an important role in the drainage of the Fens, but does so with tantalising brevity, and with the implication that the 1604 map is not reliable.

Willmoth has but three fleeting references to Hayward in her 1993 book about Sir Jonas Moore, whereas a 2009 paper contains several paragraphs, in which she emphasises the importance of his survey and the accompanying details of bounds and acreages:

> *Which became the basis for legal definitions of the Fenland as a drainable territory and hence the basis for the financial system and land redistribution that made wholesale drainage schemes possible. This unusual legal significance of the bounds gives Hayward's map and its successors a particular power. (Willmoth 2009, 14–15.)*

Skempton *et al*. (2002) take matters a major step further by drawing attention to Hayward's role in working with John Hunt in the years 1604 and 1605, thereby emphasising the role Hayward played in planning a comprehensive drainage scheme for the peat Fens. Hunt was a Commissioner of Sewers for the counties of Cambridge and Lincoln who, following the General drainage Act 1600, began exploring the feasibility of a comprehensive drainage scheme for the Fens. After his preliminary investigations, he informed King James I that more than 200,000 acres could be improved by drainage. In July 1604, the King appointed Hunt and Henry Totnall (and those they might employ) 'to take a view' of the Fens within precisely defined boundaries, boundaries that must have been supplied by Hunt. The King desired the Commissioners of Sewers for the Isle of Ely and six counties to assist them in their work. Meeting in July 1605, the commissioners received from Hayward 'The true Content or Number of acres in the Fens described in the general Plot …' (Dugdale 1772, 382). Smyth's 1727 copy of Hayward's map uses the same term, 'general plot', and includes an abbreviated account of the Fen boundaries as set out by James I. Smyth's map must, therefore, be a copy of the 'plot' submitted to the Commissioners in 1605.

Having received material from Hunt and Hayward, the Commissioners immediately decided to proceed, ordering Sir John Popham and three other named individuals to embark upon a comprehensive drainage scheme, to be completed within seven years. Although the project was soon abandoned, the scheme proposed by Hunt was:

> *A comprehensive and ambitious plan, and deserves to be recognised as the first design for a general draining of the Great Level … [bearing] a remarkable resemblance to the work actually carried out between 1631 and 1636* (Knittl 2007, 44; see also Dugdale 1772, 383–384).

The close similarities extended to the scheme undertaken from 1649. One feature of Hunt's scheme relevant in the present context is the proposal to dig a

new channel or channels from Earith to near Salter's Lode, providing 120 feet of waterway, to shorten the Ouse.

So far as is known, the scheme adopted by Commissioners of Sewers in 1605 was the first seriously practical comprehensive scheme to be proposed although, as Singer *et al.* (1957, 317) point out, Humphrey Bradley had suggested a comprehensive scheme in 1589. However, his proposal consisted of straightening the main rivers and directing waters to the main outfalls, 'without recourse, as he said, "to embankments, machinery, mills and inestimable expense"'.

Contents of the map

Considered in the context discussed above, it is appropriate to review the nature of the information contained in the Smyth version of Hayward's survey, starting with the significance of the written definition of the statute mile that has already been noted. The 'mile' used to be an uncertain measurement because there were several usages and it was only in 1593 that the 'statute mile' was defined by Act of Parliament (*Encyclopedia Americana* 1990, vol. 19 106). Therefore, the inclusion of the precise definition with the line scale amounts to a declaration that the survey had been done to a high standard using an exact unit of measurement. This is an implicit statement that the accuracy of the map could in principle be checked by anyone so minded and, more important in the present context, that accurate measurements could be taken from the map, something of considerable importance if it were to be used for practical planning purposes. Presumably, therefore, the original 1604 map included the written definition, which was then reproduced by the author of the 1618 copy. This presumption seems to be consistent with Hayward's practice of precision: his 1591 map of Marshland (Cambridge University Library, Atlas. 0.019.5) carries a double line scale, separately showing perches and furlongs, with 40 perches to a furlong and three furlongs to the inch (giving 2.66 inches to the mile); and his 1605 map of Outwell carries a line scale and a written definition, in perches and furlongs (Wisbech and Fenland Museum TMN.648).

The 1604 map is first and foremost a map of the watercourses and embankments – river banks, banks bounding fens, and sea banks; banks 'for more particular purposes' are shown separately. Second, it identifies the areas subject to flooding and the 'dry' uplands surrounding the fen basin and forming 'islands' within. Third, settlements are shown but generally they are not emphasised, though churches are prominently recorded even in areas otherwise lacking in detail. Fourth, causeways, public paths along watercourses and bridges are shown, but are not emphasised. Fifth, no attempt is made to portray the silt fens of Cambridgeshire and Holland in Lincolnshire, other than the churches, although Norfolk Marshland is shown in some detail. Because Hayward had surveyed Marshland in 1591 at one inch to three furlongs, or 2.66 inches to the mile, it was easy for him to include information for this part of the silt fens; the absence of information for the remainder of the silt lands suggests that this was not deemed necessary for the purpose in hand in 1604–5. Finally, the seaward limit is represented by the sea banks, with the salt marshes extending for an indeterminate distance to the coastline, which is not shown.

There is an important detail on the 1604 map tending to confirm it was indeed a working tool for drainage purposes. There is one dotted line that is unlike anything else on the map, running as a straight line from Earith to Salter's Lode, near what is now Denver Sluice. This alignment exactly matches that of the Old and New Bedford Rivers, the shortening of the Ouse critical for carrying upland water across the Fens, as agreed in 1605 and subsequently implemented in the 1630s and early 1650s. There are other dotted lines on the map that represent causeways (each with a parallel solid line) and land routes alongside watercourses (on embankments). The Earith-Salter's Lode line cannot represent a land route if for no other reason than it crosses and re-crosses waterways. Although one cannot exclude the possibility that Smyth added this line, it was probably included either on the 1604 original or by the cartographer who made the 1618 copy, for the reason that Hunt proposed the new cut and Commissioners of Sewers agreed in 1605.

The other maps identified by Silvester

Among the maps noted by Silvester (2002), there are two drawn at a scale of one inch to the mile, but neither of these fully replicates the information contained in the 1604 map. The National Archives at Kew hold a map (MPB 1/9) that originated from the Exchequer, with an ascribed date of about 1611. This map covers a smaller area than is encompassed by the 1604 sheet, bears no title or signature and gives no attribution for the source or sources used; there is a line scale but no written definition of the mile, and there is no key. The cartography is rather crude, detail shown on the 1604 map is not included, and there are some obvious differences from Hayward's 1604 map, of which only one need be mentioned. The Ouse between Ely and Prickwillow is shown following a markedly sinuous course all the way, whereas the 1604 map correctly shows a virtually straight alignment for the first half of the distance downstream from Ely (the course of the river as diverted in the early twelfth century).

The second one inch to the mile map is held by Cambridge University Library (MS Plan 589). The provenance is unknown, it is not dated, is not signed and has no key beyond the line scale, and it does not include the verbal definition of the statute mile found on the Smyth version. These details may have been included on that portion of the map at the left (south) that has evidently been removed, leaving a convex edge. Although it is obvious that the cartographer had access to Hayward's work, the map is patently

not an exact copy of the 1604 map; for example, the 'islands' within the Fens are presented in very generalised terms, whereas the 1604 map provides precise detail of the upland bounds. Other differences are the inclusion of some coastline and detail for the Holland division of Lincolnshire not shown by Smyth, and conversely the omission of some watercourses.

The other two maps are at scales substantially smaller than one inch to the mile. The earlier one is generally known as the Cotton map (British Library, Cotton Augustus I.I. 78), having been acquired for his collection by 1629, when the library was closed by order of the King (Sharpe 1979, 80). Drawn at a scale of half an inch to the mile, as shown by a simple line scale, the map has no title and neither the cartographer nor the sources are declared. Although recognisably derived from the work embodied in Smyth's map, it differs in covering a much larger area, including the coastline to the north, and extending further south and east into the uplands, which are graced with the graphic symbol for hills, as is the fenland ridge upon which Stretham and Haddenham stand, a usage familiar in the sixteenth and seventeenth centuries with the work of Saxton and Speed but not employed on the 1604 map, only colour shading being used.

The map bears no date but is said to have been made for Sir Robert Cotton, one of the Commissioners for Sewers in the period 1603–05 (Lynam 1936, 292; Skempton *et al*. 2002, 309). The British Library's online Integrated Catalogue (18 May 2011) states that the map was drawn about 1604, with the query 'after William Hayward?' No attribution is given for this dating. However, a new Catalogue of Archives and Manuscripts is being compiled to replace the existing catalogue (Julian Harrison, pers. comm.) and the entry for the Cotton map (18 May 2011) gives the following as the date '1st quarter of the 17th century'. There is no bibliographical reference for this revised dating.

Lynam (1934) attacks Hayward's 1604 map for 'incorrect' spelling of place-names, citing seven instances where the spelling is 'correct' on the Cotton map; all the variations are phonetic variants, something that should occasion no surprise for the early seventeenth century. He goes on to note that the Cotton map twice records Sir John Willoughbies, whom he identifies as Sir John Willoughby, who was knighted in July 1603 and died in January 1605, claiming that therefore the Cotton map was drawn in that period. Lynam does not consider an alternative explanation, that the Cotton map was drawn later and contains outdated information. Lynam (1934, 421) claims that the Hayward and Cotton maps are 'strikingly similar' but this is not so. The Cotton map is a cartographer's map, whereas Hayward's is the map of a surveyor. The Cotton map incorporates Hayward's topography, waterways, churches, and land ownership information that could only have come from Hayward's property survey completed in 1605, all the result of work commissioned in July 1604. In addition, the Cotton map extends the area beyond that needed for planning a drainage scheme, implying considerable further survey work. To assign a 1603 or 1604 date for the Cotton map is difficult to accept. The safe conclusion is that the Cotton map was drawn some time after Hayward had completed his 1604 map and survey, which were presented to Commissioners of Sewers in 1605, and before 1629, a conclusion consistent with the British Library's revised assessment.

The last map to consider was drawn in 1724 and first published in 1725 (Badeslade 1766, facing p. 15). Badeslade claims that his map is a copy of the 1604 map but this is not true. It is drawn at a scale of about one third of an inch to the mile and he records detail that was not included on the 1604 map notably for the Holland division of Lincolnshire and areas west of the Welland, plus the salt marshes and coastline beyond the sea walls. On the other hand, it appears that his reduced scale cartography faithfully reproduces most of the topographic features shown on the 1604 map, albeit with the reduction in accuracy and detail associated with the scale reduction. It is clear that Badeslade had access to the same material used by Smyth, and the coincidence in timing prompts the following speculation. Denver Sluice had 'blown up' in 1713 and there was a very vigorous debate as to whether it should be re-built. Badeslade was a strong opponent of Vermuyden's drainage scheme, his 1725 text (re-issued in 1766) being an extended polemic advocating the restoration of the 'natural' watercourses and no re-building of Denver. It seems likely that the Commissioners for the Bedford Level were aware of Badeslade's opinion and decided that they needed a full scale copy of Hayward's map (and the 1654 map by Moore) to assist arguments for re-building Denver Sluice, which was in fact resurrected in 1746–50 (Skempton *et al*. 2002, 397).

Note that all four maps considered above omit the straight dotted line on the 1604 map that runs from Earith to near Denver, marking the line of the Ouse diversion agreed (but not implemented) by Commissioners of Sewers in 1605.

From this brief review, it is clear that only one map can claim to represent the map originally drawn by Hayward in 1604, and that is the copy made by Smyth. Not one of the other four can be accorded a status higher than 'based upon' his work. Both the Badeslade and Cotton maps appear to include a good copy of Smyth's rendering of Hayward's work, but the substantially smaller scale renders them less useful as a research tool for the historical evaluation of the fenland waterways than the Payler Smyth copy held by Cambridgeshire Archives.

Is the 1604 map an accurate record?

So far as is known, nobody has directly tested the accuracy of Hayward's 1604 map, although there are two partial evaluations, one implicit and the other explicit. The implicit test derives from his survey of property bounds in the Fens, given to the Commissioners of Sewers in 1605, which yielded a

total of 307,242 acres (Dugdale 1772, 383). Some thirty years later, in 1636, he re-visited the problem, obtaining a figure of 312,668 acres, including an item for 797 acres for which no geographical location is given (Wells 1830, 233). If we assume that the second figure is more reliable than the first, then the total land area error in 1605 was 1.8%. This may show the 1604 map to have been surveyed with considerable precision, or that substantial errors were largely compensatory in nature. Silvester (1988–9) draws attention to inaccuracies in the 1636 survey of land areas, his source being Wells (1830, 243). Problems emerged when 95,000 acres were being allocated to Francis, Earl of Bedford, to recompense him for the cost of land drainage, the scheme at that time being judged successful. As Wells notes, some of the land allocations were challenged:

> *Commissioners have discovered sundry errors and inequalities in the said allotment or setting forth of the said ninety-five thousand acres … by reason of some mistakes in a survey before that time made of the said great level.*

The tenor of these comments implies that the 'mistakes' were neither numerous enough nor sufficiently serious to call in question the survey as a whole. Therefore, it seems reasonable to accept the 1636 figure of 312,668 acres as a reliable measurement of the total area for comparison with the earlier figure. The second test of Hayward's work is reported by (Silvester 2002, 14), that overlaying his 1591 map of Norfolk Marshland on a modern map shows Hayward to have been accurate, accuracy being a matter of visual judgement. If he worked accurately for that assignment, there is every reason for supposing he could do a good job on the larger enterprise. Our purpose, therefore, is to test whether that expectation is confirmed when tests are applied to the whole of the 1604 map.

Waterways

The initial focus of attention is the accuracy with which the watercourses are drawn, since it is clear that this was the matter of greatest concern in planning a drainage scheme. To make the comparison, it has been necessary to select those channels depicted by Hayward for which there is cartographic evidence shown on the OS Digimap base at 1:50,000, which omits some minor watercourses shown on the printed Landranger series. The OS evidence ranges from existing watercourses and relic drains to indirect evidence of former channels, such as roads, footpaths and county boundaries. Roads and footpaths may seem odd, but remember that river embankments provided dry avenues for pedestrians, those on horseback and stock; though not originally suitable for wheeled vehicles, in some circumstances they lent themselves to the construction of modern roads even though the channels themselves may no longer figure cartographically. The southern boundary of Lincolnshire is important because it was established in Saxon times along watercourses (see Astbury 1957, Fig. 2; Stenton 1971, 502), providing evidence for parts of Old South Eau and Shire Drain for comparison with Hayward's mapping..

The precision of this comparison is limited by a number of considerations, itemised below in no particular order of importance:

- We do not know the projection used by Hayward.
- His compass north orientation understandably differs from the present, because of movements in the position of the magnetic poles, and needs to be corrected.
- The process of copying is bound to introduce some error.
- The materials on which the original map and the copy or copies were drawn may have been unstable.
- A digital photographic copy of Smyth's version has been used for this comparison, and this may have introduced some distortion.
- It is possible that the position of watercourses was accurately surveyed in 1604 but the channels may have moved subsequently, either for natural reasons or because of human intervention.
- Roads and paths along embankments may diverge from the watercourse if the embankments were set away from the channel, leaving a washland for flood storage.

Given these considerations, and the scale of the 1604 map, it does not seem appropriate to adopt a formal quantitative comparison along the lines reported by Bendall (1992, 54–61). Instead, we have relied upon a visual cartographic comparison undertaken by Stickler, a professional cartographer, using the procedure described below, and the results are shown in Figure 2.

The procedure used for comparing Hayward's map of waterways with modern OS information was as follows. Cambridgeshire Archives had made available an electronic copy of the 1604 map at the original scale, in raster format, which was copied – or 'traced' – by hand, using a digital light pen in Adobe Illustrator graphics software. Hayward drew his map with north to the right, which in modern usage is reserved for the easterly orientation. Therefore, to conform to current practice adopted by the OS, the Hayward copy was rotated by 90° anticlockwise. Next, an extract was obtained from the OS 1:10,000 digital map, giving a second layer, to be combined with the Hayward layer, and exported to Illustrator vector format, with appropriate scale adjustment.

Then, for reasons to be explained below, Ely was chosen as the common reference point for locating the two maps. With a little experimentation, it became clear the Hayward map should be rotated by a further 6° about Ely, making a total rotation of 96°. This further adjustment was selected as providing the best fit between Hayward and the OS, judged by eye. The need for this additional rotation arises primarily from the variation over time that is known to exist in magnetic north and the convention adopted by the OS for relating grid north to true north (grid north is east of true north).

Figure 2 shows that there is no significant systematic error in Hayward's map. There is a good fit

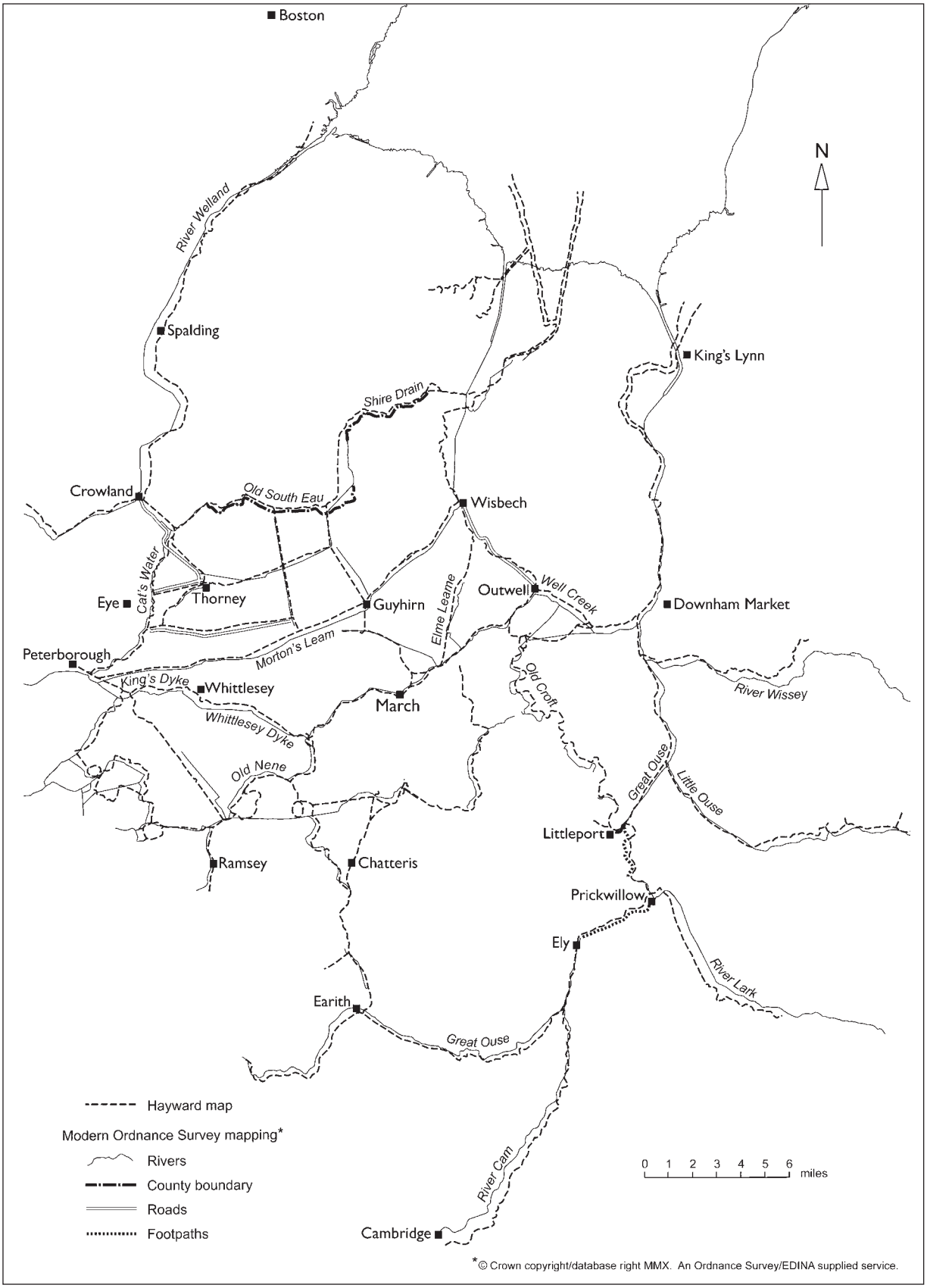

***Figure 2**. Hayward's 1604 waterways compared with modern Ordnance Survey cartography. NB The former course of the Ouse from Prickwillow to Littleport is represented on the OS base in part as the channel of the Lark and in part by a footpath.*

between his mapping and that of the OS through the greater part of the Fens from the Ouse near Ely to the lower reaches of the Welland, although there are some local divergences. The main discrepancies are: along the eastern borders, most notably for the Wissey and the Cam; and the Nene and Ouse outfalls, reflecting the dynamic nature of coastal processes and deliberate human intervention. For the area of concern in 1605, the peat fens (roughly the area between Wisbech, Ely, Earith, Peterborough and Thorney), Hayward's map provides a generally accurate portrayal of the watercourses, fully adequate for planning a comprehensive drainage scheme.

Triangulation and the churches

Let us now briefly consider the problem of triangulating the Fens. During the sixteenth century, European scholars and practitioners developed the concept of triangulation and the practical tools required for the purpose, including forerunners of the modern theodolite for measuring horizontal angles, and the plane table (Barber 2007; Bennett 1987; Lingren 2007; Richeson 1966; Singer *et al.* 1957). These developments were available to surveyors in England in the second half of the sixteenth century. Hayward had already surveyed Norfolk Marshland at 2.66 inches to the mile, this survey extending beyond Marshland as far south as Littleport (Skempton *et al.* 2002 mistakenly state that the survey was carried south to Ely). In addition, Hayward may have used John Hexham's 1589 map of the area covering Ramsey and Peterborough to Wisbech and the Welland, at a scale of 9.5 inches to five miles, or 1.9 inches to the mile (a reduced reproduction is contained in Skelton and Summerson 1971). Consequently, he had a good basis for extending his work across the Fens.

The prominence of churches on Hayward's map has already been remarked. It is also noteworthy that these buildings are recorded outside the area of interest defined by King James – the northern silt fens, along the eastern and southern margins and, to a lesser extent, beyond the Welland to the west. Their towers would have provided obvious triangulation points, possibly supplemented by temporary observation towers in the manner used in 1533 for a survey of towns near Brussels and Antwerp (Lingren 2007, 483), and we may infer that churches outside the peat fens are included for the following reasons. First, within the area defined by the King, churches were relatively few and the inclusion of the 'external' churches would have permitted a more accurate triangulation than would have been possible if restricted to the area contemplated for drainage. Second, once the extended triangulation had been completed further survey work would have been undertaken using plane tables and chains. Having fixed the positions of the external churches, surveyors would have had an enhanced choice of churches to use, thereby increasing the accuracy of the ground-based survey.

Ely cathedral would have been a prime vantage point, close to Littleport, which marks the southern limit of his 1591 Marshland survey. From Ely's tower, on a good day, one can see Boston stump on the other side of the Fens (Michael Young, pers. comm.), and this landmark is shown as the north-western extremity of the 1604 map. It is reasonable to assume that considerable care was taken to establish Ely's location accurately and therefore Ely was chosen as the reference point for locating Hayward's map over the OS underlay in compiling Figure 2.

Other than Littleport, the most southerly churches on Hayward's 1591 map are Downham Market and Denver on the eastern uplands, and Outwell and Upwell within the Fens. His triangulation could have been extended southwards to include Ely and Sutton, which has a very high tower. With these churches fixed, he would have been able to incorporate the whole of the rest of the Fens, converging on Boston along the silt Fens in the north and from the south and west. Adjustment would have been made for any closing error on Boston.

Such a procedure implies confidence in the measured baseline used for the 1591 survey. An alternative procedure would have required measuring a new baseline, which almost certainly would have included Ely, enabling the 1591 survey to be incorporated. Either way, it would have been impossible to obtain an exact horizontal distance between the pair of primary churches by chain over the distance that would have been involved. Therefore, Hayward probably identified a flat area of land across which a straight line of adequate length could be reliably measured, suitably near the two churches he had selected. If observation towers were built over both ends, and maybe elsewhere, a local triangulation could have been run that incorporated the two buildings to obtain an accurate distance between them for use as the base line for extending the triangulation.

The inference that churches were used as triangulation points invites the following question. For testing the accuracy of Hayward's map, why not compare the locations of the churches shown by Hayward with the locations recorded by the OS in 2010? The first problem is that churches portrayed by Hayward are schematic elevations, generally measuring at least 0.2 of an inch horizontally and vertically, equivalent to a square with sides of 352 yards. Second, we do not know how he positioned the symbols in relation to the surveyed triangulation points but we have assumed he was consistent.

We have proceeded by placing a rectangle over each Hayward church, including the tower, and identified the central point thereof as the centre of the symbol we have used, an open circle. All the churches shown by Hayward were then plotted with reference to the waterway system he portrayed, as shown in Figure 2. Obtaining the locations of churches as shown by the OS proved more troublesome. No digital data for the grid coordinates of churches could be found and it was necessary to have recourse to the OS 1:10,000 map. For each church shown, a rectangle was laid over the symbol, encompassing the tower or spire, and the six-digit grid reference was obtained by using the coordinate finder tool. These grid refer-

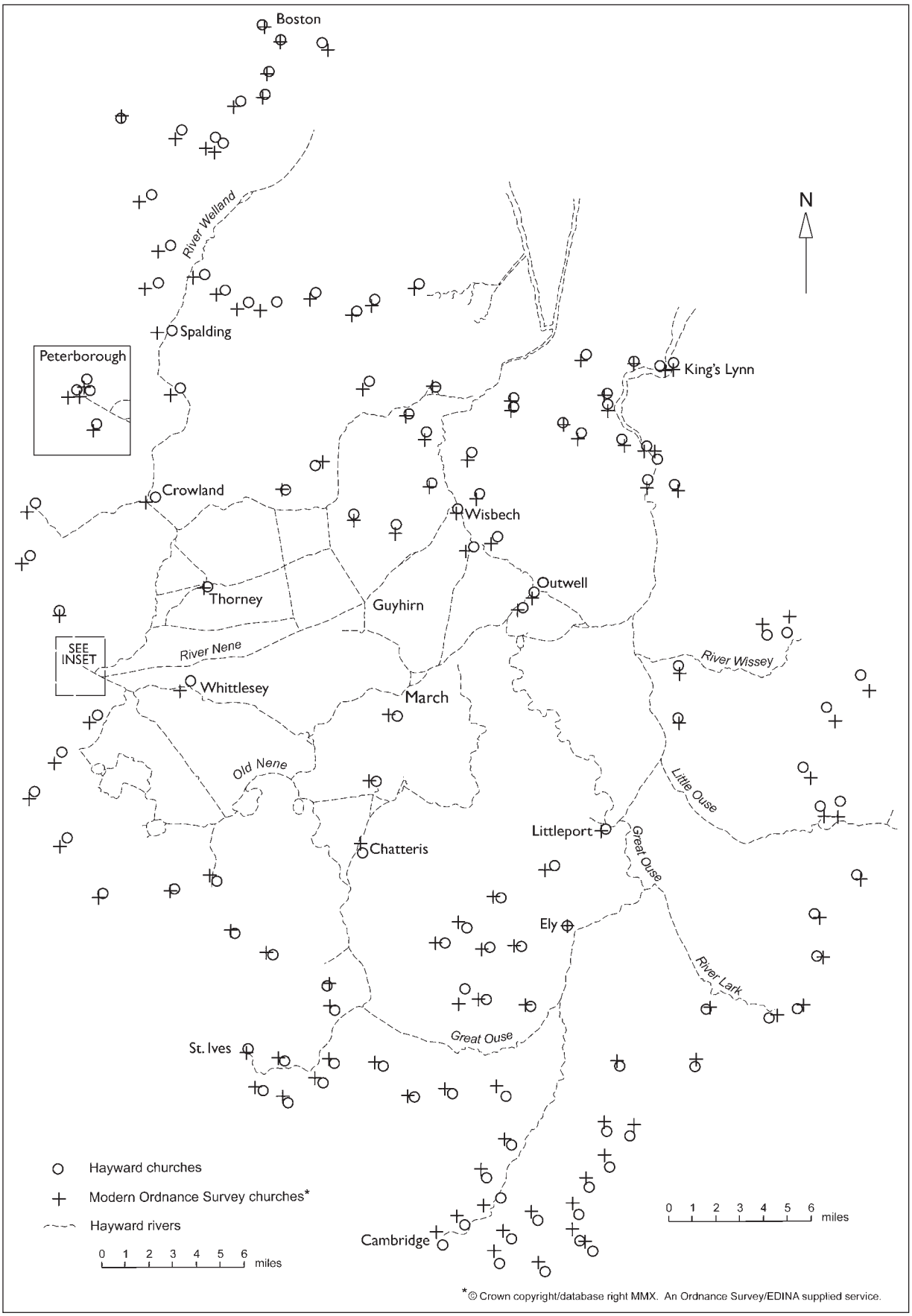

***Figure 3**. Hayward's 1604 churches compared with the locations shown by modern Ordnance Survey cartography.*

ences were added to the Geographical Information System (GIS) data, allowing the churches to be plotted as crosses centred upon the coordinates obtained. This plot was then laid onto the waterway layer from which the OS channels shown in Figure 2 were obtained, whereby the Hayward and OS church plots could be combined to give Figure 3. The effect of this procedure is to co-locate the Hayward and OS symbols for Ely, rotating Hayward by 96°, anticlockwise, an end result identical to that employed for Figure 2.

With the two distributions plotted in one diagram some editing was necessary, to eliminate OS churches for which there is no corresponding Hayward church, and *vice versa*. In addition, in four cases the modern church evidently occupies a site differing from that occupied in 1604, namely Eyberrye (near Eye), Holme, Mepal and Somersham; these churches have been eliminated. Figure 3 shows the locations of almost all of Hayward's churches and the corresponding OS locations.

With Ely as the common point of reference, the maximum error is for Northwold's church, on the extreme eastern edge of Figure 3, south of the river Wissey; in this case, Hayward erred by about 1,350 yards. Most of the errors are much less than this, and it is striking how little error there is at many of the map extremities – Boston, King's Lynn, Peterborough and St Ives. In some parts of the map, the discrepancies are consistent, as across the northern silt fens east of Spalding and in the vicinity of Cambridge, suggesting a single error carried forward for a number of churches. Chatteris and March display variable errors, possibly indicative of random divergence on account of church symbols having been located by Hayward in an unsystematic way. Overall, given that each Hayward symbol occupies a rectangle with sides of at least 352 yards, it is clear that his triangulation was indeed very good.

However, there is a puzzle. If Ely was used as one end of the church base line, we would expect a nearby church to show very close correspondence between Hayward and the OS, but this is not so, even for Sutton, the most prominent church west of Ely, overlooking the Fens. However, it would be unwise to place too much emphasis upon this puzzle. As we have noted, his church symbols are large; they also vary in the shape of the elevation portrayed, reflecting in part the architecture of individual buildings. In addition, and perhaps more important, the triangulation would have been valuable intellectual property, worth protecting. Therefore, we should not be surprised if Hayward deliberately placed one or more churches sufficiently incorrectly that another surveyor could not confidently use the 1604 map to reconstruct the triangulation.

It must be remembered that telescopes were not applied to survey instruments until the mid-seventeenth century, some fifty years after Hayward completed his map. The accuracy he achieved without the telescope is commendable.

Conclusion

At first sight, Hayward's 1604 map looks incomplete but this impression is erroneous. The map was prepared to assist the planning of a comprehensive drainage scheme for the peat fens, the bounds of which had been precisely defined in writing by James I, presumably on the advice of Hunt. Uplands surrounding the Fens were not directly relevant for any drainage scheme, but they were necessary for survey purposes. Taking the triangulation outside the area of interest would have enabled a higher degree of accuracy to be achieved than would otherwise have been possible, and provided essential reference points for the ground surveyors working with plane tables and chains. The relevant triangulation points are shown by the churches, including those located on the upland rim of the Fens and in the northern silt lands. For the purpose in hand, there was no need to devote resources to mapping detail around those churches; the inclusion of detail for Norfolk Marshland presumably was because this material was already to hand from the 1591 survey. Therefore, the 1604 map can be accepted as complete for the task as defined by King James, an essential tool for planning a drainage scheme.

The accuracy of Hayward's 1604 map has been tested in two ways, by comparison of waterway networks and the location of churches, in both cases comparing Hayward's cartography with that of the OS. His map is commendably accurate, an achievement that must be regarded as remarkable given the date at which the work was done.

The other four maps considered clearly incorporate information derived from Hayward's survey but they are not replicas of the 1604 map – they differ in the area covered, the detail shown and, in two cases, the scale used. None of these maps includes a written definition of the mile employed, nor do they include a summary of the bounds stipulated by James I. As tools for examining the pattern of waterways prior to the draining of the Fens in the seventeenth century they are inferior to the map drawn by Payler Smyth, which in all probability is a faithful rendering of the original map and is in any case the best that we have of the undrained Fens.

Acknowledgements

We are particularly grateful to Philip Saunders and Frances Willmoth for their considerable help, including comments on a draft text. In addition, Michael Young provided useful comments on a draft, and staff at the British Library, Cambridgeshire Archives, Cambridge University Library and the Wisbech and Fenland Museum gave valuable assistance.

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The Rev William Lee (*c.* 1550–1617) Vicar of Stapleford, Cambridgeshire

Ian B Fallows

"Very few brasses seem to have been laid down in the seventeenth century, and none are of any interest"
(Clayton 1969, 9).

*A three-piece brass memorial plate commemorating the life of Rev William Lee (*c. *1550–1617) is affixed to the chancel floor of Stapleford Church, of which he was incumbent 1574–1617. This memorial is described, its Latin and English inscription translated and explained. Discussion of its cryptic Latin message suggests that it is intended to offer insights into the anguished mind of a conscientious parish priest caught up in the throes of the Reformation.*

Introduction

In the chancel of St Andrew's Parish Church, Stapleford, is a seventeenth-century brass plate (Figure 1, Plate 5) commemorating the death in 1617 of the Rev William Lee (*c.* 1550–1617), a native of Batley in Yorkshire. The main purpose of this article is to re-examine its Latin inscription and postulate how best to interpret it.

William Lee was born about 1550. Both his parents were dead by the time he was eight and he was brought up by his uncle, Rev John Greenwood (Lester 1962, 12, 18–20). There is a possibility that he received his early schooling nearby at Birstall, as a Grammar School was established there in 1561 (Cradock 1933, 141–3). He later went up to Cambridge where he took his BA and MA degrees (Lester 1962) and was ordained before being inducted to the living of Stapleford in 1577 (A Cambridge Alumni Database http://venn.csi.cam.ac.uk/ACAD/intro, where LY570W uniquely identifies him as Lee, William; The Act Book of the Bishop of Ely; CChG website: record ID: 29509).

A description of the Brass

At first sight, there is nothing particularly unusual about William Lee's memorial. It consists of three brass plates set in the shape of a capital I, the top and bottom arms measuring about 20 inches (*c.* 51cms) by 6 inches (*c.* 15 cms), the central arm of the same length but slightly wider. The central strut shows a robed figure; the top cross bar several lines of Latin and the bottom piece five lines of English. The top inscription is in Roman letters, all capitals and a reference is given to *2 Timothy 4.7* from which a quotation is taken. Underneath is added in slightly larger capitals ANNO DÑI 1617 ÆTATIS SUÆ. The lower inscription is in very fine Gothic script with the exception of the numeral 43, denoting the length of William's incumbency, which is in a cruder hand. One of the great fascinations of this brass is that, although on first acquaintance it looks to be a simple and straightforward memorial, each of its three components – the top script, the central figure and the bottom inscription – poses a series of questions.

The central figure is not wearing the traditional surplice, alb and stole, but what seems to be an academic gown. He has a short pointed beard and ruff, and short sleeves, underneath which can be seen the tighter sleeves of a doublet. The front panels of the gown are trimmed with fur. It is highly unlikely that the figure is a likeness of William Lee himself and it seems clear from the fact that the right elbow and bottom curve of the gown are cut by the line of the brass itself that the figure has been cut from another plate (*cf.* Haines 1861, ccl).

Following the dissolution of the monasteries after 1538 many churches and graveyards had been plundered (Haines 1861, 19). Hundreds of brass plates were torn down: but they were not destroyed: they were valuable spoil. Many of the plates were torn off tombs and re-engraved on the other side. Often also larger brasses would be cut down to make smaller ones with new inscriptions added. The style of dress on William Lee's memorial shows that the engraving was not of a pre-Reformation priest: but it could well have been the brass of an academic stolen from a Cambridge college and sold cheaply to a local engraver to do duty at Stapleford. That the figure is wearing a skull cap usually reserved for Doctors of Divinity (as was established by Haines 1861) seems to point to its having been engraved earlier for a more senior academic than William Lee – and Cambridge with its large supply of

Proceedings of the Cambridge Antiquarian Society CI pp. 173–178.

***Figure 1**. The seventeenth-century brass of the Rev. William Lee. See also Plate 5.*

academic memorials was on the doorstep.

In the four centuries since William Lee's death, Stapleford Church has undergone many changes, which included a remodelling in 1866 (*Bury and Norwich Post* 18th December 1866). Unfortunately, there is no firm evidence that his memorial was re-sited at that time, though there is a possibility that it was, and one wonders where its original site might have been. Furthermore, since the brass is in three parts, it is impossible to be categorical that they all came from one original, or even that they were assembled at the same time. Such questions, however intriguing as they may be, need not deflect us from the main point of this article.

The lower inscription

The five lines of Gothic writing at the bottom of the memorial read:

> *Williã Lee borne at Batley in Yorkeshire.*
> *Vicar of this Churche of Stapleforde. 43*
> *yeares. Studious of ye good of eyther place.*
> *Nowe sleepeth heare waytinge for the blessed*
> *appearinge of Jesus Christ to Judgement*

Excepting two observations, this is a straight-forward inscription. The first – a minor point – is the employment of a 'tilde' over the 'a' of William (showing the omission of the letter 'm'), which was a common practice, similarly employed on three words on the upper inscription (see below). The second point is of rather greater moment: the figure 43 is more crudely inscribed than the other lettering, which is of finer engraving. It seems that the 43 was added separately later by a much less skilled engraver, just as the 17 (in the date 1617 under the upper inscription) was engraved by a different hand and at a different time from the 16 (Lack *et al*. 1995, 217). Presumably the full script was commissioned before William's death and the 43 only added after he had died. Black figure Gothic script was quite common on brasses in the first decade of the seventeenth century, but much rarer in the second. Indeed it would be difficult to find a later example than this – itself another reason for assuming that the main engraving was done during William's lifetime – (perhaps by a London engraver?) and possibly ten years earlier and the 43 added later. Furthermore, had the inscription been cut in 1613 or later, there would probably have been mention of the foundation of the Grammar School rather than the more general reference to William's affections shared by his birthplace and the scene of his Ministry. But the figure 43 raises another important question. Why 43 and not 40? The figure 43, however, is quite clear and there must be a reason for this discrepancy, for memorials of this kind are usually accurate in this type of record.

William Lee at Cambridge

To find an answer to this question we need to go back to William's career at Cambridge. Unfortunately at the time (approximately) – when we might have expected him to be at College – there were three William Lees at Cambridge: one at Peterhouse, one at Clare and a third at St John's College (Venn and Venn, 1924, 66). At one time the Peterhouse William was thought to have been Vicar of Stapleford. The Master of Peterhouse during the period 1563–1589 was Dr Pearse, the Dean of Ely. Stapleford parish was under the patronage of the Dean and Chapter of Ely. Therefore William Lee, as a Peterhouse man known to the Dean would have been a favoured candidate. The main objection to this idea is the complete lack of any supporting evidence. It is pure speculation.

Venn and Venn (*loc. cit*.) record that William Lee was admitted to Clare on 25th Oct 1570 during these very years of insecurity. The son of Thomas and Ann Lee of Batley, West Yorkshire, he was born at Batley in 1550, matriculated in 1570, took his BA in 1573 and MA in 1577. He is recorded as having served as vicar at Stapleford from 1574–1617. The first problem here (noted by Lester 1962, 19) is to reconcile the 43 years suggested here (and recorded on the plate) with the 1577 date of induction given in the Act Book of the Bishop of Ely.

One explanation is that William was ordained immediately after his first degree and that in the first instance went to Stapleford as a curate, where there were certainly curates before his arrival (Wright *et al* 1982, 227–238; fn 258 citing *Alum. Cantab*. to 1751, iii. 66 [Venn and Venn 1924]).

To graduate MA there was no need for him to remain in residence at Cambridge: he could very well have served as curate and continued his studies. There is an interesting pointer to this having happened in *The Spending of the money of Robert Nowell* (Grosart, 1897). Under the year 1573 it is recorded that 5 shillings was given *Too a poor scholler, the vicar of Stapleforde on the 7 October 1573* (Grosart *idem* 166; 167, *fn* 11). The name of the recipient is not given, so that we cannot be sure that this was 'our' William: but it seems very likely that this was he. Alexander Nowell, former Dean of St Paul's, the greatest educator of his age, could well have been the trigger which inspired William by this simple gift at the point when it was needed – as it did Henry Bury, who was later to found a school of his own. It seems a reasonable assumption that between the years 1573 and 1577, when John Leeds was Vicar of Stapleford, that William Lee both served as curate and completed the studies for his MA degree. The later engraver who added the 43 was simply told that William first came to Stapleford in 1573 and accepted the round figure of 43 years (it was actually 43 years and 5 months) between 1573 and 1617 as the period of this Vicarate.

It has always been something of a puzzle that William went to Clare College rather than St John's. His uncle, Rev John Greenwood had been to St John's and after his MA had been elected to a fellowship there (Lester 1962, 12). There is no record of his having held an incumbency after leaving Cambridge but that is not an uncommon experience (Website Database of the Church of England: CCEd, entry GRNT542J

suggests he may have been Vicar of Orford *c.* 1544). Many young men who were ordained at this time, especially if they returned to the north of England where there was a dearth of parishes, either had to wait many years for a living of their own or – as often happened – failed to get one altogether. Many of them turned to teaching in their local school, which is probably what John Greenwood did. His own Fellowship at the College would have been an obvious connecting link and St John's, at the time had two other things to commend it. It was the college above all others favoured by men from the north of England – especially Lancashire and Yorkshire (Fallows 2001, 38, 39). At the time it was literally full of northern men. It was also the college which was at the forefront of the reforming movement, where the bitterest opposition was to be found to Roman Catholicism and its practices, and where the surplice was condemned as the 'rags of Rome'. This is not to say that the Rev John himself was an ardent reformer but he was a practical man and he must have known that his own college was at the time a real powerhouse of religious discussion and a very stimulating environment for his young nephew to prepare for the ministry.

Now there is a possibility that he did indeed send William to St John's, for there was an entrant there in 1565 when William would have been 15/16 – as already noted – quite a normal age for boys like William to have entered the University at that time. The St John's' William did not take a degree and there is a possibility that if he was our founder that he returned home for a few years and then found a patron going to Clare who was prepared to support him as his sizar. There were very good reasons for William to wait. The rivalry between Elizabeth and Mary was at its most bitter. There were Roman Catholic plots against the new Queen, Elizabeth. In 1570 the Pope excommunicated her and released all her English subjects from allegiance to her. In 1569 a northern insurrection in Mary's support was suppressed with great cruelty. There was probably never a more difficult time for a young man to enter the Ministry.

With all this in mind one is tempted to suggest a new framework for William Lee's career at Cambridge and arrival at Stapleford: that he was sent by his uncle, a former fellow of St John's, to his uncle's old college when he was 15/16; that he found the work difficult and was quite out of his depth in the current religious situation; that he returned to Batley for four years during which he received further teaching from his uncle; that he applied again successfully to Clare, when it was now much clearer that the Reformed Church was here to stay; that his position as sizar confirms that money was short ; that he accepted a curacy at Stapleford as a means of financing himself through the remaining four years to his MA degree; that his name was given to the executors of Robert Nowell's will as being a worthy young man to receive a modest grant; that he proved himself a good pastor at Stapleford and when the previous vicar John Leeds died, he was the natural successor.

The upper inscription

The most interesting and tantalising third of this old brass is the five lines of Latin at the top. They read:

CVRSVM CONSṼMAVI LICET DICERE, VTINAM &
ILLVD : BONṼCERTAMEN CERTAVI, DE RELIQVO
REPOSITA EST MIHI &C. 2 TIM. 4.7. VOS LEC
TORES ILLVD IDEM AGITE, SAGITE.
ANNO DÑI 1 6 1 7 ÆTATIS SVÆ

At first glance they seem straight forward: five lines of clear Roman capitals, not as well spaced or executed as the lower inscription but quite easy to read and presumably chosen by William Lee himself.

CVRSVM CONSṼMAVI LICET DICERE translated literally 'It is allowed to me to say 'I have completed my course'. Or, to put it more easily 'I have completed my course: that I can say'.

What follows at first sight looks like a well-known quotation from the Vulgate. The actual reference is given: 2 TIM.4.7. (This itself is unusual on an engraved brass. Occasionally references are found on tombstones but they are very rare on brasses.) And the reference stands out very clearly – one's eye is drawn to it in the centre of the inscription. Let us do what the author obviously intended and look up the actual reference. It runs as follows:

(verse 7)
BONUM CERTAMEN CERTAVI, CURSUM CONSUMMAVI,
FIDEM SERVAVI

(verse 8)
IN RELIQUO REPOSITA EST MIHI CORONA IUSTITIAE,
QUAM REDDET MIHI DOMINUS IN ILLA DIE, IUSTUS IUDEX

> *'I have fought the good fight, I have completed my course, I have kept the faith. Henceforth there is laid up for me a crown of righteousness which the Lord, the righteous judge will give me on that day'.*

Verse 7 contains three statements in a precise order and these are no doubt what the recorder of the inscription intended us immediately to think when we were given the reference so clearly. But what the engraved inscription says is this: 'That I have finished my course I can say: I WISH THAT I COULD ALSO SAY – (UTINAM ATQUE ILLUD) – I HAVE FOUGHT A GOOD FIGHT, henceforth is laid up for me etc.

And here is where the intriguing problem lies. The author does not make the three straightforward claims listed in the verse from Timothy: he claims the only one to which he is justified – he has completed his course: he has ended his life: he has died – that he can definitely say. But then he goes on to add 'I wish also that I could have said 'I have fought a good

fight'.' If William Lee chose this inscription himself – and it seems that he did – was he being modest? Is this a simple way of confessing 'I did not do all that I could have done: there are things that disappoint me, battles that I could have fought. I did not fight as hard as I might have done'. (Fight for what, we may ask: or against what?) But perhaps even more difficult to answer is what has happened to the third statement 'I HAVE KEPT THE FAITH': a complete omission, although the engraver has gone on to quote verse 8 which begins *de reliquo reposita est mihi*. Are we supposed to assume that the expressed wish UTINAM & ILLUD (sc. *Liceat dicere*) – 'I wish I could also say this …' – extends to the keeping of the faith as well? William Lee's ministry was spent in very difficult times for the Church: the old established order had been shattered: the power of the Catholic Church had been broken, the authority of Rome attacked. England was torn with religious controversy and there was much yet to come. But through it all William Lee had kept his ministry and was well loved and respected by the simple people he dealt with. Their faith in Stapleford was deeply rooted in the past. Acts of Parliament could not change people's faith and deeply held beliefs overnight. What concessions did he have to make? Did he make no mention of 'keeping the faith' because it was simply not safe to do so? Did he, in his conservative country parish, continue quietly many of the old ways of the Church before the Reformation? As time passed and Elizabeth's reforms gained momentum did he slowly adapt (as so many fellow clergy did) to the new ways? – but in doing so did he suffer pangs of conscience that he had not really kept the faith? – the faith of his fathers? Should he have fought harder against the new intrusions? Is this why he wishes he could have said 'I fought a good fight'? Is he putting on record for future generations to read that in his Ministry he had a crisis of conscience? – or even of faith?

Better probably to offer the quotation and let people draw their own conclusions. His parishioners – those who knew him – would see the reference: they would not understand the Latin, but the Authorised Version was now there for all who could to read and they would arrive at their own conclusions.

It had been begun by scholars at the command of James the First in 1607 and was published in 1611. The Geneva Bible, produced by English exiles during the Marian persecution, had been first published in 1560 and was the first to be printed in Roman type (rather than the black letter gothic) and also the first to have its chapters divided into verses. It proved very popular and frequent new editions appeared between 1560 and 1617. The new (King James) Bible, much more easily accessible to his parishioners may have been a further factor which prompted William to give the exact reference in Timothy. For the first time they had a reasonable chance of finding an exact reference and being able to read it!

For William Lee there must have been much soul-searching and spiritual torment in his ministry. He came from a devout Catholic family. His uncle had been a priest of the Church. He was not himself wealthy – he describes his estate as a 'mean estate' – though it must be pointed out that in addition to his foundation at Batley he left property and money to a charity in Stapleford (Wright *et al*. 1982). He ministered faithfully and loyally to a simple flock in a country parish – and whether he kept the faith and how he kept the faith we shall never know. But one likes to believe that, despite the torments and anxieties of his soul, he did.

The remaining words of the inscription are a variation on a fairly common formula:
'you, Readers, do the same and be wise'. The implication is clear: 'Let the words of Paul to Timothy be your guide' The date is given as 1 6 1 7 – but the age is omitted. The normal way would have been to say: AETATIS SUAE ANNO 6 7. (Sometimes the *anno* is omitted.) William's memorial merely says 'In the year of our Lord aged — And none of the customary verbs – *obit/decessit*: he died, or *obdormivit*: he fell asleep – is put in. The 16 of 1617 seems to have been cut by the same hand as cut the four lines above it, but both the alignment of the 17 and the shape of the final 7 show that these two figures (like the 43) were added by a less skilled engraver at a later date. If we are right in assuming that the figure should have been 67 it is possible that the engraver, running out of space and noticing the similarity with 1 6 1 7, simply omitted it. In an age when the average life expectancy was under 30, a ministry of 43 years must have seemed immense.

Discussion and Conclusion

Six years before William Lee died, he purchased land near Batley with which to endow a free Grammar School in the town (Lester 1962, 14–17). The school he founded remained faithful to his wishes. Though it has changed radically over the years, it has never ceased to prepare such as be fit for the University and is celebrating its quatercentenary in 2012. The Stapleford brass therefore commemorates not only a long serving and much loved pastor, but also the foundation of one of Yorkshire's most famous Grammar Schools.

This brass is, however, something more than the simple record of a vicar's service and a school's foundation. It gives an insight into the mental anguish of a conscientious priest caught up in the throes of the Reformation and his solution to his dilemma: the founding of an institution where future generations would have the knowledge to absorb the new Bible, be educated to reach their own conclusions and enabled to keep the faith in their own way. It is a reminder of how and why so many of our ancient grammar schools came into being.

The message inscribed upon William Lee's memorial at Stapleford does not just offer important insights into his life: it is also a mute but most valuable record of the turbulent times he lived through.

Acknowledgments

This article owes its origin to three things: first, to a speech and toast to William Lee which I gave as Headmaster in his school – differently sited, but still his school – some time ago; secondly, to a passion for brasses and slabs, particularly those with Latin inscriptions, which I have pursued since my retirement; and thirdly, to the encouragement of one of my old boys, Dr C.S. Briggs, who has been kind enough to edit it and add some of his own expertise. The valuable comments of an anonymous referee are gratefully acknowledged.

Thanks are due to Dr Richard Halliday for his provision of the photograph of the Stapleford brass.

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Access to certain of the information used in this article is available online at:

ACAD *A Cambridge Alumni Database*. http://venn.csi.cam.ac.uk/ACAD/intro
[accessed 29th February 2012]

and through:

Database of the Church of England [CCEd]: *A commentary on the records employed for the Clergy of the Church of England Database 1540–1835 relating to the Diocese of Ely*. [accessed 29th February 2012]

Fieldwork in Cambridgeshire 2011

Sally Croft, Chris Thatcher and Elizabeth Popescu

The work outlined below was conducted for a variety of reasons, including development control derived projects, emergency recording and research. All reports cited are available in the Cambridgeshire Historic Environment Record, Cambridge, for public consultation. Many of the reports are available in digital format from the Grey Literature Library at the Archaeology Data Service
http://ads.ahds.ac.uk/catalogue/library/greylit
or Heritage Gateway
http://www.heritagegateway.org.uk/gateway Reference numbers for Scheduled Monuments and Listed Buildings are taken from the National Heritage List for England.
http://list.english-heritage.org.uk/default.aspx

Abbreviations
AIRC Air Photo Services (Cambridge)
ALBION Albion Archaeology
ALL Allen Archaeological Associates
APS Archaeological Project Services
ARH Archaeology Rheesearch Group
AS Archaeological Solutions
ASC Archaeological Services and Consultancy
ASDU Archaeological Services Durham University
ASE Archaeology South East
AW Archaeology Wales Ltd
CAU Cambridge Archaeological Unit
CFI Cranfield Forensic Institute
CgMs CgMs Consulting
COT Cotswold Archaeology
HN The Heritage Network
NAU NAU report
NHA Northamptonshire Archaeology
OA East Oxford Archaeology East
OAT Oxford Archaeotechnics
PCA Pre-Construct Archaeology
STRAT Stratascan
WYAS West Yorkshire Archaeological Services
ULAS University of Leicester Archaeological Services

Abbots Ripton, land north of St Andrew's Church
TL 2305 7807 (NHA report 11/114)
E Taylor
An area corresponding to the footprint of the new almshouse was excavated. Three ditches were identified in the north-western part of the site, likely to represent a single boundary shifting over time, possibly dating from the medieval period with a final abandonment in the 19th century. In the southern corner of the excavation area the substantial wall of a north-west to south-east aligned brick building and associated cellar was identified. This building is likely to be the parsonage shown on 17th and 19th century maps.

Babraham, Babraham Research Campus
TL 5102 5072 (CAU reports 1008, 1042, 1044 & 1046)
M Collins and S Timberlake
Three development areas were investigated at the Campus in 2011 and Roman to medieval evidence was found throughout. Following the demolition of older laboratory and storage buildings, the truncated remains of metalled Roman and medieval roads and their drainage gullies were recorded with associated ditched enclosures. All were excavated in advance of new replacement buildings at the south western end of the Campus.

Medieval occupation evidence including wells, was found cutting through a Saxon 'sunken floor building' or SFB along with Roman landscape features in an extension to the staff car park on the west side of the main access road. One human burial was also excavated, presumably an outlier to a cemetery that had been excavated prior to the construction of the access road.

Ahead of construction works for a major new research building on the north-west side of the Campus, evaluation trenches defined the extensive remains of Roman fields and droveways associated with the settlement excavated at the ARES Building in 2005. Surface exposures of natural sands and marl on the upslope, northern bank of a palaeochannel had been quarried in the Roman period, the resultant pits being backfilled with kitchen midden deposits that will yield significant proxy evidence of the character of

the settlement when excavated and analysed. A number of Roman and medieval wells provided evidence of clean water sources for the settlement and its stock yards, as the palaeochannel area had become an overgrown bog by that time, although the present course of the River Granta is roughly 160m to the south west. Areas of relict prehistoric buried soils were found to contain worked flints and pottery in the evaluation. These areas formed a further focus of subsequent excavations that concluded in February 2012.

Barrington, Challis Green
TL 3983 5000 (OA East report 1269)
L Bush
A series of large medieval boundary and enclosure ditches containing domestic refuse were found at this site, along with a substantial moated ditch which has been tentatively identified as the moat and associated land of the Heslerton sub-manor. Several pit groups and the remnants of two clunch walls were also recorded. The finds assemblage dates to *c.* AD 1150-1350 and residual Late Saxon pottery found in several features suggests earlier activity in the vicinity. Parts of the site had been heavily truncated by post medieval coprolite quarrying.

Barrington, 17 Orwell Road
TL 3867 4956 (CAU report 1020)
J Tabor
Trial trench evaluation within the footprint of a proposed development revealed a small number of ditches which appear to denote plot or field boundaries and a small collection of pits. Pottery recovered included sherds of Essex Redware which suggests activity dating to the 14th-15th centuries. The archaeological features are an important addition to the local archaeological record. The limited finds assemblage suggests the site is not associated with domestic activity and it seems likely that it was located on the periphery of the medieval settlement.

Bluntisham, land south of Station Road
TL 3603 7339 (AIRC report 2011/7)
R Palmer
An aerial photographic assessment examining an area of 13 ha recorded a scatter of rectangular pits that indicated a strong possibility of sunken floor buildings of Saxon date. On the south-east side of the pit scatter, half an arc of a probable Bronze Age ring ditch was also recorded. Directly to the east of the development area, a ditched enclosure of roughly square shape was recorded within which were pits thought to be contemporary with the enclosure. These features may be of Iron Age and/or Roman date and attest to recurrent use of this relatively high ground in the locality. The probable sunken floor buildings cut into and lay within the ring ditch suggesting it was an insignificant feature by Saxon times and located on an area of slightly higher ground, possibly also of a more gravely nature than the surrounding clay-based bedrock. Hand-dug quarries occur in the area of the sunken floor buildings and overlap with some of them. They are thought to be of shallower depth, allowing survival of the lower levels of the sunken floor buildings. Slight suggestions of ridge and furrow remaining from medieval cultivation also occur across the site and lengths of former field boundaries were identified.

Bluntisham, land south of Station Road
TL 3603 7339 (AS report 3867)
T Janes & A Peachey
Following on from an aerial photographic assessment, evaluation revealed no evidence to support features previously identified as Saxon sunken floor buildings. The aerial photographic assessment ascribed a probable Bronze Age date to an enclosure ditch but no evidence was found for this and sherds of pottery recovered from an upper fill indicated a possible Middle Saxon date. A small quantity of residual Neolithic pottery was recovered from across the site but finds recovered from the test pits ranged in date from Roman to modern. An enclosure, visible as a cropmark, in the field to the east has been interpreted as of an Iron Age/Romano-British date so the Roman pottery sherds are likely to be associated with this. Remaining cropmarks were shown to represent recent quarrying activity.

Bourn, Bourn Hall
TL 3230 5619 (NAU report 2852)
F Green
An archaeological watching brief undertaken during the renewal of drains and structural investigation works at the Hall (NHLE 1162529) revealed a section of wall, below the south-west facing wall of the kitchen. The hall lies on the highest point within an 11th century defensive ring work of ditches (NHLE 1014238) in the likely position of an associated 11th century timber castle although no remains associated with these were recorded. A tobacco pipe dating to the early to mid-17th century was found at the base of the construction cut of the upstanding kitchen wall but the wall remains undated and it is uncertain if it predates the kitchen wall; being part of the earlier hall construction or part of a now demolished outbuilding.

Boxworth, Mermaid Spinney
TL 3471 6425 (OA East report 1279)
G Clark
An early medieval ditch was recorded underlying a buried medieval plough soil that contained a bone comb fragment and a buckle indicative of moderately high status domestic occupation between the 11th and 16th centuries.

Burrough Green, Burrough Green Primary School
TL 6375 5580 (OA East report 1267)
J House
Four slots were excavated through the south-east corner of a 17th- or 18th-century ditched enclosure. No finds pre-dating the 17th century were recovered, suggesting that this feature represented a later exten-

sion to the scheduled moat (NHLE 1020059) associated with Burrough Green Hall to the south-west.

Bury, Valiant Square
TL 2783 8335 (OA East report 1308)
N Gilmour
Evaluation revealed a single furrow and two undated ditches. The latter were aligned parallel with each other, spaced 4m apart, and may have formed a trackway.

Cambourne, land west of Cambourne
TL 3077 5998 (AIRC report 2011/8)
R Palmer
An aerial photographic assessment examined 120 ha. Three pre-medieval adjacent enclosure groups that may have been part of a larger group were identified, and a complex of ditches indicating a site of long-term occupation including an entrance way and huts within the enclosing ditches was also recorded. Medieval ridge and furrow was identified across the study area.

Cambourne, Cambourne Secondary School
TL 3097 5996 (CFI report 061/2011)
C Enright
A fluxgate gradiometer survey was undertaken in advance of future site development revealing a significant linear anomaly which most likely represents a former field boundary. Two areas of possible burning were also identified.

Cambourne, Cambourne Secondary School
TL 3141 6025 (OA East report 1304)
C Thatcher
Further to aerial photographic assessment and geophysical survey, settlement boundaries and field systems dating from the late pre-Roman/Iron Age to the end of the 2nd century AD were found. These may have been associated with contemporary settlements recorded to the east at Lower Cambourne. Of note was a remnant of a ring gully in the southern part of the site. To the north-west, a possible palisade trench and a poorly preserved inhumation lay next to a relatively large boundary ditch. A feature identified in the northern part of the site by both the aerial photographic survey and the geophysical survey proved, on excavation, to have been a possible trackway.

Cambridge, Academy House
TL 4599 5683 (OA East report 1280)
G Rees
Two trenches were excavated in the car park of an existing building. Evidence of post medieval gravel quarrying was uncovered in trench 1. All of the deposits encountered in Trench 2 were associated with the mid 19th century engine sheds and goods yard.

Cambridge, Murray Edwards College, Orchard Court
TL 4414 5950 (CAU report 1054)
D Webb & R Newman
An excavation covering an area of 49m^2 revealed the presence of a number of features of Roman date. Most significant amongst these was a portion of a metalled surface, constructed in a single phase, most probably during the 2nd century AD. This feature represents a direct continuation of a northwest to southeast-oriented surface that was first identified at the site in 2009. This metalling has therefore been identified as comprising part of the Cambridge to Godmanchester road. Flanking this road to the northeast were a series of intercutting quarry pits, which also contained 2nd century material along with residual Iron Age worked flint. It thus appears possible that these quarries were first utilised during the road's initial construction. In addition, four further features were also present at the site including a shallow gully forming part of a probable roadside enclosure, and three further intercutting pits all of which contained material dating to the 2nd and 3rd centuries AD. Finally, circumstantial evidence indicating the presence of a relatively high-status Roman building in the near vicinity was also recovered.

Cambridge, Cherry Hinton Junior School
TL 4936 5687 (OA East report 1248)
N Gilmour
Speculation that the development area intended for a school extension and new all-weather pitch lay on an old droving route was reinforced by the presence of ridge and furrow cultivation aligned perpendicular to Fulbourn Old Drift.

Cambridge, Parkside Fire and Rescue Station
TL 4572 5822 (CAU report 1049)
R Newman
An evaluation at the Parkside Fire and Rescue Station site revealed that the site had previously been subject to intensive gravel quarrying activity. Although no earlier, pre-quarry features had survived, two distinct types of quarry pit were identified. The first of these consisted of a series of haphazardly arranged sub-oval features, one of which was found to contain abraded Roman pottery (although the majority of these quarries appear most likely to have been medieval in origin). Subsequently, during the 17th century, the site became the focus of more intensive 'strip-type' extraction techniques. A large number of deep, straight-sided linear pits were inserted at this time, and between them these features removed almost all of the remaining natural gravel. Following the Inclosure of the site in 1807, the irregular and uneven terrain was landscaped and a relatively high-status villa – 'Peters Field (or Petersfield) House' – was constructed. This was finally demolished in 1963-4 to make way for the construction of the Parkside Fire and Rescue Station.

Cambridge, St John's College, First Court
TL 4479 5876 (CAU report 1057)
R Newman
Three phases of archaeological investigation consisting of a test pit evaluation, a watching brief and an investigative trench were undertaken within the

First Court of St John's College, Cambridge (NHLE 1332216). These works focused upon the location of the former college chapel, which was demolished in 1869-70. This building had previously served as the chapel of the Hospital of St John the Evangelist, an institution that had been founded upon this site by *c.* 1200 AD. Although limited in scale, the investigations produced a number of important results. In the first instance, a number of *in situ* masonry blocks were identified. These included the base of a stair turret, a door jamb and part of a clunch-built foundation, the latter of which most probably formed a footing for stalls within the medieval quire. Overall, it appears that the floor height of the chapel was raised by approximately 0.5m when the building was converted from ecclesiastical to collegiate use in 1514-6. The lower portion of this sequence thus appears to have remained relatively undisturbed when the chapel was demolished, and significant architectural remains of between two and four courses in depth lie preserved beneath the lawn of First Court.

Cambridge, Thompson's Lane, The Old Vicarage
TL 4480 5891 (CAU report 997)
R Newman
An archaeological watching brief was undertaken at the Old Vicarage (NHLE 1331884) situated on Thompson's Lane, to the rear of St Clement's Church, Cambridge. Remains dating from the medieval to modern periods were identified at the site. In the first instance, a sequence of yard surfaces was present, interspersed with periods of backyard horticultural activity. These layers dated from the 13th to 15th centuries. Subsequently, a made-ground deposit was introduced. This may have been associated with building work undertaken at the nearby church during the 16th century, or the construction of the Old Vicarage itself in the late 16th/early 17th century. Most significantly of all, however, a minimum of three mid to late 18th century burials were present. One of these individuals had been encoffined, and a second had been interred within a coffin-shaped grave. Notably, these burials were all oriented north-south. Furthermore, they do not appear to have been situated within the bounds of the medieval churchyard, as no earlier burials were present. Therefore, they most probably relate to a brief period of cemetery expansion, perhaps precipitated by the construction of a new chancel at St Clement's Church. The churchyard appears to have rapidly returned to its former size, however, as no additional phase of burial was undertaken within the investigated area.

Cambridge, Neath Farm Business Park, Cherry Hinton
TL 4883 5743 (CAU report 1065)
A Slater
Two areas of Neath Farm Business Park in Cherry Hinton were evaluated prior to redevelopment of the site. The first area adjacent to Church End Road revealed a densely packed sequence of linear ditches and gullies dating to the 12th-15th centuries, running in the same alignment as the current Church End Road. Several sherds of pottery were recovered, predominantly of Saxo- Norman and early medieval date. The second area away from the road contained fewer features; a single undated ditch and four undated postholes. The alignment of the ditch corresponds with the ditches in the first area and the small quantities of animal bone also recovered from the excavations were comprised entirely of domestic species. Recent further evaluation works have revealed further domestic remains running away from Church End Road, with possible field systems spreading southwards. The development area will be subject to further investigation before a full analysis of the site is produced.

Cambridge, 59 Histon Road
TL 4428 5964 (CAU report 1027)
L James
An archaeological evaluation was carried out at 59 Histon Road revealing a single east-west orientated linear feature, across the site. This small ditch was dated to the late medieval period on the basis of recovered pottery. This feature was potentially a property or plot boundary perpendicular to Histon Road.

Cambridge, Porter's Lodge, Trinity College
TL 4479 5865 (CAU report 1059)
R Newman
An architectural and archaeological investigation within the Porter's Lodge of Trinity College (NHLE 1000633) was undertaken prior to its refurbishment. Architecturally, several elements of the Great Gate's primary, late 15th century fabric were identified. These included two substantial, clunch-built fireplaces along with two internal doorways. In addition, numerous later additions and alterations to the building's fabric were also recorded. Archaeologically, a range of features and deposits were investigated. In the first instance, associated with the initial construction of the Porter's Lodge in *c.* 1490 was the footing for an internal dividing wall and an extensive make-up/levelling deposit. Beneath the latter, the rubble-built footing of a timber-framed building was also encountered. This represents a vestige of the final phase of pre-collegiate occupation at the site.

Cambridge, 109 Glebe Road
TL 4659 5600 (OA East report 1314)
N Gilmour
Three ditches were identified here, one of which contained a sherd of Roman pottery. Post medieval pottery was also recovered from one of the ditches, which are likely to be part of field systems recorded elsewhere on Glebe Road.

Cambridge, Castle Street
TL 4457 5906 (CAU report 1064)
C Cessford
An archaeological excavation was undertaken at numbers 4 and 5 Castle Street, Cambridge (NHLE 1331827). Despite extensive 19th-20th century distur-

bance, 1st-4th-century Roman deposits and features – including a well-constructed cobbled surface – survived under the basements. In the rear yard a 3.3m deep stratigraphic sequence spanning the 12th/13th-20th centuries was present with features including a large 12th-13th-century quarry pit, a 14th-15th-century oven and a 16th-17th-century garden/horticultural soil, all features typical of the rear yard area of an urban plot. In the 17th-century a building with a substantial cellar was constructed which remained in place until the current standing buildings were erected in the mid 19th-century.

Cambridge, 208 Green End Road
TL 4678 6014 (CAU report 1043)
R Newman
An 'L-shaped' trench was excavated at 208 Green End Road, Chesterton revealing that the site had previously been subject to intensive gravel quarrying activity. Although no earlier, pre-quarry features had survived, two distinct types of quarry pit were identified. The first of these consisted of a series of haphazardly arranged sub-oval features, one of which contained abraded sherds of medieval pottery. Subsequently, however, during the Post medieval period, the site became the focus of more intensive 'strip-type' extraction techniques. A minimum of sixteen linear quarries were inserted, all of which were aligned northeast to southwest. Between them, these features removed almost all of the remaining natural gravel. Finally, a number of additional features relating to the most recent phase in the site's usage were also present. These included a sub-rectangular pit, a rubble-filled soakaway and a lead water pipe that were all associated with the construction of a nearby bungalow in the mid 20th century. In addition, the topography of the area suggests that a programme of landscaping/terracing may also have been undertaken at this time.

Cambridge, Clay Farm
TL 4450 5500 (OA East report 1294)
T Phillips
An area covering 16.8ha, divided into six areas (A-F), was investigated. Excavations revealed multi-period remains spanning the Neolithic to modern periods. The earliest finds included Mesolithic microliths and Early Neolithic blades and cores. Extensive Middle Bronze Age field systems, enclosures and settlements covered large areas of the site. The earliest evidence for land division comprised north-west to south-east aligned ditches that were superseded by more intricate enclosures and field boundaries. Finally, three discrete areas of settlement were established within the system of fields and enclosures, from which large assemblages of Middle Bronze Age finds were recovered.

An Early Iron Age settlement – characterised by post built sub-circular structures, 4-post structures and pits – was located within the Middle Bronze Age field system in Area A. During the Middle Iron Age, settlement activity shifted onto the higher ground in Area C and consisted of structures, an oven and areas of pitting enclosed by curvilinear ditches. This area of settlement endured into the Late Iron Age and included a possible 'cemetery garden', consisting of two enclosed cremation burials accompanied by at least eleven vessels and other grave goods. The cremated bone had been placed in a wooden box. Late Iron Age field systems and evidence for nearby settlement were also recorded in Areas B and E.

Early Roman land use consisted of a pattern of small rectilinear fields and paddocks. A double ditched, sub-circular Late Roman enclosure was recorded in Area F. While this yielded no evidence of domestic or agricultural use, the inner ditch contained the disarticulated remains of several adults, along with five Late Roman bracelets, large nails and butchered animal bones. During World War Two a series of ring ditches were constructed in Area B to create banked enclosures for the housing of searchlights and associated stores.

Cambridge, Corpus Christi College, Leckhampton House
TL 4363 5800 (CAU report 1038)
S Timberlake
Archaeological evaluation and open excavation within the footprint of a proposed new student accommodation block at Corpus Christi College (NHLE 1126003), adjacent to the college sports field. The investigation began with four evaluation trenches, two of which indicated the presence of Saxon-Early Medieval ditches and as a result an area of *c.* 180 sq m was opened up and excavated, revealing what appears to be the partly in-turned entrance of a sub-circular enclosure. Three of these ditches produced Middle Saxon pottery, fragments of weathered lava quern, burnt stone, daub, and considerable amounts of animal bone, most of the latter coming from the terminal ditch segment which may have been dug as a quarry pit just beyond the end of the original ditch. Another ditch dug across the inside of this entrance was constructed somewhat differently, and appears to be of a much later date. Little more can be said about the interpretation of this small enclosure, except that it confirms the relatively rare occurrence of a Middle Saxon settlement in this area.

Cambridge, Jesus College
TL 4520 5888 (Phoenix Exhumation Ltd report)
C Duhig & D Keen
In February 2011, a skeletal analysis was undertaken on a skeleton at Jesus College which had been used for anatomy teaching in the 1900s. Before examination, the skeleton was believed to be that of a female, and made from the skeletons of three individuals. The skeleton was presented for examination in a wooden case, strung with original 19th century wiring and pins with a circular hanging loop inserted into the skull. Examination showed that mainly one individual was represented, but with the right patella from another individual. The skeleton is male, with both Caucasoid and Negroid features, of medium

height and aged in the late-twenties to late-thirties at time of death.

Cambridge, Newnham Hall
TL 4410 5777 (ARH report)
I Sanderson
Geophysical survey including both resistivity and magnetometry survey was undertaken in order to determine if any subsurface features could be detected indicating the location of air raid shelters constructed in 1939. A Saxon grave was discovered during the building of air raid shelters in 1939 but no record of the exact position of that excavation has yet been discovered. The resistivity results gave a complex pattern of responses reflecting the intensive management of the lawns during the last century. The site was also not particularly suitable for magnetometry due to these high levels of interference and the extensive use of metal edging to the paths. A linear feature running parallel to and south of the present path in the south-west lawn showed in both the magnetometry and resistivity results. This is almost certainly an iron pipe with a bedding promoting the accumulation of moisture from the surrounding soil. There are indications of a higher resistivity band along the north edge which may represent the metalling of a footpath shown on the Baker map of 1821 (as well as on the inclosure map and later Ordnance Survey maps of the site). The low resistance values along some of the edges of the resistivity results could be due to path salting given that this survey was conducted not long after a period of frost and snow. Higher concentrations of salts in the soil increase conductivity and therefore reduce electrical resistance. A rectilinear feature in the north-west lawn is characteristic of building foundations. Features clearly detected on the sports field would seem to correspond to the boundaries of the 19th century pleasure gardens shown on the Baker and Ordnance Survey maps, although suggestions of earlier activities are discernible in the northern part of this site. A strong response half way down on the west edge of the survey does not correspond with a glass house shown on the 1886 OS map of the site but may represent a similar structure. The overall aim of locating the sites of air raid shelters was not achieved, which is not surprising given that they were fairly shallow structures in an area that has had extensive disturbance.

Cambridge, Old Court, Pembroke College
TL 4489 5809 (CAU report 1028)
R Newman
A lift pit measuring 1.55m by 0.88m was excavated within the cellar of the hall of Pembroke College (NHLE 1087104). Within the lift-pit, a series of four 19th to 20th century floor surfaces were identified. The earliest of these surfaces consisted of a layer of large limestone flags, which had subsequently been overlain by two succeeding layers of concrete. The sequence was finally capped by a layer of modern quarry tiles. No evidence of the original, 14th century hall, demolished and replaced with the present structure in 1875-77 was uncovered. No evidence of pre-collegiate, domestic occupation at the site was identified either and so it therefore appears that the entire pre-19th century archaeological sequence was destroyed when the current structure was constructed.

Cambridge, Woodhead Drive
TL 4633 6077 (CAU report 1055)
R Newman
An evaluation covering an area of 43m^2 was undertaken on land situated near Woodhead Drive, Cambridge revealing the site had been subject to limited anthropogenic activity. Although the sequence was well-preserved, only two archaeological features, regular east-northeast to west-southwest aligned furrows with shallow, concave profiles were identified. Although undated, these features were most probably medieval in origin as they were associated with a well-worked subsoil deposit that contained 14th to 15th century pottery. This indicates that during the medieval period the site was situated within the open fields that constituted the rural hinterland of the nearby village of Chesterton. Above the subsoil, the remainder of the sequence comprised a layer of 19th century garden soil and a modern brick car park surface with associated hardcore.

Chatteris, Cromwell Community College
TL 3960 8540 (OA East report 1300)
T Lyons
Two phases of work were undertaken, the first within the footprints of proposed new buildings, the second on the sports pitches. During the initial phase, late medieval and post medieval pits, ditches and postholes were recorded. The second phase revealed evidence for prehistoric settlement including an Early Iron Age pit cluster and a curvilinear gully. To the east, a headland of ridge and furrow agriculture was also present.

Chatteris, 19 Victoria Street
TL 39314 85862 (OA East report 1296)
R Clarke
This evaluation represented the first archaeological investigation within the presumed claustral nucleus of Chatteris Abbey. A series of insubstantial walls and between three and five articulated burials were revealed. The walls may be associated with the burials although a more substantial footing at the northern end of the trench could relate to the abbey buildings. The number and extent of inhumations and disarticulated human skeletal remains, combined with the mixture of age ranges of the individuals, strongly suggests that the proposed development is located within a secular or lay cemetery within the abbey precinct.

The depth and extent of the burial ground is not known and no finds post-dating the medieval period were recovered, suggesting that the burials are probably medieval and likely to be associated with the monastic phase of the site. All of the articulated burials were interred in the Christian manner: extended

with heads to the west and arms to the side. Grave cuts were not well-defined.

The results are of particular significance as they raise important questions regarding current models for the location of the abbey buildings. Furthermore they highlight how little is known about the plan, layout and extent of the abbey and the nature of the pre-monastic and post-Dissolution use of the site.

Chatteris, Tithe Barn Farm
TL 3972 8448 (OA East report 1297)
R Atkins
Trenches targeted over features identified by a previous geophysical survey revealed palaeochannels dating from the Holocene period. A small assemblage of residual Mesolithic/Early Neolithic flint tools was recorded along with Early Bronze Age settlement evidence in the form of a hollow and a well containing burnt flint, possibly derived from a 'burnt mound'. A Middle Bronze Age settlement with associated field systems was recorded. This included posthole structures, three large watering holes and ditches. Two ring ditches were also found and may represent the remnants of barrows.

The site was abandoned until the Middle/Late Iron Age when a new settlement was established, some of which was given over to copper- and iron-smithing. A second late pre-Roman or Iron Age/Early Roman farmstead was also recorded. Both sites endured into the Late Roman period. A probable Anglo-Saxon sunken floor building lay in a separate part of the site.

Cottenham, land at Cuckoo Hill farm
TL 4270 6640 (OAT report 3330511)
BA Johnson
Geophysical survey was carried out in advance of proposed construction on site and comprised a gridded magnetometer survey. A group of parallel anomalies on a north-south alignment were identified and interpreted as the remains of ridge and furrow cultivation or an episode of steam ploughing. A few further anomalies were recorded which were indicative of silted hollows or pits.

Cottenham, Twenty Pence site
TL 4697 6989 (ARH report)
I Sanderson
Magnetometry and resistivity surveys were undertaken on the basis of known Roman archaeology in the vicinity and the proximity of the site to Bullock's Haste (NHLE 1006897) and Car Dyke (NHLE 1006813 and 1006930). The results indicate an area of intense habitation and activity. The general orientation of the features does not seem to respect the line of the Car Dyke and can therefore be presumed to pre-date its construction.

Cottenham, ACA test pits
TL 4507 6760
A series of test pits was excavated by the University of Cambridge Access Cambridge Archaeology programme (ACA, formerly HEFA). Nine test pits were excavated at several sites across Cottenham from which pottery dating from the Roman to modern periods was retrieved.

Eltisley, Manor Farm
TL 2733 5931 (OA East report 1319)
J Fairbairn
This community archaeology project found evidence for activity within the moated enclosure at Manor Farm (NHLE 1309206) dating back to at least the 15th century and possibly much earlier. Aerial photography of the site also suggested that the enclosure may have been much larger than initially thought. Evidence for Roman occupation in the vicinity, perhaps a small farmstead, was also noted. Investigation of a mound or platform to the east of the present building revealed that it probably once supported a larger building and dispelled the idea that the sunken area in front of the farmhouse was once a medieval fishpond. A trackway or hard standing was recorded to north of the moat that may have led to an older entrance to the moated enclosure.

Ely, Highflyers Farm
TL 5539 8233 (NHA reports 11/26, 11/61, 11/84, 11/201, 11/214)
J Walford, A Butler, E Taylor, J Brown
Geophysical survey conducted over four phases revealed a large, double-ditched concentric square enclosure likely to represent a shrine or military site of Late Iron Age or Romano-British date. Two concentrations of sub-rectangular enclosures suggest minor settlement foci of similar date. A trackway linking the enclosures with the putative temple site to the north was also detected.

An initial stage of trial trench evaluation confirmed the presence of a complex of enclosures and a droveway which had been detected by the geophysical survey. Settlement at the site began in the Early to Middle Iron Age with the peak of activity occurring during the Romano-British period in the 2nd to 4th centuries AD. Parts of the enclosure complex were maintained into the Saxon period.

A further stage of fieldwork confirmed five principal groups of archaeological remains; a large isolated Middle to Late Iron Age pit, a rectangular enclosure, an area of scattered pits, a concentration of Late Iron Age and Roman enclosures and a post medieval brick kiln. Pits and enclosure ditches produced pottery which was predominantly Late Iron Age, representative of small localised features created from the 1st century BC, with perhaps some used into the 1st century AD. Up to four small rectangular and sub-rectangular enclosures may have been present, together with scattered groups of pits. A group of enclosures were established in the Late Roman period, probably during the 3rd to 4th centuries, but were abandoned by the late 4th century. A possible hoard of late 4th century coins was discovered and reported under the terms of the Treasure Act (1996). Other finds of pottery, metal and animal bone all suggested that they originated from domestic debris, but the lack of

evidence for building materials or structural features suggested that this was probably midden waste.

Ely, Lisle Lane
TL 5473 8026 (AS report 3725)
T Schofield
Ten trial trenches were excavated on land at Lisle Lane, in advance of construction of a supermarket revealing an undated gully, post medieval land drains and a modern pit. There had been some truncation to the site as a result of the previous modern light industrial buildings on the site.

Girton, Girton College, Ash Court
TL 4236 6105 (CAU report 1006)
R Newman, R Ferraby and J Hutton
Three phases of archaeological investigation including geophysical survey, geotechnical test pitting and trial trench evaluation were undertaken at Ash Court, Girton College (NHLE 1331334). The earliest features to be encountered during these works consisted of a series of tree-boles/tree-throws that showed no signs of anthropogenic involvement in their creation. These were overlain by a horizon of well-worked horticultural soil. As this latter deposit showed no evidence of bioturbation, it appears likely that the area was cleared prior to the commencement of agricultural activity. Overlying the horticultural soil was a compacted spread of ash and charcoal, deposited in the late 19th century during the early years of Girton College. Also dating to this period was a large gravel quarry pit, which appears to have been associated with the initial construction of Old Wing in the early 1870s. Finally, evidence of 20th century landscaping activity in the form of a rubble spread, and an upcast gravel bank flanking Orchard Drive was also encountered. These results clearly demonstrate that the large Anglo-Saxon cemetery that was previously identified a little way to the south during the late 19th century does not extend into this area.

Girton, 1 High Street
TL 4199 6204 (OA East report 1245)
N Gilmour
Evaluation of the site recorded postholes and ditches dating from the 12th to 16th centuries that contained pottery and a large assemblage of medieval worked stone objects. These included seventeen lava quern fragments, a possible lava millstone, two schist hones and two stone roof tile fragments. A Late Medieval cobbled surface overlay the medieval features.

Great Shelford, Granhams Farm
TL 4637 5302 (OA East report 1261)
N Gilmour
An Early-Middle Saxon ditch was sealed below post medieval dumped deposits. This may relate to probable Anglo-Saxon earthworks adjacent to the site.

Great Shelford, 49 Woollards Lane
TL 4605 5191 (AS reports 3707, 3909)
T Collins, K Higgs & K Henry, T Schofield
An historic building recording survey was undertaken on the former school building and associated buildings prior to demolition. The three buildings comprised a school building constructed in 1870, a domestic residence and modest commercial premises. Despite conversion to a garage and renovation during the 1960s, the school and residential building retained their 19th century timber cores, a fairly unusual, late example of timber construction. Evaluation by trial trenching revealed a number of undated linear features and pits and further investigation revealed them to be post medieval and modern in date, relating to the public house that previously stood on the site.

Godmanchester, 8 Earning Street
TL 2480 7026 (AS report 3746)
A Dyson
Archaeological monitoring and recording during an extension to the existing building revealed both Roman and post medieval finds. An unexcavated feature below the level of construction contained a fragment of a Gaulish amphora, suggesting the presence of undisturbed Roman features.

Harlton, Washpit Lane, land west of Manor Farm
TL 3854 5262 (AS report 3982)
L Smith, M Stoakley and T Woolhouse
A trial trench evaluation on land west of Manor Farm, Washpit Lane, Harlton was undertaken in advance of the construction of a new hay/straw and cattle store along with a reed bed and access. Archaeological features were encountered in six evaluation trenches, most containing artefacts of Saxo-Norman and medieval date although residual Roman sherds were also present. Large silt filled pits, possible outwash pits, or a series of ponds from an un-established industrial/filtration process were found, and a few smaller pits were also investigated. Whether these large ponds/pits are referred to in the name of the adjacent Lane (Washpit Lane) remains unknown.

Haslingfield, Cantalupe Farm
TL 4128 5380 (CAU report 1001)
J Tabor & R Palmer
A series of aerial photographic survey, fieldwalking and metal detecting was undertaken at Cantalupe Farm, to the north-east of Haslingfield in advance of the construction of a solar farm. The aerial photographic survey identified no archaeological sites within the proposed development area and the fieldwalking and metal detecting yielded comparatively few finds, the majority of which were post medieval in date.

Haslingfield, 30 New Road
TL 4085 5249 (OA East report 1235)
R Atkins
The excavation revealed significant evidence of occupation and activity over several periods. Features dating to the Iron Age, Roman and medieval periods were uncovered including an enclosure and possibly

a domestic building from the Late Iron Age period, with all features predominantly concentrated at the northern end of the site. From the 13th to mid 14th centuries the site became part of a pastoral field system with a droveway. A large assemblage of pottery was recovered from the excavations dating to the Early Iron Age through to a couple of fragments of 19th century vessels. A copper-alloy George II halfpenny was also recovered.

Hinxton, Hinxton Genome Campus
TL 5442 6092 (OA East report 1323)
T Fletcher
The latest phase of works at this site corroborated earlier investigations in the locality, revealing further evidence for Neolithic flint working and the continuation of Iron Age and Romano-British agricultural activity in the form of extensive boundary ditches, enclosures and a fence-lined trackway that may have been used for animal husbandry. The pottery from previous excavations already forms a regionally significant group of 'Belgic' material and indicates that the wider settlement was of unusual status. A single burial of possible Iron Age or Roman date was placed within a ditch. Occupation of the site appears to have diminished during the Late Roman period.

Evidence for Anglo-Saxon activity during the 5th-century was uncovered in the form of two sunken floor buildings, one of which was particularly well-preserved, containing loom weights and other finds indicative of textile working. A Late Saxon or early medieval pit containing evidence for jet-working was also of note. Two small 13th-century ovens and a number of medieval ditches containing significant quantities of pottery were also recorded; a glazed tile recovered from one of the ditches is likely to have originated from a high status building, perhaps with an ecclesiastical association.

Histon, 49-51 Station Road
TL 4400 6326 (PCA report)
T Knight
Evaluation undertaken prior to development revealed a number of pits and ditches of medieval date along with a small assemblage of medieval and post medieval pottery. The lack of any direct evidence of dwellings would suggest that the location occupied a relatively marginal location in relation to the core of the settlement during the medieval and early post medieval periods, consistent with the current understanding of the village's development.

Huntingdon, Chequers Court Car Park
TL 2410 7182 (OA East report 1252)
M Webster & R Clarke
Well preserved, stratified archaeological deposits and features spanning the medieval to post medieval periods were recorded, including timber structures and pits containing evidence for industrial and domestic activities, low-level blacksmithing, butchery and food-preparation. Extensive cultivation soils underlay late 17th- or early 18th-century brick wall foundations and a substantial posthole.

Huntingdon, land at Christie Drive, Hinchingbrooke
TL 2200 7190 (CAU report 1076)
M Brittain
Archaeological investigation revealed Iron Age and Romano-British features forming part of the multi-phase landscape of Bob's Wood, along the Great Ouse Valley. Early Neolithic flint represented the earliest visitation to the site, although no features of this date were recorded. Two possible Mid to Late Iron Age ring gullies with a single sherd of East Midlands Scored Ware were superseded by at least three phases of 2nd-4th century AD Romano-British droveways and rectilinear enclosures, along with a kiln or bread oven pit and associated ring gulley. Evidence of late medieval and post medieval agricultural use in the form of ridge and furrow also overlay the site.

Huntingdon, west of Town Centre Link Road
TL 2338 7194 (OA East report 1284)
M Webster
A deeply stratified medieval sequence dating from the early 11th to 15th centuries was recorded in the area fronting onto Ermine Street. Features including floors, pits, and remnants of timber structures yielded a large assemblage of finds broadly indicative of medieval domestic activity. Possible Roman or perhaps Anglo-Saxon deposits were also recorded. Of particular note was a human foetus of 28-36 weeks old that appeared to have been buried within a timber structure.

Kingston, The Old Rectory
TL 3466 5543 (CAU report 1056)
C Cessford
An archaeological evaluation in the vicinity of the Old Rectory (NHLE 1163215), Kingston; a high status 12th-13th century stone aisled hall with a 14th century cross wing revealed evidence of 12th-13th century activity contemporary with the aisled hall and a 14th-16th century metalled yard surface alongside a timber building also contemporary with the cross wing.

Kirtling, All Saints Church
TL 6868 5764 (AS report 3973)
C Leonard & L Smith
Monitoring and recording during the installation of new drainage works at All Saints Church (NHLE 1126290) recorded six inhumations of unknown date but conforming to the expected Christian burial practice. All remains were returned to the Church for reburial.

Leverington, Crosse Hall
TF 4463 1069 (OA East report 1313)
T Fletcher
Several phases of a range of storage barns were recorded by historical building survey. These were associated with the 16th-century Beechwood House, previously known as Crosse Hall. The barns were constructed from hand-made bricks although no ar-

chitectural features, original roof coverings, fixtures or fittings survived, which made dating and function of the various elements difficult to establish. Historical maps show buildings on the site as early as the 18th century and in their current layout by the late 19th century. Census data reveals that in the mid-late 19th century the owners of Beechwood House were seed merchants and the addition of windows throughout the building at this time may indicate alteration to accommodate living areas or to facilitate the storage and sorting of seeds.

Leverington, land to the west of 55 Dowgate Road
TF 4454 1068 (NAU report 2734)
S Westall
Two 10m x 1.8m trenches were excavated prior to the construction of a single dwelling within the former kitchen garden adjacent to 55 Dowgate Road, Leverington. Evidence of post medieval and medieval activity comprising pits and ditches, overlain by agricultural or horticultural furrows were identified. The remains of an old wall, thought to be associated with the kitchen garden was also recorded.

Leverington, land north of St Leonard's Church
TF 4443 1149 (ALL report 2011043)
Seven trenches were excavated in advance of the provision of additional burial ground at St Leonard's Church (NHLE 1160993). Activity dating from the 12th century was identified in the western half of the site. A series of ditches and pits were identified within the eastern part of the site and are likely to have been associated with a farmstead or other settlement dating from the 12th-14th centuries. At the north west of the site a large drain or boundary was identified and is probably contemporary with the medieval activity. All trenches contained an upper immature alluvial soil which suggests a period of wetland formation immediately post-dating the 12th to 14th centuries.

Litlington, Highfields Farm
TL 3172 4096 (AW report 1017)
C E Smith
Evaluation in advance of the construction of wind turbines uncovered a wide ditch of possible prehistoric date. The finds assemblage was very small but included a piece of prehistoric pottery, a worked flint fragment and three pieces of ceramic building material.

Little Downham, Park Lane
TL 5201 8394 (OAE report 1263)
R Atkins
An evaluation prior to residential development to the rear of 10 Park Lane identified a single undated ditch, roughly aligned north-south. It is likely the ditch was part of a Roman field system found adjacent to the east of the site in a previous archaeological evaluation in 2007.

Littleport, May Farm, Mildenhall Road
TL 6002 8724 (PCA report)
P Boyer
Five trenches were excavated in advance of proposed development. An extensive area of raised ground was identified running north-west to south-east across the centre of the site, and a smaller area of raised ground was also evident to the south. Both raised areas corresponded with natural roddon features. Post medieval field boundaries, drainage ditches and marl pits were identified cut into the surface of the roddons and are believed to have been associated with land reclamation and management.

March, land to the south of Gaul Road
TL 4079 9661 (CAU report 1061)
J Tabor
The trial trenching programme comprised seven trenches. Ten features, of which four were definitely archaeological in origin, were excavated and recorded, with a further six possible features recorded. Only one feature; an Early Neolithic pit could be securely dated. The pit contained sherds of Mildenhall style Early Neolithic pottery and a small assemblage of worked flint and animal bone. A series of topsoil-filled linear features occurring across the site were clearly associated with post medieval agriculture and appear to be related to either drainage or cultivation. Although the recorded archaeological features were relatively few and only one could be confidently dated, the results of the evaluation are significant and indicate the potential for further archaeological remains being present at the site. This site along with two nearby flint scatters to the north-west appear to form part of a zone of Early Neolithic activity in the vicinity of Gaul Road, which is the only known site of this period on the March 'island'.

March, 14 Market Place
TL 4176 9663 (NAU report 2737)
P Crawley
A single trench was excavated in advance of the proposed construction of four new houses. The evaluation revealed evidence of Roman salt production, and a sequence of largely naturally deposited layers that had probably formed on the edge of a channel in the earlier medieval period. A layer of peat had also formed on the edge of the channel in the 12th-14th centuries, which may mark the original course of the River Nene. Evidence of the ground being deliberately raised in the 17th to 19th centuries was also identified.

Meldreth, 15 Whitecroft Road
TL 3748 4543 (ASC report 1414)
M Cuthbert
Evaluation comprising eight trenches revealed two undated post holes and a raised trackway along the southern boundary of the site. This trackway is believed to be the remnants of the embankment of the early 20th century Meldreth Tramway. A structure was recorded in the southeast corner of the site and

was interpreted as a boiler house linked with World War II Nissen huts located southeast of the site.

Milton, Landfill site
TL 4623 6288 (CAU reports 1023)
M Collins
Cambridge Archaeological Unit undertook two open-area excavations at Milton Landfill in advance of its expansion in 2010 & 2011. The two phases identified significant evidence for Middle Iron Age activity which was overlain by a large area of Romano-British agricultural planting beds. An extensive area of intercutting probable Romano-British quarry pits was also identified. Both phases of excavation were overlain by post medieval furrows and ditches.

Molesworth
TL 0543 7653 (ASDU report 2611)
A geophysical survey was carried out in support of an application for a wind farm at Molesworth. Geomagnetic surveys were carried out in nine areas, and identified a possible ditched enclosure system, a possible pit alignment, former ridge and furrow, former field boundaries and land drains.

Morborne, former Rectory
TL 1391 9157 (APS report 14/11)
V Mellor
An evaluation undertaken in advance of proposed development at the Rectory, Morborne including trial trenching revealed post medieval deposits of 18th century date and later. Deposits associated with the landscaped gardens of the former Rectory were recorded including the remains of a wall and terrace. Artefacts associated with these features were all of 17th to 20th century date.

Offord D'Arcy, High Street
TL 2200 6659 (CAU report 994)
J Tabor
Excavations over an area measuring 1142 m^2 revealed pits, ditches and ponds, the majority of which were concentrated in the north-west corner of the excavation area. The finds assemblage recovered from the features indicates three broad phases of activity; the 13th-14th century, the 14th-15th century and the post medieval/modern period.

Over Narrows, Needingworth Quarry
TL 538 273 (CAU reports 1025)
C Evans & J Tabor
As part of a continuing programme of archaeological investigation, excavation of area VI following earlier evaluation revealed unexpectedly high surface finds with a large quantity of Late Bronze Age and Iron Age pottery also found in excess of what was anticipated. Several pit features were also found in addition to a buried soil. Several test pits were also excavated as part of the continuing sampling strategy of the buried soils found on the sand ridges located here that were intensively occupied or used during prehistory.

Peterborough, Itter Crescent
TF 182 018 (OA East report 1290)
S Henley & A Pickstone
A Late Iron Age enclosed settlement and a previously undiscovered Romano-British villa were found at this site. The Iron Age settlement was well established by the 1st century BC and comprised three roundhouse gullies, one of which had been rebuilt in the same location, numerous pits, postholes and an oven. These lay within a large, banked enclosure ditch. The bank was located on the outside of the enclosure, perhaps suggesting that defence was not its primary function.

The enclosure ditch remained in use into the Roman period and the subsequent Romano-British villa, which was continually extended and re-modelled over a period of 200 or 300 years, was built within its limits. At least three separate phases have been identified including an extensive, high status timber and stone building with a corridor on the western side; a substantial, possibly two-storey stone building and a later bathhouse and hypocaust system lay to the south. At its height the villa faced east onto a central courtyard with wings on three sides, two of which were visible within the development area. The western wing housed a possible kitchen and other domestic rooms along with a complex bath house and evidence for a hypocaust system located to the south. A garden wall formed the limit of the northern wing which ran east to west along the line of the boundary ditch and was associated with a large rectangular stone building of possible agricultural function.

Despite extensive robbing of the floor surfaces, large numbers of tesserae were recovered from demolition deposits and robber trenches including multi-coloured pieces from a decorative mosaic. Significant quantities of painted plaster fragments were also present with block colours, stripes and figurative designs all identified in a very good state of preservation.

To the west of the main villa complex lay a tile kiln that would have provided roof, floor and box flue tile for the villa. Two phases of use were identified that presumably represent re-use during expansion and modification of the villa.

Over 40 individuals were interred across the area. At least three groups of neonate and infant burials were located predominantly within the courtyard area and these are thought to have been contemporary with the working life of the villa. Many of the adult interments were presumed to be of Late Roman or Anglo-Saxon date as they were placed into robber trenches or cut through the floors of the villa rooms and associated buildings. A single burial recorded beyond the western limit of the boundary ditch was identified as Anglo-Saxon by its grave goods: two gilt brooches and a Baltic amber bead and copper alloy necklace dating to the 5th century AD.

Ramsey, 11a New Road
TL 2881 8520 (HN report 681)
J Snee
A single 4m by 4m trial trench evaluation was excavated in the footprint of the proposed development.

It revealed a sequence of water channels dating to the late medieval and post medieval periods, with an associated masonry pier. Two sherds of pottery were recovered from the evaluation dating to the 14th - 15th centuries, along with some ceramic building material and animal bone.

Stapleford, land to the east ofz
TL 503 516 (STRAT report 2962)
S Haddrell
Geophysical survey undertaken by Stratascan in September 2011 revealed a circular and a number of curvilinear features of probable archaeological origin. A series of possibly ploughed out earthworks and embankments were evident to the west of the site.

St Neots, Footpath and Cycle Bridge
TL 176 592 (OA East report 1244)
N Pankhurst
Post medieval ridge and furrow and a number of possible Bronze Age pits and ditches were recorded on the eastern side of the river Great Ouse. To the west lay a series of early medieval quarry pits and a sequence of 12th-century banks and ditches that are likely to be associated with the castle to the south.

St Neots, Loves Farm, Phase 2

TL 2069 6075 (WYAS report 2221)
A Webb
A magnetometer survey identified traces of ridge and furrow throughout the site. A ladder settlement orientated north-east to south-west and extending from all but the northeast corner of the site was recorded, corresponding with aerial photography. A series of five enclosures located west of Tithe Farm were also identified. Three seemingly isolated archaeological features were noted, comprising a small sub-square enclosure in the south eastern corner of the site, a discrete ring ditch in the north-west corner and a further sub-square enclosure at the western edge of the site.

TL 2069 6075 (PCA report)
M Hinman
Fieldwalking and metal detecting survey yielded extremely low artefact densities across the study area and consisted of occasional pot sherds of Roman and medieval date. The Roman pottery was broadly dateable to the first and second centuries AD. A possible Roman pot mend, a fragment of an intaglio ring and a single Roman coin were recovered.

St Neots, Old Fire Station
TL 1868 6039 (CAU report 1029)
C Cessford
An archaeological evaluation covering a proposed development area including the former Old Fire Station, the former Household Waste Disposal Site, car park and recreation ground in St Neots. The earliest features encountered were Saxo-Norman with some form of activity probably beginning in the 12th century and continuing until around the 14th century. There was possibly a roadside ditch along Huntingdon Street and in close proximity were postholes relating to a fence or building, a pit or well and various other features. These remains appear to represent a short-lived expansion of St Neots, with domestic occupation fronting onto Huntingdon Street. Further to the east there was also evidence of contemporary sand/gravel quarrying and strip-agriculture. Activity apart from strip-agriculture appears to have ceased during the 14th-15th centuries, and activity only resumed in the 18th-19th centuries.

The Stukeleys, 67 Ermine Street
TL 2209 7453 (NHA report 11/106)
T Upson-Smith
An archaeological excavation was carried out on land at 67 Ermine Street, Great Stukeley revealing a series of gullies, pits and postholes dated to the 11th and 12th centuries. They probably lie on the periphery of an area of domestic activity. The features produced a small pottery assemblage, dominated by St Neots type ware, Huntingdon ware and 'Shelly' coarse ware. The pits contained an extensive range of charred cereal grains and some peas and pulses. The southern part of the site was overlain by a layer of colluvium built up as a result of agricultural activity as evidenced by the surviving ridge and furrow earthworks in the northern part of the site.

Sutton, West Lodge Lane
TL 4373 7862 (CAU report 1000)
S Timberlake
An archaeological evaluation was undertaken prior to residential development of the garden of the Georgian mansion; West Lodge in Sutton. The northernmost trench revealed clay geology close to the surface with a thin covering of gravel which thickened towards the base where evidence for post medieval (probably mid-19th century) quarrying and subsequent backfill was apparent. Towards the upper end of this trench an east-west aligned ditch or earlier quarrying feature was found from which probable 16th-17th century pottery was recovered. Further evidence of 19th century quarrying was revealed in the remaining trenches. A scatter of burnt limestone pebbles across the site may relate to evidence for former lime burning, perhaps using the ubiquitous limestone present as cobbles and pebbles within the gravel. The site was exposed to high levels of truncation caused by quarrying, planting and the burial of domestic rubbish.

Swaffham Prior, 37 Lower End
TL 5707 6460 (OA East report 1324)
R Atkins
Two Roman ditches and a series of 18th-century quarry pits were found. Although the evaluation was within the area of a moated medieval manor called Shadworth, recorded in documents from AD 1330, no features dating to this period were found and only three residual medieval and late medieval pottery sherds were recovered.

Waterbeach, Denny Abbey Farmland Museum
TL 4921 6847 (OA East report 1292)
N Gilmour
Two test pits were excavated in advance of an extension to a children's play area. One test pit revealed 19th century rubble, and the second test pit contained a wall which was overlain by a layer of rubble, possibly of 16th century date. This wall is likely to be medieval and potentially represents part of the remains of an annex to the refectory building (NHLE 1331328), which still stands on site.

Waterbeach, Denny Lodge Business Park Wind Turbines
TL 4974 6946 (APS report 133/11)
A Peachey
Archaeological evaluation comprising two trenches prior to wind turbine development at Denny Lodge Business Park revealed a single undated field boundary ditch present on the 1st edition 1887 Ordnance Survey map, parallel to the Upper Mill Drain to the east. Eight fragments of animal bone including vertebrae and a long bone from a possible sheep/goat were also recorded.

Waterbeach, Waterbeach Lodge
TL 4900 6534 (CAU report 1016)
M Collins
An archaeological evaluation was undertaken in advance of the redevelopment of a care home. The evaluation demonstrated that most of the site had been quarried for gravel in the 19th and 20th century. However, the Car Dyke Roman canal survives as an earthwork to the rear of the site and a trench positioned on the edge of this feature revealed the sequence of upper fills.

West Wratting, The Causeway
TL6050 5234 (ALBION report 2011/31)
R Gregson
One trial trench was excavated within the footprint of a proposed new building. A boundary ditch which appears to have been recut over a number of centuries was discovered. The dating of the earliest phase of the ditch was uncertain due to the recovery of only a single sherd of Bronze Age/ Early Iron Age pottery. The boundary was probably in existence during the medieval period but a prehistoric date cannot be ruled out. The most recent recut and subsequent infilling occurred in the 19th/20th century.

Whaddon, Church Street
TL 3478 4655 (AS report 3737)
M Adams
Four trial trenches were excavated, and six parallel ditches representing field boundaries or a potential trackway were recorded. The ditches ranged in date from the medieval to later post medieval periods. A post medieval stakehole and possible pit or tree hollow were also present.

Whittlesey, Bassenhally Farm
TL 2836 9746 (APS report 124/11)
S J Malone
A detailed magnetic gradiometer survey was undertaken. The area is dominated by linear features on a roughly east-west alignment. Traces of medieval ridge and furrow were aligned east-west, while a few north-south linear features may represent ditched enclosures.

Whittlesey, Crossway Hand
TL 2578 9770 (CAU report 999)
S Timberlake
An archaeological evaluation was undertaken in advance of the demolition of an existing house and further residential development within the boundaries of the current 25 Crossway Hand. A trench to the rear of the house exposed the base of one small (0.5m diameter) undated pit cut into the gravel, the latter with a single cobble of burnt stone in it. A small amount of animal bone and a 30 cm long fragment of burnt clay (similar to briquetage) was noted within the lower subsoil exposed in the west-facing section of the same trench. No traces of Roman pottery or tile were recovered despite the proximity of this site from the Fen Causeway.

Whittlesey, Eastrea Road
TL 288 968 (CAU report 1070)
R Patten
The evaluation of a large plot of land to the south of Eastrea Road at the eastern end of Whittlesey provided new, though very plough-damaged, evidence of an earlier Bronze Age barrow with a central, urned cremation. A few shallow pits, thought to be contemporary, were located in the vicinity of the barrow. Towards the 'island's' edge were a series of Middle Iron Age enclosures and pits, which suggested two separate phases of human occupation. Although there was no evidence for ancient societies using or occupying this space, it was possible to record a series of marine and freshwater inundations, which spanned the Bronze Age through to the Late Iron Age/Early Roman period.

Whittlesey, former Burdett Nurseries, Eastrea Road
TL 2830 9690 (NAU report 2923b)
J Ames
Ongoing archaeological evaluation works at the former Burdett Nurseries site, Eastrea Road, Whittlesey uncovered several enclosures and associated features dating from the Iron Age and Roman periods. Domestic refuse including pottery and butchered animal bone recovered from the archaeological features suggests the evaluated area formed part of a larger settlement site occupying the eastern end of a gravel/ sand island.

Whittlesey, Sir Harry Smith Community College
TL 2763 9738 (OA East report 1274)
G Rees & J Diffey
Remains encountered at the front of the school pri-

marily consisted of the footings of a 19th-century workhouse known to have stood on the site. Three pits and two ditches found in the playing fields may relate to the Fen Causeway Roman road, lying to the north, or perhaps an Anglo-Saxon cemetery recorded to the west. A compacted gravel spread was also recorded, which may have been a track or surface associated with earlier occupation.

Whittlesey, Must Farm

TL 233 970 (CAU reports forthcoming)

This ongoing investigation's aims are to examine the inter-relationship of human activities and their environment in a uniquely well-preserved deeply buried Neolithic to Iron Age fluvial landscape, ahead of clay extraction at Hanson UK's brick clay quarry in Whittlesey. It is also intended to establish the sequence and use of the rivers prior to their final sedimentation and burial within and beneath the fen sequence of marine clays and alluvial silts interleaved with freshwater peats. The investigation area includes part of the prehistoric course of the River Nene and its associated gravel terraces to the north. Neolithic and Bronze Age burial monuments and successions of short term settlements and land divisions occurred in former dry land locations that became gradually wetter until submerged beneath the accreting Late Bronze Age fenland marsh.

Bronze Age and Iron Age metalwork was found; broken and tossed into the river silts, mirroring the deposits of metalwork found at Flag Fen and Bradley Fen (during a CAU investigated extension of the King's Dyke Quarry 1km to the north-east) or known finds on the Historic Environment Record from around the embayment. Swords with intact wooden grips and partially preserved scabbards were recovered from the river among a repertoire of other similarly well preserved items typologically dated to the Late Bronze Age-Early Iron Age and the end of the Iron Age. Horse harness turret rings with distinctive La Tène decoration (a horse skeleton was notably recovered from the top of the roddon) and Late Iron Age brooches occurred from the upper sequence of the river, while Bronze Age Wilburton-type swords, spears with their long shafts in place, and rapiers were found at greater depth.

However, the organic remains are the centre-piece of the discoveries. The preservation was such that repairs to the woven chevron weirs, constructed in pairs across the channel, were clear. In some places three replacement sections of weir denoted a sense of long-term management of the water's current and of the productivity of fishing in this place. A number of woven eel traps, or 'griggs', were also found.

Early results of the 2011 quarry phase has revealed the use of this particular areas of the river for fishing, though the recovery of other riverine resources is also to be expected – fowl, eggs, reeds, exposures of Oxford Clay in the scoured river banks for pottery making. The deposition of votive items into water is not unexpected for Late Bronze Age and Iron Age contexts, but it is not found everywhere. The location of metalwork in this specific area of the river is not random but clearly focused on a productive part of the river and one with access afforded by the roddon 'causeway' while the presence of the boats in the river points to the wider use of the river as a conduit for transport and trade. Proximal contemporary habitation on the dryland slopes to the north-east (e.g. at Bradley Fen) and the erection of burial mounds just above the river floodplain at Must Farm combine to present, uniquely, a clear understanding of the favourability of this wetland/dryland landscape and capture the essential components of living and working in an around the Flag Fen embayment in later prehistory.

Above all, the discovery of six boats to date really sets this site apart. At 9m long a 'great boat' was once fitted with a transom board, though this is now absent from its beautifully grooved stern (a transom board decorated with a raised quatrefoil design was found isolated in the river – but could derive from a number of boats: its measurements may ultimately be a clue as to which it fits). Its bow end was perforated to enable mooring and/or manoeuvrability when on dry land. Log selection for this boat was unusual - hampered by a large knot that had to be cut out and replaced by a bung formed from a cross section of a smaller trunk, shaped to tightly fit the knot hole and to enable its pinning (with *trenails*, wooden pegs that swell when wet and are used to fasten timbers) within the base of the boat. The bung was subsequently caulked with fine white clay to seal the joint. The base of the boat was strengthened by four elevated, rounded ribs, the largest of which seated the inlet joint from the bung.

The 'great boat' was fully decorated by closely spaced cross-hatched grooves all over the external and internal sides of the boat – never before seen in prehistoric boats though continental medieval and North American canoes are known to have been decorated.

The remaining boats are smaller, between 4-6m in length. Some are punt-like in form – flat bases and shallow sided – while others have two bow ends. Some have internal handles while others are plain. No oars, paddles or poles have yet been found, or positively identified, so it is still uncertain as to how the boats were propelled. That there are perforations and internal handles in some prompt the question of them being towed from the roddon causeway.

The conservation and display of the objects is currently at the planning stage and through wide collaboration with enthusiastic local and regional museums, local councillors and Flag Fen, the intention is to display the boats and artefacts within the fenland area.

Whittlesey, Eldernell Lane, Coates

TL 3188 9783 (NHA report 11/37)

J Clarke

Evaluation carried out on land to the east of White Walls, Coates indentified the former fen edge of Coates Island on the east side of the development

area. An undated ditch at the northeastern end was recorded and Middle Iron Age pottery was recovered from a colluvium deposit on the eastern edge of the gravels.

Whittlesey, 148-150 Stonald Road
TL 2628 9775 (APS report 3/11)
K Murphy
Archaeological evaluation revealed that the site had suffered from severe truncation from clay quarrying. Dumps of post medieval to modern material forming landfill were encountered, and brick rubble was present across the site, confirming cartographic references to brickmaking at this location.

Wicken, Dimmock's Cote Quarry
TL 5470 7240 (OA East report 1286)
N Gilmour
Two large solution hollows containing Early Neolithic and Late Bronze Age material were found, along with ditches representing a continuation of Roman field systems previously recorded in the quarry. Medieval ridge and furrow cultivation was present across the site and two silver pennies of Edward I were recovered.

Wilburton, Wilburton solar farm
TL 4741 7378 (COT report 11095)
S Joyce and A Wilkinson
Archaeological investigations were undertaken prior to the construction of a solar farm near Wilburton revealing a series of pits and ditches of Iron Age and unknown date. The north-west/south-east aligned ditches were perpendicular to the parish boundary and other boundaries within the existing field system.

Willingham, 12 Green Street
TL 4074 7031 (ALBION report 2011/55)
R Gregson
Two trial trenches were excavated in the yard and garden of 12 Green Street, in advance of construction of residential dwellings. Two possible post medieval quarrying pits, five modern post holes and 20th century services trenches were identified. Both trenches contained several layers of redeposited material which contained medieval pottery sherds, indicating medieval activity in the area.

Willingham, Willingham Mere
TL 402 735 (CAU report)
C Evans, S Boreham, H Roberts, R Standring and J Tabor
Funded by a University of Cambridge Knowledge Transfer Project grant, Cambridge Archaeology Unit, the Royal Society for the Protection of Birds (RSPB) and Hanson Aggregates ran a project to allow members of the public to experience 'palaeo-environmentalism'. The investigation included the excavation of a 9m x 10m area on the north-eastern edge of Willingham Mere where the deposits encountered closely correlated with both the prior borehole survey carried out by S Boreham and represented two distinct phases of fen development separated by a period of wetter reed swamp conditions. The lower organic silt layer represents an alder carr fen environment and the upper layer a more open fen environment. Large amounts of preserved wood, including the detritus of alder carr woodland were retrieved from the lower layer as well as a number of disarticulated bird bones (preliminarily identified as coot) and from the upper layer; a small assemblage of bird and fish bones including mallard duck and pike.

Wisbech, 35 Kirkgate Street
TL 4746 1045 (APS report 1/12)
P Cope-Faulkner
An archaeological evaluation was undertaken on land at 35 Kirkgate Street in order to determine the archaeological implications of proposed development of the site. The site lies in an area of Wisbech known as 'Walsoken' which existed as a separate settlement until it was subsumed within the suburbs of the town. Walsoken was first mentioned in the 10th century and probably derived its name from a Late Saxon sea-bank, the line of which crosses the site. The proposed area of development site also lies adjacent to the medieval core of the village. The evaluation identified a sequence of natural, undated, medieval and post medieval deposits. Undated layers include the sea-bank which is probably Late Saxon origin. The sea-bank comprised a simple mound with some evidence for remodelling, perhaps after the bank was breached. On the landward side of the bank, deliberate dumping had occurred into which a late medieval or early post medieval channel and pit had been cut. Post medieval pits and a ditch were also recorded close to the Kirkgate Street frontage. Layers of marine alluvium had been deposited against the sea-bank on its seaward side. A large assemblage including both medieval and post medieval pottery was found along with glass, brick, metalwork and clay pipe and quantities of animal bone and mollusc shell representing food waste.

Yaxley, The Broadway
TF 1914 9320 (OA East report 1312)
T Phillips
Late Iron Age and Late Roman activity were in evidence. The Late Iron Age occupation comprised a square enclosure, a roundhouse and parts of a field system. A smaller C-shaped enclosure within the square enclosure may have represented the remnant of a shelter; slag and hammerscale recovered from this feature suggest that it was the focus of craft industrial activity. Early Roman activity was noted, although most of the evidence dates to 3rd to 4th century AD and can be split into two phases. The first comprised a rectilinear field system on a north-east to south-west alignment. A rectangular 'tank' with parallel beamslots in its base was interpreted as having held water. The fields were partially abandoned during the later phase, evidenced by a narrow boundary ditch and a beamslot structure cut across the earlier

field system. A second beamslot structure and an aisled building that extended beyond the western limit of excavation were also recorded.

The following sites produced little of archaeological interest:

Alconbury, RAF Alconbury
TL 2026 7657

Bourn, Skylark Meadow Solar Park
TL 3216 5804 (ALBION report 2011/15)

Brampton, 48 Miller Way
TL 2028 7129 (AS report 3760)

Brington and Molesworth, RAF Molesworth
TL 0768 7719 (ASC report 1391)

Burwell, 22 Spring Close
TL 1902 8777 (AS report 3857)

Cambridge, Little Newnham, Malting Lane
TL 4444 5777 (AS report 3829)

Cambridge, 164-165 Coleridge Road
TL 4685 5691 (OA East report 1241)

Cambridge, 143 High Street, Cherry Hinton
TL 4888 5693 (ASC report 1400)

Cambridge, Perse Upper School
TL 4627 5603 (OA East report 1317)

Cambridge, Hills Road Sixth Form College Sports Pavilion
TL 4586 5573 (AS report 3978)

Cambridge, Old Maltings, Prospect Row
TL 4563 5842 (AS report 3938)

Colne, land adjacent to 4 Old Church Lane
TL 3697 7598 (NAU report 2635)

Comberton, The Valleys
TL 3853 5681 (AS report 3860)

Cottenham, land at Cuckoo Hill Farm
TL 4272 6638 (CAU report 1014)

Dullingham, Dullingham Motors, Brinkley Road
TL 6299 5775 (ASE report)

Ellington, Vine Row, High Street
TL 1597 7184 (AS report 3846)

Ely, 36a Forehill
TL 5439 8020 (AS report 3729)

Gamlingay, Community Wind Turbine, Castle Farm
TL 24920 51040 (HN report 691)

Godmanchester, 15 White Hart Lane
TL 2523 7038 (OA East report 1260)

Great Gidding, 61 Main Street
TL 1189 8346 (NHA report 11/130)

Huntingdon, Cromwell Square
TL 2392 7209 (OA East report 1311)

Huntingdon, 13a Hartford Mews
TL 2412 7172 (OAE report 1243)

Isleham, Isleham Priory
TL 6420 7435 (OA East report 1250)

Landbeach, Walnut Farm
TL 4783 6455 (OA East report 1239)

Leverington, Roman Bank
TF 4474 1130 (APS report 72/11)

Little Abington, Scout camp site
TL 5318 4911 (CAU report 1045)

Little Wilbraham, St John's Church
TL 5454 5860 (CAU report 1033)

Oakington & Westwick, Oakington Primary School
TL 4138 6449 (OA East report 1288)

Manea, Edwards Way
TL 4779 8949 (CAU report 988)

March, land adjacent to 128 Elm Road
TL 4198 9842 (AS report 3791)

March, Edward's Buildbase/ land north of Levante, St John's Chase
TL 4189 9724 (AS report 3717)

Molesworth, RAF Molesworth
TL 0769 7719 (ASC report 1391)

Murrow, land fronting Back Road and 49 Front Road
TF 3760 0707 (APS report 145/11)

Murrow, Back Road
TF 3779 0726 (NAU report 2814)

Ramsey, 86 High Street
TL 2886 8511 (HN report 643)

Sawston, former Moules Garage, 28 Cambridge Road
TL 4849 4996 (OA East report 1301)

Sawston, Spring Close, Church Lane
TL 4893 4925 (AS report 3865)

Soham, Windayle, 27 Hall Street
TL 5917 7381 (AS report 3775)

St Neots, 19 Berkley Street, Merry Boys Public House
TL 1854 5973 (ASC report 1424)

Steeple Morden, St Peters and St Pauls Church
TL 2855 4249 (OA East report 1285)

St Ives, St Ivo Outdoor Leisure Centre
TL 2988 72621 (OA East report 1251)

St Neots, Hardwick Road, Camping and Caravanning Club
TL 1781 5934 (ULAS report 2011-158)

St Neots, Former Dairy Depot, Church Street
TL 1854 6027 (AS report 1260)

St Neots, Eaton Ford Green
TL 1769 6013 (AS report 3948)

Whittlesey, Whittlesey Washes
TL 5208 2974 to TL 5396 3026 (OA East report 1255)

Wimpole, The Woodyard Complex
TL 346 516 (OA East report 1238)

Wisbech, 4a Cannon street and 17 – 19 West Street
TF 4640 0925 (NAU report 2477)

Wisbech St Mary, Nettle Bank Wind Turbines, Guyhirn
TF 4181 0476 (APS report 112/11)

Woodditton, Limes Farm
TL 6668 5775 (AS report 3913)

Yaxley, Eagle Business Park
ECB3620

Desk-based assessments were produced for the following sites:

Alconbury, Alconbury Airfield
TL 2010 7660 (CgMs report 12676)

Brampton, RAF Brampton
TL 2083 7026 (Defence Estates)

Cambridge, Park Terrace and Camden Court
TL 4535 5815 (OA East report 1318)

Soham, Gimbert Road
TL 5911 7371 (CgMs report 12888)

St Ives, Cromwell Works, New Road
TL 3158 7103 (AS report 3802)

Wisbech, College of West Anglia
TL 4675 0907 (OA East report 1253)

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The Cambridge Antiquarian Society is grateful to Cambridgeshire Libraries for a grant towards publication of this article.

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Ann Hudson

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