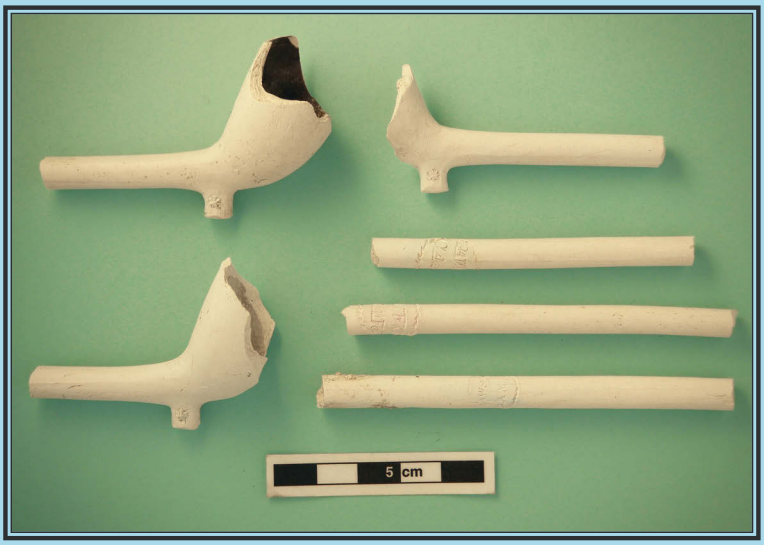
Proceedings of the Cambridge Antiquarian Society

(incorporating the Cambs and Hunts Archaeological Society)

Volume CIII

for 2014



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for 2014

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Cambridge Antiquarian Society
Abridged Report for the Year 2013

Membership: There are now 360 members, 55 Associates, 48 Affiliated Societies and 50 subscribing members.

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

Alison Taylor: *Deviant Roman burial in Cambridgeshire*

Peter Studdert: *Looking forward – looking back: how contemporary developments in Cambridge are drawing inspiration from the city's architectural past*

Alison Dickens and Sam Lucy: *The Trumpington Cross in context: new light on the 7th century*

Christopher de Hamel: *Archbishop Matthew Parker and his manuscript library at Corpus Christi College*

Jim Leary: *The Giants of Wessex: Silbury Hill, the Marlborough Mound and the Hatfield Barrow*

Mark Knight: *The tip of the iceberg? Must Farm's perfectly preserved Fenland prehistory*

Chris Evans: *The archaeology of West and Northwest Cambridge*

Paul Spoerry: *The production and distribution of medieval pottery in Cambridgeshire*

Graeme Barker: *The origins of agriculture – a global perspective*

Conferences:

23 February: *Cambridge Antiquarians and Archaeologists, 1870–1970*

23 November: *Recent archaeological work in Cambridgeshire* (Attendance 80)

Excursions: One coach trip: Colchester, guided walk of the town's history, home through Crittalls' 1930s 'garden village' of Silver End (22 May). Others: Emmanuel College tour led by Sarah Bendall (19 March). Ascension Burial Ground, Huntingdon Road, with Mike Good, of the Friends' group (12 June). Oakington Anglo-Saxon excavations with Duncan Sayer (29 June). Peterborough Cathedral: the cathedral itself (morning) and the monastic precincts (afternoon) (10 September). An afternoon walk around Thriplow, led by Dr Shirley Wittering, concentrated on the evolution of the village landscape, vernacular architecture and the parish church. (2 October). Parker Library, Corpus Christi College, guided by Christopher de Hamel (23 October). The 2014 Excursions programme will be the last for which Tony Kirby is directly responsible. He took on the role whilst President, as a temporary measure. *CAS President and Council are hugely thankful for Tony Kirby's work and expertise in organising and leading the Society's excursions.*

Other activities: In January 50 members enjoyed Dinner at Corpus Christi College, Carenza Lewis spoke on her life in archaeology. The Garden Party on 15 June at the Department of Archaeology was forced indoors by a downpour, nevertheless seasonal refreshments were enjoyed. Tours of the Museum of Archaeology and Anthropology's Store and Fiji exhibition were booked to capacity. An exhibition of maps from the Society's collection was arranged in the Haddon Library.

Publications: The Society continued to produce *Conduit* and copies were purchased for their members by the Cambridgeshire Association for Local History and the Huntingdonshire Local History Society. Copies were also made available in libraries, archive offices, archaeological units and continuing education institutions. The Society administers a journal exchange programme with many institutions and journals received continue to be deposited in the Haddon Library.

Representatives: The Society was represented by: Janet Morris, Cambridgeshire Advisory Group on Archives and Local Studies; Alison Dickens, Cambridgeshire Association for Local History; Imogen Gunn, Cambridge University Museum of Archaeology and Anthropology Committee; Martin Allen , Cambridgeshire Records Society; John Pickles, Haddon Library Committee. John Stanford reports on Council for British Archaeology activities.

Finance: There was a small surplus for the year 2013. The net assets of CAS exceed £52,000.

Grants for small projects: A total of £450 was given to: Cambridge Archaeological Field Group, support for drawings of Anglo-Saxon belt ends; Ms Kate Hadley, ongoing DVD and cataloguing project on Roman Godmanchester.

Digitisation: We have a project to digitise historic maps of Cambridgeshire and Huntingdonshire, to make them available online. Council are also committed to the digitisation of the Proceedings, to make all but the previous few years' volumes available and searchable online.

Other: There was a further successful collaboration between the Society and the Fen Edge Archaeology Group in July 2013 in the Twenty Pence Project: CAS members had the opportunity to take part in a practical field archaeology project at a Romano-British site.

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.

Communications with members: Members who would like to receive news and information by e-mail should send their e-mail address to the Registrar at registrar@camantsoc.org.

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 Financial Statement for the Year Ended 31/12/2013

Accounts Summary

Registered Charity 299211 • Founded 1840

	2013		2012	
	£	£	£	£
Subscription Income		7,661		7,178
Conferences	2,378		1,517	
Less costs	783	1595	2,259	(742)
Excursions	3,126		1,382	
Less costs	3,379	(253)	1,403	(21)
Proceedings	4,496		6,689	
Less costs	6,652	(2,156)	9,068	(2,379)
Conduit			475	
Less costs	2,543	(2,543)	1,534	(1,059)
Investment Income				
NS&I	356		496	
Deposit Account	276		345	
Treasury Stock		632	178	1,019
Sale of publications and Royalties		187		520
Incoming Resources		**5,123**		**4,516**
Charitable expenditure				
Mailing			150	
Office expenses	1,654		351	
Indexing costs			729	
Subscriptions	111		104	
Registrar's Honorarium			500	
Small grant scheme	200		500	
Insurance	289		289	
Lecture expenses	25		766	
Independent examiners' fees	480			
Membership cards		2,759	323	3,712
Net Incoming resources for the year		2,364		804
Funds brought forward		50,667		49,863
Funds carried forward		53,031		50,667
Balance Sheet				
Cash at Bank				
Barclays bank current account	9,664		6,260	
Bank deposit account	31,309		31,032	
NSI Savings	11,929	52,902	11,573	48,865
Accrued Income and Expenditure				
Accrued Income	217		1,967	
Gift Aid	500	717		1,967
Accrued Expenditure				
Accrued expenses	108		65	
Deposits Held	0		100	
Independent examiner's fee	480	588		165
Net Assets		53,031		50,667
Accumulated Funds	49,181		46,817	
Restricted Funds				
Ladds Bequest	850		850	
Atlas Bequests	3,000	53,031	3,000	50,667

S Keith, Treasurer *Independent Examiners Prentis & Co.*

Volume CIII (103), 2014

Contents

Cover: Clay tobacco pipe bowls, spurs, and stems stamped “Pawson Camb”, found during excavations at Merton Hall, Cambridge.

A Prehistoric Watercourse and the origins of Bendyshe Farm, Bottisham, Cambridgeshire

Jim Brown

with contributions by Mike Allen, Paul Blinkhorn, Andy Chapman, Pat Chapman, Val Fryer, Tora Hylton, Laszlo Lichtenstein and Rob Perrin

Bendyshe Farm was the post-medieval successor to the Scheduled Monument formed by the medieval moated manor that lies on its southern side. Excavations were undertaken prior to residential development adjacent to the monument, on its west and north sides. The moat lies along the course of a natural tributary, which has been canalised in recent years. Evidence of scattered pits over the lower lying ground indicates periodic exploitation of springs from the late Neolithic onwards, however, agricultural activity did not occur until the middle to late Saxon period. The boundaries of plots divided enclosed land from the open fields and incorporated a small stock enclosure. Following the Norman Conquest the land was reorganised into rectangular plots. Grain was processed and stored nearby until the 12th century when the ditches were filled. The land was acquired in 1329 by Thomas Bendish who built the moated site, but beyond the moat it was unenclosed. A farmyard was created in the 16th century to the north-west where a number of latrines were found, and deposits of soil indicated that other waste material was brought here and levelled out. The land continued to be used in this way until the replacement of the red brick Bendish Manor with a grey brick building, slightly to the north, at the beginning of the 19th century. The later farmhouse and ancillary buildings are depicted on maps until their demolition in 2010.

Introduction

A series of archaeological excavations were conducted at Bendyshe Farm, Bottisham by Northamptonshire Archaeology, now part of the MOLA group, (NGR TL 5440 6040, Fig 1). The work was carried out for CgMs Consulting on behalf of David Wilson Homes in advance of residential development. This article is based upon the planning report that was submitted to Cambridgeshire County Council and is available digitally through the Archaeology Data Service (ADS) website (Brown 2012; http://ads.ahds.ac.uk/catalogue/library/greylit).

The medieval moated manor is a Scheduled Monument (SM33269) and the development was adjacent to the site. An archaeological desk-based assessment was conducted by CgMs Consulting (Francis 2007). This was followed by trial excavation, which revealed pits, ditches and postholes dating from the 9th century onwards (Foard-Colby and Soden 2009). Low-density features were present over much of the site and Cambridgeshire County Council, as archaeological advisors to the planning authority, required that archaeological excavation was undertaken prior to development (Gdaniec 2010; Mortimer 2010). The excavations were monitored by the authority. Environmental sampling on site was provided by Allen Environmental Archaeology (Brown 2012).

The medieval moated site comprises a rectangular island, *c.* 60m by 70m (Fig 1). The ground within the moated area is raised by at least 0.5m above the surrounding land. The moat on the east, south and west sides, is up to 9m across by 2m deep. On the north side the moat has been filled. A fishpond, 80m long by 10m wide, lies on its south-west side. The moated site is believed to be associated with Thomas de Bendish, who had acquired the land by 1329 (Wareham & Wright 2002). A large red brick house with a chapel at one end purportedly stood upon the island and was demolished in the early 19th century; this is thought to have been a post-medieval building replacing a medieval manor house.

Despite partial infilling, the moat and fishpond survive well. The island is likely to retain evidence for structures and other features. The buried silts in the base of the moat and pond probably contain both artefacts relating to the period of occupation and environmental evidence for the landscape in which the moat was established.

Topography and geology

The housing development was *c.* 1.25ha in area, bounded to the north and west by the rear gardens of properties fronting onto High Street. To the east and south-east lay the Scheduled Monument (SM33269). The south side is bounded by a modern fen drain, along which water flows westward to the Bottisham Lode. This canalised watercourse begins slightly to the east of the moated site, which is close to the spring head.

The land lies on higher ground overlooking the fens to the north. The solid geology is entirely Lower Chalk overlain in part by sand and gravel. Excavation has demonstrated that patches of Anglian till account for occasional variations in the superficial de-

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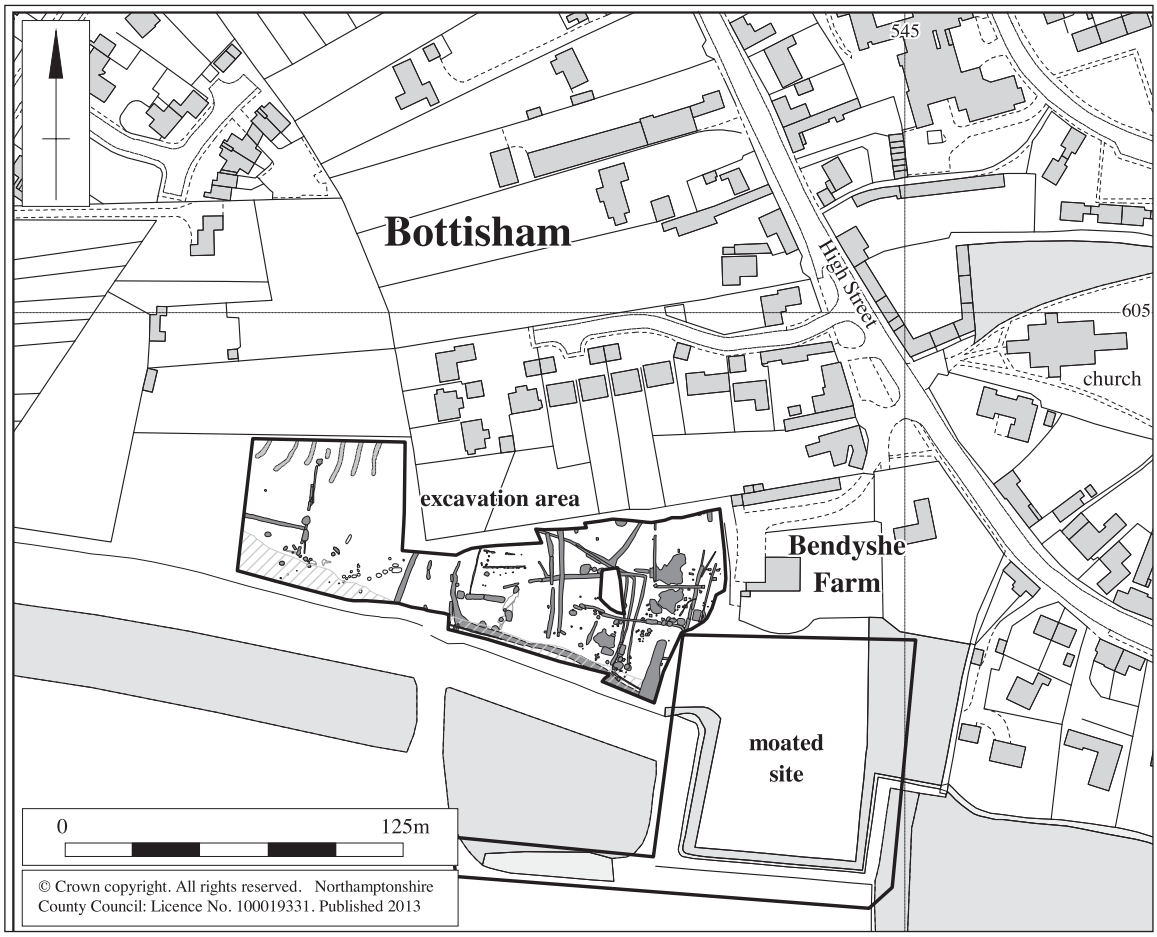


***Figure 1**. Site location.*

posit (British Geological Survey 2001; Hall 1996, 108). The soils are calcareous coarse and fine loam that has developed over chalk and chalky drift (Lawes Agricultural Trust 1983).

Settlement background

Bottisham is a Saxon place-name, meaning 'Boduc's farm' (Ekwall 1981, 54). The village has been variously known over time as *Bidichseye* meaning 'the dry ground near the ditches' (1043–5); *Bodichessha* (1066); *Bodkesham* (*c.* 1210). The first syllables of the name originally meant 'by ditches', describing the settlement's proximity to the drains on the fen (Scarfe 1983, 43).

A Royal Charter of King Edward the Confessor, dating to 1061, records land granted by the King to Ramsey Abbey; and confirmation of privileges and of land throughout the country, including Bottisham (Sawyer 1968, 306). Prior to Domesday the land was held by Earl Harold and Alric of the Abbey of Ramsey. Bottisham is recorded as *Bodichessha,* within the Staine Hundred, held by Walter Giffard (Rumble 1981, 17). Domesday Book records a wealthy demesne with enough arable land for 10 plough teams and 25 villagers, with a further 12 smallholders and 14 ploughs. There were four watermills, meadow for six ploughs, and marshland with three ploughshares and 400 eels. Traces of ridge and furrow earthworks from the cultivation of the open fields survive around the periphery of the parish (Cambridgeshire Historic Environment Record (HER) 06705; 06706; 06697).

Taylor (1973, 59) has observed that Bottisham originally comprised two or three separate parts, perhaps the product of tenurial separation. One of these was located around a former village green opposite the church, which lies immediately to the north-east of the excavations. The other two moated sites are at Tunbridge Hall (HER01131) and on the west side of the drive leading to Bottisham House (HER06460A).

A triangular earthwork enclosure forms part of a deserted village (HER01124), 1.2km to the north at Bottisham Park, consisting of at least eight house platforms with encircling ditches. The name of the village is unknown, but may be the lost hamlet of *Angerhale*, recorded in the 11th century. Four moated sites were arranged in a line on the side of the narrow valley at Bottisham Park and were filled from the same stream using a complex system of ditches (Taylor 1973, 127). By the 13th century there were as many as six nucleated settlements of various sizes within Bottisham parish forming satellites around the original settlement (Taylor 1973, 58).

Following late 18th-century enclosure there was little alteration to the Bendish moated site. The construction of Bendyshe Farmhouse and its associated buildings was largely located outside the monument on its north and north-west sides. The land was rough scrub and pasture prior to development and contained a standing late 18th-century timber and brick barn. Late 19th- or early 20th-century buildings were also present, comprising an overgrown timber range in a state of advanced decay and a free-standing Dutch Barn.

Map evidence

The 1808 Enclosure award map shows the western half of the excavation as land owned by Benjamin Kettle (Cambridge Record Office Q/RDc 12). The eastern half, including the Scheduled Monument, was owned by St Peter's College, now Peterhouse, Cambridge. A boundary ditch separated the two parcels of land. The farmhouse is depicted outside the moated site on its north side, with a row of barns to the west. Later Ordnance Survey maps depict the modern arrangements of Bendyshe Farm. The southern end of the barns from 1808 remained into the 20th century, but the elongated farmhouse had been reduced in size to create an enclosure or walled garden to the east, and a yard area to the west, with outbuildings along the northern boundary.

Editions of the Ordnance Survey after 1887 depict various arrangements of the farm focused around the farmyard, west of the farmhouse, with the gradual addition of further outbuildings. By 1902 a rectangular building had been constructed in the centre of the farmyard, and by 1972 a barn had been erected within the western extent of the excavation area. A 19th-century track led from Bendyshe Farm southwards, passing through the eastern extent of the excavated area, and then between the moat and the fishpond, but was no longer depicted by 1972. The only distinct changes to the Scheduled Monument were specifically to the fishpond, which seems to have been enlarged or flooded on its north side, as shown by successive 20th-century maps up until 1994.

Further historical sources

The rental documents and the map of the farm (dated 1802) that are held at the Cambridge University Library do not provide further information for the use of the land or any differing arrangement to the buildings. However, a print taken from a painting, dated 1801, depicts the south elevation of Bendish Manor with the church in the background. No indications of the moated site are shown, but the viewer is clearly looking across the Scheduled Monument towards the house (Fig 2). The building and the barn to its west side correlate well with the buildings depicted on the 1808 enclosure award map and their description in the Victoria County History (Wareham and Wright 2002, 196–205).

The house that occupied the Scheduled Monument lay within a moat south-west of the church, and was a large, irregular, red brick building. The structure was probably 16th century, of 2½ storeys, whose south front had a large central bay window. In 1604 it included a hall, parlour, and other chambers, and, when let to Samuel Shepherd in the 1740s, had a chapel on the top floor. It ceased to be used as a gentleman's residence after its rental period to the Lushington family, 1775–95, and was replaced after inclosure with a grey brick house at Bendyshe Farm, a little to the north (which is depicted on the 1808 Enclosure map).

The Victoria County History also contains a fairly extensive account of the various manors and other estates within Bottisham and its neighbouring parishes (Wareham and Wright 2002, 196–205). Amongst this information is a specific reference to the estate of the Bendish family. The land was acquired by Thomas Bendish in 1329, and remained within a junior branch of the family until the 16th century. In *c.* 1593 the Bendish estate was passed by marriage to Thomas

Figure 2. *Bendish Manor, painting, 1801, looking north (Cambridge University Library).*

Webb, at Tunbridge Hall, until his death in 1604. Then through his daughter, Joan Webb, to Robert Clench by marriage, for four generations until it was sold in 1743 to Peterhouse, Cambridge. The college owned Bendyshe Farm until it was sold in 1965.

Trial excavations at 94 High Street

A recent test pit excavation by a local student recorded stratified layers of soil in the back garden of 94 High Street, which lies to the north of the Scheduled Monument, (HER ECB3482). The layers were excavated by hand to a total depth of 0.70m. Finds from the layers included a selection of 12th to 14th-century pottery. The deposits were well stratified and included Saxon, medieval and later deposits below an overburden of modern garden soil.

Trial excavations at Bendyshe Farm

Archaeological evaluation of the site identified pits, ditches and postholes to the north–west of the Scheduled Monument (Foard-Colby and Soden 2009). Thirty-two pieces of residual worked flint comprised abraded flakes, blades and an end scraper, broadly late Mesolithic to late Neolithic in date. Ditches and pits were thought to be related to the activity of the moated site or properties fronting onto High Street and the medieval green, opposite from the church. Most of the finds were from higher ground, north of the maximum spread of alluvium. Trenches to the west contained deposits that were rich in molluscs, suggesting by their number and species that the land was subject to inundation, and this was corroborated by alluvium above the 12th-century ditches. Post-medieval features cut the alluvium. Finds were sparse and suggested that domestic activity was focused within the moated perimeter.

The excavated evidence

The majority of features were partially overlain by mid greyish-brown alluvial clay alongside the modern fen drain, indicating that it is the successor of a former watercourse.

Activity in the earlier period, prior to the 7th century AD, was principally associated with exploitation of the watercourse, summarised in Table 1. Later activity indicated settlement and occupation of the land for agriculture.

Exploitation of springs along an ancient watercourse

Possible late Neolithic or early Bronze Age pits

There were two pits that may be of earlier prehistoric origin (Fig 3). Pits 402 and 410 were over 1.0m in diameter and were characterised by the high concentration of burnt stone, mainly flint, within their fills, together with charcoal, which was not observed in the same quantity elsewhere. Although there is no pottery from these features, a leaf-shaped arrowhead was retrieved from pit 402 together with 788g of calcined flint. Soil surrounded and overlay both pits, layer 413. Movement around the area of the two pits had incorporated material similar to the deposit in pit 402.

The charred plant remains within pit 402 and layer 413, analysed by Val Fryer, were possibly derived from accumulated scattered detritus. Both assemblages contained very high densities of charcoal/charred wood fragments, and it is probably of note that many of the pieces were very rounded and abraded, possibly indicating that the material was exposed to the elements prior to deposition.

Molluscs, analysed by Mike Allen, were low to moderate in number and were dominated by terrestrial species (over 93%), with some shade-loving species amongst them. Many of these shade-loving species

Table 1. Site chronology

Period	Nature of Activity
late Neolithic/early Bronze Age (*c.* 3,000-1,500 BC)	a small pit group with associated flint scatter, burnt stone, charred materials and surrounding trample
middle Iron Age (*c.* 400-150 BC)	scattered discrete isolated pits along a watercourse and spring line with associated pottery
late Iron Age (1st centuries BC / AD)	one isolated pit containing pottery
Roman (1st-4th centuries AD)	one isolated pit containing pottery
Middle Saxon (late7th-9th centuries AD)	early boundary features, probably delineating the back of plots associated with dwellings fronting the green
Late Saxon (10th-early 11th centuries AD)	sub-rectangular enclosure, possible animal pen or shelter, cereal processing and other organic waste amongst pit fills
Norman and medieval (late 11th-12th centuries AD)	reorganisation of boundaries to create small plots and restructure land use
late medieval (13th-15th centuries AD)	lack of evidence for continuity of occupation and land use, clearance followed by gradual accumulation of alluvial/colluvial deposits
post-medieval (16th-18th centuries AD)	latrine pits and levelling deposits, possible planting or trellis posts to the west
late post-medieval (19th century AD)	establishment of the grey brick Bendyshe Farmhouse and the gradual addition of ancillary buildings with associated drainage

are also common in more open conditions. Damp and wet conditions existed locally, as evidenced by the slum and marsh species, including Narrow-mouthed Whorl snails, *Vertigo angustior,* which are rarely recorded in Britain but are common in moist open floodplains and meadows (Kerney 1999, 101). *Acicula fusca,* Point snail, which was also found, is a relatively rare species, but found in flushes on meadows and floodplains, as is *Vertigo angustior* of which large numbers were present in layer 413. These mixed and very rich assemblages (up to 38 terrestrial taxa) indicated a complex local environment on a boundary between ecosystems. Overall, this was a post clearance, open landscape, comprising dry land with long mesic herbaceous vegetation on the fringes of damper habitats, with high ground water and potentially prone to flooding. Pit 402, however, seems unlikely to have been open long enough to hold a permanent body of water. None of the shells from pit 402 were burnt, and these were introduced to its fill either pre-deposition or through burrowing after deposition.

Prehistoric pits of this kind are generally associated with water heating. Given the proximity of the features to a small modern tributary stream it may be supposed that the nearby water source was a potential focus for periodic hunter-gatherer activity as further indicated by the flint scatter.

There were 147 flints, analysed by Andy Chapman, recovered from contexts widely scattered across the site, largely as residual finds in features and deposits of much later date. The material is in poor condition as the patinated pieces in particular showed much later edge damage. The raw material was a vitreous flint ranging from medium brown to dark grey with a white to light brown cortex, with examples from the chalk and from river gravel deposits.

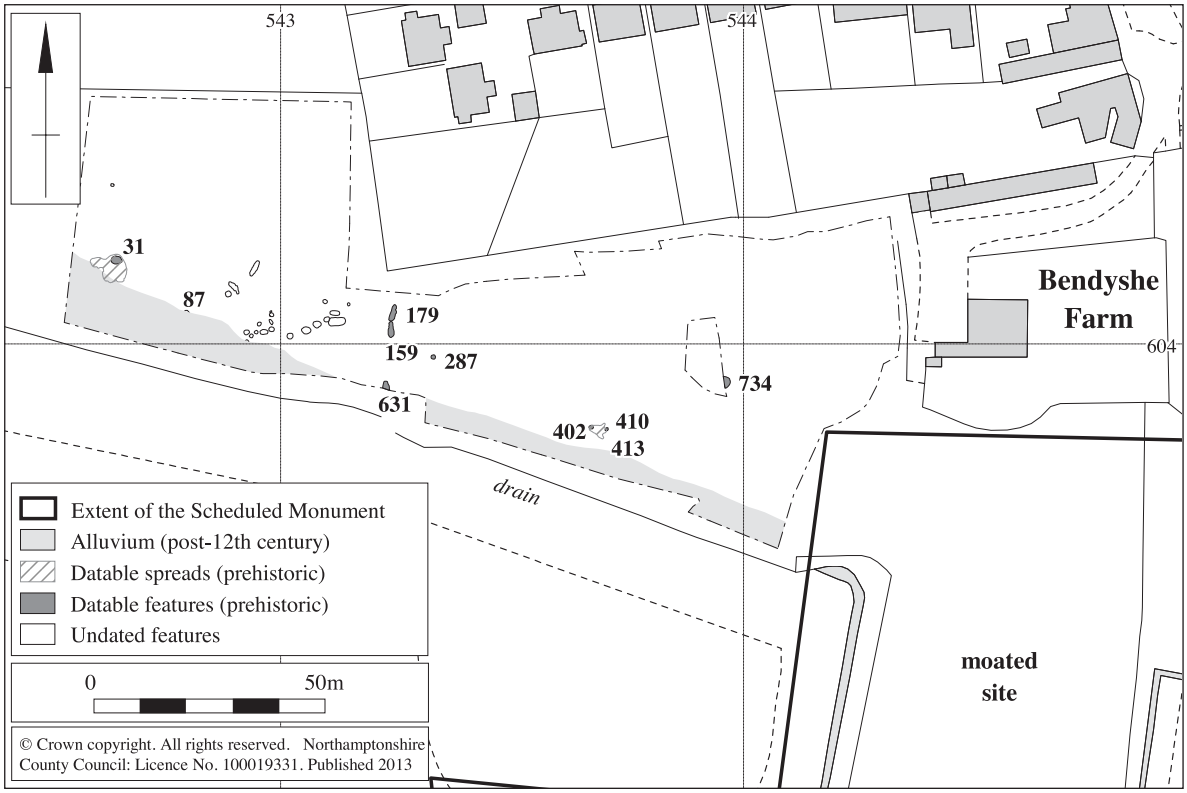
Over half of the material (53% by number) is heavily to moderately patinated, with the surfaces varying from white all over to extensive areas of white to blue-grey mottling (Table 2). The remainder (47%) is either fresh vitreous flint or has limited mottles of pale grey patination.

Table 2. *Quantification of the flint assemblage.*

Flint type	Total		Patinated		Unpatinated	
	No	%	No	%	No	%
flake	55	37	24	31	31	45
flake (cortical)	43	29	19	24	24	35
blade	31	21	28	36	3	4
core	4	3	2	3	2	3
scraper	4	3	2	3	2	3
oblique blade	1	<1	1	1	-	-
leaf arrowhead	1	<1	-	-	1	>1
knife	1	<1	-	-	1	>1
misc retouch	6	4	2	3	4	6
chunk	1	<1	-	-	1	>1
Totals	147		78	53	69	47

The differing character of these two groups had a chronological basis, with the heavily patinated flint earlier in date, probably late Mesolithic to early Neolithic, while the less heavily patinated flints prob-

Figure 3. *Prehistoric and Roman features along the watercourse.*



ably dated more broadly to the late Neolithic to early Bronze Age.

Middle Iron Age waterholes

There were three pits that produced exclusively middle Iron Age pottery (Fig 3). Pits 31, 159 and 631 were each different in character and yet all exhibited silting episodes after abandonment. Pit 31 also contained fragments of red deer antler.

Pit 31 was a narrow steep-sided sub-rectangular pit with a flattish base (Fig 4). It lay in open ground, extending down slope toward the stream, which was covered by alluvium. The deposit filled a depression within the natural gravels and also formed the sag infill of the pit. This shallow well quickly pooled water and silted up by natural means after abandonment.

Mollusc samples from pit 31 were superficially similar to those in the late Neolithic/early Bronze Age. Terrestrial species continued to dominate with a small freshwater element present (less than 8%). Open conditions and long ungrazed herbaceous vegetation was suggested by the terrestrial species, although the proportion of the shade-loving species expanded to 25-30%. *Caryhium tridentatum*, Long-toothed herald snails, are common in long grassland, and low numbers of many more catholic, shade-loving species, indicated local mesic conditions rather than woodland. Several amphibious species and those that can tolerate prolonged flooding were observed (Kerney 1999, 44). The slum and marsh assemblage included wetland species mainly found in lowland marshes, fens and reed swamps. These species might suggest stable uncultivated conditions in a state of slow transition between marshland and meadow (cf. Norris and Colville 1974, 151). There was little evidence that pit 31 held a permanent body of water, but seasonal ground- and flood-water might be expected.

By contrast, pit 159 formed a long narrow trough, aligned north–south, with steep sides and a flattish base along which a receptacle could have been dragged. The edges of the pit were characterised by a slight shelf, which was eroded through trample. A silt deposit formed at the base of the pit and it was filled in at the surface with darker soils. A very similar undated pit, 179, lay nearby.

To the south of these features lay pit 631; a broad shallow pit with gently sloping sides and flattish base. The pit contained a sequence of light silty fills, suggestive of natural in-wash, with pottery at the base. Sherds from two jars were present, one with a flat-topped rim and a crudely-formed uneven lip around the outer edge, the other had an abrupt high shoulder. The pit was shallow enough to have been used by animals as a drinking hollow and was still deep enough to fill the jars, however, the mollusc species suggested such water quickly stagnated, requiring continued re-excavation of cleaner sources.

Six features produced 117 sherds of Iron Age pottery, weighing 1275g, with an average sherd weight of 10.9g. The assemblage, analysed by Andy Chapman, is in good condition with hard fabrics. Three fabric groups were defined; sandy, fine flint and coarse flint. The sandy fabric is the smallest group, coming from the thinner walled vessels, and is quite distinct from the other fabrics in that it contains only sparse and very small pieces of flint. These vessels include one

Figure 4. *Pit 31, looking west.*

with coarse surfaces from pit 31, but the other two vessels, from pit 734, are later small open bowls with smoothed to burnished surfaces.

Although the group is small and dominated by body sherds, it shows all of the characteristics of a typical middle to late Iron Age assemblage from eastern England. Given the presence of a high proportion of smaller vessels with smoothed to burnished surfaces it is suggested that a date spanning the 2nd and 1st centuries BC is probably most appropriate for this group.

The apparent attention to water collection by excavating pits suggests that the modern tributary stream, which has been canalised, did not flow all the year around. Whilst the spring head may have welled up to the surface during particularly wet seasons, perhaps causing seasonal inundation, for the majority of the year it was necessary to tap into the ground water. This was also indicated by the variations in molluscs and their preferred habitats.

Late Iron Age pit, 734

Four sherds (45g) from the pottery assemblage of 39 sherds (830g) are of 1st century AD grogged ware. Grog, as well as grog- and sand-tempered ware fabrics were produced in the area in the late Iron Age but production continued for a few decades after the Roman conquest. Kilns producing grog-tempered wares are known at Swavesey (Willis *et al*. 2008), 20km to the north-west, but there are likely to have been much closer sites.

The pottery comprises at most four separate vessels. One particular vessel is a jar that may have stood about 200mm high, which provides an illustration of the manufacturing technique employed for these vessels. The base sherd is 110mm in diameter and 17mm thick, and has a ragged break, indicating that the base and lower body were probably fashioned as one up to a wall height of at least 50mm. The larger body sherds are up to 95mm tall between oblique joins, where the vessel has fractured, with clay being drawn up from the outside and down from the inside. A slight waisting on these larger sherds with oblique joins indicated that the body was formed in two parts, the lower standing 60mm high and the upper 40mm high, but evidently this join was secure around at least part of the body. The top of the body occurs at the point of greatest diameter. The neck and rim are 45mm high, with an oblique join at the base of the neck. It would appear, therefore, that this jar was probably formed in four parts using four slabs of clay: base and lower body, central body, upper body and, finally, the neck and rim.

The pit, 734, was sub-circular and the sides were gently sloped, curving into a rounded base. Lumps of chalk and clay in the fill indicated that the pit had a relatively short period of use and seems to have been filled shortly after its creation. The fill also contained charcoal and charred herbaceous seeds and cereal grains from hearth debris

The mollusc assemblage exhibited a total lack of freshwater species, the absence of slum and marsh species, and terrestrial assemblages with increasingly higher proportions of open country species (70%), to the detriment of shade-loving snails with only 11–14 terrestrial taxa present. This indicated the land was in the process of drying out and becoming stable drier meadow or pasture. Whether this feature was upslope of the wetter ground or whether this local change represented the natural movement of the watercourse southward away from the feature cannot be determined. The changes were relatively ephemeral as the wetter conditions returned in later periods.

Roman pit, 287

A pit containing two pottery sherds (64g), analysed by Rob Perrin, was probably a good deal later and was badly truncated by a medieval ditch. What remained of the pit was elliptical and had near vertical sides and a narrow flat base. Given that the pottery was so low in quantity; its occurrence was not out of place with the prehistoric activity that preceded it.

The Horningsea kilns, 6km to the west, supplied local markets from the Flavian period onwards and production continued until the late 4th century AD. One sherd from pit 287 does not have any characteristics which allow closer dating and the other is not a Horningsea product, but is likely to be from another local source that cannot be closely dated.

Other undated pits

Groups of pits or pit-like depressions along the watercourse followed the general pattern of water exploitation What is likely is that amongst the excavated features were a variety of pits belonging to different periods, but without finds or ecofacts, and scattered amongst various less obvious natural pit-like features. The relationship between the alluvium and datable features showed that almost all predated the 12th century.

Agricultural land use, predating the moated site

Middle Saxon boundaries

The earliest boundaries, which were functioning during the 8th century and might have appeared as early as the late 7th century, divided the fields in the west from land to the north and east (Fig 5). Ditch 415 was the principal boundary, and ditch 847 extended from it, towards the High Street. Both ditches contained Ipswich ware (3 sherds, 94g), which was manufactured exclusively in the eponymous Suffolk *wic*, and was in use from AD725–40 to the mid-9th century at sites outside East Anglia (Blinkhorn 2012). This site conforms to the East Anglian pattern of pottery consumption, comprising Ipswich ware with a little hand-built pottery.

At its north-western end, ditch 415 was 1.44m wide by 0.36m deep, with steep sloping sides and a flat base. The fill comprised firm light brown sandy clay with chalk flecks and small flint/chalk pebbles. Towards its southern end the ditch, 516, became narrower and deeper (Fig 6). The basal fill was similar to its northern extent, but the surface material was darker greyish-

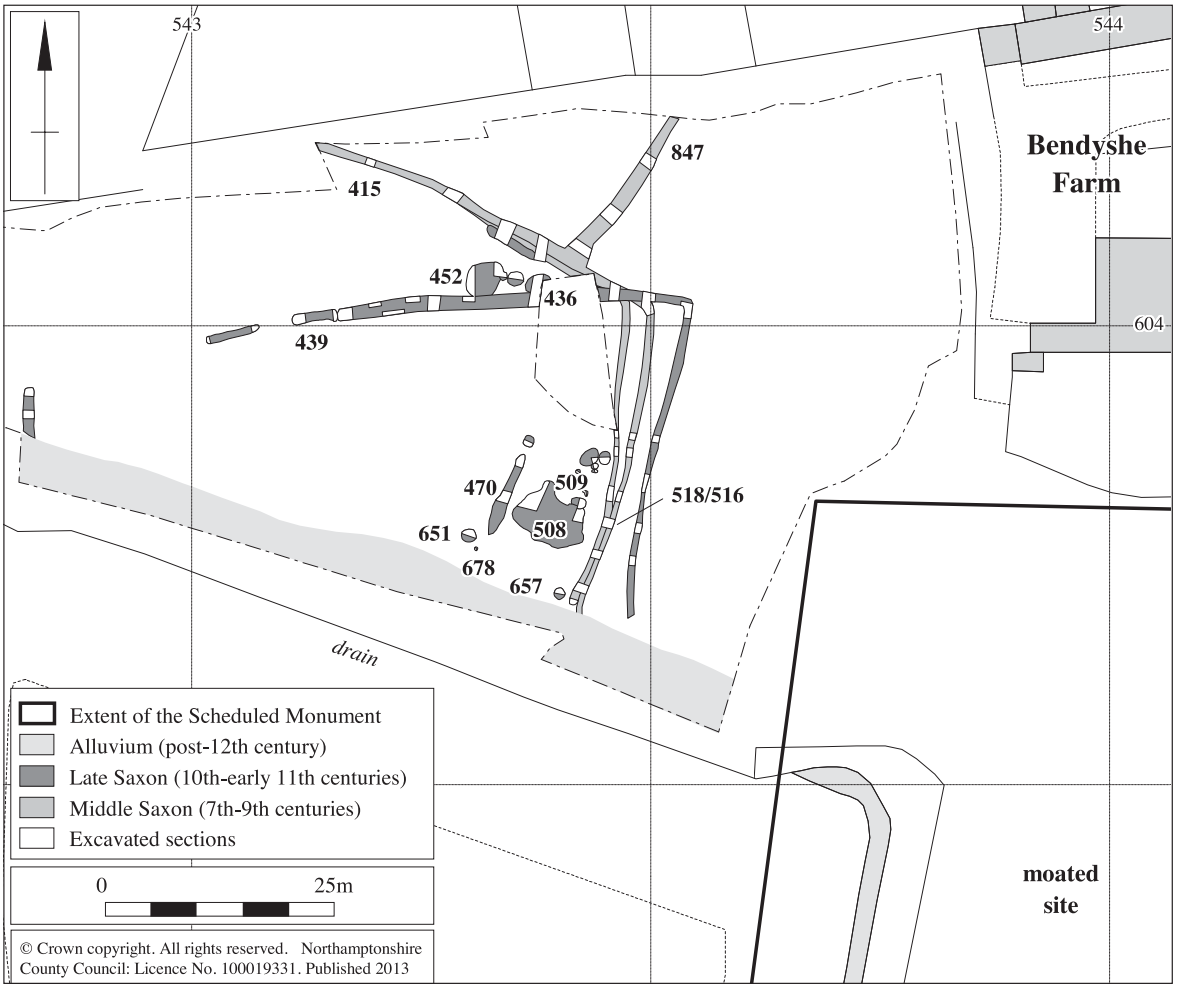


Figure 5. *Middle and late Saxon features.*

brown silty clay loam containing dumps of pottery and animal bone. The southern extent had been recut by ditch 518. Soil samples from along the boundary produced charred cereal grains and pottery of middle Saxon date (late 7th–9th centuries) with intrusive later Saxon sherds in areas where pits had obliterated its continuation.

A late Saxon enclosure and pits

The land use to the west probably remained associated with cultivation until around the 10th century. By this time the boundary dividing the two neighbouring areas to the north and east, ditch 847, had been filled. The main land division, ditch 415, was probably still partially observed, however, since it was partially reused to form the east side of a sub-rectangular enclosure (Fig 5). A greater level of waste disposal was observed along the east side of this enclosure than for previous boundaries.

The animal bone assemblage, analysed by Laszlo Lichtenstein, was dominated by cattle (65% by Number of Identified Speciments (NISP)), followed by horse (8.4%) and sheep/goat (4.9%). There were lower numbers of pig (1.8%) and domesticated fowl (0.4%). Small ungulate bones (6.6%) indicated at least one sheep/goat or pig. The bones belonged exclusively to domestic animals; mainly food domesticates, and was largely kitchen waste. The state of preservation was generally poor and the amount of material was consistent with low level occupation nearby. Cattle were the most important species in terms of food and dairy value and carried a much greater carcass weight, they appear therefore to have been the most common species utilised for meat. None of the horse bones had any evidence for butchery and, they are likely to have been working animals given their maturity.

The enclosure itself may have been for keeping animals, a small area of activity at its east end, where pits were concentrated, may have been the location of an animal fold with associated bedding material disposed of in surrounding pits.

On the northern side, ditch 439 was 2.34m wide by 0.65m deep, while the eastern boundary was less pronounced. In both instances the sides of the ditches were steep and well defined, but were truncated. The bases of both boundary ditches were fairly broad and flat, indicating a more substantial cut than its fore-

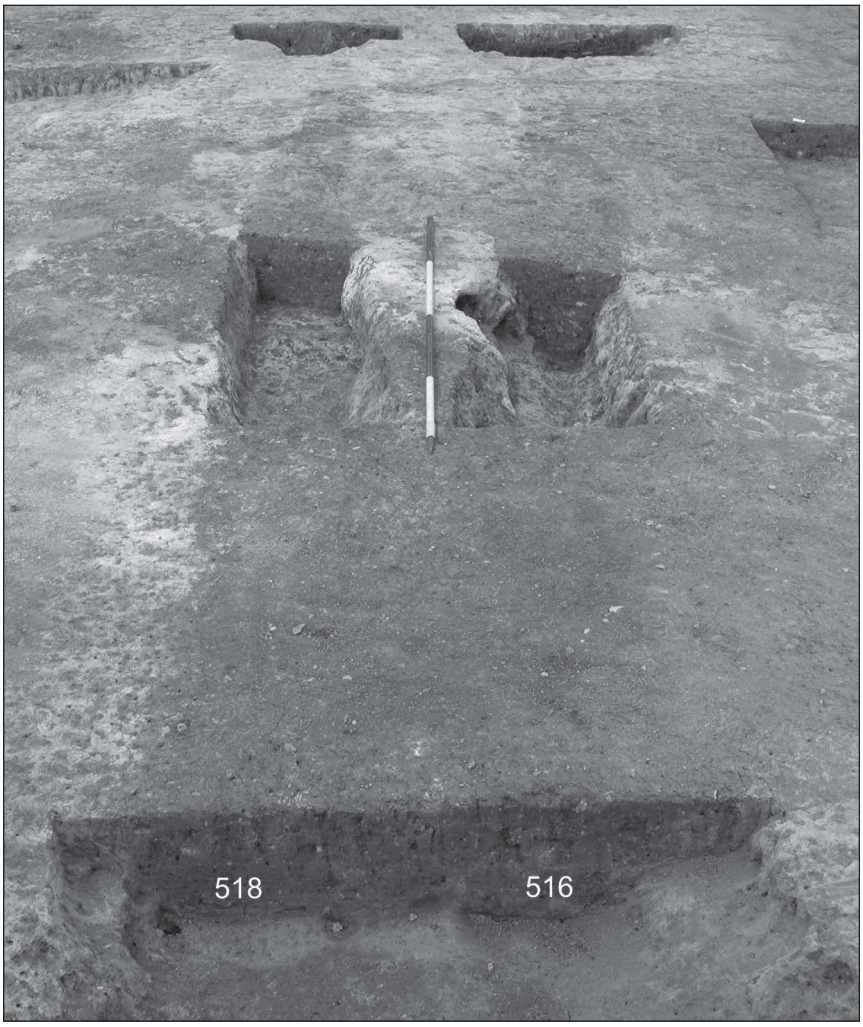


Figure 6. *Middle Saxon ditch 516 and its recut, 518, looking north.*

bear. The basal deposit comprised firm mid brownish-grey silty clay with chalky flecks, charcoal smears and gravel that had accumulated as wash material, 0.32m thick. The upper fill was firm light brownish-grey silty clay with slightly more chunky pieces of chalk, gravel and charcoal smears. On the west side the ditch was comparable, although not easily identifiable, as this was subsequently incorporated into a post-Conquest pattern of enclosure.

A silver finger ring was recovered from the boundary ditch, together with a single sherd of Thetford-type pottery (4g). The ring, described by Tora Hylton, has a large flat bezel, decorated with a stamped motif, but the hoop is damaged (Fig 7). The motif comprises two rows of three opposing triangles positioned horizontally at the centre; each triangle is recessed and contains three dots in relief.

Surviving within the recesses of one of the triangles, are the remains of a black substance, possibly niello, a mixture of metallic sulphides used as an inlay on silver or gold (Cronyn 1990, 164). Stylistically, finger rings of this type date to the late 9th-10th centuries, and this corresponds well with the date of the pottery.

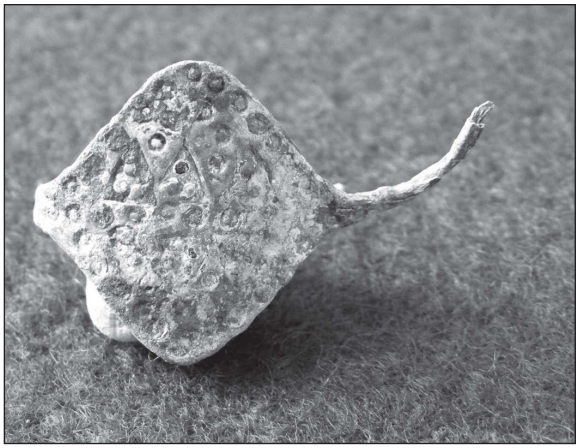


Figure 7. *Late Saxon finger ring (20mm high).*

The late Saxon pottery assemblage, analysed by Paul Blinkhorn, comprises entirely Thetford ware and St. Neots ware making it generally very difficult to date other than within the broad late Saxon period. Just two jar rimsherds of Thetford-type ware were noted, one of which is from the smaller end of the size

range, suggesting that it dates to early in the production span of the industry (Rogerson and Dallas 1984, 125), and a single sherd with rouletted decoration, another characteristic of early Thetford ware (*ibid*). A single St Neots ware jar rim is from a small vessel, which suggests that it is also earlier (Denham 1985).

Inside the enclosure lay a cluster of seven pits at the east end that produced pottery, mainly of late Saxon date, but also with residual middle Saxon sherds, together with quantities of animal bone. This focused on a small rectangular area covering *c.* 250 sqm, 20m long by 12.5m wide (Fig 5). The area was not formally delineated, but lay between the east side of the enclosure and a short length of ditch, 470. The north and south ends were obscured by later features, and it is not known if other boundaries had existed.

Ditch 470 lay parallel to the east side of the enclosure boundary and was 9.5m long by 1.47m wide by 0.38m deep. Firm, slightly loose, light grey silty clay loam comprised the infill deposit, which appeared to be deliberately dumped. A single posthole, 678, lay at its southern end.

Seven pits lay towards the edges of the area, with the central portion occupied by a diffuse and amorphous layer of greyish-white silty chalk clay, 508, 6.5m long by 4.5m wide and 80mm thick. The layer was dated by Thetford-type ware (1 sherd, 14g). The pits were generally sub-circular and, whilst substantial, were of differing proportions. Pits 509 and 651 produced hand-built early to middle Saxon chaff-tempered ware, *c.* AD450–850 (2 sherds, 28g), alongside Thetford-type ware, 10th–11th centuries (Rogerson & Dallas 1984; 4 sherds, 115g). The pits seem to have been for the disposal of waste. Soil from pits 651 and 657 demonstrated a mixture of seeds, but not in meaningful quantities that could indicate cereal processing or otherwise, and could easily have been amongst more general organic waste, animal feed or bedding. The pits and the soil deposit seem likely to have been associated with non-domestic activity within the enclosure, given a general lack of burning, and perhaps included a small shelter without earth-fast foundations.

To the north of ditch 439, outside the enclosure, two pits, 436 and 452, cut the enclosure ditch. The pottery was mainly late Saxon with one residual middle Saxon sherd including Ipswich ware and St Neots type ware (total 6 sherds, 31g). Pit 452 contained sparse seeds, suggesting general crop cultivation in the vicinity, whilst pit 436 was highly productive and contained a primary dump of cereal processing waste of oats and barley, with lower quantities of wheat and a range of herbaceous cultivation weeds. However, the pit also contained hammerscale, indicating mixed waste. The Saxon pit and ditch assemblages all contained some cereal grains and weed seeds, although small (<0.1 litres in volume), they had a moderate density of oat and barley grains, along with a range of weed seeds, probably from an advanced stage of cleaning, where it only remained for the larger contaminants to be separated immediately prior to consumption. The assemblage contained a number of nutlets of saw-sedge, a plant often used in thatching. Other contemporary assemblages all contained lower densities of plant materials, which probably derived from domestic or agricultural activities and appeared to be scattered refuse.

Ridge and furrow

Cultivation furrows were identified in the west of the site, at the northern edge of excavation. The furrows were spaced at 11–13m intervals and were aligned north to south, with their southern ends terminating at the edge of the alluvium. The furrows were poorly preserved; the best example was 1.85m wide by 0.16m deep. Evidence for the ridges had long since been ploughed away. The cultivation soil comprised light yellowish-brown sandy clay loam with chalky flecks. Whilst no pottery was retrieved to date the furrows, they are likely to have existed from the late Saxon period onwards. The Saxon environment was indicated through mollusc species. Only a single Saxon sample contained molluscs, which was dominated by terrestrial species but included both freshwater (6%) and marsh (5%) species. The terrestrial component was dominated by high numbers of common shade-loving species and those frequent on waste ground amongst unkempt vegetation and ground litter in woodland of tall grass, where the micro-environment is shady and damp. The reoccurrence of amphibious freshwater species indicated a return to seasonal dampness and higher groundwater, pools of water and overbank flooding. This perhaps explains why the furrows did not extend all the way south to the watercourse.

Post-Conquest enclosure, the early farm

A marked contrast was evident in the organisation of the site following the Norman Conquest. An entirely different arrangement of boundaries emphasised the disuse of the Saxon features, and presumably was coupled with a newly imposed land regime (Fig 8). The precise date at which they were laid out is not certain, but pottery indicated that they were filled in the 12th century and would logically have been in use immediately following the Conquest.

The combined Saxon and medieval pottery assemblage, analysed by Paul Blinkhorn, comprised 202 sherds (4,306g), which is not a particularly high number, given the concentration of features. The assemblage was, in the main, sparse and scattered, with most contexts only yielding a few sherds, all from different vessels. There were no cross-fits, other than with individual contexts. A relatively large group of Thetford ware storage jar sherds occurred in ditch 417 (29 sherds, 972g), and appeared to be a disturbed primary dump of material, but the rest of the assemblage were the product of secondary deposition. The range of fabric types is fairly typical of sites in the region, and indicated activity up to the 12th century, with a break around the late 13th–15th centuries where very few sherds were deposited. Other than a single North French sherd (175g), the range of pottery was typical of the region, such as at Cottenham (Hall 2000).

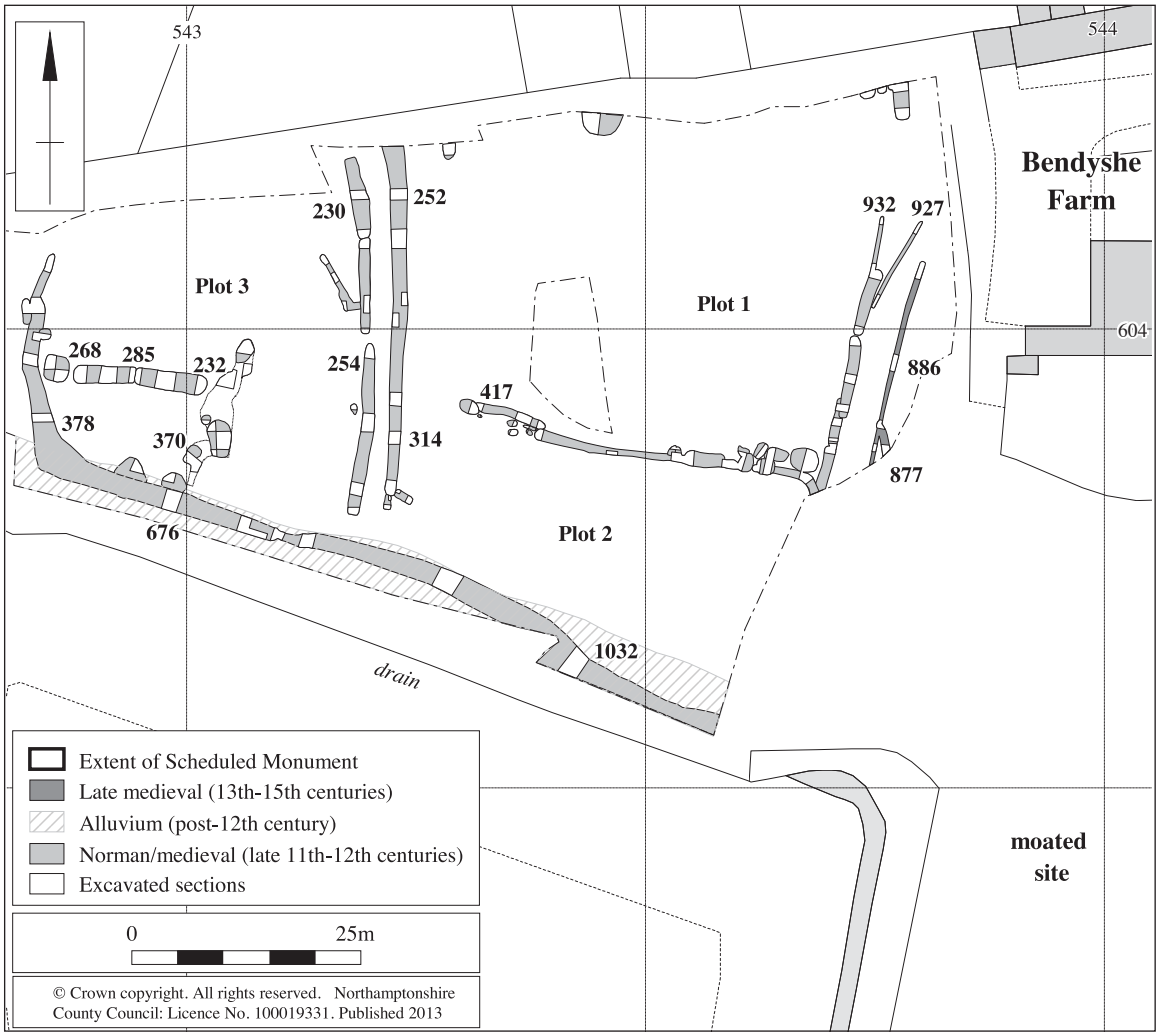


Figure 8. *Post-Conquest agricultural enclosures.*

The pottery is fairly typical, comprising Thetford ware, shelly wares and grey sandy coarsewares, along with smaller quantities of glazed Stanion, Hedingham and Developed Stamford wares. A large proportion of this material is the dump of storage jar fragments (ditch 417), which seems likely to be a clear-out of old pottery. More than one vessel is represented, and most of the body sherds have heavily abraded and flaking inner surfaces.

The land was partitioned into fairly small units, comprising Plots 1–3, with boundaries extending onto land immediately adjacent, to the north and east (Fig 8). The three plots formed a group covering just over 50% of the excavated area with a total coverage of *c.* 0.37ha, comprising small agricultural units at the edge of a much larger body of land. The land was bounded on its south and west sides by two lengths of ditch.

On the west side, ditch 378 was 1.96m wide by 0.64m deep, with a steeply angled, but slightly ragged profile, with a narrow rounded base. The fill was dark greyish-brown silty clay with occasional chalk and flint pebbles, mainly deliberate infill rather than silting indicating this part of the ditch was generally drier. As the ditch turned south-east, it splayed outward at the surface, forming a spread to either side. At this point the ditch, 676, became a broad flat channel, 2.70m wide by 0.40m deep. At the mid-point of the boundary, the west portion and the south-east portion opposed each other as two independent terminals.

At its south-east end the boundary contained three principal cuts, the earliest being 1032. The earlier cuts were 0.40–0.50m deep, the latest was 2.70m wide by 0.60m deep, indicating a very substantial feature. The fills comprised variations of light greyish-white silty clay with frequent darker charcoal smears, but little to distinguish between them, suggesting a predominantly silting deposit with occasional dumps of waste. Further to the west only two cuts were visible. The primary fill of cut 1032 produced a substantial seed assemblage, analysed by Val Fryer, that was perhaps the product of annual cleaning of a grain storage barn, however, soil from the west boundary, ditch 378, was almost devoid of seeds.

Wheat formed 85% by the number of grains in

the total assemblage from ditch 1032. Rachis nodes of both bread wheat type (with diagnostic crescent glume inserts) and rivet wheat type (with bulbous glume bases and attached trapezoidal internodes) were also present, with bread wheat chaff forming 51% of the total chaff assemblage. However, cereal chaff was scarce within all other assemblages.

Of the other cereal types, barley occurred slightly more frequently than oat grains. Within ditch 1032, rye grains were the most common after wheat, although they still only accounted for 3% of the total. The use of wheat/rye mixed crops or maslins was clearly not the case as it was far more likely that these rye grains were persistent grains from an earlier cropping regime, together with barley, field beans and oat grains. Weed seeds were generally scarce, a number of the corncockle seeds were still clumped together alongside stinking mayweed.

Most of the medieval plant macro-assemblages were probably derived from low density scatters of refuse or charred agricultural waste. The material from ditch 1032 was of particular interest as it was both large (*c.* 0.9 litres from a 40 litre sample) and almost entirely composed of cereal grain. The material was generated during a single period of activity and was not mixed with material from other sources. The wheat grains were in a very poor condition due to sprouting. The weed seeds were mostly large or present as intact seed capsules that would persist after winnowing and sieving because of their similarity in size to the cereal grains and are commonly seen within batches of prime grain or cereal at a very late stage of processing such as those at Boreham Airfield, Essex (Fryer and Murphy 2003) and at West Cotton, Raunds (Campbell and Robinson 2010). The puffed condition of the grains, and the bias within the chaff assemblage towards the more robust rachis nodes, indicated that the remains were burnt quickly in a well-aerated fire.

A combination of dumping and in-wash silt along this boundary seems to have been sufficiently high that it had to be cleaned out, the boundary did not serve a drainage function since it was broken into two main sections; and had they been primarily to carry water, they should have drained to the west with the topography. The relatively dry nature of the ditch implied that this boundary was not contiguous with the later moat.

To the north and east, the three plots probably served a combined purpose, the exact nature of which seems to have been associated with the clearance of midden material, mainly organic waste, incorporating occasional kitchen scraps. The animal bone assemblage was dominated by cattle (45.2% by NISP), with lower numbers of horse (14.2%) and sheep/goat (5.2%). Domestic fowl were present, indicated by one rib fragment; as were dogs. The dog bones were from one adult burial and a single broken mandible. Little evidence of scavenged or dog gnawed bone existed. Butchery and bone working was in evidence, but burning seemed not to have been a preferred method of disposal.

It is likely that the agricultural activities here were associated with daily management practices, for a smallholding that predated the moated site and would have incorporated domestic life with agricultural activities such as cereal processing and livestock activities.

Plot 1

The north-eastern plot was 0.17ha in area, continuing to the north (Fig 8). The boundaries enclosed a roughly rectangular area with an entrance on the east side, and an exit into plot 2 in its south-west corner. The larger part of the interior was clear of contemporary features. A complete horseshoe recovered from the east boundary is a Norman shoe, Clark's Type 2 (1995, 86), which dates to the 11th–12th century.

The boundaries along the south-east side comprised a series of short lengths of ditch, cut by pits, each ditch was 7–15m long by up to 1.2m wide and up to 0.40m deep, most of the pits were generally elongated, shallow and of similar depth (Fig 8). The short lengths of ditch along the east side were slightly more substantial and also incorporated two long narrow thin gullies, 932 and 927. The west side of plot 1 was defined by a single continuous ditch, 252/314. In general, the fills were firm dark silty clay loam, occasionally with animal bone or pottery, but generally not in the quantities that might be expected close to domestic activity.

The assemblage of Thetford-ware pottery found in ditch 417, comprises mainly storage jars with thumbed applied strip decoration, which tend to become more common later in the lifespan of the industry (Rogerson and Dallas 1984, 126). In addition, there is also a large fragment with a curved, thumb-frill ridge, which was the upper angle of a curfew or fire-cover. Curfews are largely post-Conquest in date, largely unknown in the Thetford ware tradition from kiln-sites (Dallas 1993), however, there is an identical example from Furnells manor, Raunds, Northamptonshire (Pearson 2009, 161 & fig 6.6; 57). The later ditch also yielded a single sherd of medieval shelly ware (4g), a typical 12th-century product.

In most instances it would be necessary for one pit or short ditch length to have been filled before the next could have been created and in this way they appear to represent a series of interventions that gradually extended the length of the boundaries and incorporated the periodic disposal of largely organic detritus. Pits that lay along the north side of the enclosure, at the edge of excavation, may indicate that a further boundary lay east to west just beyond the limit of excavation. A copper-alloy buckle-plate and frame, recovered from pit 781, was manufactured from a rectangular-shaped sheet of metal folded widthways and secured with a single pin, and dates to the 13th–14th centuries. Since the features followed boundaries, the formal division of the plots may have been by wattle fences, the archaeological remains of which did not survive.

Plot 2
The south-eastern plot was probably just over *c.* 0.09ha in area, over 45m long by 17m wide. An entrance from plot 1 lay in its north-west corner, but the crossing into plot 3, seems to be too narrow to be an entrance. The pits and short lengths of ditch along the north boundary, shared with plot 1, could have originated from activity in either area. The dumping of charred cereal waste in the south-east corner of boundary ditch 1032 suggested disposal of organic waste was not confined to pits along the boundaries, and that any peripheral boundary location was acceptable.

Plot 3
On the west side there was a rectangular area, *c.* 0.11ha in area, over 34m long by 31m wide, which continued to the north. Whilst the west and south sides were bounded by ditch 378/1032, the east side was bounded by a double ditch (Figs 8 and 9). The east side of this ditch was shared with the other plots, ditch 314, and the west side comprised short lengths in a similar fashion to those investigated elsewhere. The fill of features on the near side of the boundary bore a marked contrast to those in the parallel ditch, 314, on its far side. The fill of ditch 314 had been fairly consistent along its length in terms of its composition of accumulated silty clay in-wash. By direct contrast the other ditches contained the same kind of dumps of firm dark silty clay loam seen along the boundary between plots 1 and 2 and on the east side of plot 1. Whilst soil from ditch 314 contained very little in the way of seeds, the samples from ditches 230 and 254 had far more examples of both cereal grains and herbaceous seeds, as might be expected amongst organic refuse. What may be likely is that a fence or hedgerow formed a boundary on the west side of ditch 314, along which these short ditch lengths were later added.

Pits within plot 3
Within the plot, the area was subdivided north from south by a line of pits and short ditches, 18.2m in length (Fig 10). Pit 268 was rectangular, 2.80m long by 2.68m wide by 0.41m deep, and others were longer and overlapped, demonstrating that they represented a series of periodic interventions, with very little variation in width or depth. For the most part the sides of these pits were vertical, with a broad flat bases.

In all cases, the fill comprised firm light brownish-grey silty clay loam, speckled with chalk flecks and containing infrequent flint pebbles. Soil samples from either end of the pit line demonstrated that there was a higher proportion of charred wheat and barley than any other seeds, although the quantities were low. Some charred organic residues indicated remains from combustion, but this could have been intrusive and the quantity of charcoal was fairly low. A single small fragment of lava quern (32g), 50mm long by 12mm thick, was found in pit 232. Lava querns

***Figure 9**. Post-Conquest enclosure, Plot 3, looking north-west.*

Figure 10. *Pit 268 in the foreground, pit 232 at the far end, looking east.*

had been imported from the Eifel region of Germany since Roman times, although trade declined following the Norman Conquest. Soil from pits 268 and 285 contained small quantities of metalworking debris, comprising flat hammerscale, 3–4mm long, indicating that this was mixed refuse. Pottery comprised both shelly and sandy coarsewares, together with one sherd of Developed Stamford ware, 1150–1200 (Kilmurry 1980), and one residual St Neots type sherd (10 sherds, 69g).

Land outside the moated site in the 13th–15th centuries

Since Thomas de Bendish had acquired the land by 1329, it might have been expected that more material of 13th to 15th centuries would have been present. However, there was a general dearth of evidence for activity in the later medieval period. All enclosures had been reinstated by the end of the 12th century, and no new plots were laid out. Possibly the land was allowed to go to pasture, an attractive scene for the setting of the house, and similarly it would have been preferable to keep it clear of midden waste and other material.

A single boundary belonged to the period, ditch 886 (Fig 8). It was orientated roughly north to south, but slightly east of the projected western arm of the moat. There was no evidence for the continuation of the moat or for the vast amount of earth that would have been excavated from it. The ditch, 886, had near vertical sides and a flat base 1.02m wide by 0.40m deep, which quickly silted up. A later recut contained a distinct difference in silting deposits and indicated a change in land use nearby. Pottery from the southern end, ditch 877, comprised Bourne D ware, *c.* 1450–1637 (McCarthy and Brooks 1988, 409), and late medieval oxidised ware (total 3 sherds, 50g).

Large quantities of alluvium accumulated over this period, which overlay previous features up to 1.12m thick, although much thinner in the west of the site, and had been laid down gradually at the base of slope, draining towards the west. The process of deposition produced a soil profile that merged from one shade and texture towards the next, such that the distinctions were diffuse.

The earliest alluvial deposits were characterised by firm mid-greyish-brown clay silt, 675, with occasional small mixed flint, pebbles and chalk, up to 0.59m thick. The lower alluvial deposit merged gradually towards the top, which had been turned by the 19th-century plough. This was characterised by friable light greyish-brown silty clay loam with darker orange-brown silty clay loam towards the surface, 0.53m thick.

A series of 19 profiles examined the alluvial/colluvial sequence in detail, and a range of dated features (mainly ditches and pits), with the aim of characterising sedimentation and infill histories, but also in examining changing sediment patterns over the oc-

cupation phases. Molluscs were also analysed from discrete features. The relationship between the ditch fills and the alluvium revealed environmental changes. A sequence of five contiguous samples embraced the 12th-century ditch 676 and the overlying 0.5m deposits. The revealed a colluvial component at the base of the main sequence indicating a possible incipient buried soil and denoting a brief drier period after the filling of the 12th century ditches.

The molluscs, analysed by Mike Allen, were markedly different from the earlier deposits, as they were dominated by freshwater and aquatic species (up to 72%), and showed subtle changes through time. This element was dominated by high numbers of the amphibious species, White-lipped Ramshorn snail, *Anisus leucostoma*, which is common in swampy pools, especially those subject to drying and desiccation in the summer, and the constant presence of other more aquatic species. *Hippeutis complanatus,* Flat Ramshorn snail, which like well-vegetated slowly moving water was also present and up to four species of *Pisidium* which inhabit bodies of water. The most numerically significant was *P. personatum* (Red-crusted Pea Mussel) which lives in poor aquatic habitats, grassy pools, hillside flushes and areas subject to desiccation. *P. casertanum* (the Ubiquitous Peaclam) is typical of larger bodies of water and mud, which became more common in later flooding episodes.

The southern boundary suggested very damp marshy ground with pools of standing water. This was also subject to summer drying and seasonal groundwater changes, punctuated by hillside flushes and overbank flooding. Drier grassland meadow and pasture lay nearby. Ditch 676 was initially fairly dry and the surrounding area became wetter after the 12th century. Eventually the immediate surrounding area was engulfed in overbank floodplain deposits from the watercourse and colluvium from activity on drier slopes to the north.

The accumulation of alluvium marks a distinct change in the hydrological processes on site that are probably the combined result of climate and agricultural practice (Evans *et al.* 1992). In the uppermost, late medieval, sample of this deposit, the occurrence and rise of *Gyrualus albus*, White Ramshorn, and *H. complanatus*, Flat Ramshorn, snails, together with the reduction of many of the terrestrial species, indicated increased levels of standing water, and perhaps more prolonged periods of sheets of standing water. The cessation of both colluviation and alluviation before the cutting of pits into this deposit in the 16th century suggested much drier local conditions thereafter and it is probable that the creation of the moated site and fishpond played a significant role in the drastic change of water levels. Since they were created after the alluviation began in the 12th century, they could not have been the causal factor, and whilst they could not have completely controlled the episodes of inundation they would have gone a long way towards managing them and reducing the extent of land that was flooded through providing artificial reservoirs.

Post-medieval activity in the 16th–18th centuries

The majority of post-medieval activity lay at the eastern extreme of the site. According to the Victoria County History this land lay immediately to northwest of the old Bendish Manor, a large irregular 16th-century red brick building within the moated site (Wareham and Wright 2002, 196–205). According to rental documents this property was occupied until 1795. It is likely the land served a yard function and suffered the effects of having material moved around considerably.

Many post-medieval features to the west of the moated site contained fragments of basic locally-made bricks (50 examples), examined by Pat Chapman, which are datable to between the 17th and 19th centuries. The fine sandy red bricks, including one with moulding, and a brighter yellow brick come from a better quality building of the same date range.

The assemblage of roof tile comprises mainly yellow tiles with some orange or reddish tiles either for decoration, or for separate buildings. The sherds are fragmented and are from scattered deposits (81 sherds, 3.5kg). There was only a small quantity of floor tile (4 sherds, 247g).

With the exception of the structural debris presumably relating to the demolition of buildings sited nearby (lead came for windows, window glass, nails), other items recorded by Tora Hylton include fragments of vessel glass (mainly wine bottles, *c.* 1650–1680; Biddle & Webster 1991) and clay tobacco-pipes (84 examples, 6 types, *c.* 1640–1780; Oswald 1975), an iron key for a mounted lock, a biconical lead weight (173g or 6.1oz) and a possible lead token furnished with a compass drawn geometric design.

The post-medieval pottery is an entirely typical domestic assemblage from a reasonably well-to-do household comprising a mixture of utilitarian red earthenwares and fine tablewares such as tin-glazed ware, Westerwald and white salt-glazed stonewares. The majority is red earthenware (Brears 1969; 70 sherds, 1,949g).

Household kitchen waste, examined by Laszlo Lichtenstein, was dominated by cattle bone (31.9% by NISP), but almost as many horse bones were also found (30.9%). Ovicaprid (sheep/goat) bones (9.1%) and pig remains (1.3%) were significantly lower. Most butchery marks were associated with dismemberment and were found proximally, mid-shaft and distally on long bones, as well as mandibles, vertebrae, costae, scapulae, pelves, calcanea, astragali and phalanges. Butchery marks occurred on 41 horse bones, which represent more than 20% of the whole. Many long bones were chopped through the shaft, which may suggest that the meat-bearing leg bones of horses and/or the marrow of the humerus, radius, femur and tibia were utilised. The canid gnawing on 3.2% of these remains indicated dogs had access to the butchery scraps, either fed to them or scavenged. Cut marks around the lower limb bones, which are often regarded as evidence of skinning were not present. The longitudinal splitting of a horse tibia and radius from one example may also be connected to boneworking.

Post-medieval pits and gullies

There were eight pits dug during the 16th–17th centuries; a further six were undated, but lay within the same stratigraphic horizons. These latrines were scattered north-west of the moated site and at a time before the farmyard existed. A number of larger pits were for quarrying chalk, perhaps to produce lime. Smaller scattered features to the west may have been the product of small scale planting which used trellis style supports, either for hops or vines or perhaps a garden area.

Post-medieval road and yard surface

Deposits of compacted mid to dark greyish-brown silty clay loam with occasional chalky flecks occurred across large areas. The stone content was moderate to high comprising a mixture of larger cobbles and coarse gravel, with most of the stone concentrated closer to the surface horizon. The deposits formed a rough, hard, surface that was no more than 0.30m thick, surviving mainly above natural hollows. Surface layers contained red earthenware and clay-tobacco pipe bowls dated *c.* 1640–80 (Oswald 1975). The extent lay mainly below the 19th-century farmyard area, and also in a corridor from north to south down the east side of the excavation where a former trackway is mapped by the 1887 Ordnance Survey.

Bendyshe Farm in the 19th century

After the grey brick Bendyshe Farmhouse replaced the 16th-century Bendish Manor at the turn of the 19th century the area outside the moated site became the focus for agricultural development. Cartographic sources from 1805 onwards depict the growth and expansion of the farm. Remains of a timber-framed barn were the subject of an archaeological watching brief during demolition (Fig 11).

Many of the later features were only cursorily examined to confirm their date, however, a sizable assemblage of household kitchen waste was recovered amongst the animal bone. Most bones were smashed in antiquity and 72.4% of the assemblage could be identified to species. The assemblage was dominated by cattle (44.8% by NISP), followed by lower numbers of pig (21.8%). The horse remains were relatively infrequent in this period and accounted for only 2.4% of the assemblage. The latter bones bore no evidence of butchery, and were probably working animals that reached maturity. The presence of sheep/goat bones was also low (1.1%) and domestic fowl were represented by a single broken radius. The much lower frequency (less than 0.5%) of dog gnawing indicated that the animals were no longer being fed with scraps and material was cleared away so that it could not be scavenged.

Figure 11. *The 19th-century timber-framed barn, looking north-west.*

The changing environment

There was an extremely broad range of archaeological evidence to inform upon the moated site that encompassed resource exploitation, farming and settlement.

The late Neolithic/early Bronze Age activity exhibited burnt residues, including burnt stone, but excluding charred seed grains. Such material is often cited in conjunction with water-heating processes for a variety of applications, often close to water sources. Middle and late Iron Age activity seems to have reflected a similar purpose in the collection of water, although in later prehistoric periods there was no evidence that the water was being heated on site and it may well have been transported to a focus of settlement elsewhere. The land lay at a point of transition between marsh and meadowland, in close proximity to a seasonal watercourse, prone to periodic episodes of inundation. Localised and seasonal flooding of the watercourse would have occurred regularly and there is evidence of such from the late Neolithic period onwards.

The watercourse exhibited complex micro-habitats determined by their positions along the slope of the valley. Although the topographical relief is very minor, variations between wetland, marsh, floodplain and water flushes or even a watercourse, fringed the drier land. Such habitats were neither consistent spatially nor over time.

The molluscan assemblages were very rich and diverse indicating several different highly localised and small habitats. Those environments are loosely mapped over the local topography, but are dynamic and their distribution changed over time. A body of flowing water either as a hillslope or valley flush, or in a former wide, but shallow, palaeo-channel, existed along the base of the slope. Waterside environments of fen and marsh populated its bank, with emergent plants, reeds and wetland that at times and in certain places merged with the long damp grassy floodplain and meadow. Occasional pools of shallow seasonal standing water inundated the meadow, which in turn formed a floodplain that received sediments settling out under standing floodwater. Once it subsided it would leave almost imperceptible skims of mud, soon obliterated by new herbaceous vegetation and grass growth. During wetter months the low-lying land would have been less useable and accessible, but cattle could be watered at its edges and graze in much of it. In drier periods open pasture, with shorter grazed grassland and tillage, emerged on the upper slopes and dry farmland. During the late Iron Age period there was no evidence of such wet habitats, suggesting the possibility of a drier phase and of restriction or cessation of annual winter flooding. Concomitant with this is evidence of dry grassland pasture and land suitable for tillage.

Cultivation was probably being undertaken nearby from the late Iron Age onwards, with charred seed forming part of the period deposits. However, features dating prior to the Saxon period remained sparse and long-term fluctuations in the ground conditions discouraged any change in land use until the establishment of boundary ditches in the middle Saxon period. Permanent settlement and many occupation activities would have been restricted to the drier slopes by necessity.

The activity from the Saxon period marked the first clear indication of land units. Cereal processing waste was recovered from crops produced in the open fields near to the site, although at least some of the material is also thought to derive from thatch and could have been dumped from settlement nearby, perhaps fronting the road to the north. The late Saxon enclosure was seemingly for livestock, and may also indicate that the meadow, which had returned to its previously wetter conditions, was pasture rather than arable.

Ridge and furrow was identified at the north-west extent of the excavations, but did not extend fully south to the wetter margin. The furrows were not well dated, and may also be later. The principal boundary at the southern edge of the excavation was fairly dry, the adjacent grassland and meadow could have provided seasonal pasture. After the 12th century these plots were filled, but remained dry for a period during which a buried soil was created.

Moving into the later medieval period the land was subject to major overbank flood events that deposited large quantities of mixed alluvial and colluvial material substantiated by an abundance of freshwater molluscs. Since the flood episodes are only dated relative to the deposits that they covered it is likely the flooding took place well into the mid-13th century. The 12th-century plots could not have been abandoned as a response to increased flooding and it seems their abandonment simply marked a change in manorial practise.

In the ensuing late medieval period a combination of winter floodwater laden with fine calcareous silts, and summer or autumn colluviation of dry calcareous chalky soils on the slopes, lead to an accumulation of 0.5–1.0m of alluvium and colluvium. This footslope deposit was further topographically defined, in more modern times, by the canalisation of the present drain.

When Thomas Bendish acquired the land in 1329 it is not known if there was already a moated site. Changing weather, land use and alterations upstream in the preceding centuries may have required a degree of water management. There was a dearth of deposited material from the establishment of the moated site in the 14th century. This material had to be removed elsewhere if managing the extent of flooding was one of the reasons for creating the moated site. This did not solve the issue, but should have alleviated the risk to the manor. The land probably remained subject to flooding, enabling up to 0.59m of material to accumulate over an extended period, so that at least some of the alluvium was contemporary to the moated site.

The apparent risk of flooding seems to have declined by the 16th century, when features were cut into alluvial levels. The Bendish estate passed hands

to Thomas Webb of Tunbridge Hall in 1593 and probably included the old red brick building that was described in 1604. It is thought that this building stood within the moated site. The latrines to the west of the moat were probably associated with this settlement, and some quarry pits supplied its construction with lime. Further away from the house, to the west, there seems to have been some cultivation activity involving trellis style supports, which may even have constituted gardens rather than the production of foodstuffs.

The former red brick building of Bendish Manor was replaced after inclosure by a grey brick building, following the sale of the land to Peterhouse, Cambridge, in 1743. This second building became Bendyshe Farmhouse, which stood outside the moated site, a little to the north. The building was the subject of continued modifications that were depicted from 1808 and by the Ordnance Survey. The whole of the area to the north and north-west of the moated site became an active farmyard, which benefited from steam powered traction. Coal dust mixed into the soil by percolation and bioturbation, was evident in most soil samples.

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Cromwell Community College, Chatteris, Cambridgeshire: Further Evidence for Early Iron Age Ceramic Chronology

Rob Atkins and Sarah Percival

Excavation revealed traces of Early Iron Age 'settlement', characterised by numerous intercutting pits, one of which contained possible placed deposits comprising parts of five vessels. Radiocarbon dating of animal bone from this pit is of some importance as it has enabled the dating of a key assemblage of pottery to around the mid sixth century to fifth century BC, providing a valuable contribution to regional research issues for Iron Age chronology.

The Site

During 2011–2012 Oxford Archaeology East (OA East) undertook evaluation and excavation at Cromwell Community College in advance of the construction of new buildings and sports pitches. The subject site lies on the southern side of Chatteris on flat land at between 8.5m OD and 9m OD (TL 3957 8520, Fig. 1) and the natural drift geology consists of March Gravels (British Geological Survey 1995). A major evaluation at Tithe Barn Farm, directly to the south of the subject site, found Early and Middle Bronze Age remains, but nothing of Late Bronze Age to Early Iron Age date (Atkins 2011; Cambridgeshire Historic Environment Record (CHER) ECB 3632).

A notable feature of the Community College excavations was a segmented ditch (2449 and 2247) that ran obliquely across the full width of the western part of the site (Fig. 2). This ditch was undated but perhaps formed part of a former Bronze Age field system that was utilised in the Early Iron Age to form the western boundary of settlement-related activity. Finds of note comprise several fragments of a perforated baked clay object of Iron Age date, recovered from the north-eastern terminal of the ditch. The ditch included a *c.* 4m-wide gap which may have formed an entrance way, while similar gaps or entrance ways may have been represented by ditch terminals to the north-east and south-west. Remnants of further ditches and a few scattered pits lay to the west of this boundary, but it was to the east that Early Iron Age features were concentrated.

The remains were dominated by three clusters of intercutting pits, focused in the north-eastern part of the site. Furthest to the east, a group of six postholes lay in linear form beneath a series of shallow intercutting pits (Pit Group 1; Fig. 3). The northern post pit contained two post settings, while the southern two posts may have been paired. The postholes were up to 0.70m in diameter and 0.44m deep, with steep sides and flat bases. They were truncated by six intercutting pits which ranged from 0.90 to 1.75m in diameter and were up to 0.41m deep. Of particular note was one pit (1405), located on the north-west edge of the group, with near vertical sides and a flat base. Its primary fill (1404) consisted of a dark greyish brown sandy silt with frequent charcoal flecks which yielded a substantial assemblage of Early Iron Age pottery and a smaller quantity of burnt animal bone. Its secondary fill (1403) comprised a greyish brown silty sand, while the uppermost fill (1402) was a paler greyish brown. Collectively, the fills produced 209 sherds of pottery weighing 2,235g. This material apparently derived from only five vessels, suggesting that it was a near primary assemblage. No other artefacts were recovered from the pit, which may indicate selective deposition of pottery.

Cattle and sheep/goat bones came from all three fills, some of them displaying butchery marks (eleven fragments were identified to species). Two of the bones, a cow bone and a sheep bone, from primary fill 1404 were radiocarbon dated to the mid sixth to fifth centuries BC.

To the north-west of Pit Group 1 lay Pit Group 2 (Fig. 4). Of these, eight scattered examples were tentatively identified as primary postholes which were subsequently cut by a cluster of eighteen pits of various size and shape. The latter ranged from 0.78m to 1.5m in diameter with depths of 0.06m to 0.42m. Their sides varied from gently sloping to near vertical and the bases were gently rounded to flat. The pits produced 229 (673g) sherds of pottery, of note amongst which were 35 sherds from a vessel with a fine beaded rim. Three of the pits contained small fragments of fired clay (five fragments, 22g), including part of the lining of a hearth or oven. Two pits each contained a struck flint chunk. A sample taken from another pit produced meagre evidence: three charred cereal grains and four possible bean fragments. These features were sealed by a layer of mid-dark grey brown clay silt which contained 24 sherds of Iron Age pottery (77g) from a single vessel, nine fired clay pieces

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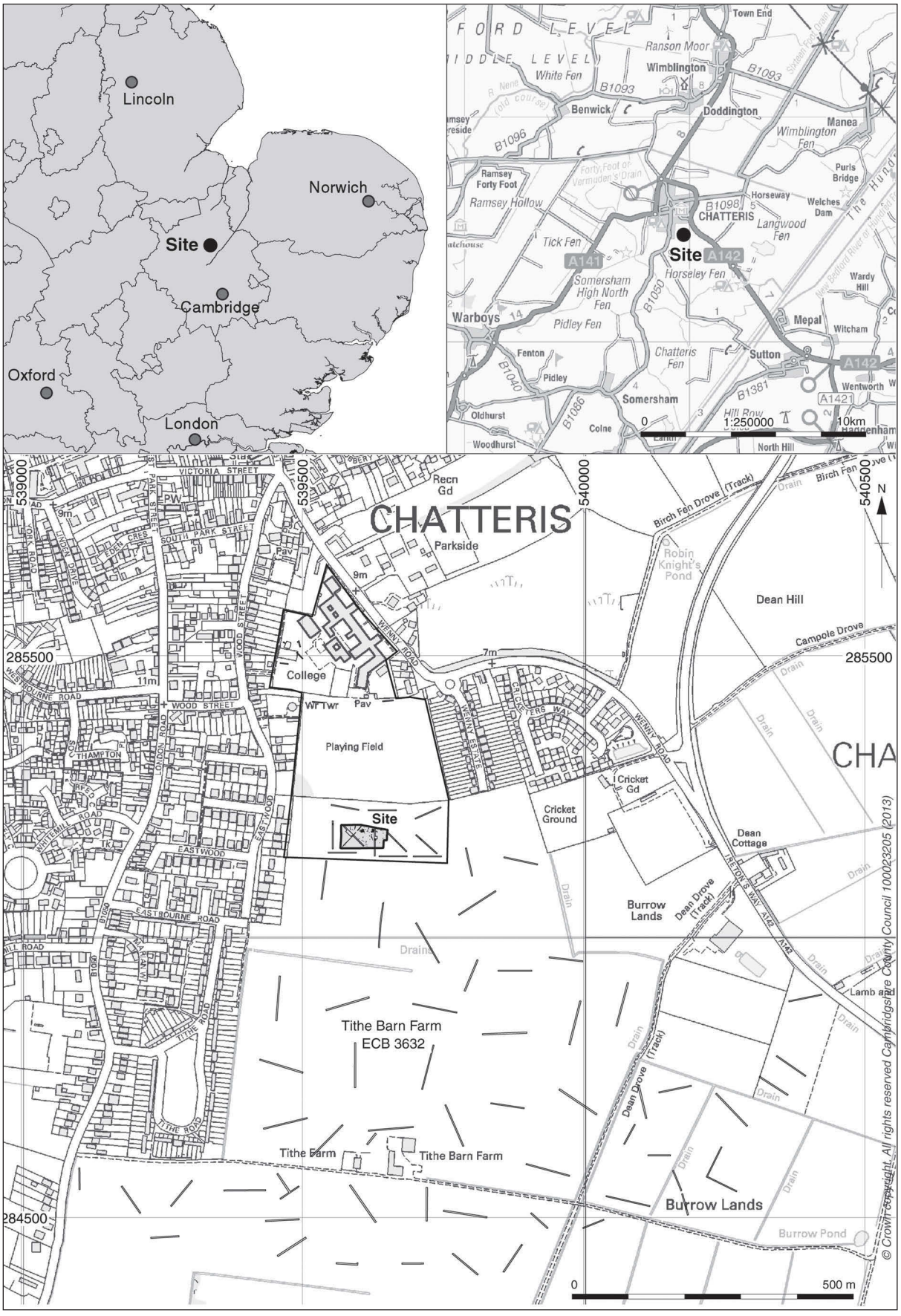

Figure 1. *Site location.*

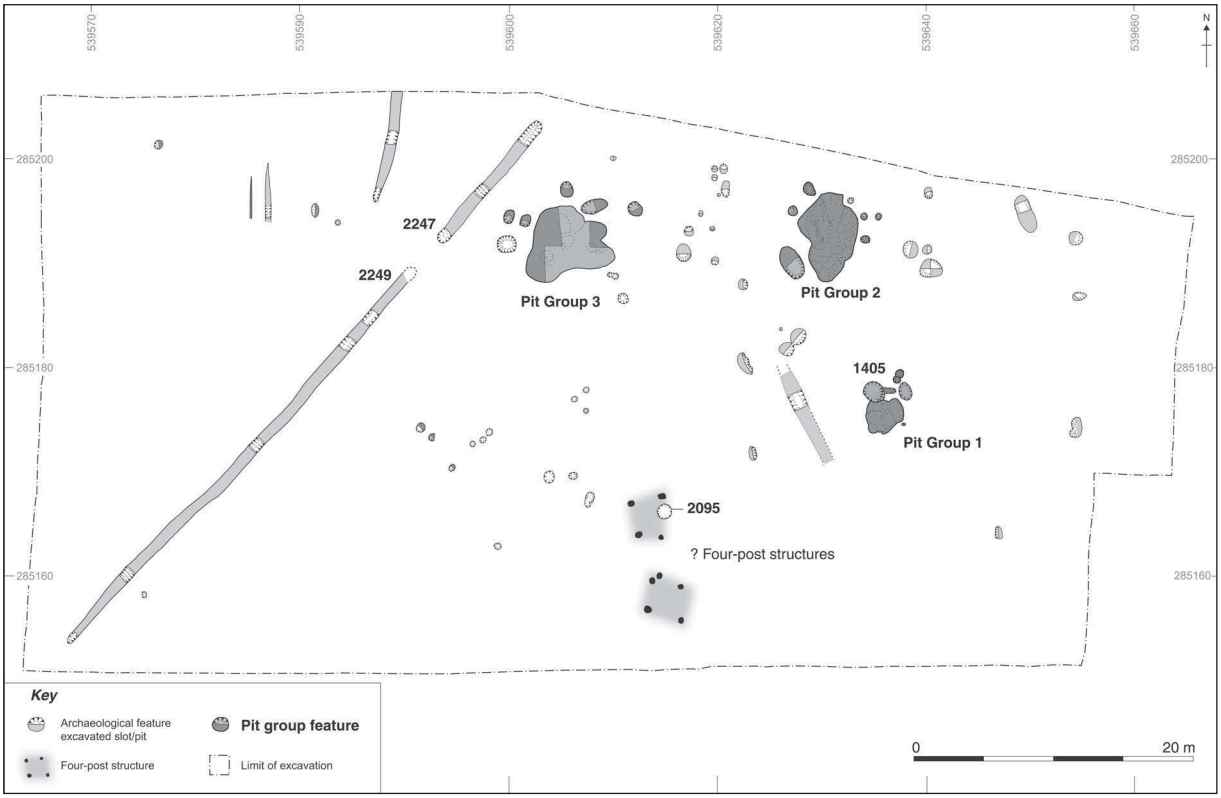

Figure 2. *Site plan.*

(51g, including three pieces of hearth or oven lining) and a struck flint chunk.

A third cluster of nine possible pits lay to the west (Pit Group 3; Fig. 2), but were very shallow and ephemeral. Three of these pits contained 16 sherds of pottery (38g).

In the southern part of the site lay two possible four-post structures, both of which were sub-square in plan, although their irregular form makes identification tentative. Various other pits, postholes and fragments of ditches were found across the site, but in no significant patterns. One pit (2095) close to one of the putative four-post structures contained a pottery sherd with a geometric design (Fig. 5, No. 5). Some of the postholes ran in approximate lines and may represent fences.

The Pottery

Introduction

A total of 617 sherds weighing 3,730g was recovered. Less than 1% (22g) of the pottery was unstratified or from the subsoil and most came from 59 excavated features. Around 60% of the total assemblage came from pit 1405. The assemblage is fragmentary and is poor to moderately-preserved. As detailed above, radiocarbon analysis of animal bone from pit 1405 confirms an earlier Iron Age date for the assemblage, which includes decorated sherds typical of Cunliffe's Chinnor-Wandlebury style (Cunliffe 2010).

Fabric

Four fabric groups were identified, each defined by dominant inclusion type. These groups were subdivided into 13 fabric types reflecting the presence of additional inclusions within the fabric (Table 1). Shell-tempered fabrics predominate, representing 45% of the total assemblage by weight (1,691g). Sandy fabrics contribute 37% of the assemblage (1,367g), chalk-tempered fabrics 12% (444g) and fabrics containing flint 6% (228g).

The majority of the assemblage is shell-tempered. This is in contrast to the more common use of flint temper which is associated with much earlier Iron Age pottery in the region (Brudenell 2012a). Shell tempering is, however, ubiquitous within Iron Age assemblages from the west of Cambridgeshire and around the Fen Basin, in keeping with the area's shelly clay geology. Predominantly shell-tempered assemblages are known from Early Iron Age sites such as Lingwood Wells, Cottenham to the north of Cambridge (Hill 1999, 23) and form a component of early assemblages such as that from Clay Farm, Trumpington near Cambridge (Brudenell, forthcoming a). Shell-rich fabrics continued to be use in the middle to later Iron Age, being present in several as-

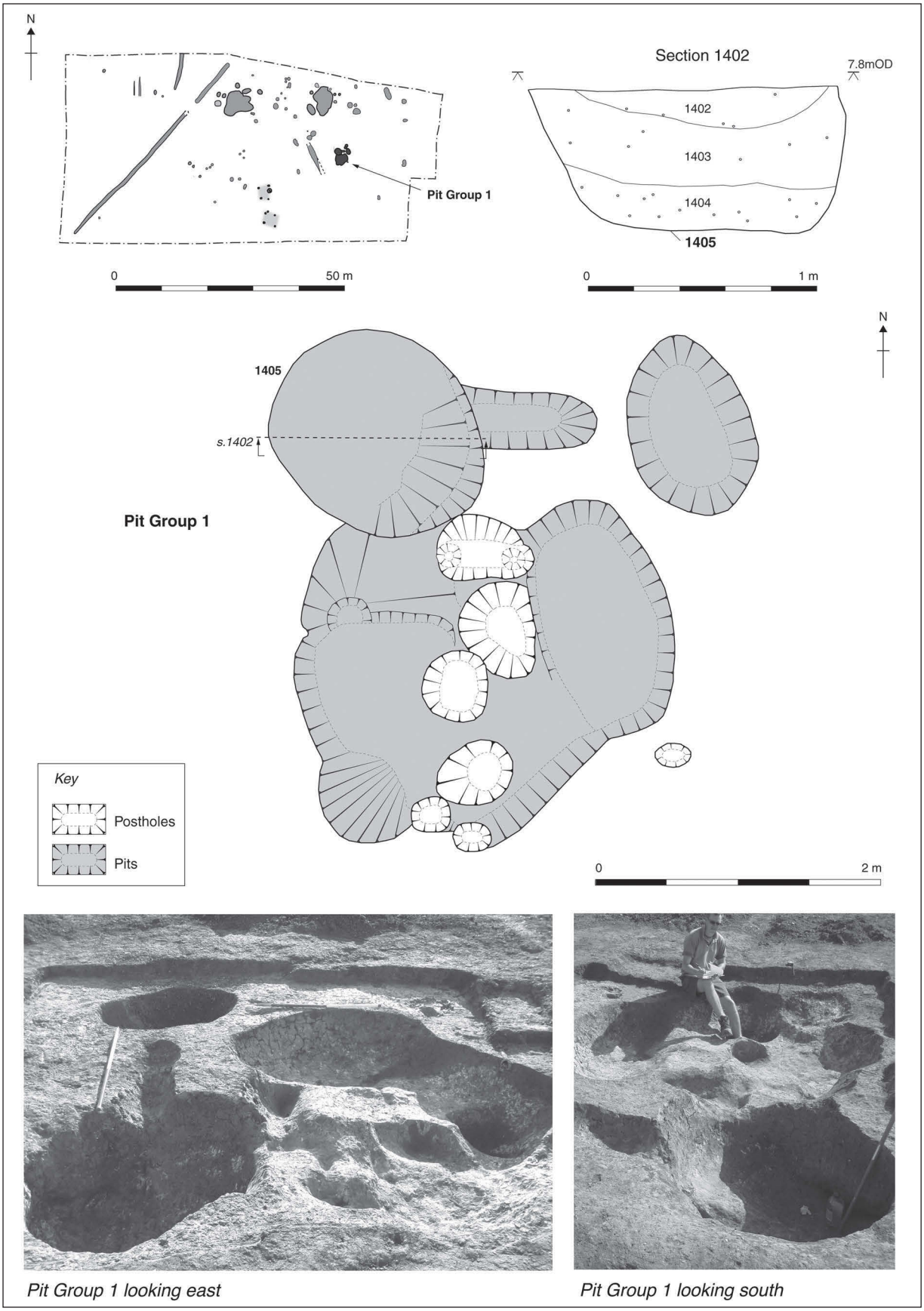

Figure 3. *Pit group 1: detailed plan, section and photographs.*

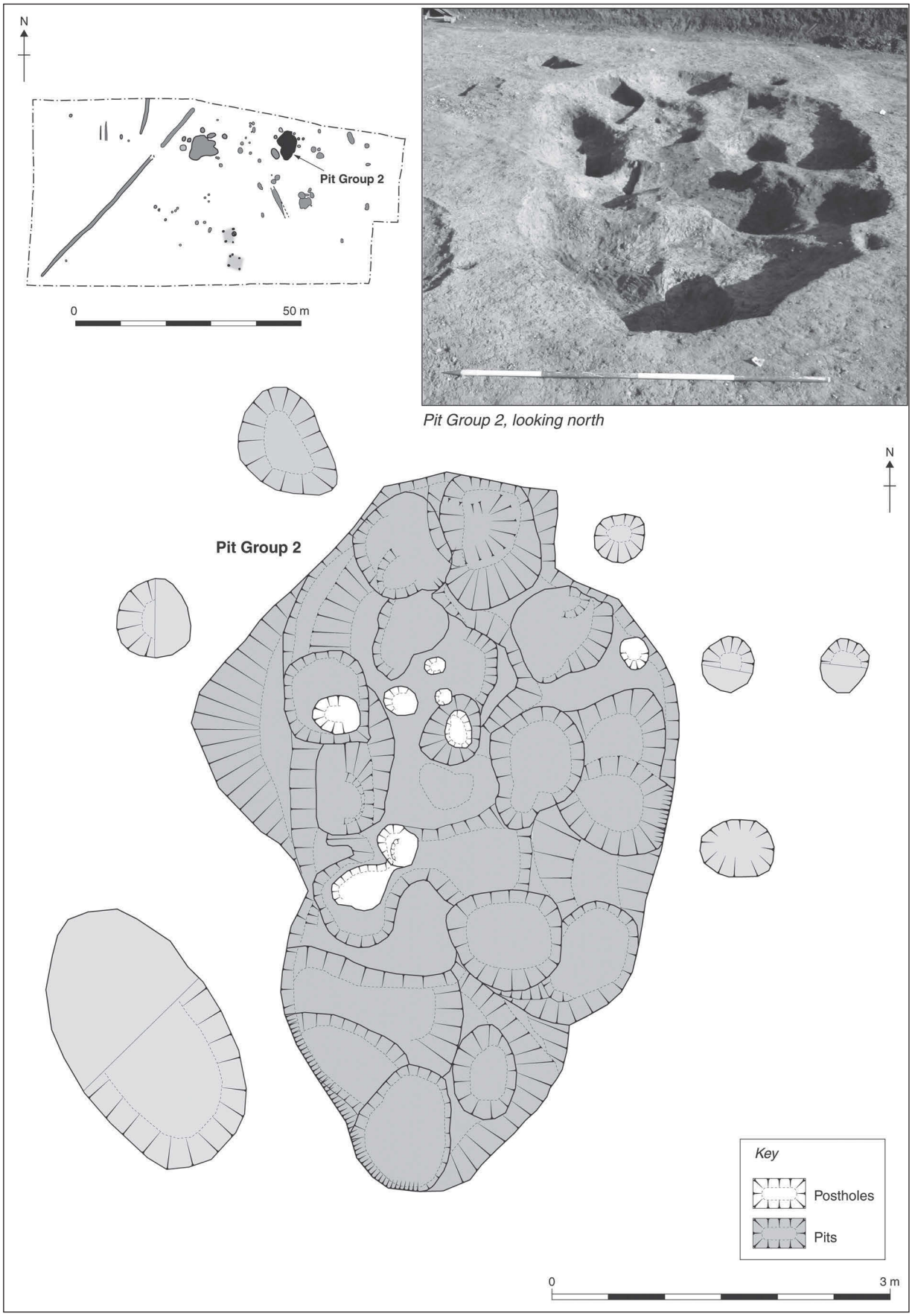

Figure 4. *Pit group 2: detailed plan and photograph.*

Fabric Code	Description	Quantity	% quantity	Weight (g)	% weight
C1	Common medium to large chalk	18	2.9	444	11.9
F1	Dense fine flint pieces in a sandy matrix	44	7.1	228	6.1
Q	Undiagnostic sand tempered	4	0.6	2	0.1
Q1	Common quartz sand	16	2.6	52	1.4
QF	Common quartz sand, sparse fine flint pieces	49	7.9	150	4.0
QQS	Common quartz sand, moderate quartz pieces,	1	0.2	4	0.1
QQSCP	Common quartz sand, moderate quartz pieces, chalk pieces	2	0.3	12	0.3
QS1	Common rounded quartz sand with moderate fine to medium shell and platey voids	140	22.7	762	20.4
QSG	Common quartz sand, sparse shell, sparse grog	91	14.7	311	8.3
QSM	Common quartz sand, sparse shell, sparse mica	12	1.9	70	1.9
S1	Dense fine to medium shell pieces	1	0.2	4	0.1
S2	Dense medium to large shell pieces	162	26.3	1009	27.1
S2	Dense medium to large shell pieces	77	12.5	682	18.3
Total		**617**	**100.00**	**3730**	**100.00**

Table 1. *Quantity and weight of pottery by fabric.*

semblages previously found in Chatteris (Cathie and Hill 2000).

In addition to the shell-tempered wares, a number of sherds with chalk inclusions were recovered. These are from a single, thick-walled vessel with fingertip-impressions on the shoulder found in pit 1405. Hill (1995) notes that a single vessel in similar limestone-tempered fabric and also dated to the Early Iron Age was found at Langwood Farm (Cathie and Hill 2000) and suggests that the vessel was imported to the site from at least 20km away, implying long distance exchange of fineware vessels during the Early Iron Age.

Sandy fabrics, which form the second most common group within the assemblage, are found in varying quantities in contemporary assemblages from the region, and form the dominant component in the Early Iron Age assemblages from south-west of Cambridge such as those from Glebe Farm (Brudenell 2011) and Trumpington Park & Ride (Brudenell forthcoming b). The use of sandy fabrics appears to increase through time, becoming more prevalent as the earliest Iron Age gives way to the Early Iron Age, around 600/550 BC (Brudenell 2012a).

Fabric QSG, which contains sand and sparse shell with grog, was not present within the evaluation assemblage but is present within the excavation assemblage. Grog has been found in small quantities within fabrics in Early Iron Age decorated assemblages from the region such as Exning on the Cambridgeshire Suffolk border (Matt Brudenell pers. comm.) and a similar grog- and shell-tempered fabric was found at Langwood Farm (Cathie and Hill 2000).

Flint-tempered fabric, F1, containing fine flint pieces is present in small quantities. The fabric is similar to earlier Iron Age fabrics found at Langwood Farm (Cathie and Hill 2000).

Form

The assemblage contains rims from 26 vessels and bases from 11 (Table 2). It is dominated by un-burnished coarsewares which represent *c.* 56% of the assemblage (2,075g). Seventeen rims are classifiable to form, of which 13 are from jars, two from bowls and two from cups. Five jars, two bowls and one cup have burnished surfaces and represent part of the fine ware component of the assemblage. Five of the classifiable vessels are decorated with fingertip impressions. The most common jar form has high rounded shoulders and out-turned rim (form F) and is frequently coarsely finished or roughly wiped (Fig. 5, No. 1). Two examples are decorated with fingertip impressions to the shoulder or rim, similar to vessels from Wandlebury and Fengate (Fig. 5, No. 2; Hartley 1957, fig. 7, 25; Brudenell 2009, fig.5.5, 5 & 7). Other decorated vessels include an ellipsoid jar decorated with fingertip-impressed decoration to the rim top (Hartley 1957, fig.7, 2) and a bipartite vessel with an applied cordon on the shoulder decorated with sparse fingertip impressions, similar to examples from Wandlebury (Fig. 5, No. 3; Hartley 1957, fig.8, 45). Tripartite vessels are also present (Fig. 5, No. 4) including one fine tripartite bowl, for which the rim does not survive, which is decorated with incised geometric decoration (Fig. 5, No. 5). Similar decoration has been found at Wandlebury (Hartley 1957, fig.7, 6 & 9) and at Lingwood Wells, Cottenham (Hill 1999, fig.18, 2).

One sherd, from a closed globular vessel, has an applied un-pierced lug (Fig. 5, No. 6). The lug again finds a parallel within the Wandlebury assemblage, although these examples are pierced (Hartley 1957, fig.8, 68). Lugs are also found at Linton (Fell 1953,

Form	Description	No. of vessels
A	Jar, rounded slightly bulbous body and short upright or out-turned neck	1
B	Jar, ellipsoid with no neck	1
C	Jar, ellipsoid with in-turned or hooked rim	1
E	Jar, bipartite, marked or angular shoulder	2
F	Jar, high rounded shoulder	4
G	Jar, weakly shouldered, upright or hollowed neck	3
I	Jar, tripartite, marked or angular shoulder	1
K	Bowl, round-bodied	1
L	Bowl, shouldered, hollowed or concave neck	1
W	Cup, tripartite with marked or angular shoulder and upright or everted neck	2
Non Classifiable		9
Total		**26**

Table 2. *Number of vessels by form.*

fig.5, 32), Fordham Bypass (Percival forthcoming) and Landwade Road, Fordham (Braddock and Hill forthcoming). Lugs are found on contemporary assemblages from southern Suffolk and Cambridgeshire but have not been widely found in northern East Anglia.

Base forms include seven undecorated, simple base angles, two pinched-out or flared examples and one foot-ring base (Hartley 1957, fig.7, 34). One base has no surviving base angle and cannot be assigned to a type. Pedestal bases are found at Wandlebury (Hartley 1957, fig.7, 16) and Linton (Fell 1953, Fig. 4, 28) and are believed to have been in use until the fourth century BC (Sealy undated).

Discussion

The assemblage is of Early Iron Age date and comparable with the decorated post-Deverel pottery from Langwood Farm (Cathie and Hill 2000), Lingwood Wells Cottenham (Hill 1999), Edix Hill (Woudhuysen 1997), Trumpington Park & Ride (Brudenell 2012a), War Ditches (Brudenell 2012b), Wandlebury (Hartley 1957; Webley 2005), Linton (Fell 1953) and Glebe Farm (Brudenell 2011). Wandlebury is one of the site types for Cunliffe's Chinnor-Wandlebury group and dated by him to the fifth to third centuries BC (Cunliffe 2010, fig A:12). Recent analysis by Matt Brudenell has suggested that the styles represented within the Chinnor-Wandlebury group perhaps originated in the sixth century BC (Brudenell 2012a).

The incised decorated bowl (Fig. 5, No. 6) falls happily within a group of similar earlier Iron Age shell- and sand-tempered grooved and incised vessels identified by Brudenell, distributed along the western fen-edge (Brudenell 2012a), being found at both Linton and Lingwood Wells. The incised bowl form is traditionally associated with the West-Harling Fengate group dated by Cunliffe to the eighth to sixth centuries (Cunliffe 2010, fig. A:5), however, recent radiocarbon analysis on residue on pottery from West Harling proposes that the style may be somewhat later than the date suggested by Cunliffe, again being deposited around the sixth century BC (Brudenell 2012a). An Early Iron Age date is suggested for the Cromwell Community College assemblage, *c.* 600/550–350 BC. This is broadly confirmed by the radiocarbon dates from pit 1405 (which both showed peaks for the mid-sixth to early fifth century BC) and compares well with similar dates obtained for the Early Iron Age post-Deverel Rimbury decorated pottery from Clay Farm, Trumpington (Table 3).

The presence of a mixture of vessels from several of Cunliffe's pottery style zones within a single assemblage has been noted at many earlier Iron Age sites (Hill 1999, Needham 1996, Martin 1993) and shows that the admixing of styles was commonplace, underlining the longevity of many of the vessel forms and perhaps suggesting widespread interconnections and exchange networks between peoples living in East Anglia during the earlier Iron Age (Hill 1999, 25).

Baked Clay Object

Thirteen fragments from an incomplete baked clay object weighing 122g were recovered from the fill of ditch 2003. The object is a truncated sphere, *c.* 65mm at the flat base, with a single partial perforation through the flattened surface, perhaps moulded around a rod or stick, and a large sub-rounded void in the body of the object. It is made of dense sandy fabric with sparse detrital flint and quartz inclusions. The function of the object is uncertain but it appears similar in form to several Iron Age baked clay balls found at Danebury which were also formed around rods and contain voids left by burnt out or degraded organic objects such as acorns (Poole 1991, 372; fig. 7.42, 7.82).

General Discussion

The Bronze Age/Iron Age transition in East Anglia usually sees a marked change, with the abandonment of many Late Bronze Age field systems and popula-

Site/Feature Laboratory Reference	Radiocarbon Determination (BP)	Calibrated date BC (95.4% probability)
Chatteris Pit 1405:		
SUERC-41906 (GU28037)	2414 ± 24	731-402
SUERC-41907 (GU28038)	2436 ± 25	750-406
Clay Farm Trumpington Pit Group 5898:		
SUERC-35986 (GU24822)	2410 ± 30	740-390
SUERC-38027 (GU26060)	2585 ± 35	821-565
Pit Group 1023:		
SUERC-44436 (GU29429)	2434 ± 29 BP	593-405

Table 3. *Comparison of radiocarbon dates from Chatteris pit 1405 and Clay Farm, Trumpington (Brudenell forthcoming b).*

tion/settlement contraction (Medlycott 2011, 29). Field boundaries are extremely rare in this area during the Early Iron Age and unenclosed settlement appears to have been the norm in the eastern region at this time (Champion 1994, 131). The ditch found at the subject site may be Middle Bronze Age in origin, perhaps relating to two large Middle Bronze Age settlements, with associated field systems and waterholes, found to the south (Atkins 2011). Although these Middle Bronze Age sites did not apparently survive into the Late Bronze Age, the ditches may have remained visible. Alternatively, if they date from the Early Iron Age then possible comparisons include a putative ditch found 1km to the north (Cooper 2004) and a ditch tentatively dated to this period found at the Fordham Bypass site (Richard Mortimer pers. comm.).

Typically, open settlements of the Early Iron Age in the eastern region consisted of post-built roundhouses, two and four-post structures and pits (Bryant 1997, 25). At the current site, only two four-post structures could be tentatively identified amongst the numerous postholes and there were no traces of roundhouses. This may in part be the result of truncation by medieval and later ploughing, or may signify that any related settlement lay elsewhere. Domestic structures of this period have proved difficult to identify at other sites in the locality; for instance at the settlement at Chatteris High Street/New Road (Cooper 2004; Thatcher 2008) where clusters of Iron Age features, especially postholes, were recorded in several areas but did not form discernible structures. At Burwell, 115 postholes were scattered across the excavation but only six structures (three circular structures, two fence lines and a four-post structure) were tentatively identified (Bailey with Popescu 2006). On these sites it was suggested that the large quantity of postholes represented repeated re-building in the same location. Similar forms of settlement are noted further afield at Silfield, near Wymondham, Norfolk where dozens of unenclosed postholes were recorded, some of which formed four-post structures and fence lines (Ashwin 1996). At Moulton Paddocks, Newmarket an unenclosed site comprised nine storage pits and 22 lesser pits which contained 607 pottery sherds (7,374g): the features were radiocarbon dated to 540–360 BC (Bush 2011).

The significant quantity of pits found (*c.* 62) at the current site exceeds that at many comparable sites, although many were shallow and contained few finds. Pit 1405 was by far the deepest example. Two of the pits found at Burwell were similar in general character but were larger at 1.75m and 1.2m deep: these examples had vertical and/or undercutting sides (Bailey with Popescu 2006). The Burwell pits contained 201 sherds (2,710g) and 1,031 sherds of Early to Middle Iron Age pottery respectively (19,227g; 98% of the site assemblage), including several semi-complete vessels. Other finds included a pine marten mandible, pierced to form a pendant.

Although low levels of butchered and/or burnt bone were found, it appears that other waste from the Chatteris site was disposed of in ways that have not survived in the archaeological record. As a result it is not possible to draw any firm conclusions about the nature of the activities that took place at the site, for instance whether any settlement was permanent or seasonal. The relatively small finds assemblage and distribution of the archaeological features appear to be typical of small Early to Middle Iron Age sites in the locality. Small quantities of fired clay, including fragments of lining from ovens or kilns and part of a baked clay object, indicate domestic activity in the vicinity. Very little flint was recovered (eight worked flints of which six may be contemporary with the pits).

The bulk of pottery came from pits and postholes, with the majority coming from pit 1405. Its deposition is typical of many Iron Age sites in East Anglia comprising incomplete, fragmentary vessels derived from domestic occupation. The pottery may represent material selected for structured deposition, perhaps from a primary deposit such as a midden. The pattern seen here, with one pit containing a substantial assemblage whilst others contain little or no pottery is repeated at many sites and may reflect slight differences in the time between when the pottery was used and its eventual deposition within the pit fills, similar to that postulated for the earlier prehistoric

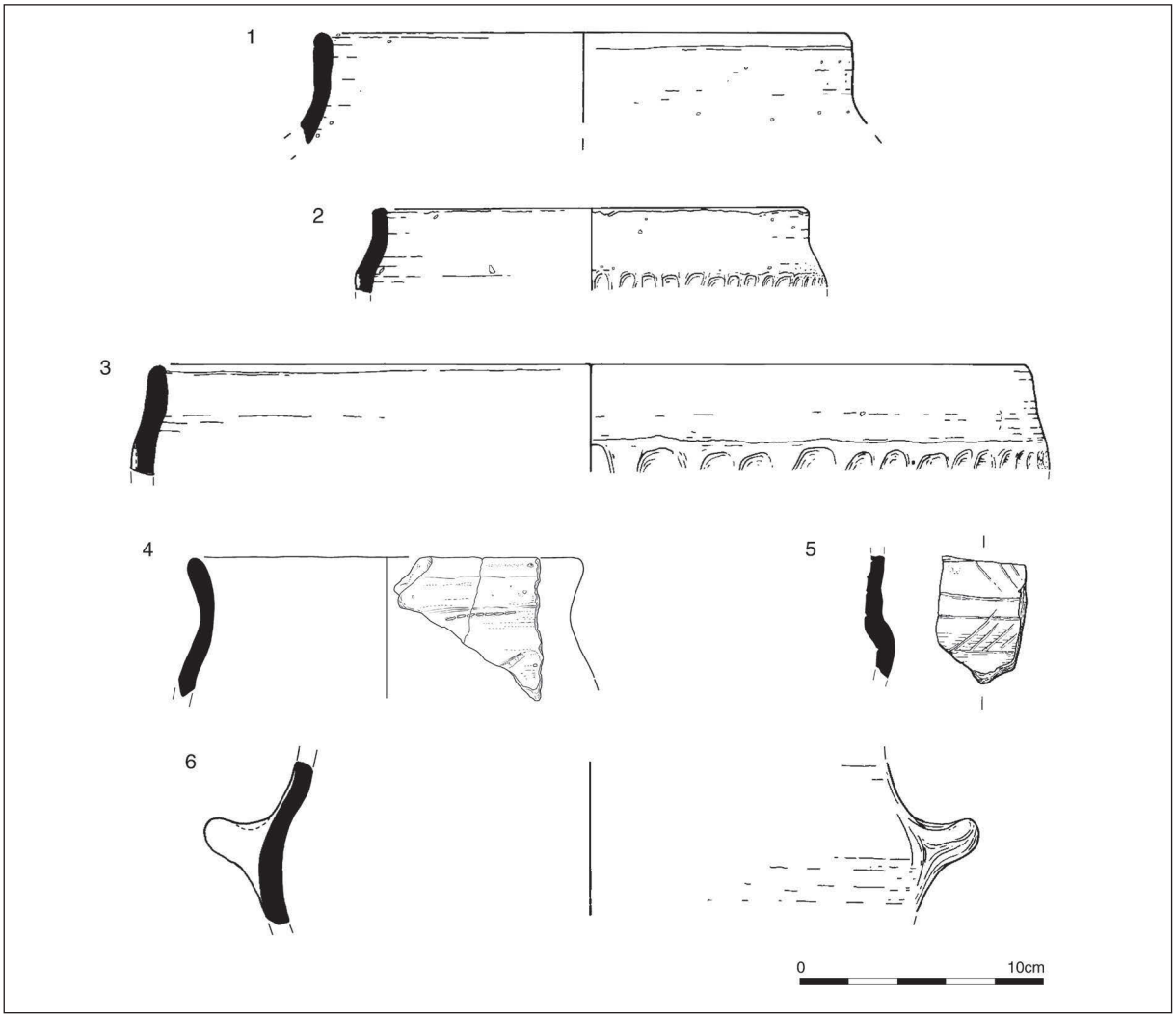

Figure 5. *Iron Age pottery.*
1. Jar with high rounded shoulder, fabric S2, context 1404, Pit 1405
2. Jar with high rounded shoulder decorated with fingertip impressions, fabric QF, context 1404, Pit 1405
3. Angular bipartite jar with fingertip impressions on shoulder, fabric QS1, context 1404, Pit 1405
4. Tripartite jar with angular shoulder decorated with fingertip impressions, fabric QS1, context 1404, Pit 1405
5. Tripartite jar with incised geometric decoration, fabric QS1, context 2094, Pit 2095
6. Applied un-pierced lug, fabric QS1, context 1404, Pit 1405

pit groups at Kilverstone, Norfolk (Garrow *et al*. 2005).

The character and size of the 'settlement' suggest that it was at the lower end of the settlement hierarchy; perhaps occupied by a single family or seasonal group. The comparative local sites appear to be of similar status (Cooper 2004, Bailey and Popescu 2006; Thatcher 2008). It has been noted that, for the Early to Middle Iron Age 'the potential should be considered for the recognition of patterns of differing social organisation which are linked to settlement form, such as have been identified within Oxfordshire … and north-east England' (Bryant 2000, 17). Low order sites such as Chatteris contrast with the higher order agglomerated settlements, which probably comprised several extended families: regionally, these more complex sites appear in the Early Iron Age (Medlycott 2011, 29).

The demise of the Cromwell Community College site probably occurred during the Early Iron Age, although it may have survived into the Middle Iron Age. In contrast, the Early Iron Age site at Chatteris High Street/New Road continued into the Roman period and beyond (Cooper 2004, Thatcher 2008).

Conclusion

Although not necessarily significant in terms of furthering understanding of Early Iron Age settlement studies in Cambridgeshire *per se*, the importance of the site at Cromwell Community College lies in its contribution to a number of wider research themes.

In terms of material culture studies and issues of regionality, analysis has demonstrated the longevity of many of the vessel forms, while the mixture of pottery styles implies the presence of widespread links and exchange networks in East Anglia during the earlier Iron Age. The use of 'single entity' dating, as recommended in current guidelines (Haselgrove *et al*. 2001, 5), of single pieces of bone from a primary pit fill has provided a relatively tight date-range for the near-primary pottery assemblage found in association with them. This, when combined with the pottery analysis, feeds into a growing body of data that in turn will assist in the establishment of a more comprehensive chronological framework for the Early Iron Age in the East of England.

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Beyond the Manor of *Hintona*
Further thoughts on the development of Church End, Cherry Hinton: The Neath Farm Site

Craig Cessford and Adam Slater

with Katie Anderson, Grahame Appleby, Emma Beadsmoore, Lawrence Billington, David Hall, Natasha Dodwell, Vida Rajkovača, Simon Timberlake and Anne de Vareilles

Excavations at Neath Farm Business Park have considerably advanced our understanding of the occupational sequence at Church End, Cherry Hinton. Whilst previous investigations had demonstrated the existence of a significant late 9th/mid 10th–late 11th/early 12th century settlement, the Neath Farm excavations indicated the existence of a previously unrecognised Romano-British agricultural landscape of droveways and paddocks. Significant settlement continuing until the early 15th century, this Late Medieval activity – in conjunction with the earlier investigations – points to a long-lived settlement, the focus of which shifted over time and demonstrates the important potential of cumulatively investigating such sites over substantial areas.

Introduction

Following on from a test-pit survey (Patten 2006) and evaluation (Slater 2011a) between February and June 2012 the Cambridge Archaeological Unit (CAU) undertook excavations at Neath Farm Business Park, Cherry Hinton, covering 0.57 hectares (Figs. 1–2; Slater 2012). This is the latest, but almost certainly not the last, of several phases of developer-funded fieldwork in the vicinity undertaken by a range of organisations for a number of clients. This work has shed light on a series of sites, none of which have been or are indeed are likely to ever be investigated in their entirety. In such a context developer-funded archaeology must be viewed as an iterative, cumulative process and any statement remains provisional and interim.

The first substantial piece of fieldwork in 1999 at 69–115 Church End, unfortunately still unpublished, revealed an extensive cemetery that may span the 8th–12th centuries with over 670 burials associated with a small church and fragments of at least eight stone monuments dating to *c.* 950–1100, plus ditches and pits of the same date (McDonald and Doel 2000). Further work in 2002–03 at 63 Church End and Rosemary Lane uncovered evidence for a settlement that originated in the late 9th/mid 10th century and that developed into a large manorial centre, with an extensive sparsely occupied 'D'-shaped enclosure covering over six hectares with evidence of droveways, timber buildings, quarry pits and wells (Cessford with Dickens 2005). This manorial centre, which was identified with the manor of *Hintona* recorded in Domesday Book, was abandoned in the late 11th/early 12th century, although some occupation continued on the periphery of the village for a time. Subsequent to this, in 2007 an evaluation at Hatherdene Lane revealed possible Bronze Age and Iron Age burials, a Romano-British ditched funerary enclosure plus fieldsystem and an Early Saxon cemetery (Mortimer 2007). This represented the state of understanding when excavation began at Neath Farm.

This paper has two principal aims. Firstly, as the Prehistoric and Romano-British periods were, perhaps understandably, omitted from the previous publication (Cessford with Dickens 2005), more attention will be paid to them. Secondly, as the Medieval period formed the focus of the previous publication, the principal focus will be upon how the more recent investigations modify the interpretation of this period presented in the earlier article. In particular, the Neath Farm investigations allow us to place the earlier investigations into a much longer term 8th–15th century settlement sequence, thereby taking us far beyond the Domesday Book manor of *Hintona* in both time and space and shedding light upon the process of village nucleation. As will be considered further in the discussion (see below) the archaeological investigations at Church End Cherry Hinton and other sites in southern Cambridgeshire provides significant insights into the long-term evolutionary process whereby nucleated settlements and their associated open fields developed from a variety of earlier nuclei. As southern Cambridgeshire lies on the fringe of the area where this process occurred it is a particularly useful place to study the phenomenon, additionally the attention paid to Post-Medieval and later activity allows the Medieval developments to be placed in a longer time frame albeit one where the mid 11th–late 12th century can be identified as crucial.

A Prehistoric Presence

No prehistoric features were identified at Neath Farm, although, in common with other investigations, some worked flint was inadvertently 'trapped' in later features. Whilst none of this material is of intrinsic interest and much of it can only be poorly dated, the

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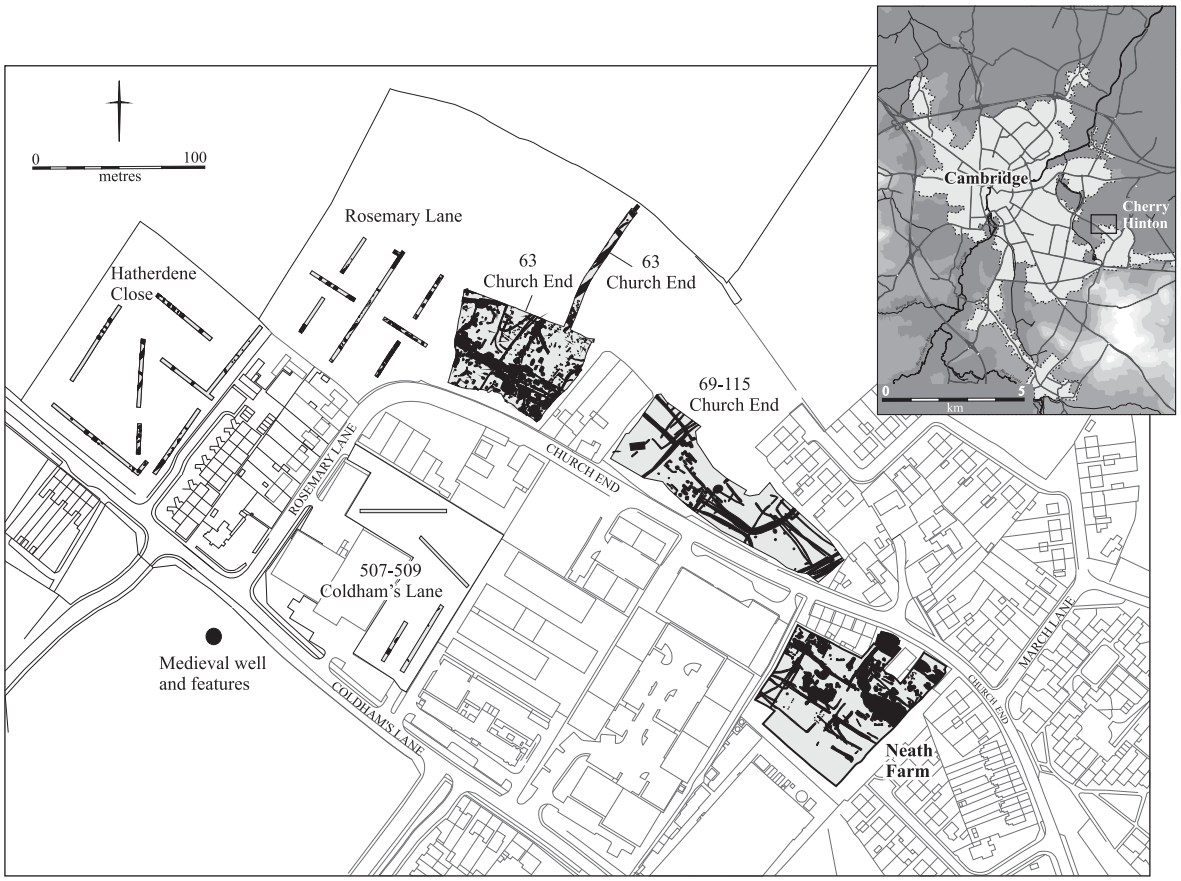


Figure 1. *Church End, Cherry Hinton, investigations base-plan.*

densities of such material are potentially of interest if a comparative agenda is employed (Evans 2012; see Table 1). Whilst archaeological investigations of prehistory largely focus on 'sites', however these are defined, investigations on later sites have the potential to serendipitously shed light on prehistoric 'non-sites' or blank areas.

The distribution of the material in later features suggests that it was present as a slight surface scatter at the start of the Medieval occupation, rather than having been brought in subsequently with soil or manure dumps. Under such conditions it is unsurprising that prehistoric pottery is rare; the sole discovery from the CAU excavations being a single sherd of probably Late Bronze Age pottery from 63 Church End, although seven sherds of Late Bronze Age or Early Iron Age pottery were recovered at 69–115 Church End. The evidence, therefore, consists almost entirely of the more robust worked flint, although a fragment of a polished stone axe was also found at 69–115 Church End. As reported upon by Emma Beadsmoore and Lawrence Billington below, 111 worked flints have been recovered from the CAU investigations. Of these, all of which occurred residually within the fills of later features, 25 come from Neath Farm.

The most distinctive pieces within the assemblage consist of six blade-based products; three blades and three bladelets. These are systematically produced pieces characteristic of Mesolithic or earlier Neolithic technologies. The remainder of the assemblage consists of flake-based material that is likely to postdate such blade-based technologies. None of this material is strictly diagnostic, but technological traits including large plain striking platforms, squat flake morphologies and direct hard hammer percussion suggest a later Neolithic or Bronze Age date is likely. A single retouched tool was recovered, an irregular, expediently produced scraper made on the proximal end of a large cortical flake.

The work at 63 Church End produced 71 worked flints. Tools included three arrowheads; an earlier Neolithic leaf-shaped arrowhead, a Beaker barbed and tanged arrowhead and an Early Bronze Age arrowhead with just a tang. Three scrapers were also retrieved; an end scraper that is technologically consistent with earlier Neolithic flint working, a thumbnail scraper that provides further support for Beaker activity and a sub-circular scraper that is likely to be Early Bronze Age. The remaining tools, three retouched flakes, are not clearly chronologically diagnostic. Yet the morphology of one tentatively links it to the later Neolithic, whereas another is the product of a more expedient and unstructured technology and therefore likely to be Bronze Age or later prehistoric. The 62 pieces of flint working waste include six cores; one single platform core is probably Neolithic, a two-platform core is more likely to be later Neolithic/Early Bronze Age, two other single platform cores are probably Bronze Age

Figure 2. *Overall view of Neath Farm excavations, facing northeast, and feature base-plan.*

Site	Investigated area (hectares)	Prehistoric worked flint (count)	Romano-British pottery (count)	5th-9th century pottery (count)	10th-12th century pottery (count)	13th-15th century pottery (count)	Medieval animal bone (kg)	Medieval fired clay (kg)	Medieval lava quern stone (kg)	Medieval wells	Medieval buildings
Neath Farm, Cherry Hinton	0.57	25 (43.9)	14 (24.6)	10 (17.5)	240 (421.1)	746 (1308.8)	23.2 (40.7)	29.6 (51.9)	0.9 (1.6)	7 (12.3)	9 (15.8)
63 Church End, Cherry Hinton	0.44	71 (161.4)	69 (156.8)	23 (52.3)	1861 (4229.5)	484 (1100.0)	64.0 (145.5)	34.4 (78.2)	10.9 (24.8)	16 (36.4)	5 (11.4)
Lordship Lane, Cottenham	2.7	1238 (458.5)	17 (6.3)	297 (110.0)	520 (192.6)	99 (36.7)	16.9 (6.3)	1.7 (0.6)	10.3 (3.8)	– (0.0)	12 (4.4)
West Fen Road (Ashwell site), Ely	3.16	213 (67.4)	1915 (606.0)	234 (74.1)	7059 (2233.9)	9228 (2920.3)	231.9 (73.4)	12.4 (3.9)	63.8 (20.2)	8 (2.5)	23 (7.3)
West Fen Road (Consortium site), Ely	2.00	51 (25.5)	291 (145.5)	418 (209.0)	2 (1.0)	64 (32.0)	*c.* 66 (1.75)	Unknown	3.5 (1.75)	1 (0.5)	12 (6.0)
Walsingham Way, Ely	0.42	51[(1)] (121.4)	13 (31.0)	155 (369.0)	463 (1102.4)	928 (2209.5)	19.5 [2)] (46.4)	2.9 (6.9)	9.1 (21.7)	2 (4.8)	11 (26.2)
Grand Arcade, Cambridge	0.70	25 (35.7)	121 (172.9)	– (0.0)	3558 (5082.9)	12755 (18221.4)	479.4[(2)] (684.9)	0.5 (0.7)	13.3 (19.0)	37 (52.9)	16 (22.9)
Eastern Gate, Barnwell	0.19	21 (110.5)	12 (63.2)	19 (100.0)	43 (226.3)	3195 (16815.8)	94 (494.7)	55.9 (294.2)	6.4 (33.7)	19 (100.0)	7 (36.8)

Table 1. *Quantities and densities per hectare of selected materials and features from archaeological investigations of broadly comparable character.* [(1)] *Not studied by specialist, may not all be genuine.* [(2)] *Estimated based upon percentage by count assigned to this phase.*

while two irregular cores are likely to be later prehistoric. No tools were present in the 15 pieces of worked flint from Rosemary Lane, with the exception of a possibly notched flake and a very rough scraper. While not clearly datable, most of the material is likely to be Bronze Age, with a small later Neolithic component.

The material from the other investigations at 69–115 Church End (83 pieces) and Hatherdene Close (seven pieces) is of similarly mixed date to the assemblages from the CAU sites.

Re-focussing on the Romano-British

At Neath Farm, the earliest phase of activity at the site in which features were present consisted of a series of shallow ditches and gullies. These appear to represent a peripheral zone, consisting of a network of enclosures and routeways (Fig. 3). The ditches were orientated on a markedly different alignment to the later phases of occupation and contained a small quantity of Romano-British pottery. In general the investigations at Church End have produced only a limited quantity of Romano-British material.

This evidence was somewhat ambiguous, as residual Romano-British material is frequently the only dating evidence associated with the very earliest activity on Medieval rural sites. At Neath Farm, however, one of the ditches contained part of a poorly preserved human skeleton laid in an extended supine position with their head to the south (Fig. 4). These remains are probably of a female aged 35–45, whilst radiocarbon dating indicates that they were interred between the late 3rd and early 5th centuries (260–420AD at 95% confidence level; 1690+/- 30 BP, Beta-330878). Natasha Dodwell reports of the burial:

> The partial skeleton is represented by two groups of articulating bone; a right femur, tibia, fibula plus foot and a right distal humerus, ulna, radius and hand (Fig. 4). These limbs are in the correct anatomical position in relation to each other; the body would have lain in a supine south-north aligned extended position. Two disarticulated ribs, the atlas and a partial skull including the mandible were recovered adjacent to the two limbs. Sexually dimorphic traits on the skull and mandible and metrical data suggest that this individual is female. The pattern of wear on their molars suggests that the individual was around 35–45 years old when they died.
>
> Additionally, a single disarticulated adult-sized middle phalanx was recovered from a 14th–15th century quarry pit. This pit was located *c.* 40m northeast of the skeleton and the phalanx probably either derives from this burial or another otherwise unidentified Roman interment.

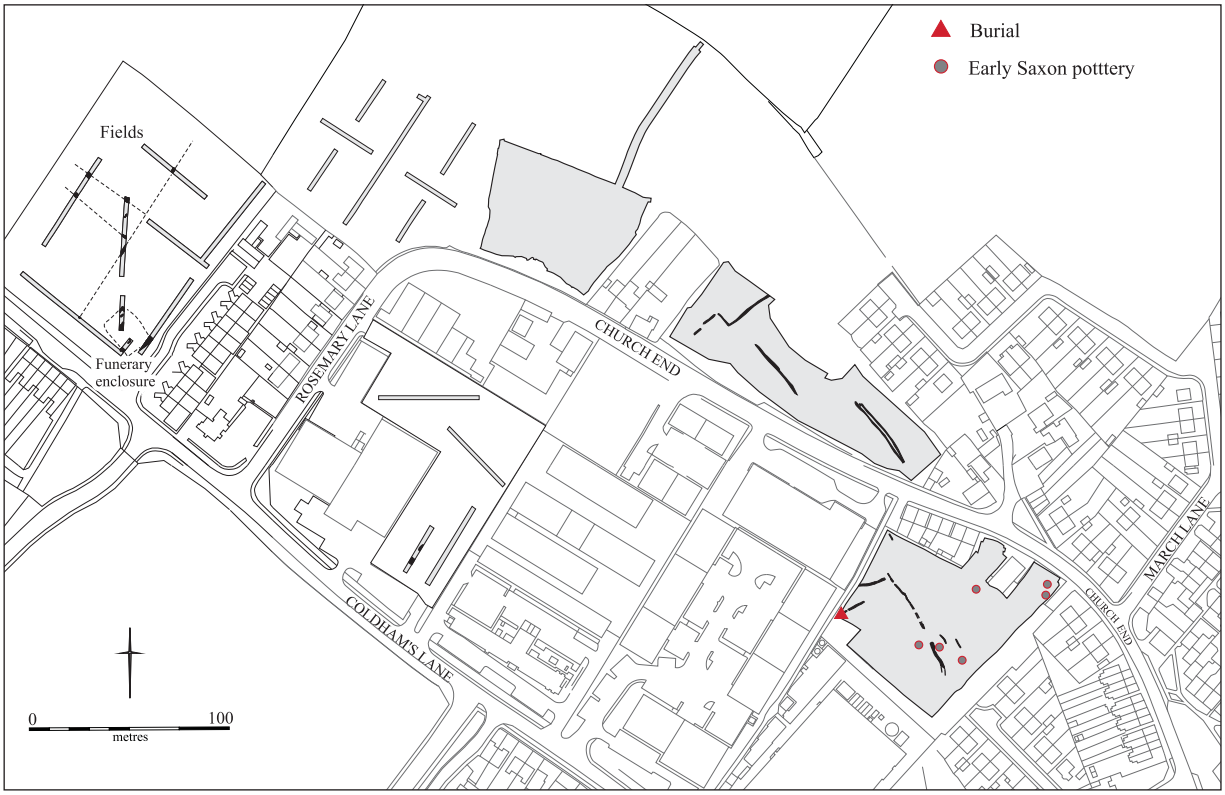


Figure 3. *Romano-British features at Church End, with location of burial and Early-Saxon pottery at Neath Farm.*

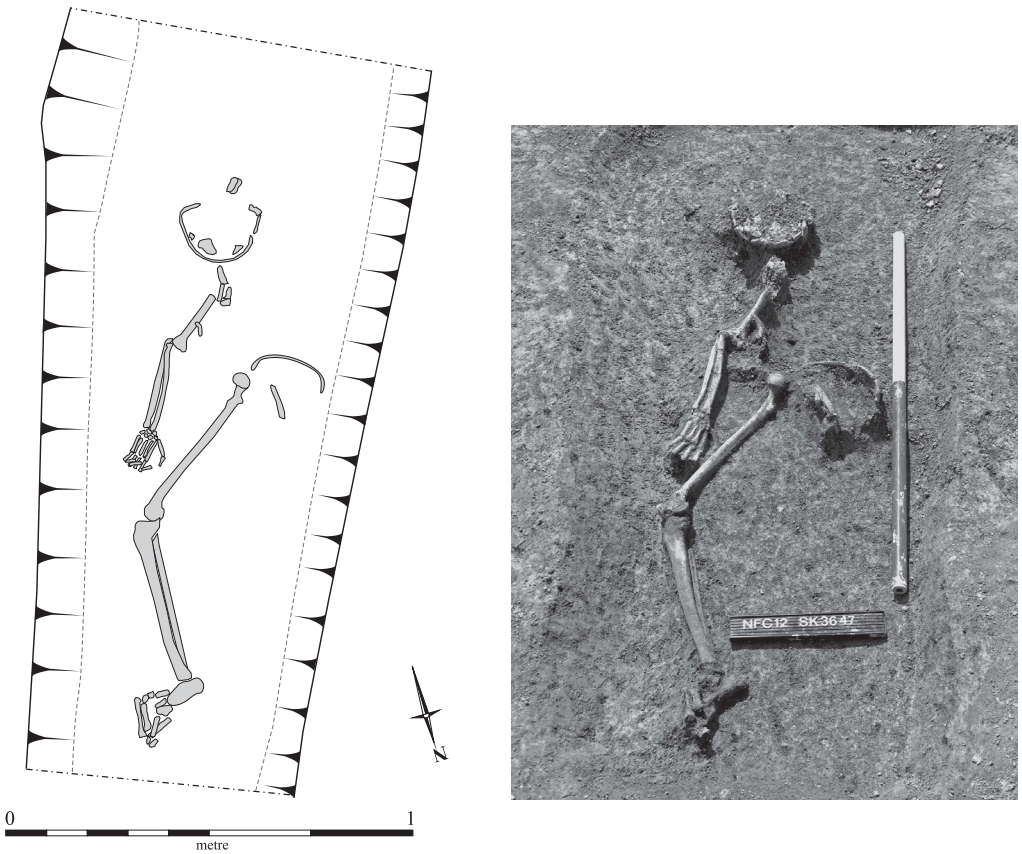


Figure 4. *Late Romano-British burial in ditch, facing southeast.*

The burial provides some of the least ambiguous evidence for actual Romano-British activity and suggests that the shallow ditches and gullies date to the Early or Middle Romano-British periods and had partly silted up prior to the burial.

Given the paucity of finds, the Neath Farm evidence is best interpreted as an outlying part of a Romano-British agricultural landscape of droveways and paddocks. This probably had its main focus further to the west; the alignment of some of the earliest ditches at 69–115 Church End suggests that they may be part of the same network rather than being of later date. Indeed, as several of the earliest ditches at the sites investigated are dated solely by the presence of small quantities of Medieval material, this raises the possibility that – if this material derives from the uppermost fills – the ditches might be Romano-British in origin.

Whilst it is possible that this network of enclosures and routeways may be linked to some of the other Romano-British activity identified in the area, such as the ditched funerary enclosure at Hatherdene Lane or the scattered fields systems and pits known from elsewhere, the fragmented nature of the archaeological investigations and the distances involved mean that specific linkages, rather than the identification of a generic overall period landscape, are impossible. The best evidence for Romano-British settlement in the vicinity comes from the Norman Cement Works at Coldham's Lane, which were established by British Portland Cement by 1895 and continued in operation until the 1950s. The associated marl pits resulted in a number of discoveries, although the works never appear to have attracted sustained antiquarian or archaeological interest. One such discovery was of a well shaft, in which there were seven Romano-British coarseware pots dating to the 1st–2nd centuries found at a depth of around 30ft (*c.* 9m; Liversidge 1959).

Overall, the admittedly still rather scant evidence indicates that the main focus of Romano-British occupation in the Church End area dates to the 1st–2nd centuries but that the area was still utilised in the Late Romano-British period when an individual was buried in a relict ditch.

There was extremely sparse Romano-British material. Aside from pottery, the only material that is independently dateable as Romano-British consists of two fragments of tile from Rosemary Lane, as well as a copper-alloy Colchester-type brooch from 63 Church End that is dated typologically to *c.* 50 BC–75AD. Very little animal bone was recovered from Romano-British contexts; of seven specimens three were identified as sheep/goat, horse and cat. There was also a very low density of charred plant remains; three samples totalling 34 litres were processed and analysed but only four cereal grains were recovered (Table 2). Two Romano-British ditches were sampled for pollen. One was essentially barren with only a few resistant palynomorphs detected. The other had slightly better preservation with sparse remains which comprised resistant palynomorphs including herbs and spores.

Pottery
Katie Anderson

The total assemblage from Neath Farm, including definitely residual material from later features, was only 14 sherds of often small and abraded pottery weighing 183g with a low mean sherd weight of 13g. Little of this pottery could be closely dated; no diagnostic sherds were present and the only material that could be sourced were sherds of South Gaulish Samian (50–100AD) and Horningsea greyware (3rd–4th century). One sherd had been reworked into a disc (Fig. 5.1).

It is notable that the various investigations in the area have typically produced negligible quantities of Romano-British pottery. In addition to the 14 sherds from Neath Farm, the CAU excavations have produced another 105

Table 2. *Cereal grains by phase from Neath Farm, with individually rich samples also listed.*

		Romano-British	**12th**	**Late 12th–13th**	**Well 6 (14th–15th)**	**Well 3 (14th–15th)**	**Other 14th–15th**	**All 14th–15th**
Volume of samples (litres)		32	76	63	3	12	64	79
Hordeum vulgare sensu lato	barley grain	1	2	22	47	32	4	83
Triticum spelta/dicoccum	spelt or emmer wheat grain	–	2	13	5	3	1	9
T. aestivum sl.	free-threshing wheat	3	19	218	51	95	5	151
Triticum sp.	unspecific wheat	–	2	150	16	21	3	40
Hordeum/Triticum sp.	barley or wheat grain	–	14	53	30	15	4	49
Avena sp.	wild or cultivated oat	–	–	–	–	29	2	31
Hordeum/Avena sp.	barley or oat grain	–	–	1	–	13	–	13
Total grains (excluding fragments)		**4**	**39**	**457**	**149**	**208**	**19**	**376**
Density of grains (per litre)		0.1	0.5	7.3	49.7	17.3	0.3	4.8

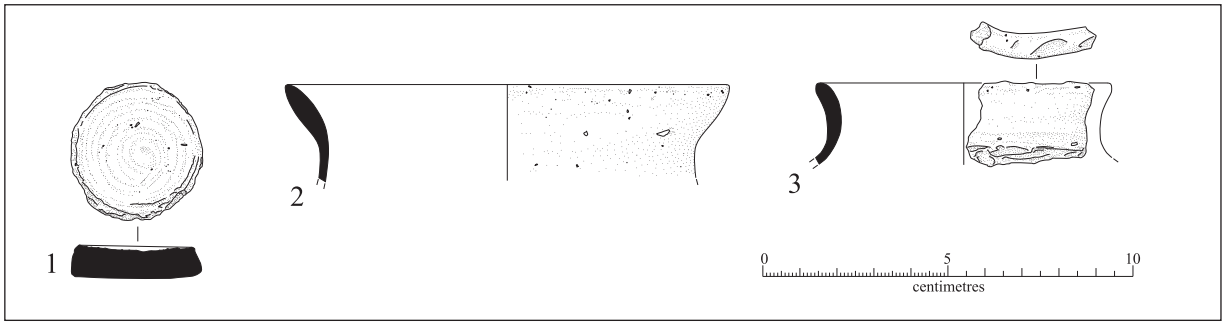


Figure 5. *Romano-British and Early Saxon pottery. 1) Romano-British coarseware sherd re-shaped into disc, from a later pit; 2–3) Early Saxon, handmade mineral-tempered pottery rims, from later roadside ditches.*

sherds. At 63 Church End there were 69 sherds, the majority of the fabrics were sandy grey and oxidised wares, which were probably locally made and are difficult to date because these types of fabrics were common throughout the Romano-British period. There were a few sherds of Central Gaulish Samian, some dated to the mid or mid–late 2nd century. Thirty six sherds of Romano-British pottery were recovered at Rosemary Lane; these were mainly a range of local grey and buff, fine and coarse sandy wares, with small amounts of Central Gaulish Samian fragment and Nene Valley colour coats. The overall date of the Rosemary Lane assemblage is 2nd–3rd century. Additionally 27 sherds of residual Romano-British pottery described as early (1st–2nd century) were found during the 69–115 Church End excavations. 45% of the Romano-British pottery (117 sherds) from the Church End investigations came from Hatherdene Lane; this all dated to the mid 1st–2nd century and the closely datable material is of mid/late 1st century date.

Early–Late Saxon Abandonment

A small quantity of Early Saxon handmade mineral-tempered pottery, dating to the 5th–7th centuries, was recovered from residual contexts (10 sherds; Fig 5.2–3); there was a total absence of the distinctive Middle Saxon Ipswich ware that is diagnostic of sites in the region occupied between the early 8th and mid 9th centuries. Although found in residual contexts, the distribution of the Early Saxon pottery suggests that one of the Romano-British routeways continued in use (Fig. 3). The overall paucity of material provides strong support for the idea that the principal focus of Early and Middle Saxon activity lay to the northwest, with the Early Saxon cemetery at Hatherdene Close and some skeletons found at the Norman Cement Works before 1939 'with daggers at the waist' (Cambridgeshire HER no. 04628). Additionally, the principal concentration of Ipswich ware and other Middle Saxon pottery occurred at Rosemary Lane. Between the late 9th/mid 10th centuries and the late 11th/early 12th century there was what has been interpreted as a manorial or *thegnly* centre to the northwest (Cessford with Dickens 2005), but no evidence of occupation at Neath Farm.

Although the evidence is too fragmentary to be conclusive, and the poor survival of pollen at Church End obviates the recovery of palaeo-environmental sequences, there are hints that – at the broadest level – there is probably continuity of rural occupation between the Roman and Medieval periods (Rippon *et al*. 2013).

High and Late Medieval Activity

At some point during the 10th–12th centuries occupation began at Neath Farm (Figs. 6–7). Only a small quantity of pottery of this period was recovered (240 sherds); this, combined with the predominance of St. Neots-type ware over Thetford type-ware, suggests that occupation is probably entirely Post-Conquest and need not pre-date the 12th century. This is also supported by the relative paucity of quern stone at the site. The earliest activity was located on the western edge of the excavated area and consisted of an enclosure (Enclosure A; Table 3), with evidence for an entranceway with some form of posthole structure and a well located within the enclosure (Well 1). Enclosure A was subsequently re-defined, making it 25 x 10m (+) in extent. In the northwestern corner of the enclosure there was a rectangular posthole and beamslot timber building (Structure 7; Fig. 8). There were also a number of gullies, postholes, pits and a well indicating general activity in the area.

In the late 12th–early 13th century the existing Enclosure A was swept away and Church End Road was established – or at least formalised – as a major routeway with a sequence of roadside ditches running parallel to it along the northern side of the area (Figs. 9–10). Ultimately, this sequence of roadside ditches was re-cut, perhaps a dozen times apparently over several centuries; unfortunately, the degree of residuality of the material from the fills makes more precise attribution of the sequence impossible. There is, however, a clear trend that over time that the line of the ditches shifts southwards, effectively widening the road and encroaching upon the area of enclosures by around five metres (Fig. 9).

South of this the area was subdivided into six rectangular enclosures (Enclosures B–G; Table 3), with narrow routeways between them which contained a series of timber structures, wells and other features (Figs. 9 and 11). This marks the point at which the entire area was intensively sub-divided for use, rep-

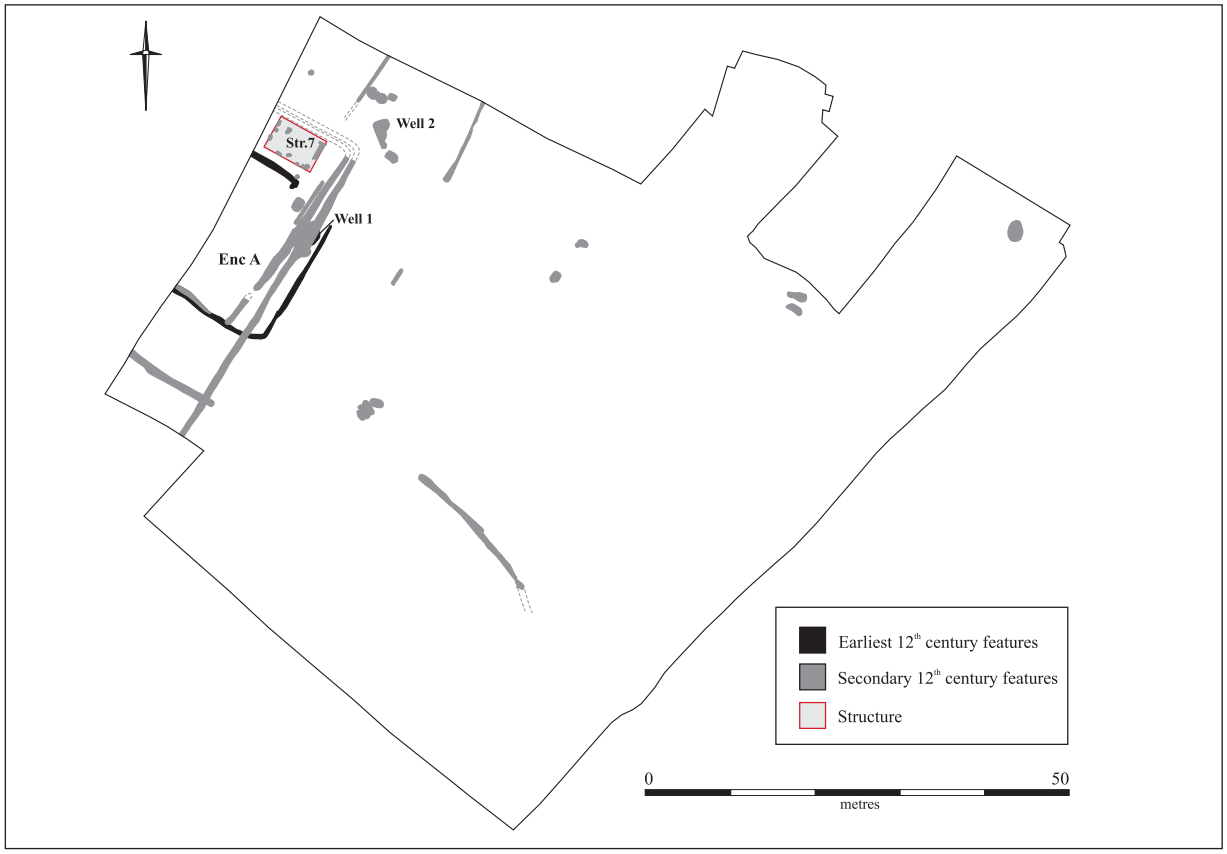


Figure 6. *12th century features at Neath Farm.*

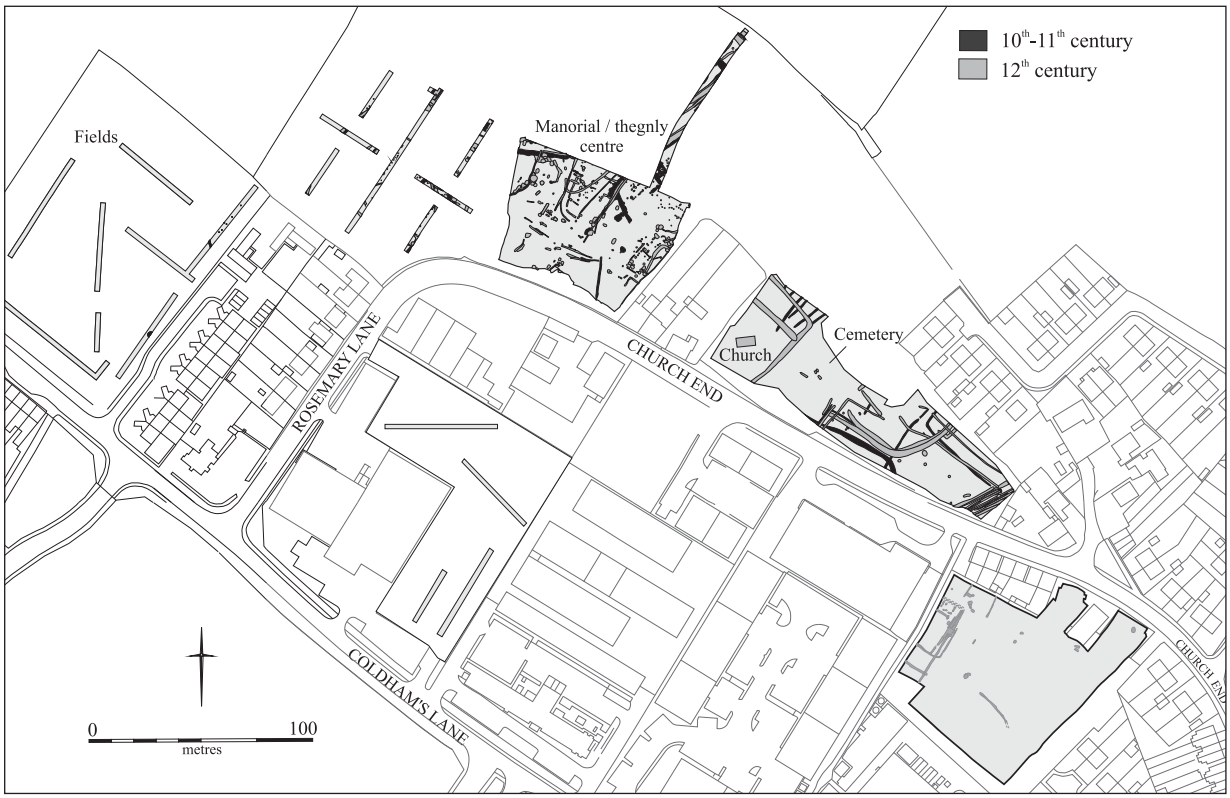


Figure 7. *10th-12th century features at Church End.*

Enclosure	Date	NE/SW (m)	NW/SE (m)	Extent (m^2)	Buildings	Wells
A	12th	19	>14	>265	–	Well 1
	12th	25	>10	>250	Str. 7 (6.5mx3.6m)	Well 2
	13th	>42	>10	>420	Str. 7 (6.5mx3.6m)	Well 2
B	13th	27	>44	>1190	Str. 8 (6mx4m)	Well 3
	14th–15th	32	>44	>1410	–	Well 3
C	13th	23	>43	>990	–	–
D	13th	16	>37	>590	Str. 9 (10mx6m), Str. 14 (7mx3m)	Well 4
E	13th	23	>43	>990	Str. 10 (8mx3.5m), Str. 11 (7.4mx2.4m), Str. 12 (6mx6m)	Well 5
F	13th	31	>37	>1150	–	–
G	13th	>35	>70	>2000	Str. 13 (9mx6m)	–
H	14th–15th	>85	>70	>5720	–	Wells 4–9

***Table 3**. 12th–15th century enclosures at Neath Farm.*

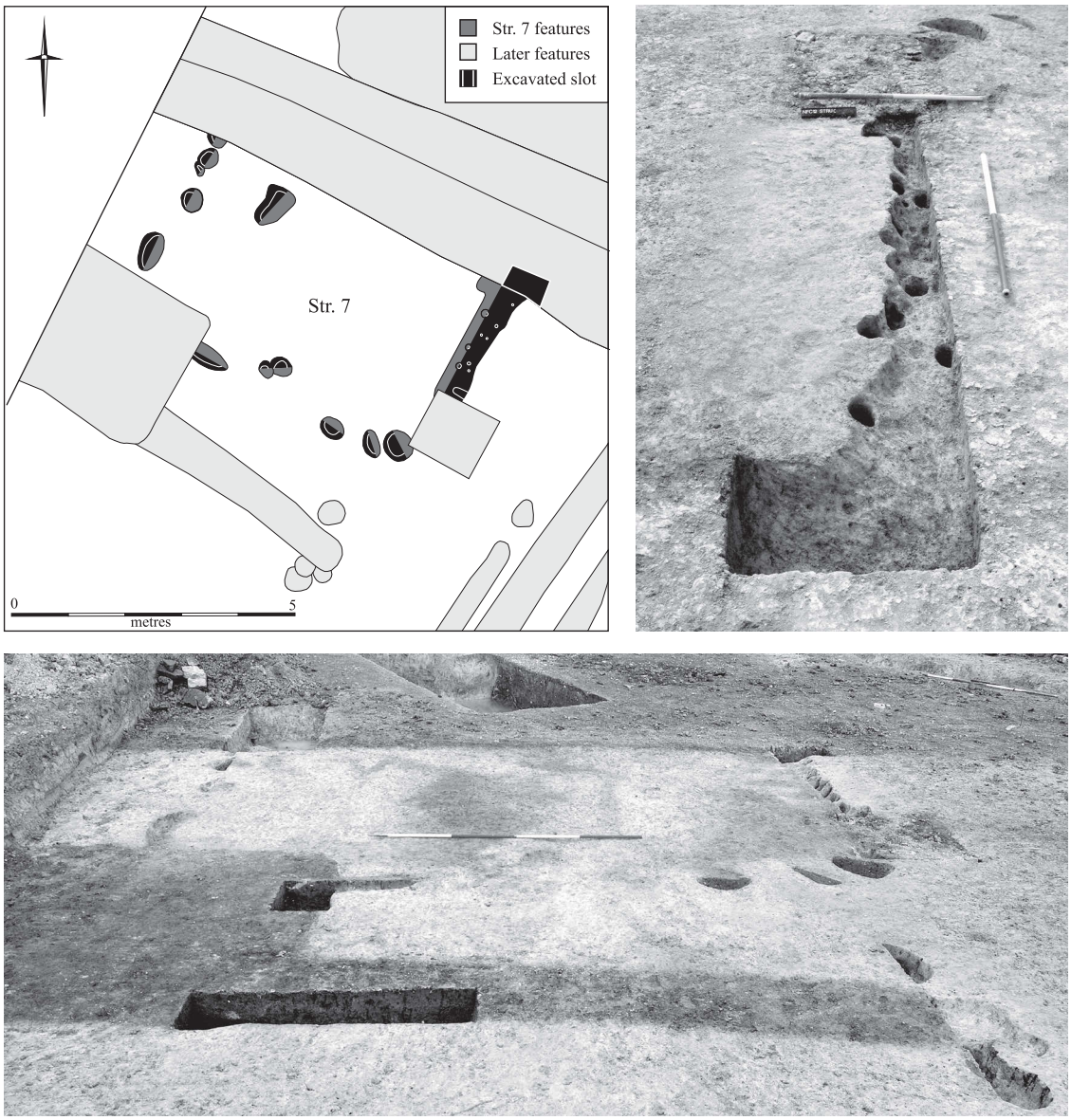


***Figure 8.** Structure 7 plan and view, facing northeast, plus detail of eastern wall line, facing southwest.*

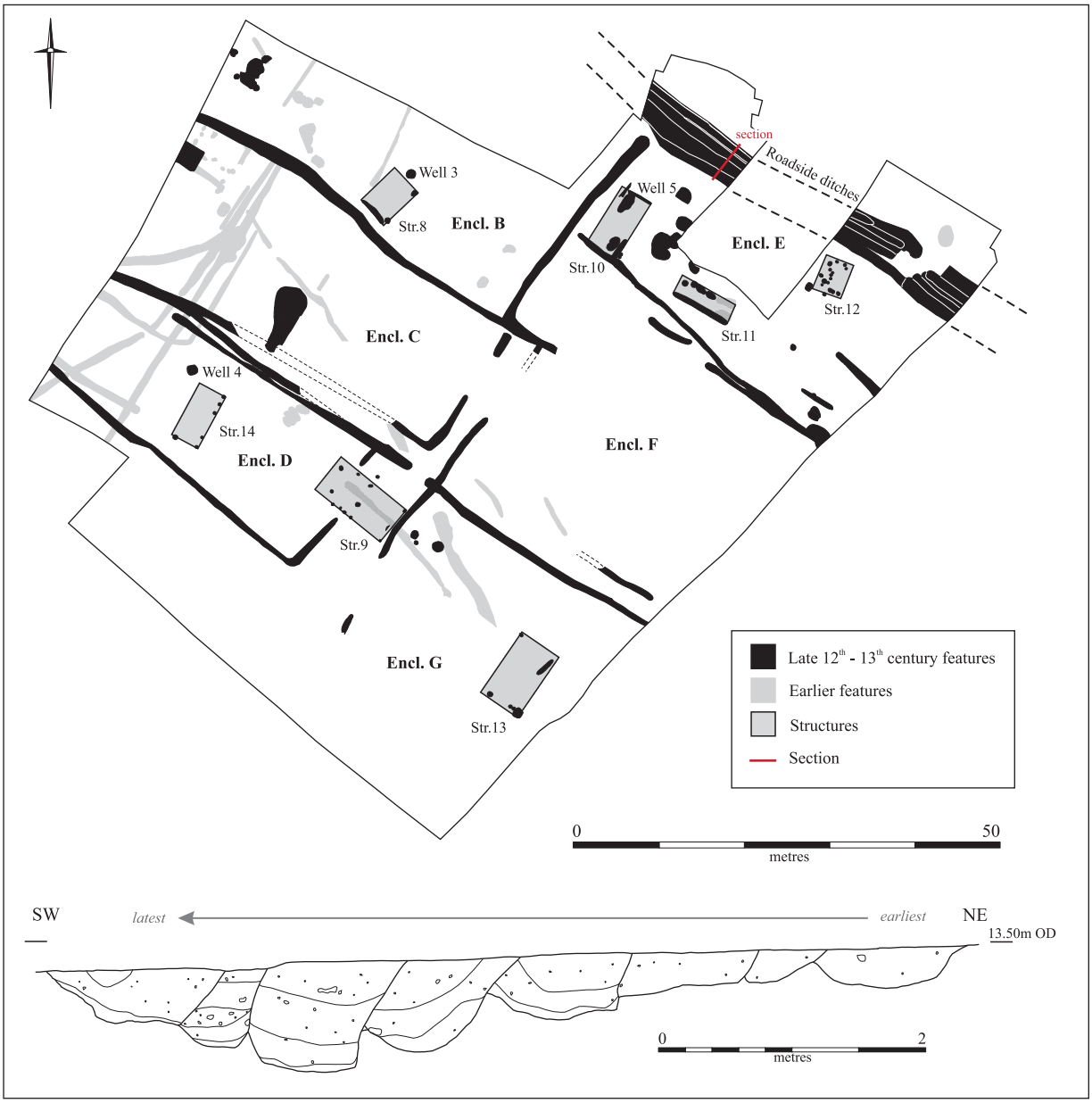


Figure 9. *Late 12th–13th century features at Neath Farm and section of roadside ditch sequence.*

resenting either a shift in settlement or an expansion of occupation in the vicinity. The overall regularity of the enclosures indicates that this represents some form of planned development at a single point in time rather than a more piecemeal organic development. Unfortunately none of the enclosures were revealed in their entirety; the exposure of individual enclosures varied between 420 and 2000m^2. The contemporary 13th century enclosures at West Fen Road Ely with evidence of occupation varied between 1575 and 4600m^2 (Mortimer *et al*. 2005, table 6.1), which provides an indication of what proportion of the overall individual enclosures at Neath Farm were investigated. The scale of the investigations at Neath Farm means that it is not possible to determine if the six enclosures are all truly separate entities or if they are components of possibly as few as two plots fronting onto Church End, with internal divisions behind.

By some measures, levels of activity declined during the 14th–15th centuries, although these may be misleading (Figs. 12–13). The roadside ditch continued to be re-cut and the network of ditched enclosures was amalgamated into a smaller number of larger units. From the 13th century onwards ditches were less frequently employed in densely occupied contexts and property boundaries were often delineated by stake and wattle fences (Hall and Hunter-Mann 2002, 807–10) and hedges (Bowsher *et al*. 2007, 23), which usually leave few or no archaeological traces. To further complicate matters, how a particular boundary was defined may have varied along its length and boundaries may also have been discontin-

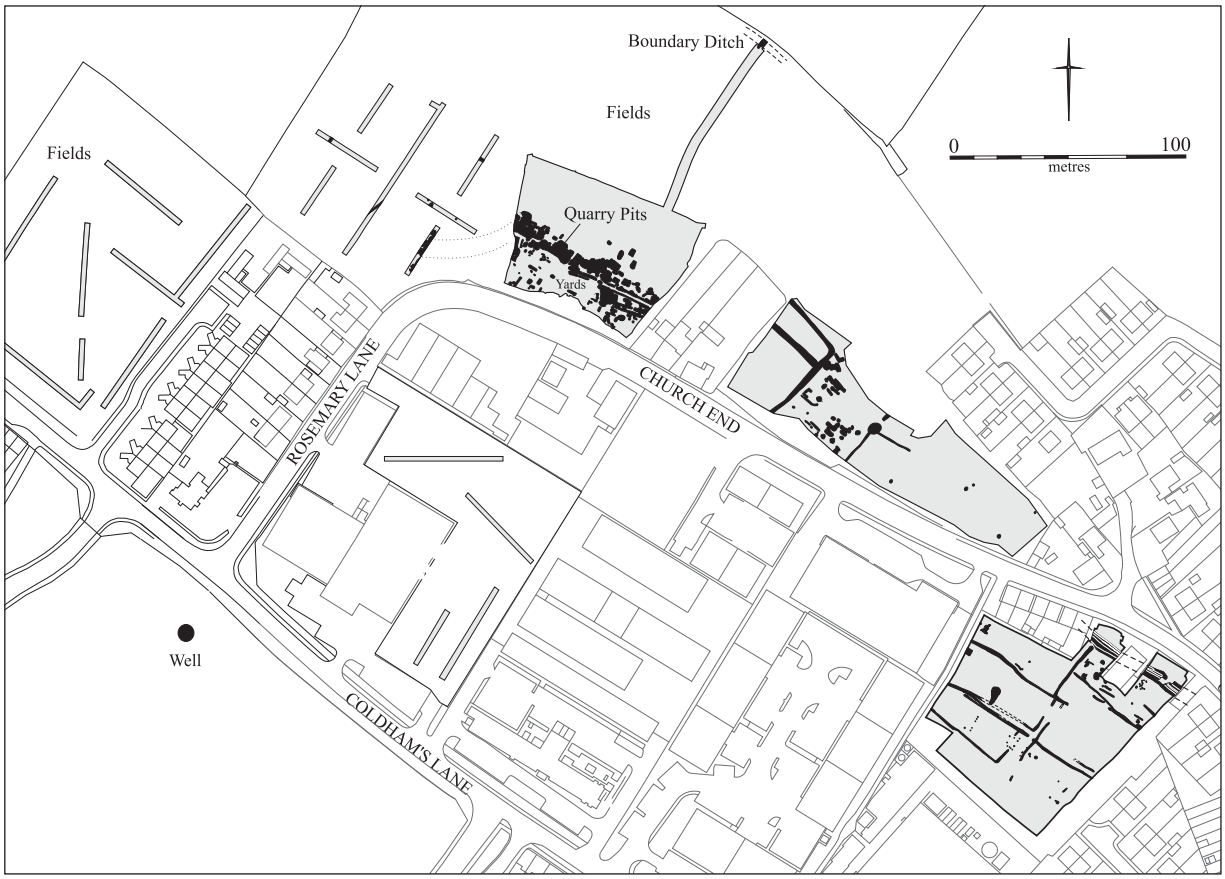


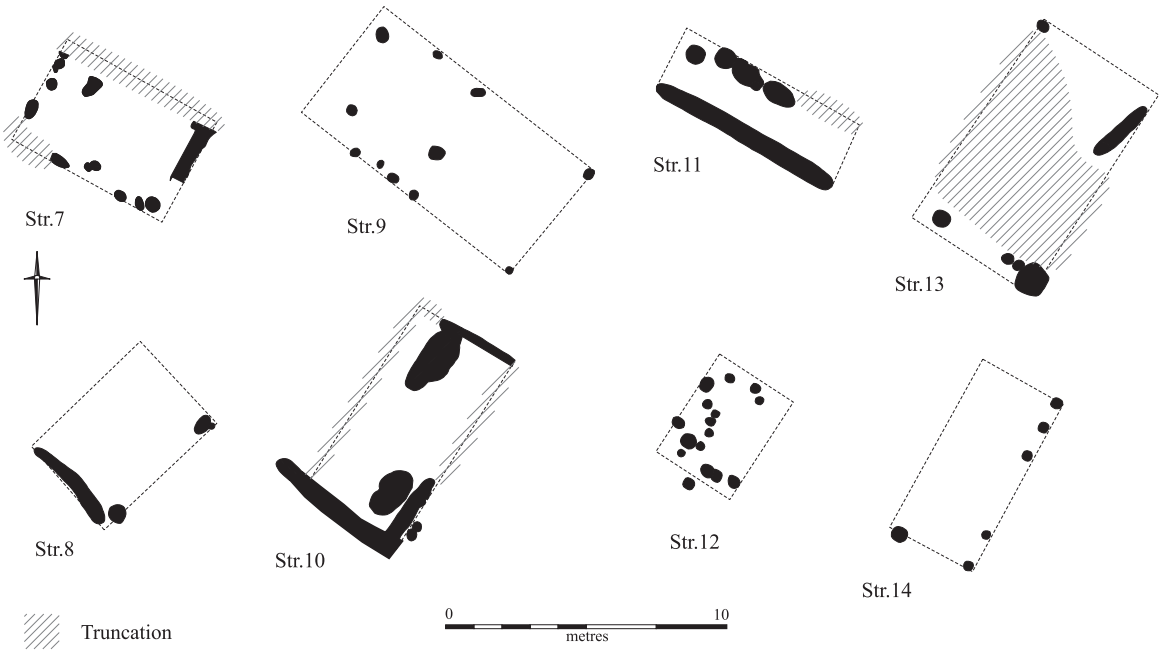
Figure 10. *Late 12th–13th century features at Church End.*

uous with no physical demarcation for some stretches (Hall and Hunter-Mann 2002, 807–10). Paradoxically, the declining use of ditches can be interpreted as evincing increasing pressure on space, as ditches occupy more land than hedges or fences.

Evidence for timber buildings also decreases; this reflects the late 12th century adoption of building techniques utilizing timber frames supported on earth-fast sill beams (Walker 1999). Stimulated by the re-adoption of sawing as a technique after *c.* 1180, this improved the squaring of timber and allowed better built timber frames (Schofield and Vince 2003, 109). This type of construction came to dominate locally over the course of the 13th century, and, as such timber framed buildings do not possess substantial postholes they are less visible archaeologically, especially on sites that have subsequently been ploughed. Although no hearths or ovens were identified, either in structures or outside them, the presence of fragments of fired clay that had been exposed to relatively high temperatures indicates that these were present at this time. In terms of size and construction techniques, the structures that were identified would largely appear to be secondary, ancillary structures.

In contrast to the rather ambiguous evidence from ditches and structures, there are several strands of evidence that indicate increased levels of activity. Firstly, the number of quarry pits rises. These features principally occur in several tightly clustered inter-cutting groups. This 'clustered' pattern contrasts markedly with the general swathe of contemporary quarry pits at 63 Church End, which represented communal usage of an area that was no longer used except for agricultural purposes. In contrast, the clusters at Neath Farm are indicative of a different pattern, whereby each cluster is likely to relate to an individual plot/household. Most significantly, there are at least six 14th–15th century wells indicating increased levels of occupation compared to the 12th–13th centuries (Fig. 12). One of these wells was over 6m deep and lined with roughly squared and sawn clunch blocks, which do not appear to have been reused (Fig. 14). Clunch, referred to locally as 'white stone', was used in most stone buildings at Cambridge prior to the 15th century (Purcell 1967, 24–28). The use of clunch to line wells is rare at this date locally; in this instance it is presumably at least partially due to the proximity of clunch quarries at the southern edge of Cherry Hinton that were probably in operation from the 12th century onwards. Nonetheless, this well stands out as the only one with a stone-lining indicating that it still marks a significant level of expenditure.

There appears to have been a tailing off of activity in the mid/late 15th century. The only 16th–18th century features comprised a few pits, gullies and fence lines suggesting that occupation in the vicinity had



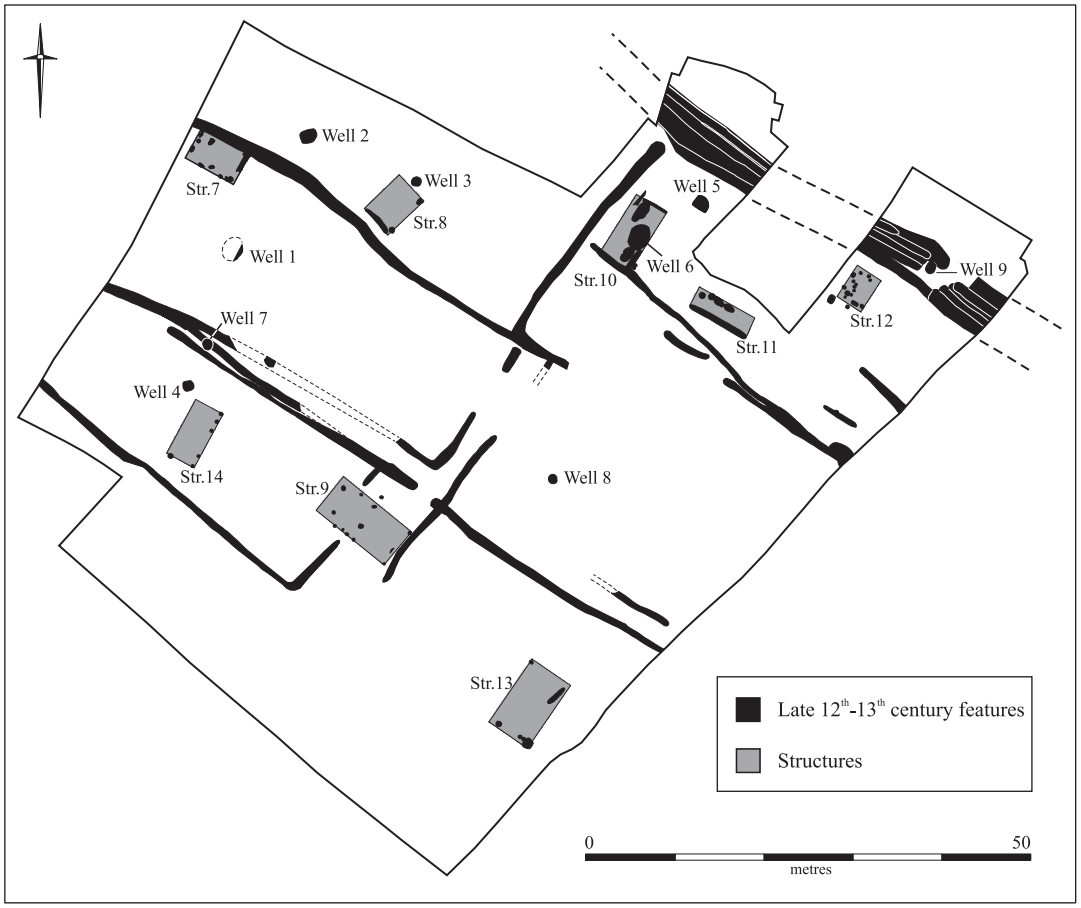


Figure 11. *12th–15th century structures at Neath Farm, with plan showing location of all structures and wells set against background of main late 12th–13th century boundaries.*

Figure 12. *14th–15th century features at Neath Farm.*

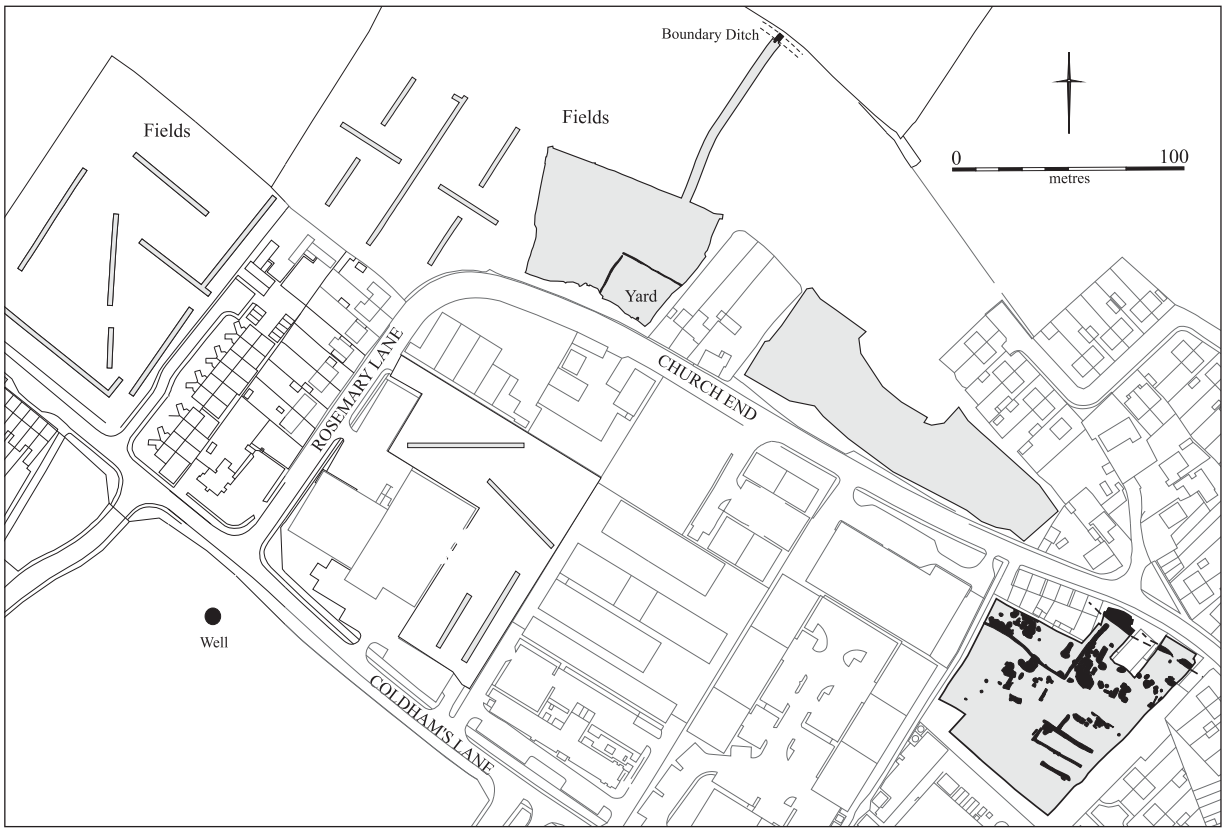


Figure 13. *14th–15th century features at Church End.*

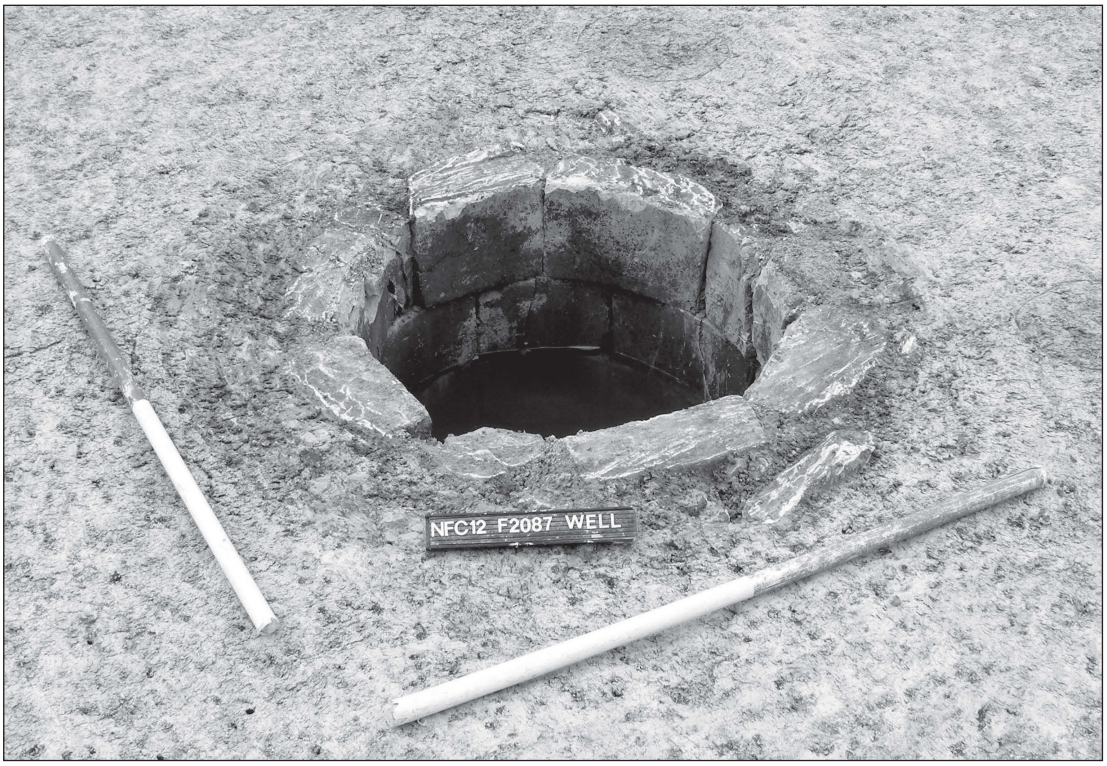


Figure 14. *Clunch-lined Well 4, facing southwest.*

ended and that the area was employed solely for agricultural purposes. Occupation did not re-commence until the 19th century.

In addition to specialist contributions that follow, two Medieval contexts, a ditch and a well, were sampled for pollen. Reported upon by Steve Boreham, the ditch was essentially barren with only a few resistant palynomorphs detected. The pollen from the well was better preserved but with sparse remains; these were some resistant palynomorphs, mostly herbs and spores.

Pottery
David Hall and Craig Cessford

The pottery assemblage recovered was not particularly large and is typical of the fabrics and forms found at sites in Cambridge and its environs. As a result it is presented in a tabular form (Tables 4–5) with the more interesting pieces illustrated (Fig. 15.1–6). Given the pattern of shifting 9th–15th century occupation identified at Church End it is worth attempting to compare the relative proportions of pottery at these sites over time. The pottery can be relatively simply grouped into Middle Saxon (8th–9th century), Late Saxon (10th–12th century) and Late Medieval (13th–15th century). Whilst the Middle and Late Saxon pottery cannot be meaningfully sub-divided it is possible to attempt to sub-divide the Late Medieval ceramics.

Although much of the 13th–15th century pottery of this period cannot be more closely dated there are certain wares that have dateable local periods of principal use in Cambridge and its immediate environs. These be used as crude proxies for temporal patterning and include Boarstall/Brill, Lyveden/Stanion and Pink Shelly wares (early–mid 13th century), Ely, Grimston, Surrey Borders and Toynton (late 13th–14th century), Essex redware (14th–15th century, but predominantly later than the others). Based upon this the ratio of more closely dateable pottery observed at Neath Farm compared to other local sites demonstrates a preponderance of 14th–15th century wares (Table 6).

Metalwork
Grahame Appleby

Of the 87 pieces of metalwork recovered, up to 70 may be of Medieval date. The only piece of copper alloy was a riveted sheet with a central groove and two lobate ends, this may be a decorative strap end or clasp. The identifiable ironwork includes 42 nails and staples, two buckles, a tanged knife, a hinge or corner bracket and a vessel fragment. The most noteworthy piece of ironwork was a well-preserved complete large iron key with a 'D'-shaped open bow, a circumferential groove at the end of the shank and four wards cut into the bit (Fig. 15.7). Typologically Late Medieval or Post-Medieval, this key was found in a 15th century context.

Worked Stone
Simon Timberlake

The worked stone consisted of small quantities of quern stone and whetstones plus a single bead. The spherical bead was made of polished jasper and is 16.67mm in diameter, with a central threading perforation of 2.15mm diameter, weighing 8g (Fig. 15.8). The bead came from a 14th–15th century context and was probably part of a necklace or paternoster.

Pottery type	Neath Farm count	Neath Farm weight (g)	63 Church End (count)	Rosemary Lane (count)	69–115 Church End count	Total (count)
Handmade Saxon	10	60	5	–	1	16
Maxey-type	–	–	2	–	–	2
Ipswich ware	–	–	16	13	2	31
Total 5th–9th century	10	60	23	13	3	49
Thetford-type	69	1477	694	100	714	1577
St. Neots-type	147	1243	1113	162	381	1803
Stamford	24	119	54	1	18	97
Total 10th–12th century	**240**	**2839**	**1861**	**263**	**1113**	**3477**

Table 4. *5th–12th century pottery from Church End sites.*

Pottery type	Date range	Origin	Neath Farm count	Neath Farm weight (g)	63 Church End (count)	Rosemary Lane (count)	Total (count)
Blackborough End-type	Late 12th–13th	Various	3	35	–	–	3
Brill/Boarstall	13th–15th, 13th locally	Buckinghamshire	1	1	–	–	1
Cambridge type Sgraffito	14th–early 16th, 15th locally	North Essex or South Cambridgeshire	1	3	–	–	1
Developed St. Neots type	13th	Various	5	37	15	9	29
Developed Stamford	13th–14th	Lincolnshire	2	9	–	–	2
Ely	Late 12th–15th, 14th locally	Cambridgeshire	39	528	76	91	206
Essex greyware*	15th	Essex	10	43	Unknown	Unknown	10
Essex Redware	Late 13th–15th, 15th locally	Essex	71	533	28	14	113
Grimston	12th–15th, 14th locally	Norfolk	5	149	1	–	6
Hedingham ware (greyware)*	Mid 12th–mid 14th, 14th locally	Essex	2	11	Unknown	Unknown	2
Hedingham ware (redware)*	Mid 12th–mid 14th, 14th locally	Essex	50	682	Unknown	Unknown	50
Hertfordshire green glaze	13th–14th	Hertfordshire	–	–	8	–	8
Lyveden/Stanion	13th–14th, 13th locally	Northamptonshire	3	36	4	1	8
Miscellaneous coarsewares	Late 12th–15th	Various	540	5892	350	86	976
Pink shelly ware	13th	Predominantly Northamptonshire	12	150	–	–	12
Scarborough ware	13th–14th	Yorkshire	2	10	–	–	2
Possible Suffolk green glaze	13th–14th	Suffolk	–	–	2	–	2
Total			**746**	**8119**	**484**	**201**	**1431**

Table 5. *13th–15th century pottery from Church End sites. * wares only systematically recognised at Neath Farm: their absence from 63 Church End and Rosemary Lane is due to changes in how pottery was analysed rather than representing a genuine absence.*

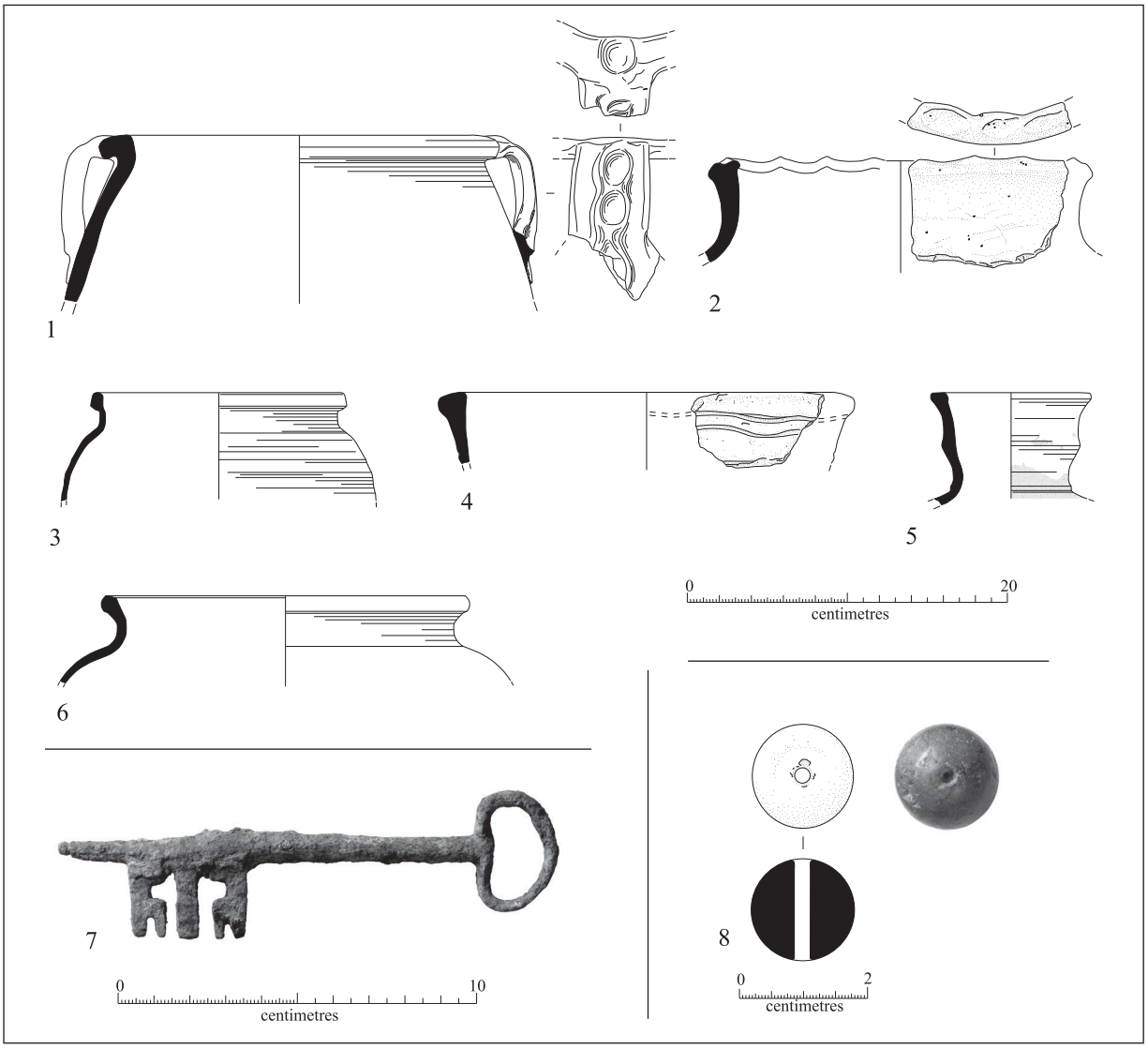


Figure 15. *Medieval finds: 1) Thetford-type ware jar with thumb impressed handle, from pit; 2) Blackborough End-type jar, from Well 5; 3) Developed Thetford-type bowl, from roadside ditch; 4) Grey coarseware jar rim, from pit; 5) Medieval Ely ware jug, from gully; 6) Grey coarseware cooking pot, from pit; 7) Iron key found in association with 15th century pottery, from pit; 8) Jasper bead found in association with 14th–15th century pottery, from enclosure ditch.*

Site	Early 13th proxies (sherd count)	Mid 13th–14th proxies (sherd count)	15th proxies (sherd count)	Ratios
Neath Farm	24	44	134	0.55:1:3.05
63 Church End	19	77	28	0.25:1:0.36
Grand Arcade	324	2186	2647	0.15:1:1.21
Divinity School	293	1458	487	0.20:1:0.33
Corfield Court	126	542	390	0.23:1:0.72
Eastern Gate	147	671	431	0.22:1:0.64

Table 6. *Comparison of 13th–15th century levels of activity at local sites based upon selected pottery wares.*

One probable whetstone 195mm long by 70mm wide and 37mm thick and weighing 1248g had been crudely shaped from a piece of sandstone and was probably used for sharpening large blades. The second, smaller, example was a squareish tablet 55mm by 45mm and 10mm thick weighing 50g. This was also made of sandstone and would have been used for smaller knives. Whilst the petrology of two fragments of rotary lava quern stone (total weight 872g) is more typical of some of the beds from the Mayen quarries quarried and imported during the Romano-British period it is perhaps more likely that they are of Medieval date. One fragment probably comes from a lower stone whilst the other is a rim fragment from the upper stone, the original diameter of which was *c.* 400mm. A hole revealed in section on the break (25mm diameter) is probably for a handle. The small quantity of quern stone contrasts with the other sites such as 63 Church End, where 160 fragments weighing 4944g were recovered. The ratio, by weight, between Neath Farm and 63 Church End is 1:5.7 whereas the ratio for Post-Roman pottery at the sites is just 1:2.3. The relative paucity of quern stone at Neath Farm is probably related to date, as locally the quantities of quern stone recovered declines markedly after the 12th century as feudal control over milling was increasingly asserted (Watts 2002).

Animal Bone
Vida Rajkovača

In total, 2,066 fragments of animal bone were recovered, of which 514 were assessable. Of these, 295 came from Medieval contexts and could be identified to species or general animal size. This relatively small animal bone assemblage is dominated by cattle, followed by horse, dog and then sheep/goat with a small amount of pig, plus some cat, red deer, chicken and crow. The relatively high proportion of horse and dog is unusual. An articulated, near complete dog skeleton from Well 2 measured 47cm in shoulder height and there were several more partial dog carcasses, of which one was probably a neonate. Another partial dog skeleton from a 14th–15th century pit had a severe infection on the mandible.

One 14th–15th century pit contained a horse aged only 8–12 months (Fig. 16). This discovery suggests horse breeding and rearing in the vicinity and a broadly contemporary quarry pit at 63 Church End contained a nearly complete female adult horse that was missing one leg. The overall impression is of an area with a relatively high disposal of complete and partial horse and dog skeletons compared to the disposal of butchery and kitchen waste.

Plant Remains
Anne de Vareilles

Twenty-two samples attributable to the Medieval period, totalling 195 litres, were analysed (Table 2). Most contained charred grains and wild seeds indicative of an agricultural settlement. Almost all the samples from 12th century features contained some grain and wild seeds indicative of an agricultural settlement.

Although many of the samples from late 12th–13th century contexts were practically devoid of plant remains two had rich assemblages of cereals and arable weed seeds. One

Figure 16. *Horse disposal pit, facing northwest.*

of these contained a preponderance of free-threshing wheat grains and a significant amount of hexaploid free-threshing wheat chaff. The wild plant seeds are, however, a mix of sizes and were probably removed from the crop before the last clean. Various processing stages, including initial threshing, are represented. The other rich sample had almost no chaff and therefore no threshing waste. Whilst both assemblages retained seeds indicative of drier areas, they also had seeds from plants that favour very damp to wet soils, such as lesser celandine (*Ranunculus ficaria*), gipsywort (*Lycopus europaeus*) and sedge (*Carex* sp.). Whether the latter plants were arable weeds remains uncertain; indeed, two fragments of pulses suggest that the assemblage has more than one origin.

Three samples from 14th–15th century wells had significant plant assemblages, with two producing the largest assemblages of charred grains from the site. The sample from one, Well 6, produced 149 whole cereal grains and many more fragments. This was composed of a mixture of hulled barley, free-threshing wheat and a little spelt and/or emmer (*Hordeum vulgare sensu lato, Triticum aestivum sl.* and *T. spelta/dicoccum*), were counted. Free-threshing wheat and barley chaff, a little straw and 68 likely arable weed seeds were recovered. Assuming the remains in the posthole represent activities taking place in the vicinity, it would seem that both the early and final stages of cereal processing took place. Free-threshing wheat chaff is easily removed at the first stage of threshing after the cereal has been harvested. The presence of numerous rachis nodes, as well a little straw, suggests threshing. Grains survive charring better than chaff and delicate seeds (Boardman and Jones 1990), which could explain the large presence of grains in apparent waste. The arable weed seeds are mostly large, falling into the category of seeds that are removed by hand during the last stages of processing (Hillman 1981; Jones 1984). Interestingly, debris representative of intervening processing stages is absent. At least two peas (*Pisum sativum*) and a fruit stone (*Prunus* sp.) were also found. The presence of five hulled wheat grains is not altogether surprising. Although the selection of free-threshing wheat over the popular Romano-British crop spelt is a phenomenon seen across Early Saxon Britain, it continues to occur sporadically well into the Medieval period (Greig 1991; Murphy 1994). The role of spelt in Saxon agriculture remains enigmatic. Whilst the grains could conceivably have been re-worked from Romano-British occupation debris, this seems unlikely given the paucity of Romano-British plant remains and other material at Neath Farm. The arable weed seed assemblage is mostly composed of large grass seeds. Other species are congruent with the local chalky marl soil. Whilst certain plants would have favoured damp clay, others, such as field gromwell (*Lithospermum arvense*), show that some areas were drier and perhaps chalkier.

One sample (Well 8) appears to contain more wild plant seeds than cereals. The small overall size of the seeds and the near absence of chaff, suggest that the remains are waste from fine sieving – a stage that takes place after threshing and winnowing, but before the final sort (Hillman 1981). The other (Well 3) had at least 73% more grains than seeds. The same cereals as from earlier features were found, with the addition of oats (*Avena* sp.). Although these cannot be definitely described as cultivated due to the absence of chaff, their size and the date of the feature make it highly likely they were a managed crop. Very little chaff was present, but wild plant seeds were numerous and of various sizes. The same indicators of damp, heavy clay found in previous samples were also found, however, field gromwell, indicator of drier, calcareous soils, is missing.

A predominance of hexaploid free-threshing wheat was found throughout the phases of Neath Farm. Hulled barley and a few spelt/emmer caryopses were also present in most samples. Large, cultivated oats were only found in the 14th–15th century. Evidence from the 12th century onwards suggests the inhabitants grew their own crops locally and carried out all of the processing within the settlement. Weed ecology demonstrative of cultivated soil types remains arguably constant throughout the phases. The local chalky marl was farmed, with some areas drier and others wetter than the overall damp, sticky clay.

Discussion

The work at Neath Farm has considerably enhanced our understanding of the settlement pattern of the Church End area of Cherry Hinton. The certainty provided by the radiocarbon dating of the Late Romano-British skeleton focuses attention upon this previously neglected period. For the Medieval period, the absence of Middle Saxon (*c.* 650–850) material, the commencement of activity in the 12th century and full occupation from the late 12th/early 13th century until the mid/late 15th century, provides a clear contrast to the pattern identified at 63 Church End and Rosemary Lane. This allows a site-specific consideration of the long-term processes affecting settlement locally between the 8th and 15th centuries.

In at least parts of England the 7th and, more particularly, 8th centuries saw the emergence of settlements the defining archaeological characteristic of which is the dominance of ditched enclosures, which in some respects makes them more similar to rural Romano-British settlements than those of the intervening 5th–6th centuries. Although often relatively insubstantial, these ditches display evidence that they were repeatedly re-cut over substantial time periods, often spanning centuries. Whilst individual ditches were frequently re-cut in the same location, indicating maintenance of enclosures, there is also evidence for substantial reconfiguration of layouts. This settlement form is particularly well attested through archaeological investigation in Cambridgeshire at Lordship Lane, Cottenham (Mortimer 2000) and West Fen Road, Ely (Mortimer *et al.* 2005; Mudd and Webster 2011; Slater 2011b), which have been pivotal to more general discussions (Hamerow 2010; Hamerow 2012; Wright 2012). These Middle Saxon settlement forms continue into the Late Saxon period but develop over time; at Lordship Lane, for example, the 10th–11th centuries witnessed some changes that may relate to the establishment of the nucleated village, and by the 12th/13th century the site had been abandoned and the nucleated village fully established. At West Fen Road there was also broad continuity until the 11th century, although some enclosures were sub-divided. In the 12th century the intensity of occupation declined, as some enclosures were amalgamated and others were given over to agricultural uses. This process continued through the 13th–14th centuries with most of the site given over to agriculture by the 15th

century.

Although all the settlements possess idiosyncrasies, Church End broadly fits into the same long-term Middle Saxon to Late Medieval pattern witnessed at Lordship Lane and West Fen Road, and in some senses we are undeniably producing generic, repetitive narratives (Evans 2013). The main difference from the standard 'narrative' at Church End is that the late 9th/mid 10th–late 11th/12th century occupation relates to a manorial or thegnly centre, with a rather different form of occupation than the others. From the 12th century onwards, the period most relevant to Neath Farm, its network of rectilinear enclosures is closely paralleled elsewhere, particularly at West Fen Road. Although Church End, Lordship Lane and West Fen Road stand out as exemplars of this process, this is largely due to the scale of their archaeological investigation; as such long-term patterns of shifting occupational focus are only visible on a large-scale. More limited investigations will reveal only part of the picture. There are, however, hints from several other villages where that the broad pattern may be replicated. For instance, at the nearby village of Fulbourn, only 4km southeast of Church End, excavation has revealed a mid 11th–late 12th century rural settlement with enclosures, timber structure and wells, plus indications preceding 10th–mid 11th century occupation in the vicinity (Bradley-Lovekin 2008). At Chesterton, some 4km northwest of Church End, there is evidence for some form of Middle and Late Saxon occupation – the centres of which appear to have lain outside the areas investigated to date – followed by a planned nucleated settlement established in the late 11th/early 12th centuries (Cessford with Dickens 2004; MacKay 2009). Equally, a series of investigations at Madingley Hall (Gdaniec 1991; Gdaniec 1992; Hunter 1991; Regan 1998), just over 5km west of Cambridge, suggests an extensive but shifting 8th–12th century settlement that moved towards the current village around the 13th century. In isolation such sites make relatively little sense, yet when compared to the more intensively investigated settlements it suggests that these are recognisable elements in a broader and more long-term process. In contrast to these, work at the Medieval settlement associated with Barnwell Priory that was apparently established in the early 12th century as a completely new entity presents a very different picture (Newman 2013).

This long-term extensive shifting pattern of occupation is a particular issue for the Medieval period, as the location of such sites on the fringes of still occupied settlements means that they have often been re-absorbed into the settlements by 19th–20th century development. This is partly counteracted in Cambridgeshire, in particular, by the phenomenon of intensive and repeated developer-funded archaeological investigations in certain locales that are developmental 'hot-spots'. Here, archaeology has effectively become an iterative process, where each phase of investigation can be viewed as an iteration the results of which are not an end in themselves but the starting point for the next iteration. Although such work is not truly large-scale in comparison to rural development-funded open-area excavations that now regularly cover tens of hectares, it can be viewed as bridging the gap between individual sites and larger landscapes (Thomas 2013). The settlement dynamics of the Church End area of Cherry Hinton in the late 20th–early 21st century – in particular its previous agricultural and light industrial usage, and the scale of housing demand linked to its proximity to Cambridge – mean that it has been, and will continue to be, a focus for developer-funded archaeological investigations.

These investigations are of added significance because southern Cambridgeshire is located on the frontier between what are known as the Central and South-Eastern Provinces of Medieval settlement, with a landscape where nucleated villages predominate to the north contrasting with a landscape of mainly dispersed settlements to the south and east (Roberts and Wrathmell 2000; Taylor 2002). This Medieval settlement and landscape revolution in the Central province, with a shift from a largely dispersed settlement pattern towards nucleation and the concomitant adoption of large unenclosed fields farmed in common, has been termed the 'village moment' or 'great re-planning' (Lewis *et al*. 1997). This 'village moment' is generally seen as an evolutionary process, rather than a revolutionary development, which was the product of a particular period and took 400 years to reach maturity and that passed after the 12th century (Lewis *et al*. 1997). Nuclear settlements appear to develop from a variety of 'pre-village nuclei', rather than from the abandonment of an earlier pattern of dispersed settlement (Jones and Page 2006). Whilst this appears to be substantially vindicated by the continuing archaeological investigation of sites in Cambridgeshire the obsession of some of those studying the Medieval rural landscape with village nucleation has meant that they have largely ignored the succeeding 13th–15th century phase, when village nucleation has taken place but outlying settlement has not fully receded to the core. If a long-term view is to be pursued, it is worth noting that the only 16th–18th century features at any of the Church End sites appear to be agricultural in nature, and it is only from the 19th century onwards that occupation spreads out from the nucleated village core. This pattern is replicated at other sites such as West Fen Road, and it could be argued that the 8th–15th century long-term picture should be expanded to an 8th–18th century one.

Although prolonged processes, rather than specific events, are undoubtedly crucial to this narrative (Jones and Page 2006), this should not be allowed to entirely overshadow shorter-term events. It is clear that the mid 11th–late 12th century was a particularly crucial phase of nucleation in Cambridgeshire and elsewhere. This is apparent both from the archaeologically investigated examples at Church End, Lordship Lane and West Fen Road, but also from other villages which have been studied from a morphological perspective. Here it has been argued that some south

Cambridgeshire villages that were once believed to represent Late Saxon nucleation were, in fact, secondary relocations to new sites soon after the Norman Conquest (Oosthuizen 1997). Understanding of these is hindered by a lack of understanding of the predecessors of these villages, something which archaeology can counteract. It appears that in Cambridgeshire the transition from sokemen (i.e. tenants holding land with a degree of freedom but rendering some agricultural services) in 1066 to villiens (i.e. peasant occupiers or cultivators entirely subject to a lord) in 1086 that is recorded in the Domesday Book may have led to a shift from dispersed holdings to nucleated house plots (Taylor 2002). This transition from sokemen to villiens is recorded at Cherry Hinton (Otway-Ruthven 1938, 373) and may have had an impact archaeologically. In the context of mid 11th–late 12th century changes it is particularly unfortunate that the church and cemetery at 69–115 Church End remains unpublished, as the abandonment of these is almost certainly a crucial element in the narrative. An abandonment around or soon after the Norman Conquest is inherently probable, especially as the fragments of stone monuments from the site date to *c.* 950–1100. This is supported by evidence from the current church of St. Andrew – which is likely to be the direct lineal successor to the church at 69–115 Church End – and this contains some later 12th century elements (Wareham 2002, 114) and a late 12th century cross slab grave-cover (Sargeant 2008).

If we allow for a brief excursus, in contrast the development opportunities of what has been the core of the village from at least the Late Medieval period onwards have been more restricted leading to only a few small-scale investigations (Fletcher 2005; Mortimer and Philips 2004; Punchard 2008). Whilst these are sufficient to identify the presence of Late Medieval occupation, their scale means we are likely to fail to recognise less intensive periods of activity, such as Romano-British fieldsystems or the earlier stages of Medieval activity. This creates a paradox, whereby it is the nucleated core of the village that is the least well-understood portion archaeologically. Admittedly, the constraints of developer-funded archaeology may well be powerless to resolve this directly, whilst other avenues of investigation – such as test-pitting (Lewis 2007) – can be successful and could profitably work in conjunction with developer-funded archaeology. Although Cherry Hinton still awaits such work on a substantive scale, the results of excavations at Fulbourn Old Drift are suggestive of a roadside ditch along the High Street that originated in the 10th–11th century followed by two phases of the back plots of enclosed areas dating to the 12th–14th century that fronted onto this (Fletcher 2005; Mortimer and Philips 2004).

The picture that is emerging through repeated archaeological investigation is that Cherry Hinton had polyfocal origins and that over time the village coalesced around a single core. At a broad level, there was a process of staggered retrenchment along a broad axis from northwest to southeast over several centuries. Given the time-scale involved; there was evidently no overall plan to this; although the individual stages in the process would have been managed. Whilst the precise reasons behind this long-term process of nucleation are uncertain, and may have varied according to particular circumstances, a combination of increasing levels of feudal control, changing agrarian practices and organisation, and declining population levels from the early–mid 14th century onwards are all probably implicated at a broad level.

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Roman Burials and Post Medieval Clay Tobacco Pipes at Merton Hall, Cambridge

Christiane Meckseper
with contributions by Harriet Jacklin and Jackie Wells
Illustrations by Joan Lightning

Summary

Refurbishment and repair of Merton Hall North Wing, Cambridge was accompanied in 2008 by monitoring of the construction groundworks and the investigation and recording of archaeological remains. The groundworks revealed human skeletal remains dating to the late Roman period, and a sizeable assemblage of post-medieval clay tobacco pipe and fragments of fine tablewares.

The Roman remains included a complete inhumation burial of a female and the disturbed remains of a juvenile burial with fragments of Nene Valley ware. The disarticulated remains of a minimum of a further eight individuals were recovered from a make-up layer underneath Merton Hall.

These findings, along with archaeological evidence of burials encountered during previous and recent building work in the School of Pythagoras and the Cripps Building, confirm the presence of a Roman cemetery in the area.

Radiocarbon dates obtained from the human bones and ceramic evidence place the cemetery in the late 3rd and 4th centuries. The burial ground therefore adds to the evidence from other late Roman cemeteries outside the Roman settlement of Cambridge, most notably in Jesus Lane and Park Lane on the eastern side of the River Cam.

Introduction

Between July and September 2008 Albion Archaeology undertook archaeological investigations during the refurbishment and repair of Merton Hall, Northampton Street, Cambridge. Merton Hall lies to the north-west of the Cambridge town centre and the River Cam, and is centred on grid reference TL44490 58940 (Figure 1). Both the Hall and adjoining School of Pythagoras building are part of St John's College.

The results of the investigation can be placed into two categories: the first is evidence for Roman burials below the make-up layer underneath the modern floors of Merton Hall, the second is an interesting post-medieval finds assemblage, relating to the use of the hall as a private residence.

Background

Merton Hall lies 60m south of Northampton Street and *c*. 250m south-west of the Castle Hill area of the modern city which was the location of the Roman town. The focus of the Roman town from the 1st to the 4th century lay in the area of the present day Shire Hall, at the crossing of two main Roman roads, Akeman Street and the *Via Devana*. Roman Cambridge reached its largest extent in the 4th century when the town was surrounded by a wall, bank and ditch. Using modern street names as a reference, this extended approximately from the junction of Histon Road and Victoria Road in the north to Northampton Street in the south and from Mount Pleasant and Pound Hill in the west to Magrath Avenue in the East. A western gate to the 4th century walled town may have been situated at the junction of Mount Pleasant and Albion Row (Alexander and Pullinger 2000, 36 and 50).

A number of archaeological investigations in the area, mainly to the north of Northampton Street, have uncovered remains from the Roman period onwards.

Roman ramparts, industrial and other deposits were found along with medieval features at two sites off Pound Hill in 1982 and 1983 (Pullinger 1984). Roman and medieval remains have also been found at Kettle's Yard (Evans 1994), and work at the Cambridge Folk Museum in 2002 located a Roman burial and structural remains dating to the Roman and Saxon periods (Cessford 2003).

At St Peter's Street, excavations at various sites during the early 1980s and 2001 found the Roman town wall, Roman and early medieval pits and ditches and a medieval road (Pullinger 1984, Dickens 2002).

Roman burials to the south and west of the Roman town

Roman cemeteries and burials were by law required to be outside settlements and are often found on the main roads leading in and out of towns. To the south and west of Roman Cambridge this pattern is reflected by the evidence for several burial grounds.

Excavations in the cellars of three terraced houses in Jesus Lane, to the south of the Roman town, re-

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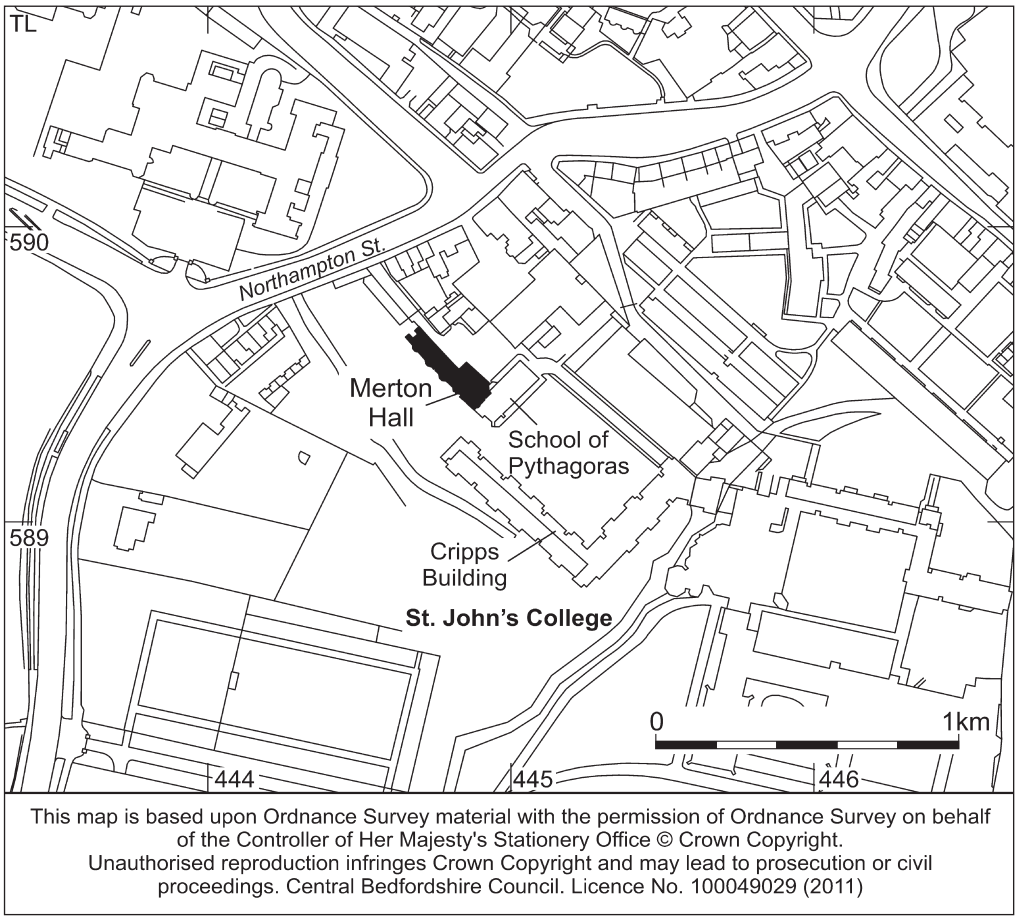

***Figure 1**. Site location.*

vealed a late Roman inhumation cemetery with a total of 32 inhumations, some buried in shrouds and with modest grave goods. The nature of the burials and the ceramic evidence suggested a date of the late 3rd to 4th century. It is possible that the Jesus Lane cemetery may have extended to include the human remains found at Park Street, 230m to the north-west, where two adults and several neonates were excavated (Alexander *et al*. 2004).

Six inhumations, one with a possible late Roman 4th century antler comb were revealed during excavations at Murray Edwards College, *c.* 250m west of the northern gate of the Roman town (Evans 1996). Closer to Merton Hall undated skeletons and Roman artefacts, possibly from burials, were found during earlier work near Mount Pleasant and Lady Margaret Road (Browne 1974).

In St John's College cricket fields along Grange Road, *c.* 450 m west of Merton Hall and on the projected line of Akeman Street, an Anglo-Saxon cemetery contained evidence for Roman burials, and there are further findspots of at least one inhumation and Roman and Anglo-Saxon artefacts along the same road. Unfortunately the burials are often difficult to date due to the mixing of artefacts during excavation in antiquity (Liversidge 1977).

Previous work within the School of Pythagoras building to the south uncovered an inhumation believed to be Romano-British in date (Graham-Campbell 1968). Four skeletons of uncertain date were also recovered in the mid-1960s during the construction of the Cripps Building which lies immediately to the south-east of Merton Hall (Boys-Smith 1964).

Merton Hall

Merton Hall is a Grade II* listed building and consists of a long, narrow, two storey timber frame and brick building that now forms the north wing of the School of Pythagoras, a Grade I listed 13th century stone hall. In the 16th century this hall was turned into a granary and Merton Hall added as a manor or farm house to its north. Merton Hall itself was extended in the 17th century (Royal Commission on Historical Monuments of England 1988).

Throughout the 19th century and the first half of the 20th century until 1959 Merton Hall was a private residence and belonged to Merton College, Oxford. There were two brief interludes when it housed a boys' boarding school from 1807–1811 and the society which was the precursor to Newnham College, Cambridge, from 1872–74 (Roach 1959). Since 1959 it has been part of St John's College, Cambridge, and

used for graduate student accommodation (English Heritage 2007).

Results

The refurbishment and repair works at Merton Hall principally comprised underpinning the walls and replacement of the floor in its three ground floor rooms (Rooms RG1, RG4 and RG9 with its ancillary room RG10). This involved the reduction of the ground level within the building by around 0.45m and the excavation of trenches around all walls. In addition, excavations for pads for temporary supports were carried out at various locations throughout the building and a duct trench was dug in Room RG9. A modern extension on the north-east side of Merton Hall was demolished as part of the refurbishment works (Figure 2).

Full context and finds details of all periods as well as the specialist reports and radiocarbon dating can be found in the archive report (Albion Archaeology 2011) deposited with the Cambridgeshire Historic Environment Record (CHER).

Merton Hall is a complex structure that has been subject to additions and modification since its construction in the 16th and 17th centuries to the present day. This complexity was visible during the archaeological monitoring in the disturbed nature of the ground surface within the building and remnant structural elements uncovered during ground reduction.

Following removal of existing floor and sleeper walls, a compact and very mixed sand, silt and clay make-up layer was uncovered in all rooms. Context numbers (7), (12), (26) and (39) were given for the layer. The layer was approximately 0.30–0.40m thick and contained a variety of finds including pottery of Roman, post-medieval and modern date along with roof tile, animal bone and disarticulated human bone.

The excavation of the make-up layer (39) within room RG9 as well as layer (47) below a modern brick surface in room RG10, a small, ancillary room coming off room RG9, revealed a large quantity of locally manufactured clay smoking pipe fragments, along with other artefacts dating to the Roman and later periods.

Within room RG1 a grave [35] containing a human burial (SK36) was revealed underneath the make-up layer cutting the natural sand and gravel. The grave was aligned roughly E–W and contained the skeleton of an adult female. The skeleton was flexed and lying on its right side, with the head to the east. No remains of a coffin were detected and there were no accompanying grave goods.

A probable grave [95] of a child (SK101) was partially uncovered during underpinning excavations adjacent to the fireplace in RG9. Fill (94) in the exposed section of the grave contained a fragmentary skull and vertebral fragments, and fragments of a Nene Valley grey ware straight rimmed dish (commonly called "dog dish"), dating to the late Roman period.

During excavation of the duct trench in Room RG9 a large quantity of human skeletal remains (SK 70) from a single individual were recovered, possibly indicating the presence of a disturbed grave.

A large amount of disarticulated human skeletal material was recovered from the make-up layers (7), (12), (26) and (39). Analysis of the material identified adult and subadult remains of three further individuals in RG1 and of four individuals in RG4.

Groundworks in the modern extension to the east of the hall revealed no evidence for human remains. In all rooms the make-up layer overlaid natural geological deposits of yellow/white sand and gravel.

Modern extension and external works

No features or deposits of archaeological interest were identified during the demolition of the modern extension located on the north-eastern side of the building.

Radiocarbon Dating

A human bone sample from the complete burial (SK36) found in room RG1 and the large deposit of bone found in room RG9 (SK70) were radio-carbon dated at the Scottish Universities Environmental Research Centre (SUERC). The results of analysis from Burial SK36 indicate a date of 320–540 cal AD (91.7% probability) (1645 ± 40 BP). The samples from SK70 produced a date of 230–420 cal AD (95.4% probability) (1720 ± 40 BP). Both indicate a late Roman 3rd or 4th century date for the remains.

Artefacts

The pottery assemblage comprises 70 sherds weighing 1.1kg. Forty-five Roman sherds (64%) are broadly datable to the 2nd century, and the remainder are of post-medieval and later origin. Pottery of all periods survives in good condition, although a low average sherd weight of 16g indicates its fragmentary nature. The pottery assemblage is summarised in the tables (1 and 2) below.

Other finds

A collection of 165 clay tobacco pipe fragments was recovered, the majority (147 fragments) deriving from layer (47) in Room RG10 with a smaller quantity (18 fragments) deriving from layer (39) in a location adjacent to the eastern wall of room RG9. The assemblage comprises 41 bowl and 124 stem fragments. Twenty-two of the latter are stamped 'Pawson Camb', indicating the manufacturer James Pawson (and later his widow Ann) who operated from premises at nearby 11 Sidney Street during the late 18th and early 19th centuries (Flood 1976, 34). Five spurs are stamped with small stars. A small selection of the stamped pipe stem fragments and spurs is shown in Figure 3.

The clay tobacco pipe assemblage may be compared to the assemblage from other sites in Cambridge such as the Grand Arcade, where, amongst a total of 1501

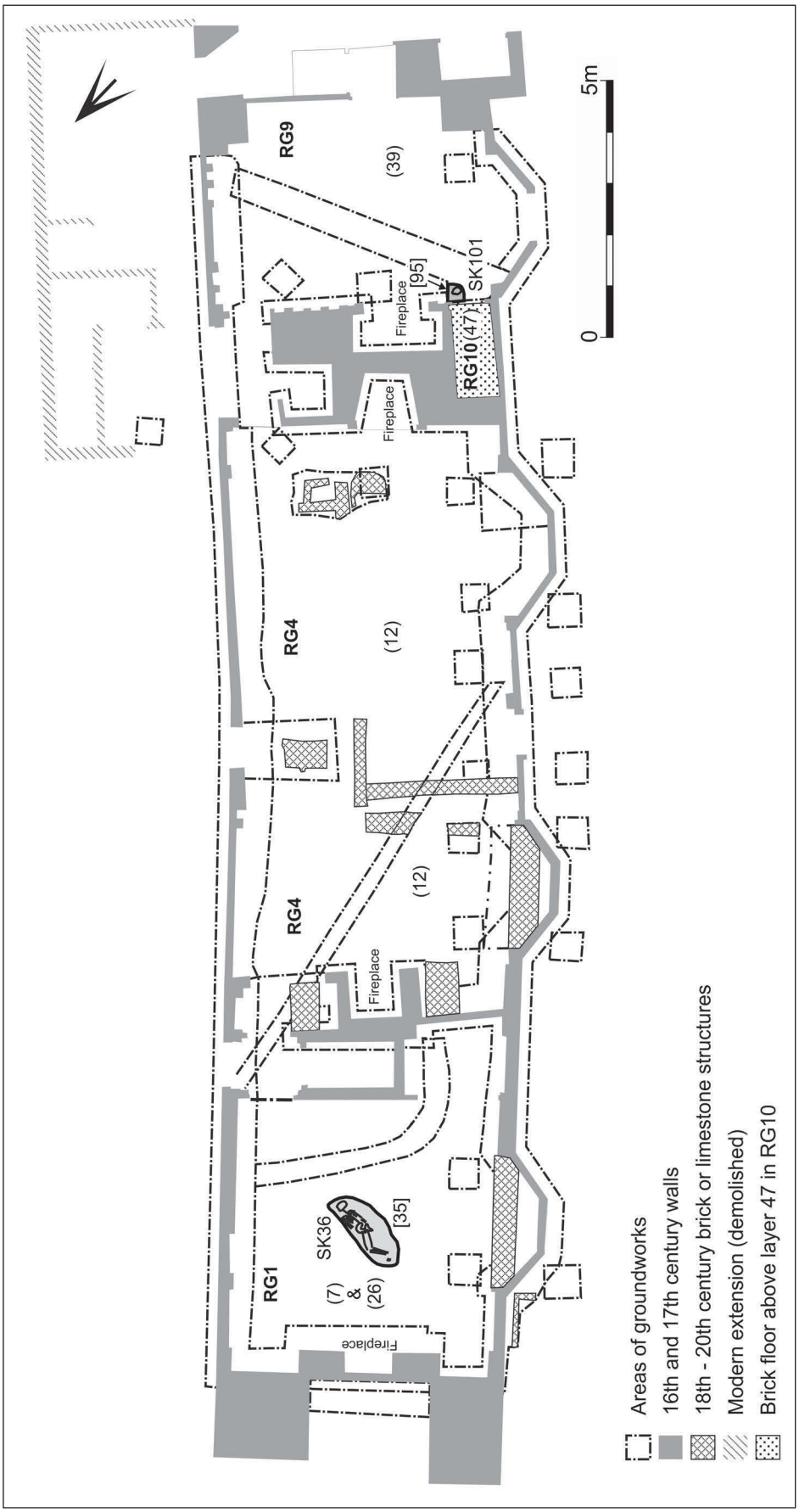

Figure 2. *Floor plan of Merton Hall indicating features and grave.*

Fabric	(Context): Sherd No.	Comments
Shelly coarse ware	(39):2	Base sherd
Coarse grey ware	(7):1, (39):23	Everted rim jar; flanged bowl; modified base sherd
Fine grey ware	(12):1, (39):2, (94):1	Burnished jar; 'dog dish'
Black-slipped grey ware	(39):2	Everted rim jar; plain rim bowl
Sandy black ware	(39):4	Body sherds
Oxidised sandy coarse ware	(39):1	Body sherd
Buff sandy ware	(39):1	Jar base
Nene Valley grey ware	(39):1, (94):1	Flanged bowl; 'dog dish'
Nene Valley Colour Coated ware	(7):1, (39):4	Beaker base

Table 1. *Roman Pottery Type Series (45 sherds: 724g).*

Fabric	(Context): Sherd No.	Comments
Medieval shelly ware	(12):1	Body sherd
Late medieval sandy ware	(39):2	Body sherds
Glazed red earthenware	(7):10, (12):1	Shallow bowl
Frechen stoneware	(7):1	Body sherd
Tin-glazed earthenware	(39):1	Albarello
Nottingham stoneware	(39):1	Body sherd
White salt-glazed stoneware	(7):1, (39):1	Body sherds
Creamware	(39):3	Body sherds
Stoneware	(39):1	Ink bottle
Porcelain	(39):2	Tea bowl

Table 2. *Post-Roman Pottery Type Series (25 sherds: 415g).*

clay pipe fragments dating from the 16th to early 20th century, a small number also bore the Pawson Camb maker's mark (Cessford 2007a). Other sites with notable clay tobacco pipe assemblages are the Christ's Lane development at Bradwell's Court (Cessford 2007b) or the St. John's Triangle site, where an assemblage of 208 fragments of late 16th to late 18th century dates was revealed (Cessford 2008).

Vessel glass comprises eight translucent olive green wine bottle fragments, including shoulder and body sherds, and a single base. The latter derives from a mid-18th to 19th century cylindrical bottle. The remainder are from vessels of indeterminate form, broadly datable to the mid-17th to 19th centuries.

Discussion

The archaeological works carried out during the refurbishment of Merton Hall identified archaeological remains dating to the Roman period and revealed some of the development and occupational history of the building.

Roman burials

The remains of at least 10 individuals were excavated during the groundworks at Merton Hall. The surviving grave cut of burial (SK36) was very shallow and it is likely that neighbouring graves could have been disturbed during the construction of Merton Hall in the 16th century, leading to the incorporation of disarticulated human remains within the make-up layer underneath the floor of the building. The post-mortem fracturing but generally fairly good preservation of the bones indicate that they were disturbed post-deposition but probably did not move very far from their original burial location.

Radiocarbon dating of SK36 and the disarticulated individual SK70 in RG9 indicate a late Roman date for the remains. A late Roman date is also suggested by the fragments of Nene Valley grey ware ("dog dish") within burial (95) in RG9. "Dog dishes" are flat wide-bottomed dishes with a simple upturned rim which were part of the Nene Valley coarse ware pottery production and often occur in late Roman domestic assemblages.

Residual fragments of Roman pottery were found in the later make-up layers of Merton Hall, with by far the largest number recovered from the make-up layer (39) in RG9. It is possible that these originate from disturbed grave good vessels.

A plan from the hall dating to *c*. 1820 (available in the St John's College archive) shows that several extensions existed in this part of the hall in the 19th century. It is possible that the construction and demolition of these, and the subsequent construction of the modern extension, removed all traces of further human remains.

Merton Hall north wing

Post-medieval ceramic artefacts recovered from all floor layers within the building support historical evidence that Merton Hall was a private residence and

Figure 3. *Clay tobacco pipe bowls, spurs, and stems stamped "Pawson Camb". See also the cover of this volume.*

manor house throughout most of its history. Most of the 18th century pottery consisted of finer tablewares denoting a middle to high status occupant and the sherds were largely concentrated in room RG9. The assemblage of 165 clay tobacco pipe fragments is notable, as it comes from a fairly small area which is the southern room RG9 and its ancillary room RG10.

The plan of *c.* 1820 shows the occupant of the southern part of Merton Hall as a "Mr. Eaden" and on a later plan (printed in Royal Commission on the Historical Monuments of England (RCHME) 1988) this room is labelled as "Dining Room". It is possible that it carried this function for a couple of centuries.

Conclusions and significance

The archaeological works carried out during the refurbishment of Merton Hall identified significant archaeological remains dating to the Roman period and revealed some of the development and occupational history of this architecturally important building.

The recovery of the remains of at least 10 individuals from the excavations at Merton Hall, together with the finds of human skeletons during building work in the School of Pythagoras to the east and the Cripps Building to the south in the 1950s and 1960s suggests that a cemetery existed not far outside the southern walls of the 3rd/4th century fortified Roman town.

This has now been confirmed by recent work at the School of Pythagoras by the Cambridge Archaeological Unit (CAU), which revealed a large Roman cemetery, extending from the School of Pythagoras towards the River Cam (Dickens pers. comm. and CAU in prep.).

At this stage it is difficult to draw any wider conclusions as to the nature, relation and demographic of the burial ground or indeed Roman Cambridge on the basis of a single complete burial and a number of highly fragmentary remains. What is possible to conclude is that the presence and location of the human remains at Merton Hall add to the data available from other late Roman burial grounds outside the Roman settlement, most notably the contemporary cemetery at Jesus Lane to the east of the River Cam. This may underline the suggestion that Cambridge remained a significant centre throughout the 4th century (Alexander *et al.* 2004).

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All artefacts and data gathered during the fieldwork have been consolidated into an archive and deposited at Cambridgeshire County Council Archaeology Store.

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The production and deposition of the Witcham Gravel Helmet

Jaime Kaminski and David Sim

In the nineteenth century an elaborately decorated Roman cavalry helmet was discovered during turf digging in the parish of Witcham Gravel, Cambridgeshire. The helmet was constructed of an iron bowl onto which a decorated copper alloy casing was attached. The outer copper alloy casing has been relatively well-preserved, but only the heavily corroded apex of the iron helmet bowl remains. The Witcham Gravel helmet find appears to be part of a much wider context of helmet deposition in watery places during the Roman occupation of East Anglia.

Introduction

On May 17, 1877, Augustus Wollaston Franks (1826–1897), the then director of the Society of Antiquaries exhibited a "very remarkable" Roman helmet that was "made of bronze, lined with iron" to the Society at Burlington House, Piccadilly (Anon 1877). The helmet was part of a collection of antiquities that belonged to Thomas Maylin Vipan (1845–1891) of Sutton, near Ely, Cambridgeshire. It had been discovered at a depth of "about four feet" during turf digging at Witcham Gravel (Figure 1) west of the small hamlet of Wardy Hill (Burges 1877, 230–1). The helmet was similar to an example in the Musée d'Artillerie, Paris (Demmin 1911, 122), which, in conjunction with its unusual design, led Franks to suggest that the helmet was of late Roman date possibly belonging to a "mercenary in the Roman pay." He promised a "more extended communication on a future occasion" although this never materialised.

In June 1880, once again under the auspices of Franks, Vipan loaned the helmet to the Royal Archaeological Institute. At the Institute's headquarters in New Burlington Street, Mayfair it was one of the highlights of their 'Exhibition of helmets and mail' which took place between 3–16 June and included over 200 pieces of armour (cf. Burges 1880, 463; Walford 1880, 83). The unusual design of the helmet with its raised roundels on the neck guard attracted considerable attention (see Figures 2 and 3). The novelty of design even led some commentators to suggest that it had been produced in Italy (Anon 1880).

After the exhibition at the Royal Archaeological Institute Vipan returned to Cambridgeshire with the helmet where it remained in obscurity for over a decade. On 23 August 1891, Thomas Vipan died in Ely. In November of that year the helmet was purchased by the British Museum from the Rollin & Feuardent auction house who sold it on the instructions of the executors of Vipan's estate. Since then the helmet has been on display in the British Museum (cf. Cook 1903, 729; Wilson 2001, 205).

Description

The British Museum accession record (1891,1117.1) describes the helmet as a: "Bronze, Roman helmet, head piece tinned, fronted with rows of embossed dots, neck piece with three large bosses, one cheek piece." Labelled as 'Auxiliary Cavalry B' in Robinson's typology of Roman helmets, it is the only surviving example of such a helmet form (Robinson 1975, 94–5, plates 250–2). Originally the helmet would have been constructed of an iron helmet bowl onto which various elements of copper alloy casing were attached. The copper alloy casing has survived well in the peat, unlike the underlying iron helmet bowl. Today, only the heavily corroded apex of the iron helmet core remains, where it has adhered to the copper alloy casing.

The well preserved copper alloy casing is made of four separate components; the tinned skull cap, the brow and occiput sections and the neck guard. There are also ear protectors and applied decoration in the form of three raised copper alloy roundels riveted to the neck guard and potentially three to the helmet bowl. These sections were connected to each other and then this entire casing was attached to the iron helmet core by two flat split pins at the front and rear, and two rivets at each side on the bowl and six rivets around the trailing edge of the neck guard. A raised decorative roundel that was soldered into place in the front of the helmet was used to conceal the head of the split pin on the surface of the helmet, at the front and rear. The helmet has sustained a linear blow above the right brow although it is impossible to determine if this impact occurred prior to deposition or during its discovery during turf digging.

Proceedings of the Cambridge Antiquarian Society CIII pp. 69–82.

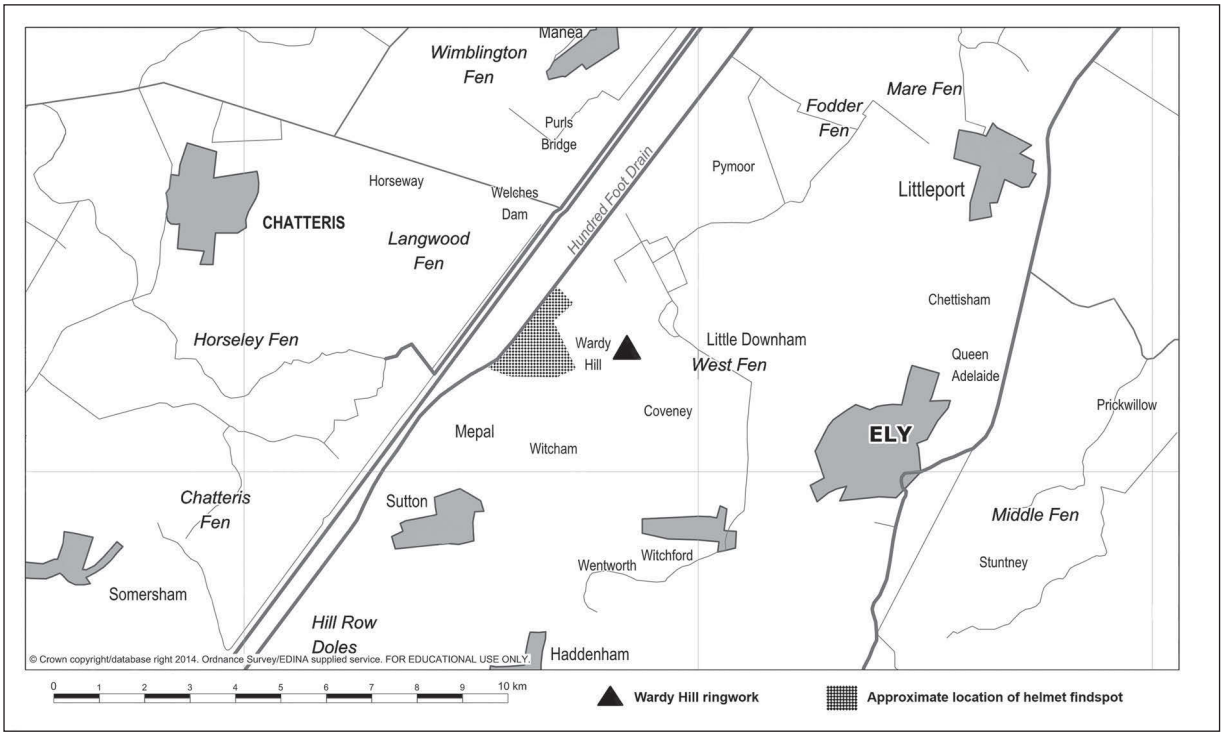

Figure 1. *The findspot of the Witcham Gravel helmet. Note that grey lines indicate watercourses; roads are not shown.*

The helmet bowl

The iron bowl provided the helmet with its structural strength. Although this iron bowl has now corroded, the 'return' on the neck guard, where the copper alloy has been folded around the edges of the iron core to hold it in position, is at its maximum 1.55mm wide and 4.00mm deep. Originally this return would have folded over the iron bowl and so provides an indication of the maximum thickness of the underlying iron core. However, detailed measurement of the thickness of raised and spun Roman helmets suggests that raised helmets often have a thicker outer rim and the metal thins towards the apex of the helmet (cf. Sim and Kaminski 2011: 85–86). The thick rim (*c.* 1.55mm), in conjunction with its irregular shape, gives an indication that the helmet bowl was raised rather than spun. Folding the copper alloy over the iron core conferred two advantages, it formed a smooth edge for the neck guard and it allowed the copper alloy casing to be firmly attached to the core.

The copper alloy casing is decorative and imparts almost no structural strength whatsoever, both because of its thinness and because it is composed of different pieces of metal linked only by rivets and solder. The reason for such a thin copper alloy casing is that it is sufficiently pliable to allow the smith to do repoussé work, which would have been considerably more difficult on thicker metal and it provides a rich colour which would have provided a visual contrast to the tinned elements of the helmet.

The design on the helmet consisted of four mirrored, double semicircles of repoussé punch marks. This was made using domed punches applied to a double semi-circular fullered groove. Each double semi-circle design consisted of an average of 70 repoussé punch marks – 37 on the outer semicircle and 33 on the inner. A wheel, possibly using a wooden form as a guide, was used to create a channel. Punch marks were made manually in the channel between 3.5mm and 5.0mm apart. A toothed wheel was not used to create the punch marks. This is evident because of the irregularity of the punch marks and the lack of a repeated pattern of depressions that would have been apparent if a wheel had been used.

Two circular features have evidence of solder on their inside edges which was clearly to hold a component in place. The 52mm diameter circular solder marks left where the features were attached suggests that two raised roundels such as those on the neck guard were attached here, although because both features have been lost this is a matter for conjecture. Previous interpretations of these missing features have included horns (Burges 1880, 463).

The join between the brow section and the rear section of the copper alloy is concealed by the roundel and the ear guards. It is therefore no coincidence that these features are missing because they are located at a point of weakness in the helmet. These features, in conjunction with the ear protectors, helped to connect the front and back copper alloy casing elements. They conceal the join between the front and back casing and so would have been sited at a point that was susceptible to movement.

There is also evidence for a now missing crest box which was 2.3cm wide and 20.5cm long. A scriber was used to mark out the position of the crest box on the copper alloy skull cap and three pairs of rivets at each end and at the crown were used to secure the box in place. The crest box would have been constructed of organic material such as wood and horsehair and so would have been lost to decay if it was deposited with the helmet.

Neck guard

The neck guard is 74mm wide and projects at approximately 30 degrees below the horizontal. The decorative raised roundels, reminiscent of old-fashioned bicycle bells, are a unique feature of the helmet. Three adorn the upper surface of the neck guard. These roundels are 52mm in diameter and were both riveted in the centre and soft soldered. They were hollow and were produced by raising. The recess for the rivet head appears to have been made with a shaped punch that has left a series of facets in the recess. The rivets for the roundels would also have helped hold the copper alloy casing to the iron core.

Six rivet holes, each 1.7mm in diameter, have been punched along the outer edge of the neck guard. Although the rivets have been lost they would have helped to hold the outer casing of copper alloy to the

Figure 2. *The 1st century AD Roman helmet found at Witcham Gravel, near Ely. © Trustees of the British Museum.*

iron core. The iron core has corroded away and only a small conglomeration of oxidised material remains adhering to the inside of the neck guard.

The decorative border of punched work at the junction of the neck guard and the rear of the helmet was used to conceal the join between the occiput and the neck guard.

Cheek piece

Only the copper alloy casing of the left cheek piece (Figure 4) was recovered from the peat with the helmet. This has an average thickness of only 0.6mm and has a distinct black patina, characteristic of tannin staining caused by deposition in peat. It also exhibits age cracking on the rear edge.

The edge of the cheek piece was folded over. As with the helmet body this had the dual function of providing a smooth edge to the cheek piece and helping to secure the softer copper alloy to a stronger backing plate probably of iron (cf. Robinson 1973, 292). The width of the fold suggests that this backing plate had a minimum thickness of 0.5mm although this was most probably lined with leather and/or padded.

The cheek piece would have been highly ornate. As with many cavalry cheek pieces a naturalistic representation of the ear has been embossed using repoussé. This is a skilled operation and may indicate the use of specialist craftsmen. Certainly classical sources attest to the presence of specialist cheek-piece makers (*bucculariī*). The embossed ear is mirrored in the rounding seen in the edge of the ear protector. Further embossed decoration includes a semi-circular fullered groove that mirrors the semi-circular decoration seen on the helmet body. This was then tinned.

Other decorative features were applied after-

Figure 3. *Rear side view of the Witcham Gravel helmet. © Trustees of the British Museum.*

Figure 4. *The left cheek piece of the Witcham Gravel helmet. © Trustees of the British Museum.*

wards. For example five rivet holes indicate where decorative roundels were attached. The impression of the head of the roundels remains on the surface of the cheek piece. These may have been of copper-alloy to contrast with the silver coloured finish of the cheek piece. These decorative roundels may also have had the additional function of helping to tie together the copper alloy casing to the iron core. Four of the rivet holes were punched from the outside surface to the inside, and one was punched from inside to outside.

The heads of two of the roundels concealed two further rivet holes. These concealed rivet holes may have been punched in error; such mistakes were not unknown in Roman helmet manufacturing (Kaminski and Sim 2012, 73). Alternatively the rivet holes may have held rivets that helped tie the copper alloy case to the core of the cheek piece, although this seems unlikely considering the close proximity of the decorative rivets which may have served the same function.

However, while the outer surface was highly decorated the inner elements had less time devoted to them. The hinge on the cheek piece was roughly folded and is at best very crude. The cheek pieces were riveted to the iron helmet bowl core with two rivets for structural strength (if the cheek pieces were attached to the copper alloy casing only then they would cause undue stress on the casing). The two rivet holes are centred 36mm apart.

The chin tie loops were constructed of copper alloy nails that were passed through the cheek piece from the outside, bent into a ring and soldered into place. The loop is constructed of wire 2.2mm thick.

Ear protectors

The copper-alloy ear protectors were one of the last items to have been attached to the bowl. This is evident because the rivets used to attach the ear protector penetrate all the other components of the helmet bowl. Hence the ear protectors play an important role in linking the disparate elements of the copper alloy casing together. The ear protector was attached with four rivets – one connected to the neck guard, two to the occiput, and one to the brow section. The edge of the protector is rolled which complements aesthetically the raised design of the ear in the cheek piece. Interestingly the ear protector had little practical function because the ears were entirely concealed by the cheek pieces. As with most of the copper alloy casing it played more of an aesthetic role rather than one of protection.

The production of the Helmet

There were at least 30 major metal components to the helmet. These include the iron helmet bowl, onto which was attached the copper alloy casing. This included the tinned skull cap, the frontal brow piece, the occiput, the neck guard, two copper alloy ear protectors and two copper alloy cheek pieces. Other helmet furniture included six raised roundels (three on the neck guard and three on the helmet body), ten decorative rosettes on the cheek pieces (five on each cheek piece). Copper alloy edging strip was required to conceal the join between helmet and neck guard, and for the helmet brow. Attaching the various components of the helmet together required a considerable number of fasteners, including over thirty rivets. These included rivets for attaching: the rosettes to the cheek pieces (10), decorative roundels (six), ear protectors (eight), neck guard (six), crest box (six), cheek piece attachment (four), and rivets to hold the cheek piece ties (two). In addition, there are two split pins for attaching the copper alloy casing to the iron core. Finally, copper alloy wire was needed to connect the cheek pieces to the helmet body

These were complemented by a crest box (now lost), as well as other organic material such as the helmet lining, padding and straps. This is an extremely complicated arrangement for a helmet and yet provided little defensive benefit.

Construction sequence

The basic construction sequence (Figure 5) can be divided into the following stages:

1. The iron helmet core was produced by raising.
2. A copper alloy skull cap was produced to cover the core. The absence of spinning marks in conjunction with the elliptical shape of the skull cap suggests that it was produced by raising.
3. The neck guard and the rear of the helmet bowl were attached to the brow section by three rivets in the ear protector.
4. The copper alloy casing was further attached to the iron core with a split pin at the front and rear.
5. The roundels were then attached to this covering the split pin.

This composite construction method was not unique, as is seen in the discovery of a number of examples of the iron helmet bowls without casings from Newstead and Northwich (Curle 1911, 164). Conversely, isolated finds of copper alloy casings have been made such as the first century AD brow band from Nijmegen, with the left ear protector still attached and associated sheathing for the neck guard (Robinson 1975, 89, plate 112).

As with many Roman helmets, the component parts are well produced but the fitting of the various elements to the bowl has been poorly executed. For example, one of the raised decorative roundels over-

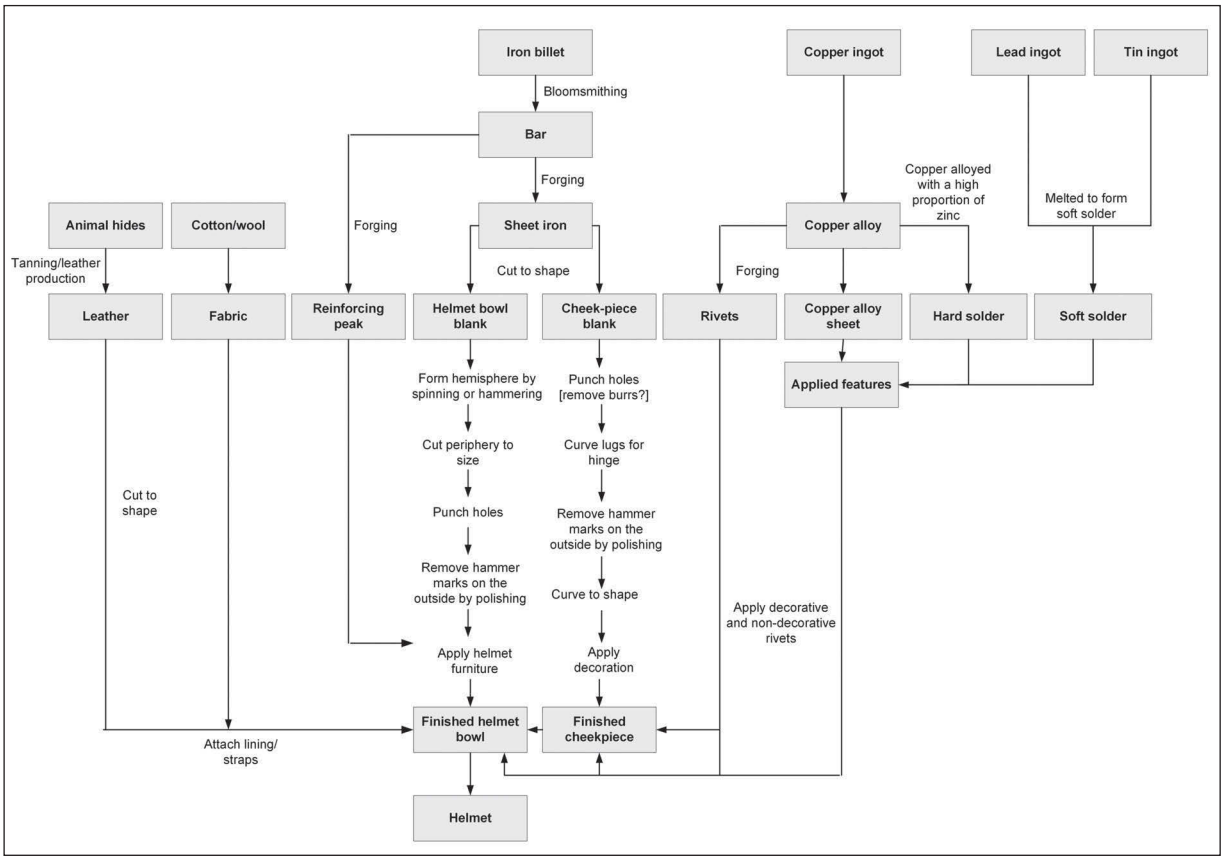

Figure 5. *A hypothetical construction sequence for the Witcham Gravel helmet.*

hangs the edge of the neck guard and the repoussé punch marks are uneven. It seems possible that the components of the helmet could have been mass or batch-produced, or individually produced by craftsmen while the fitting of the components appears to have been undertaken by less-skilled workers. This phenomenon has been noted on other helmets such as the first century AD Coolus helmet recovered from the Thames circa 1934 (Kaminski and Sim 2012), and is seen on some body armour (Bishop and Coulston 2010). Whether a function of the use of semi-skilled labour or hurried production this amateurish composition is not a feature of cavalry sports helmets such as the Ribchester and Newstead helmets. These higher status, often bespoke, helmets are evidently produced in their entirety by skilled craftsmen.

Appearance

When the Witcham helmet was displayed to the Royal Archaeological Institute in June 1880 one observer recorded that: "This must have been a very splendid affair when perfect, as the major part of it is composed of gilt bronze. It is built up of several pieces riveted together upon an iron skull cap" (Burges 1880, 463).

When new the helmet would indeed have made a colourful spectacle. The silver-coloured tinned skull cap, neck guard and cheek pieces would have contrasted with the yellow copper-alloy of the brow, ear protectors, occiput and neck guard. The effect would have been of a gold-coloured band encircling the 'silver' helmet bowl. This would have been further complemented by the raised copper alloy roundels on the neck guard and above the ears and brow. It is also probable that the decorative roundels attached to the cheek piece would have been of copper alloy to contrast with the tinned background however, this cannot be confirmed as only the rivet holes remain.

The most distinctive features of the helmet are the raised roundels reminiscent of a traditional bicycle bell. These are as yet unique among the currently known corpus of Roman helmets. However, a clue as to their origin can be seen in the sixth century BC bronze Etruscan 'bell' helmets from Picenum, Umbria and Etruria. These helmets have two raised roundels, of the same construction as those on the Witcham Gravel find, above the ears. Examples can be seen in the University of Pennsylvania Museum (Accession number: MS 1607), the Metropolitan Museum of Art, New York (Accession Number: 08.2.2), and the British Museum (Accession Number: 1772,0303.4). However, the roundels on these early helmets were often filled with lead thereby conferring some defensive advantage, the bosses that remain on the Witcham helmet are hollow and have no defensive benefit (Cowan 2007).

Dating

Robinson's typology of Roman cavalry helmets (1975, 89–106) highlights how Roman helmets gradually offered increased protection over time. Early examples were based around a simple iron bowl, cheek pieces and a narrow neck guard, but no reinforcing peak, such as the Newstead helmet (Curle 1911, 164, plate xxvi). Later in the second century AD the cheek pieces for cavalry helmets became larger protecting more of the face and leaving only the eyes, nose and mouth exposed (Robinson 1975, 89). The steep angle and size of the neck guard is suggestive of a date in the third quarter of the first century AD. This is however the date of production rather than the date of deposition, in the absence of associated finds from the peat it is difficult to ascertain how long the helmet was in circulation prior to deposition.

It may be that the helmet was accompanied by other finds that were not noticed by the peat cutters in the nineteenth century. For example, a similar high status helmet find was made in 1910 by a peat cutter at Deurne near Helenaveen in the Peel region of the southern Netherlands. Here a gilded Roman helmet was found together with coins (dating to AD 315–319), a fibula, a spur, some unmatched pairs of shoes, a sword sheath, fragments of leather, and other items (cf. Van Driel-Murray 2000; Pouls and Crompvoets 2006).

The depositional environment

The exact find spot of the helmet remains elusive. Contemporary accounts of the helmet's discovery refer to it as having come from "Witcham Gravel" (Burges 1877, 230–1; 1880, 464). The former parish of Witcham Gravel was located in the south of the Fenland Basin, on low-lying ground to the north-west of the former Isle of Ely. It was surrounded by the villages of Witcham, Wardy Hill, Mepal, Coveney, Pymore, Manea, and Chatteris all of which are sited on higher ground above the surrounding fenland which is now predominantly agricultural land. Unfortunately, in the late nineteenth century the parish of Witcham Gravel covered 157 hectares (389 acres) making it difficult for contemporary scholars to use the parish alone to narrow down the find spot. The other evidence for the broad location of the find spot can be gleaned from the reference to the helmet having been found at a depth of four feet (*c.* 1.2m) "in peat". The surface geology of the area is predominantly (Nordelph) peat (BGS sheet 173), although alluvium is present in the Washes to the north, while the stiff greenish grey Jurassic Ampthill Clay forms the skirtland to the south (see Figure 6). Peat was extensively worked in the Ely region during the Victorian era with the area between Coveney and Manea witnessing the heaviest extraction (Skertchly 1877). It seems unlikely that the exact find spot will now be located because drainage of the fens has led to considerable peat wastage which, coupled with ex-

tensive peat working and agricultural exploitation, has fundamentally changed the character of the fenland around Witcham Gravel. However, the broad area of the find spot can be refined by excluding the parts of Witcham Gravel that did not support peat fen (see Figure 6). Using these parameters it is clear that the helmet was found in either Byall Fen or Great Dams Fen.

In the 1920s Christopher Hawkes of the British Museum's Department of British and Medieval Antiquities expressed the hope that if the site of the helmet find could be located then perhaps the then new technique of pollen analysis could be used to ascertain the nature of the natural environment at the time of deposition (Hawkes 1927). Although the find spot has not subsequently been located the Holocene geology and environment of the Witcham/Mepal area has been extensively studied (e.g. Burton and West 1991, West *et al*. 2002, Heistermann 2010, Oxford Archaeology 2012).

This has generated a broad picture of the environmental history of the locality (Wheeler and Waller 1995). The formation of the fenland environment started at the beginning of the middle Bronze Age (*c.* 1500 BC). At this time marine incursion from the north backed up the freshwater systems which led to a rise in the level of groundwater and which encouraged the expansion of the Upper (Nordelph) Peat (Gallois 1988, fig. 35, Evans 2003a). As the fen and marsh expanded the higher ground became isolated as islands. Before the formation of the peat it is likely that the area was relatively dry, although dissected by channels. Peat formation would have continued in the area up until the drainage works of the seventeenth century.

Scholars wishing to understand the nature of the local environment at the time of the helmet's deposition are fortunate that the Wardy Hill ringwork excavations had a considerable environmental focus. Moreover, the final phase of occupation of the ringwork in the late first century may have overlapped with the deposition of the helmet. Interpretation of

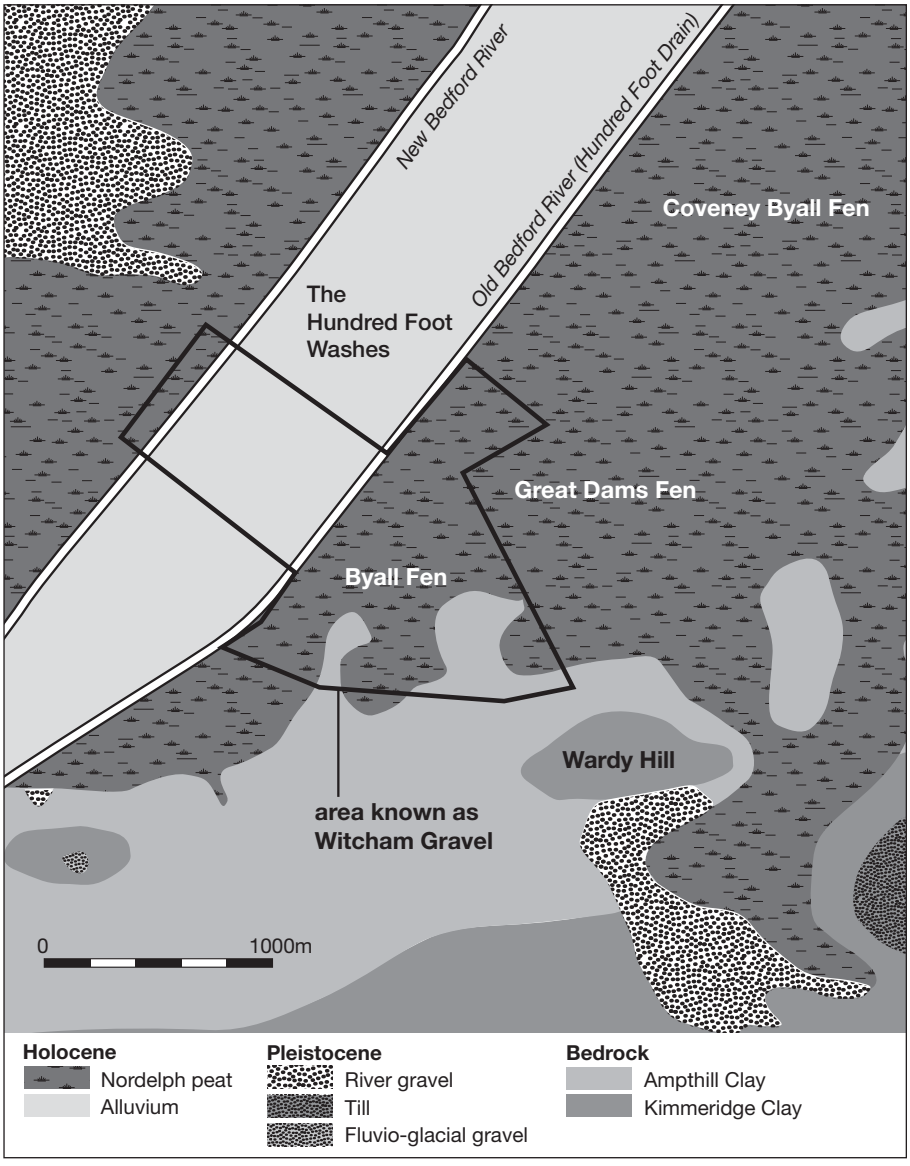

Figure 6. *The surface geology of the Witcham Gravel area.*

the pollen profiles from Wardy Hill indicate that the broader environment of the ringwork during the late Iron Age and early Romano-British periods was extremely open and supported relatively few trees of which oak (*Quercus*), alder (*Alnus*), birch (*Betula*) were the most common. The relative scarcity of tree pollen could be a reflection of few trees in the environment, their distance from the site or that they were so heavily managed that pollen production was suppressed. Analysis suggests that local stands of woodland may have existed on higher ground to the east near the current site of Coveney (Wiltshire 2002, 83). Hedging of hawthorn, rose and bramble (*Cratageus*-type), elder (*Sambucus*) and sloe (*Prunus*) may have been used to augment the defences of the ringwork.

The reed fen where the helmet was deposited supported extensive willow carr. Saw-sedge (*Cladium mariscus*) from the fen was found on the Wardy Hill site where it was probably used for thatching and fire kindling. Other wetland taxa growing in the fen included sedges (*Cyperaceae*), greater reedmace (*Typha latifolia*), bur-reed and associated plants (*Sparganium*-type) (Wiltshire 2002, 83).

Pollen analysis at West Fen Road *c.* 5 km to the east reveals that the greatest abundance of trees and shrubs (predominantly oak and ash) was evident during the later Iron Age, but this period also saw the start of a progressive reduction in woody vegetation.

Based on the evidence available in the 1920s Hawkes could assert that Witcham Gravel was remote from Romano-British occupation sites (Hawkes 1927) However, recent archaeological research conducted during the Fenland Survey (Hall 1996), the Wardy Hill ringwork excavations (Evans 2003a), and subsequent development-led studies have updated this perspective. It is becoming apparent that the later Iron Age and Romano-British periods witnessed increasing activity in the locality (Evans 2003a, figure 141). Just as with the contemporary settlement distribution, the Iron Age and Roman settlement clung to the higher ground on the edges of the fen. Both Iron Age and Romano-British activity were recovered in the region of Witcham and Coveney, and particularly on the higher ground in the Wardy Hill environs (Hall 1996, fig. 88). This includes the Iron Age ringwork at Wardy Hill, as well as a number of Iron Age and/or Romano-British crop mark sites in the vicinity.

These include Hall's Coveney 6 site (TL 487806) which is a square cropmark enclosure with c. 50m sides which has yielded both Iron Age and Romano-British material. At Witcham 4 (TL 462814) a scatter of late Roman occupation debris is possibly associated with a cropmark of a sub-rectangular enclosure. Witcham 5 (TL 478806) is another square cropmark enclosure which has yielded Iron Age material. Nearby Witcham 6 (TL 469807) is a double ditched square-sided cropmark enclosure with sides of c100m with internal subdivisions yielded a few abraded Roman sherds (Evans 2003a, 8).

Further to the east of Wardy Hill and west of Ely a dense swathe of late Iron Age and Early Romano-British settlement is evident. At West Fen Road, Ely (TL 530808) a substantial Late Iron Age settlement was recovered with multi-period activity extending to the Saxon period (Regan 2001). At Hurst Lane, Ely (TL524814) a major settlement comprising Iron Age round houses set in a series of compounds were overlain by a Romano-British field system with associated structures. The layout of the Romano-British field systems followed Late Iron Age alignments indicating settlement continuity on the site (Evans 2003a, 9–10). Further evidence for Late Iron Age and Early Roman settlement extending over 1 hectare was recovered at the 'Trinity Lands' (TL 526804) south of West Fen Road (Masser and Evans 1999). Evidence for Iron Age activity has also been recovered from the cathedral and market precincts of Ely itself (Hunter 1992a and b). Further afield to the southwest fieldwork along the Colne Fen/Earith Fen edge has revealed Romano-British activity at Langdale Hale thought to have been a major farming estate, while at the Camp Ground a huge inland barge port settlement was linked to the Car Dyke canal. At Fen Drove an enormous settlement complex extended over 20 hectares (Evans *et al*. 2013). Numerous other smaller settlements are sited around the main inlets of the terraces of the Colne/Earith Fen edge. At Haddenham a Romano-Celtic shrine was constructed on top of a Bronze Age barrow in the first century AD. This was surrounded by a ditch in the second century before it was dismantled in the third and re-established in the fourth century (Evans and Hodder 2006, 327–46). To the north at Stonea a Romano-British settlement was founded circa AD 130–150 although there was evidence for Late Iron Age/early Roman activity on the site. The western half of the settlement was dominated by a substantial rectangular building with a hypocaust and decorated walls, the deep foundations of which are suggestive of a multi-storey structure. This part of the settlement declined in the early third century AD. The eastern half of the settlement comprised timber buildings arranged on a gridded street pattern.

Numerous crop mark sites and ceramic scatters attest to the presence of Iron Age and Romano-British settlement in the vicinity of the helmet find spot (Phillips 1970). Far from being a backwater this region of the fens was well populated and heavily exploited for resources during the Romano-British period.

However, the nearest and most prominent of the sites in the vicinity of the helmet's site of deposition was the Iron Age ringwork at Wardy Hill (Evans 2003a, Coveney Site 1 in Hall 1996, 50–1). This site was located on high point in the skirtland where a cap of Kimmeridge Clay emerges above the surrounding Ampthill Clay. About 1 hectare of the ringwork was excavated which was part of a much more extensive quasi-linear settlement (Evans 2002, 2003a). The ringwork showed continuity into the Romano-British period before its decline in the late first century. The site continued to function for two to three decades after the Boudiccan insurrection. Hence it may have still been occupied when the helmet was deposited.

It is of course unclear if there was a relationship between the Wardy Hill ringwork and the helmet depo-

sition, however evidence from the site may provide an indication of the local community's relationship with the fen and the nature of ritual activity in the locality around the time of deposition.

It has been proposed that the Wardy Hill ringwork may have controlled access to the causeways that crossed the fenland. Such causeways have been linked to votive practices (Evans 2003a, 266). Similar causeways, such as the one excavated at Fiskerton in Lincolnshire, have been associated with the deposition of votive objects during both the Iron Age and Romano-British periods (Field 1986; Field and Parker Pearson 2003).

Moreover, in common with many fenland communities the inhabitants of Wardy Hill did not make extensive use of the wild animals of the marsh (Evans 2003a, 136–7). This may suggest that the fen was considered as the 'other', a place outside the realm of the ordered world of settlement. The relationship between the indigenous community and the fen would have been instrumental in ritual activity. Whatever, the ritual beliefs of the local communities of the locality there is evidence for a cessation of activity at Wardy Hill at the close of the first century AD (Evans 2003a, 271).

It was not only the indigenous communities who inhabited the area, there is increasing evidence for a broader military presence in the wider area during the middle decades of the first century AD Evans (2003b, 251) suggests that a backfilled early military camp could exist in the Langwood environs only 5km to the north of the find spot. Here a military cuirass fitting was found in addition to a probable helmet handle, a Type 1 stud, and a lead chape/strap-end. The site also yielded first-century coinage which was interpreted as the product of trade with the military. Further north an early fort has been discovered at Grandford (20 km to the north of the findspot) and possible traces of military occupation at Stonea Camp (11 km north) have been linked to the Icenian revolt of AD 47. The fort at Longthorpe (34 km NNW) has been associated with the Boudiccan rebellion. An alleged 'Roman camp' was apparently destroyed during the construction of Ely airfield (Phillips 1970, 227).

Roman helmets finds in watery contexts

It is evident that the helmet was originally deposited in marshy conditions. The helmet is not unique in being found in a watery context in the East Anglian region (see Table 1). Aside from the Witcham Gravel peat bed find the East Anglian fens have yielded a small number of helmets and helmet parts. These include a type H cavalry sports helmet that was recovered from a bed of peat exposed during dredging of the River Wensum in Norfolk in August 1947. The following year a face guard from a different cavalry sports helmet, probably also type H, was found in the same deposit of dredged material where the previous helmet had been recovered indicating that at least two cavalry helmets were deposited in the marsh near this location (Toynbee and Clarke 1948; Wright 1951, 131–2). It seems unlikely that this was anything other than deliberate deposition. All three East Anglian finds were recovered from peat indicating deposition in still water. The presence of still water further reinforces the idea of deliberate deposition because there is far less potential for the erosion of archaeological contexts.

Other water finds of helmets from the eastern part of the country include a mid-first century AD Coolus infantry helmet dredged from the River Thames or Walbrook around 1934 (Kaminski and Sim 2012). Moreover, a cheek piece belonging to a different helmet was also dredged from the Thames at Kew some time before 1910 (British Museum Accession Number: 1910,107.1). Both these finds appear to indicate that the Thames was another favoured site for deposition of helmets, exploiting a river with strong associations with votive deposition since at least the Bronze Age.

Further south another mid-first century AD Coolus helmet was dredged from the estuarine waters of Bosham or Chichester Harbour in the nineteenth century although this is more likely to be a helmet that was simply lost overboard (Kaminski and Sim 2007).

Only two helmet finds from the East Anglian region have been recovered from dry land contexts. These are the helmet fragments from Sheepen, near Colchester, which came from sealed stratigraphic contexts assignable to the clean-up operations after the Boudiccan rebellion and as such do not represent a deliberate deposition (Hawkes and Hull 1947, 336). These iron fragments represent a number of different helmets including Type G and Type H Imperial Gallic forms.

The remaining helmet find is the copper alloy Hawkedon gladiatorial helmet discovered to the south west of Bury St Edmunds in 1965 (Painter 1969). This, however, is not a military helmet and so is not directly comparable. It is apparent that if these examples are excluded from the analysis all the remaining helmet finds from East Anglia derive from watery places.

Aside from complete helmets East Anglia has yielded a number of finds of helmet parts (see Table 2). Unfortunately these isolated finds of helmet furniture can tell us little about depositionary practices because all could have been easily lost from a helmet (the crest-holders are soldered on, while handles are vulnerable to breakage because they are cast).

At Hallaton in Leicestershire, an ornate Roman helmet bowl of first century AD date was found 6m to the east of the entrance of a Late Pre-Roman Iron Age–early conquest period ritual enclosure. The helmet was made of iron but plated in silver and possibly gold, it was found in association with seven cheek pieces, packets of silver foil, animal bones, and 1162 coins suggestive of a date of deposition of c. AD 43–50 (Score 2011a: 30–1; Leins 2011, 41). The helmet had been in inverted in the ground with the assemblage of coins and animal bones placed to one side of it (Hockey and James 2011, 61). A fragment of

Name	Region	County	Find location	Date found	Form	Date of helmet (AD)	Parts missing	Material	References
Worthing helmet	East Anglia	Norfolk	Bed of peat exposed during dredging of River Wensum	1947	Cavalry sports Type H	Mid-second to third century	Face guard	Copper alloy – iron core removed	Toynbee and Clarke 1948
Worthing face guard	East Anglia	Norfolk	Dredging of River Wensum	1948	Cavalry sports probably of Type H	Possibly third century	Helmet bowl	Copper alloy	Wright 1951, 131–2
Witcham Gravel helmet	East Anglia	Cambridgeshire	Peat deposits at Witcham Gravel	Possibly 1870s	Auxiliary cavalry Type B	First century	Right cheek piece	Copper alloy (some tinned), with an iron core	Robinson 1975, 94–5
Thames Coolus	Thames	County of London	Walbrook or River Thames	1934	Coolus Type E	First century	Cheek pieces	Copper alloy	Kaminski and Sim 2012
Thames cheek piece	Thames	Middlesex	River Thames at Kew	Before 1910	Unknown	First to third century	Helmet bowl	Copper alloy	Unpublished: British Museum Accession No: 1910,107.1

Table 1. *Roman helmets and helmet parts from watery contexts in eastern Britain.*

PAS ID	County	Find location	Part	Material	Description
SF-D21822	Suffolk	Combs	Crest holder	Copper-alloy	Crest-holder from a 'Coolus' type helmet of the 1st century AD
SF-170D83	Suffolk	Wenhaston	Crest holder	Copper-alloy	An incomplete crest-holder from a 'Coolus' type helmet of the 1st century AD
NMS1904	Norfolk	Colkirk	Possible helmet handle	Copper-alloy	Curved oval section (7 x 5.5mm) rod with both ends missing, length 49 mm, probably part of a drop handle, from a vessel or helmet
NMS1903	Norfolk	Colkirk	Possible helmet handle	Copper-alloy	Fragment of a cast handle with circular perforation at one intact end. The reverse is flat and plain, the front convex and moulded in the form of a fish, with the head missing

Table 2. *Roman helmet parts from non-watery contexts in East Anglia from the Portable Antiquities Scheme (PAS) database.*

human distal humerus was also found in association with the helmet, which contrasted with the dearth of human bone in the rest of the ritual enclosure (Browning 2011, 125). The combination of different helmet components and packets of silver foil, in conjunction with coins and human and animal bones are difficult to explain, however they do appear to have been deliberately deposited as part of a ritual act. The helmet parts may have been a high-status gift or the equipment of a Briton who belonged to the auxiliary cavalry, plunder or part of cross-cultural trade (Score 2011b, 161).

The Hallaton Helmet provides an indication that helmets were a potential ritual object that may have been treated in different ways, possibly according to tribal/cultural customs. In a study of military equipment and horse gear in non-military contexts in the upper Rhine Nicolay (2007, 87) noted that there were spatial and temporal differences in the types of objects deposited. The types of objects deposited changed over time moreover, there were differences in the types of objects deposited in different areas. In what is interpreted as the territory of the Treveri the deposition of swords and shields in graves was commonplace, which contrasts to the territory of the Batavi where weapons and equipment have mainly been recovered from rivers. It appears that different tribal/cultural groups preferred to deposit different

items of equipment in different environments.

The depositionary context

The deposition of metalwork in the fens of East Anglia has its origins long before the Roman occupation. The southern fenland is second only to the Thames Valley in terms of the quality and quantity of later Bronze Age metalwork (cf. Bradley 1990). Such depositionary practices continued into the Iron Age as evidenced by finds such as the sword and scabbard from Isleham south east of Ely (Stead *et al*. 1980). Although the deposition of objects in watery places began in the Early Bronze Age the types of objects deposited changed considerably over time. During the Bronze Age weapons dominated votive offerings, while armour (such as shields and helmets) was poorly represented, but by the Iron Age increasing evidence is found for the deposition of apparently ceremonial armour as well as other weapons (the Battersea Shield and Waterloo Helmet being obvious examples). By the Roman period helmets are an important votive offering while weaponry decreases in relative importance.

It is evident that a disproportionate number of Roman military helmets have been recovered from watery contexts in East Anglia considering the apparent lack of military activity (see Table 1). Brown (1977, 7) interpreted the helmet in the context of other military finds such as the sword from Whittlesey and a ballista bolt from Cottenham as signifying the presence of a small police force that was spread through the fenlands. Other military equipment includes the helmet furniture seen in Table 1, and the mouth of a bronze trumpet found at Chesterford and thought to be of military origin (Fox 1923, 215). Although no explanation was proposed for why such a valuable item as the Witcham Gravel helmet ended up in a marsh.

The early date of the helmet and its location apparently away from any areas of Roman military activity has made it tempting to hypothesise the votive deposition or discard of war booty during the Boudiccan revolt (cf. Robinson 1975, 95). The possibility that the helmet could represent war booty was proposed as early as 1927 by Christopher Hawkes. He felt that it could have been "a relic of Boudicca's defeat of the IXth legion". He went on to say that "the absence of Romano-British occupation in the immediate neighbourhood seems to distinguish this find from the majority of Fenland discoveries of that period, which are of course agricultural in character and it seems most probable the helmet was thrown away (whether as jetsam or votive offering) into marsh or standing water" (Hawkes 1927). The possibility that the helmet could be war booty has been reiterated (cf. Hingley and Unwin 2006, 101). Although there is simply insufficient evidence to substantiate these hypotheses.

While accidental or traumatic loss cannot be ruled out the presence of three helmets from watery contexts in a region with a long association with votive deposition in watery places is suggestive of deliberate deposition.

If the helmet was a votive offering the specific driver for the deposition can only be speculated on. Of course, it could have been a war trophy captured during the Boudiccan revolt and deliberately deposited as a votive offering in the same way that other valued objects were deposited in watery places by indigenous communities. However, the helmet also ties in with a widespread Roman practice of helmet deposition in watery places. Roman troops stationed in or passing through the region may have wished to supplicate local deities. Certainly, the Roman army would have had troops who came from regions in northern Europe where votive deposition in watery places was also practiced (Bonnamour and Dumont 1994; Schalles 1994). Alternatively, retired soldiers who settled in the region, or indigenous troops in the Roman army who had returned home may have deposited the helmet as a votive offering or as part of a funerary rite. It has long been apparent that military equipment can have a lifecycle outside of the military context (cf. Roymans 1996; Nicolay 2008). It is certainly intriguing that the small finds recorded by the Portable Antiquities Scheme between 1997 and 2011 reveal high numbers of objects with apparent military associations in East Anglia including 215 examples in Norfolk, 260 in Suffolk, and 48 in Cambridgeshire (Worrell and Pearce 2012, table 2). It may be that the region was a favoured area for the retirement of veterans (cf. Tacitus Annals 14:31, trans. Jackson 1989).

The deposition of helmets in watery places may have parallels with the veneration of the head by both Iron Age and Roman communities (cf. Kaminski and Sim 2012, 81–82). There are intriguing parallels for the ritual use of the head in the locality in the later Iron Age. The Wardy Hill enclosure produced evidence of bodily dismemberment, and both it and the nearby compound at Hurst Lane had polished crania associated with their principal roundhouses (Dodwell 2003, 232; Dodwell 2007, 66). Slightly further afield the Godwin Ridge was a major site for mortuary rites involving riverine interment. Radiocarbon dating of the assemblage has yielded dates from the Middle Iron Age to the early second century AD (Evans 2013, 67). Moreover, in Norfolk the Worthing Helmet and face guard were dredged from the River Wensum with a fragment of human parietal bone (Toynbee and Clarke 1948, 27).

This association between Roman military helmets and watery places is not restricted to Britain. Across Europe disproportionately high numbers of other Roman helmets have been found in watery places. For example, a minimum of 51% of the known corpus of first century AD Roman Coolus infantry helmets in Europe have been recovered from watery contexts (Kaminski and Sim 2012, table 1).

Conclusions

The Witcham Gravel helmet was discovered during turf digging in either Byall Fen or Great Dams Fen

during the 1870s. It has been categorised by Robinson as a cavalry helmet of Auxiliary Cavalry type B and is considered to have been produced in the later first century AD. The helmet was constructed of a structural iron core to which a multi-part decorative copper alloy casing was attached. Some components of the casing were left in their natural state (the brow and occiput sections, the neck guard and raised roundels), while the skull cap was tinned. The component parts of the helmet were well constructed however, they were crudely assembled suggesting that skilled labour was used to produce the components but semi-skilled labour was employed for assembly. The copper alloy provided a contrasting colour to the tinned elements of the helmet, and was also thin enough to allow repoussé work to be undertaken. The end result was a highly decorated helmet that would have been further enhanced by a crest running front to back.

The most characteristic features of the helmet are the raised roundels, of which three remain on the neck guard while three are hypothesised on the helmet brow and over the ears. Such roundels are currently unknown on Roman helmets but do have a precedent in the sixth century BC bronze Etruscan 'bell' helmets from the Picenum region of the Adriatic coast. Despite the apparent date of the helmet in the third quarter of the first century AD it is unclear how long the helmet was in circulation prior to deposition in the marsh, but it appears likely that the helmet was deliberately deposited in the marsh. The last Roman helmets known to have been deposited in watery places in East Anglia were produced in the third century AD.

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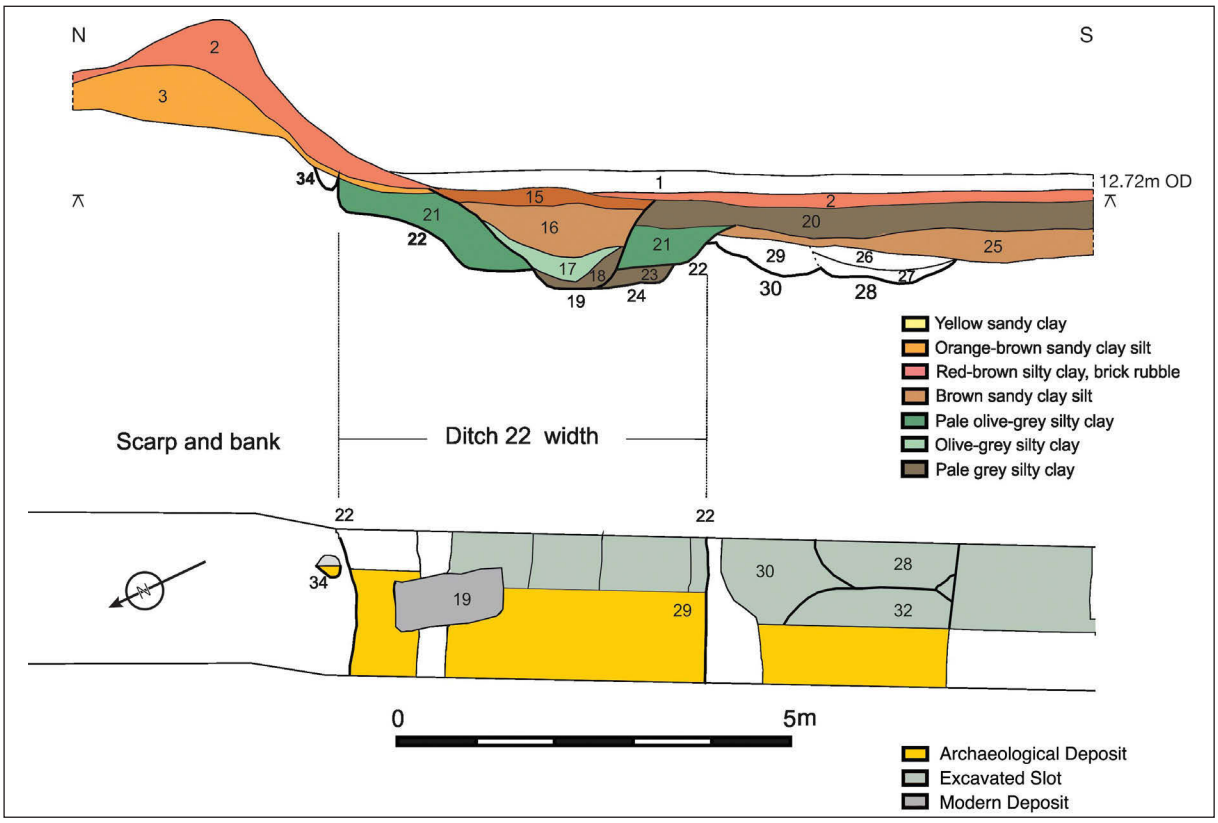

Plate 1. *Kenney's Trench 1 as shown in* Post-medieval Ditches at Home Farm, High Ditch Road, Fen Ditton, Cambridgeshire: CAM ARC Report No. 914. *Top, Section 2 redrawn from figure 3; below, basal plan of features redrawn from trench plan, Figure 2.*

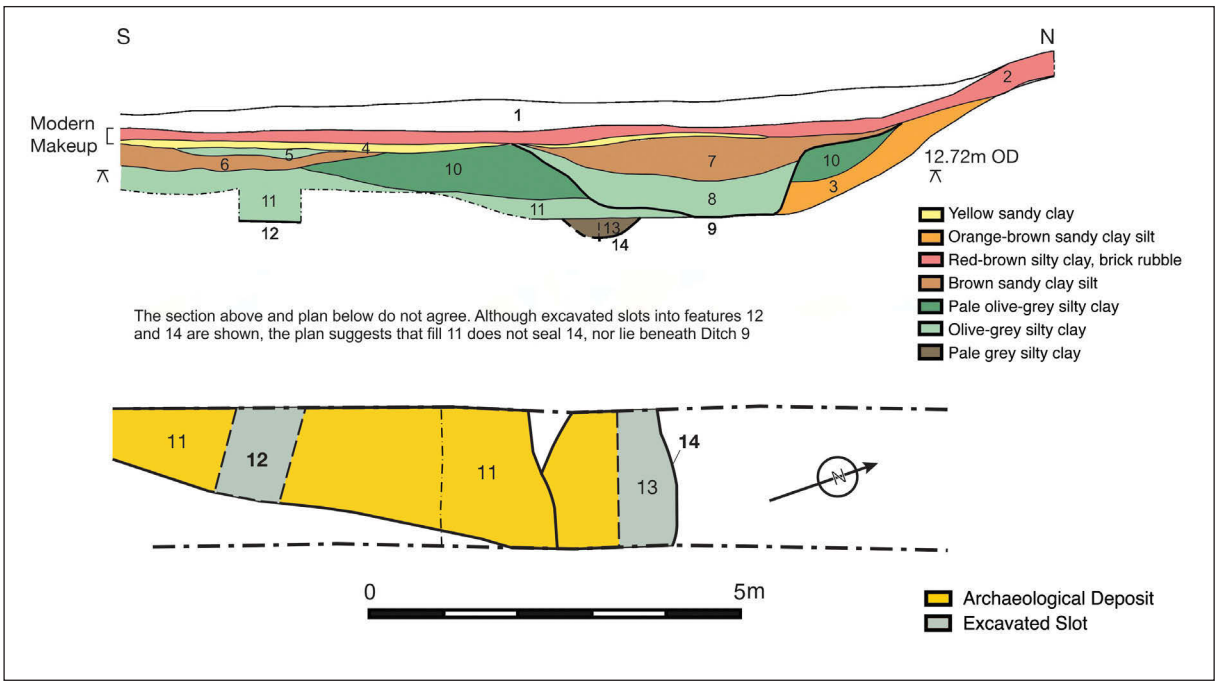

Plate 2. *Kenney's Trench 4 as shown in* Post-medieval Ditches at Home Farm, High Ditch Road, Fen Ditton, Cambridgeshire: CAM ARC Report No. 914. *Top, Section 1 redrawn from figure 3; below, basal plan of features redrawn from trench plan, Figure 2.*

Plate 3. *The bell-pit on initial discovery in 2010.*

Plate 4. *Excavated bell-pit with stone for pivot* in situ*, burnt ring of tiles with clay, blackened sand with fragments of charcoal, note the lime-washed floor (2010).*

'Avenell Way': an ancient track across south Cambridgeshire?

Rob Atkins and Valory Hurst

Illustrations by Gillian Greer

'Avenell Way' was part of an ancient track extending c. *24km from Odsey, on the Cambridgeshire/Hertfordshire border, to Cambridge. Probably originating in the Late Iron Age and in use through the Roman period, some sections of the route continued to be used into the medieval and post-medieval period, part being fossilised by the present A10 near Cambridge. A significant section of the trackway near Steeple Morden has been excavated. Two main phases of hollow way were revealed, including a metalled causeway over a former prehistoric channel, in addition to a number of associated timber buildings. Although the earliest pottery recovered by the excavation is of Iron Age date, the main period of use for the hollow ways and adjacent buildings appears to have been during the late 2nd to mid-3rd century AD. The excavation, combined with the wider study of the trackway, has provided significant evidence for the construction, use, maintenance and decline of this rural route.*

Introduction

Is Avenell Way, an ancient route across south Cambridgeshire? This article proposes that an ancient track, probably originating in the Late Iron Age, once crossed southern Cambridgeshire. Although a considerable body of evidence has been assembled, further investigations are needed to confirm whether it was one complete route and the date of its origin.
A route, probably for wheeled vehicles, as well as travellers on foot and horseback, it linked two major route intersections at Odsey near Baldock, and Cambridge (Fig. 1). Before the identification of this route, which was aligned south-west to north-east, archaeologists and historians had not identified any trackways linking the towns of Baldock and Cambridge (e.g. Smith 1987, fig. 1; Medlycott 2011, fig. 7.9). While its original name has been lost, the Pigott's Estate Map of 1804 (Crawford 1937) gives 'Avenell Way' to a small element of the route in the south-western section of Litlington's medieval fields and this name has been used throughout this report.

The name Avenell Way probably applied only to the section in Litlington, where its etymology may relate to the hill ('ell') that it crossed. Due to the poor condition of the Estate Map, the name could equally be read as 'Apenell'; indeed a Steeple Morden estate map of 1782 (CUL Maps.bb.53(1).95.9) shows the track as 'Apon Hill Way', although this may be a misspelling. Avenell was, however, the name of a significant medieval family based in Gamlingay with a manor in Guilden Morden and Wimpole together with landholdings in Steeple Morden, amongst other places. It is possible that the name may derive from this family, who originated from Avenelles in Normandy, although they are not known to have held land in Litlington. In Guilden Morden the manor was originally located in the south of the parish, near Odsey (Calendar of Inquisitions Miscellaneous File 290 (1)). Avenell Way in Litlington may conceivably have been referencing this early land holding, which was close to where the track began.

Study of the track over its entire length, combined with an archaeological excavation along 650m of it near Steeple Morden in Cambridgeshire, has allowed detailed analysis of the nature of the route and its wider context to take place (Figs 2–5). This, in turn, has potential to contribute to research topics relating to developments in the Late Iron Age and Roman periods including settlement expansion, intensified use of the landscape and improved transport and communication networks (Haselgrove *et al.* 2001, 31).

Geology and Topography

The geology along the 24km long route is predominantly chalk. In some areas, for example within the north-eastern edge of the excavation at Steeple Morden, there are Head deposits (variable clay, sand and gravel) cutting through the chalk, marking the locations of relict channels (British Geological Survey 2001). Topographically the route begins in an area of gently rolling landform at a height of 85m OD near Odsey in the south-west, descending to between *c.* 80m OD gently sloping ground of the chalk downland to the north of Therfield Heath (*c.* 55m OD), on to Meldreth and Foxton, where the land lies at between *c.* 16m and 20m OD. Beyond Foxton the route followed largely flat land, around 15m OD. It then passed slightly north-east, or along the line of the present A10, to Cambridge. Much of the course of the route is under arable cultivation, with some chalk grassland.

Proceedings of the Cambridge Antiquarian Society CIII pp. 83–106.

Figure 1. *Site location with Avenell Way in relation to other routes.*

Background and Methodology

In 2004 Martyn Barber of English Heritage sent aerial photographs showing indications of a prehistoric track in Bassingbourn (Figs 3 and 4) to Sue Oosthuizen and the South-West Cambridgeshire Project (SWCP), but it was not until 2009 that its extent was fully identified (Hurst 2009).

In order to identify the route of Avenell Way, evidence was gathered initially from aerial photographs (see Appendix) supplemented by fieldwork observations and information gleaned from the Cambridgeshire and Hertfordshire Historic Environment Records (CHER and HHER) and the National Monuments Record (NMR). Features and finds in the vicinity of the route were also examined for possible relationships to the track, for instance hollow ways and linear features, or possible destinations for travellers indicated by existing settlement. Natural or man-made landscape elements such as hills or prehistoric monuments, which may have acted as markers at strategic points along the route were also considered.

Early maps, such as the various parish Enclosure Maps, the 1804 Ordnance Survey (OS) Drawing, 147 Baldock, the 1836 1st edition OS maps and more modern ones (many held at the Cambridgeshire County Council Archives, Cambridge University Library and the British Library), were also examined for evidence of the track. A paper by OGS Crawford (1937) was particularly important, combining a study of the Pigott Estate Map of 1804, aerial photography and field walking, to discuss the pre-enclosure field system of Litlington. Although not a map, study of the 1563 Field Book of Bassingbourn (Cambridge Record Office (CRO) P11/28/1) provided further clues. Maps were also used to establish the topography, especially boggy areas and any short changes in angle of field boundaries, roads and watercourses, surrounding the track. Short changes have been shown in other parts of south-west Cambridgeshire to indicate places where other tracks or watercourses join or cross them (Hurst 2011 and 2012).

Coinciding with this research, a series of archaeological works was being undertaken by Oxford Archaeology at Station Quarry, Steeple Morden (Fig. 6), where a *c.* 650m-long section of Avenell Way was examined where it was to be destroyed by three successive extensions to the chalk quarry. Archaeological investigation, initially by Oxford Archaeology (OA) and subsequently by Oxford Archaeology East (OA East) between 2002 and 2012 included aerial photographic assessment (CgMs 2002; Cox 2002), fieldwalking, geophysical survey and trial trench evaluation (OA 2002; OA 2006). This was followed by a 'strip, map and sample' excavation of the second of the three quarry areas in 2007 (Piper 2008; Piper and Norton 2009) and targeted excavation of the third quarry extension to the east in 2012 (Atkins and Graham 2013).

Clear evidence of the trackway, including a causeway across a former channel, was uncovered by the excavations, along with a number of associated timber buildings of Roman date. Numerous tree throws of probable prehistoric origin and several post-medieval ditches were also present; these are not further discussed here. The main excavation archive is currently held at OA East's offices under site code STMSQA 12 and will be deposited at the Cambridgeshire county store in due course.

The route from Odsey to Cambridge (Figs 1, 2–5)

Utilising the methods and resources outlined above it has been possible to trace approximately 79% (Table 1) of the route from Odsey to Cambridge, of which 3.9km has been identified from boundaries shown on maps etc., and *c.* 15km from cropmarks or soilmarks visible on aerial photographs. The remaining *c.* 5km was not traceable, much being masked by housing (e.g. at Meldreth and Trumpington) or located in areas close to river crossings or roads such as Ermine Street, the A10 and M11; these unconfirmed sections are shown as dotted lines on Figs 2 and 5 where the scale permits.

Examination of aerial photographs of sections of the track gives no indication of uniformity of size or construction. It was not possible to confidently determine its width, which varies. It is sometimes visible as hollow ways, but, as seen in Steeple Morden Station Quarry (see below), such stretches may have contained multiple tracks. It was not possible to ascertain from the photographs which stretches may have included flanking ditches in the Iron Age/Roman period.

The south-west section (Figs 2, 3 and 4)

Avenell Way left the Icknield Way, a major prehistoric route made up of numerous tracks, at Odsey. With Highley Hill and its several tumuli to the west, a large bowl barrow just in front of it, Gallows Hill and its tumuli to the east and Penny Loaf Hill to the north (Fig. 2, inset 2a), the start of Avenell Way would have been well marked as the gateway to the Cam Valley, forming an easily recognisable junction in a period before maps were in everyday use.

Baldock, an important Iron Age and Roman settlement, lies *c.* 8km to the south-west of Odsey and Slip End, a small settlement of contemporary date, is located *c.* 4.8km to the east, both on the Icknield Way. Whether the Icknield Way was a continuous Neolithic track extending from Norfolk to Wessex is debatable (Harrison 2003), but the section from Baldock to where Royston is now, could have been in use in the Late Iron Age, if not earlier, as a series of tracks used in varying weather conditions or for different purposes.

Close to the springhead of the River Ivel and the Icknield Way in Baldock, several excavations have been carried out and aerial photographs examined. There is evidence of use of the area from the Late Neolithic, with ditches and banks, and settlement sites from the Early Bronze Age, Iron Age, Roman

TL start	TL end	Description	Boundaries, etc.	Aerial Photo (m)	Unknown (m)	Total
295 379	298 386	OSD 147 map	693			
298 386	299 387	Steeple Morden rail station			124	
299 387	299 388	North of station		106		
299 388	301 389	West side of quarry			216	
301 389	310 397	Quarry and rest of field		1260		
310 397	311 399	Steep rise			150	
311 399	314 402	To Litlington parish boundary		440		
314 402	317 406	Across western medieval field		558		
317 406	320 410	Avenell Way -medieval boundary	414			
320 410	321 412	To Royston Road, Litlington		264		
321 412	327 415	S of Limlow Hill		580		
327 415	340 426	Hanging valley - Litlington and Bassingbourn		1680		
340 426	341 427	Hollow way Moules Farm site, Bassingbourn	164			
341 427	347 432	South of Bury Farm, Bassingbourn		769		
347 432	350 434	Across Ermine Street A1198			285	
350 434	351 434	Western field, Kneesworth		226		
351 434	361 447	Kneesworth fields		1730		
361 447	362 448	1885 footpath	134			
362 448	366 451	Meldreth field		539		
366 451	372 458	Meldreth field boundaries	375			
372 458	376 461	Meldreth settlement			370	
376 461	377 462	British Queen field, Meldreth		70		
377 462	378 463	Across River Mel and ditch			139	
378 463	384 466	Meldreth fields to lake		763		
384 466	386 467	Quarry lake			151	
386 467	387 468	To Shepreth parish boundary		102		
387 468	391 469	Western field, Shepreth		418		
391 469	393 470	To hollow way, Shepreth			201	
393 470	394 472	Hollow way south of Frog End, Shepreth	185			
394 472	395 473	To River Shep, Shepreth		207		
395 473	395 473	Ford across River Shep	15			
395 473	396 474	To boundary with angle change, Shepreth			118	
396 474	397 476	To Shepreth Road		177		
397 476	397 476	Across Shepreth Road			23	
397 476	399 478	Across long field east of Shepreth Road		250		
399 478	399 479	To footpath, Brown Spinney			92	
399 479	400 480	Footpath, Brown Spinney	153			
400 480	408 486	Across western field of Foxton		975		
408 486	413 497	A10 & north of A10 on ridge	873			
413 497	415 498	To V shape in Hoffers Brook		216		
415 498	416 499	Across Harston parish boundary			108	
416 499	419 504	Across western field of Harston		566		
419 504	420 506	To A10			282	
420 506	421 507	CCC modern planning map	72			
421 507	421 509	1799 Inclosure map, incl. Bakehouse and Harston Hall boundary	120			
421 509	425 515	Across south of North field			626	
425 515	425 517	Linear mark next to CHER 09647		136		
425 517	427 521	To Rectory Farm, Harston			469	
427 521	428 522	Rectory Farm boundary	119			
428 522	430 527	To Hauxton ford		507		
430 527	430 527	Across River Cam			60	
430 527	435 536	South of M11		1200		
435 536	436 538	Across M11			178	
436 538	438 540	M11 to Shepherds Cottage		270		
438 540	439 542	Shepherds Cottage to area south of BA ring ditch			204	
439 542	439 542	South of BA ring ditch area		81		
439 542	440 547	Medieval headlands in Trumpington Meadows		200		
440 547	442 549	Headlands to Granchester Road			545	
442 549	442 550	Enclosure Map boundary north of Granchester Rd, Trumpington	30			
442 550	443 551	South Trumpington Hall			160	
443 551	447 558	Trumpington Hall & fields to Trumpington Road		796		
447 558	450 563	Close to Trumpington Road			588	
450 565	452 569	Trumpington Rd to Vicars Brook (Botanic Gardens, Cambridge)	584			
		Total kilometres	**3.93**	**15.09**	**5.09**	**24.11**
		79% Identified as boundaries and from aerial photographs	**16%**	**63%**	**21%**	

Table 1. *Lengths of identified and unidentified sections of Avenell Way from aerial photographs, map and boundary evidence.*

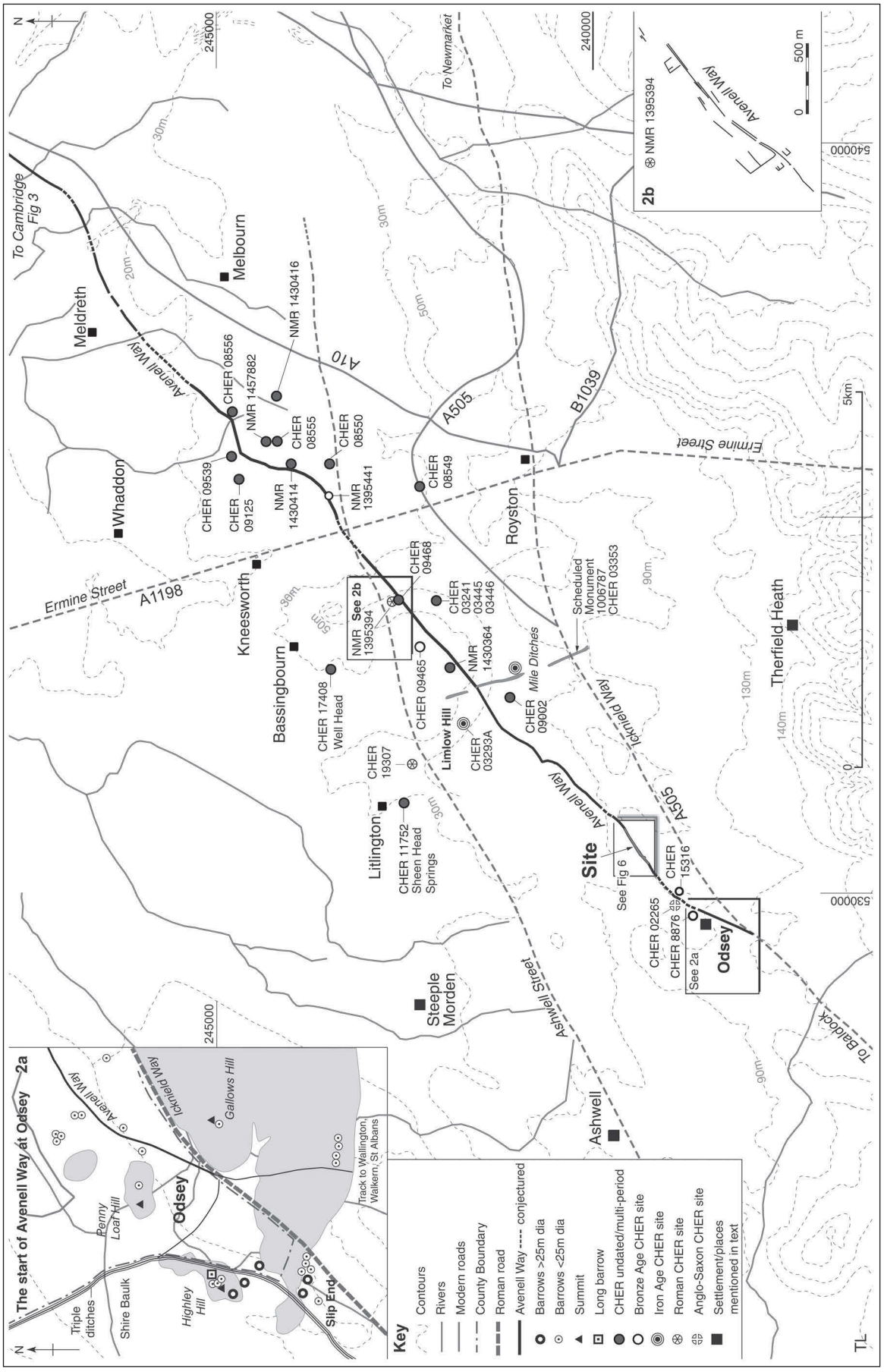

Figure 2. South-western part of Avenell Way in relation to adjacent sites and routes.

and Anglo-Saxon periods (HHER 9449, Moss-Eccardt 1998, NMR 365843, HHER 2470, HHER 6826). In Hertfordshire, excavations along the Icknield Way have provided evidence for an Iron Age date. At Royston there is the Neolithic Long Barrow (HHER40) with a ring of Bronze Age barrows (HHER 4261, 4290) close by, and along the length of the route and further north into the Cam valley is a multitude of Bronze Age ring ditches. An Iron Age enclosure is associated with the Icknield Way at Kelshall (NMR 368234). Slightly further north along the length of the springline there is evidence for Iron Age, Roman and later use. It is probable that the Baldock and Royston areas were linked by various paths across Therfield Heath.

The beginning of the route would also have been an easily recognised place as Odsey is located at the intersection of a number of tracks in addition to the Icknield Way. A triple ditch track from Slip End turned north at Odsey along the Shire Balk (later the county boundary) (HHER2317, CHER02714), and may have been a route in the Iron Age and medieval periods. A path from the Icknield Way also led north across the present Odsey Park to join the Balk where the county boundary changed angle at the junction. To the south, a track passed through Wallington, Walkern and Clothall, perhaps reaching as far as the Iron Age and Roman settlements of Welwyn and St Albans (Fox 1923, 155). Excavations in Baldock identified four tracks from the south leading north-eastwards to join the Icknield Way from Baldock towards Odsey (Bryant and Burleigh 1995, figs. 16.2 and 16.3; Burleigh and Fitzpatrick-Matthews 2010, fig. 5), providing further routes south from Odsey.

From Odsey Avenell Way continued for more than half a kilometre roughly in the same direction as the Icknield Way before the latter veered east. The route can be traced by linear features on aerial photographs near the woods surrounding Odsey Grange, and then across two fields towards the Ashwell and Morden railway station. It crosses here between two barrows, the western one is just north of an Anglo-Saxon burial site found in 1923 by Sir Cyril Fox (CHER 02265). Perhaps the barrows were acting as markers, as at this point the track bends to a more east-north-easterly direction as seen on aerial photographs with the track heading for the Steeple Morden quarry site where the recent excavations took place (see below). Beyond the quarry area, the track diverts around a slight rise, before continuing up a short but steep hill. Generally the easiest path appears to have been taken, that is to say, in some sections the track roughly follows the flatter parts, curving slightly to take advantage of these places; in others it follows 'small valleys', even though that takes it away from the overall direction of travel, in yet other cases it kept to the 'ridgeway'. Such changes are often slight but, for laden carts, probably made a difference.

After crossing the first of Litlington's medieval fields, the track appears to have turned in an east to west direction for a short distance, possibly to cross a gap in an existing boundary. Then the track followed the named medieval boundary between two furlongs, 'Avenell Way', heading north-eastwards. Four of the boundaries on the Pigott Estate Map do not follow the roughly north to south alignment of the medieval field system, implying that they may be of a different date than the others. Avenell Way is one, two others were aligned with the medieval road, now a footpath, from the Icknield Way to Litlington village. Where this route crossed the top of Limlow Hill, there is a rampart and ditch of a possible Iron Age hill fort (CHER 03293A; Clark 1939) with an opening on the north side for the track (Crawford 1937). Beyond this the track continued to a high status Iron Age site at Litlington (CHER 11752; Robinson *et al*. 1995), and a later Roman villa (Wessex Archaeology 2010; CHER MCB 19307), so these two parts are likely to be of Iron Age date. And the fourth boundary at odds with the north to south alignment enabled access to Sheen Head Spring, north of Ashwell Street, which is also likely to have been a destination of early date.

Beyond the Avenell Way boundary, the track takes a more easterly route along a straight and narrow valley, keeping close to the 45m contour. Limlow Hill on the north and a triple ditched barrow (CHER 09002), south of the track, would have provided a suitable pair of markers for travellers along this part of the route.

The track crossed the Iron Age Mile Ditches (SM 1006787; CHER 03353; HHER 2207; Fig. 2) at right angles, where the Ditches left the 'Sheen Head Way' to continue their route north. From there Avenell Way then crosses the current parish boundary into Bassingbourn, continuing along the flat valley, where a rectangular enclosure butted against it (NMR 1430364). Although this valley took the track on a more easterly path, just below the ridge, it must have provided a drier and less windy route than the ridge; a hollow way is still visible along this section (NMR 1395158).

The end of the valley was marked by a Bronze Age barrow (CHER 09465) and a possible Iron Age hill-fort to the south, enclosing a Neolithic bank barrow and Bronze Age barrows (CHERs 03241, 03445, 03446), perhaps indicating a change in direction, as from here the track descends in the original north-easterly direction. A wide depression crosses the field diagonally west of the site of Moules Farm (CHER 09468). The way is not named in the Bassingbourn Field Book of 1563 (CRO P11/28/1), but in the furlongs west of Moules Farm the path may be marked by wide strips of several acres called *Pieces of Old Bury Land*, the name given to ancient holdings of the main manor, surrounding strips were generally half or a quarter of an acre. The larger strips might have allowed passage of a diagonal track.

South of the current Bury Farm in Bassingbourn there are extensive cropmarks extending over more than a kilometre, aligned along both sides of the track, possibly representing Iron Age to Roman fields and settlement (Fig. 2b; NMR 1395394). The marks also seems to respect the alignment of the medieval (or earlier) routeway called 'The Ridgeway' (Fig. 3; Hurst 2009, fig. 5; Atkins and Graham 2013, fig. 14)

Figure 3. *Avenell Way is visible extending left to right across the centre of the photograph, the broad, ditched feature running almost north to south is the medieval boundary named The Ridgeway, a track that was in use into the 20th century. © English Heritage (TL 3543-23-27-MAR 2002. jpg NMR21549 04).*

and the ancient route of Ashwell Street.

Although no evidence can be seen as Avenell Way crosses Ashwell Street and then the line of Roman Ermine Street; this is perhaps due to roadworks on both over the years. The track is visible again on aerial photographs where it emerges from the trees in Kneesworth, just south of a spring (Top right of Fig 4). Here the track clipped the outer ditch of a Bronze Age double ring ditch (NMR 1395441; Fig. 4), as it turned in a north-easterly direction, keeping just north of the 35m contour, possibly this was also used as a marker for change.

The route then appears to have diverted from its general north-easterly direction to pass around a series of undated cropmarks (CHERs 08549, 08550, 08555, 08556 and 09125; NMR Nos 1430414, 1430416 and 1457882). These include rectangular enclosures, ring ditches and linear features, possibly representing settlement that was already in existence when the track was created. On turning east again, the track is marked by the southern edge of a medieval field, showing ridge and furrow (CHER 09539), before crossing south of a spring, and then, half a kilometre further east, a stream. This was the line of a footpath, a slight hollow way, from Kneesworth, still extant in 1903 (OS 2nd edition). Where the track resumed its original north-easterly direction it is marked by the southern edge of another area of ridge and furrow (CHER 08556a), and then by the curved northern boundary of fields in Chiswick End.

No evidence of the route has been found in the area now occupied by Meldreth, except in a field to the east of the High Street, where it can be seen on aerial photographs. After crossing the River Mel the track can be picked up again, skirting a hill to the south. On either side of the track here, several complex features are visible on aerial photographs and recent field walking has produced a considerable quantity of Roman finds (R. Skeen pers. comm.). Crossing the present railway line, Avenell Way then

Figure 4. *Avenell Way can be traced curving across the Kneesworth fields north of Ashwell Street, where it appears to clip the outer ring of a Neolithic / Early Bronze Age double ring ditch (NMR 1395441) © English Heritage (TL 3442-14 27-MAR-2002 NMR 21593-23.jpg).*

diverts slightly south, probably to avoid the large, wet area of LMoor, with Wrights Moor to the north and Rush Moor to the south, to reach the field east of Frog End, Shepreth. No features are visible on aerial photographs for the last 200m before the road and then the track changes angle back to the north-west to continue along a hollow way. A search has not revealed any other linear alignments, other than those noted.

North-eastern section *(Fig. 5)*

Avenell Way survives as a hollow way about 50m to the south of, and parallel to, the diagonal stretch of Frog End Road, Shepreth. It then crosses the river, which widens into a pool with gently sloping sides aligned with the track, presumably due to use of the ford. Within 100m the track is crossed by a ditch and modern field boundary, which have short changes of angle at that point. Recent work in South Cambridgeshire has shown such changes often indicate where a track crossed (Hurst 2011 and 2012).

Some 500m further east it passes close to the present footpath through Brown Spinney. This footpath was once the main road linking Shepreth and Foxton and lies just south of Shepreth's Roman villa, an Iron Age settlement and a Romano-British cemetery (CHER CB14689). After crossing the river at the edge of the spinney, the track is again visible on aerial photographs in the field east of the villa, where it takes a slightly curved path, crossing a north to south aligned prehistoric routeway (Taylor 1997, 49 and 97) just to the south of the present Foxton railway station. The curve might have been the result of rounding a possible Iron Age or Roman settlement (CHER 08626 and findspot CHER 07717). This track is to the south of two Roman tracks leaving the villa site.

The area around the crossroads of the two tracks contains considerable evidence of settlement in the Iron Age, Romano-British and Anglo-Saxon periods (*e.g.* CHER 04209a–c). From here it is probable that Avenell Way followed the line of the present A10 as it keeps to the ridge. When the end of the ridge is reached it is visible again on aerial photographs as cropmarks (CHER 08636), just 20m north of the present A10 heading to Hoffers Brook, the parish boundary between Foxton and Harston since the early 10th century.

The track crosses the brook at a 'V' shape in the boundary 25m north of the present road; this is similar to a river crossing on an ancient route from Harston into Haslingfield. The track then passes the site of Manor Farm, on the south side of the A10, which was occupied from the Iron Age to the Saxon period (CHER 04122). From here the A10 curves slightly to the east, but Avenell Way continues in a straight line to the west of the road, joining it again around Harston's Mill Lane, an area with evidence of Bronze Age, Iron Age and Roman occupation (CHER CB15256).

In Harston the track appears to skirt the western

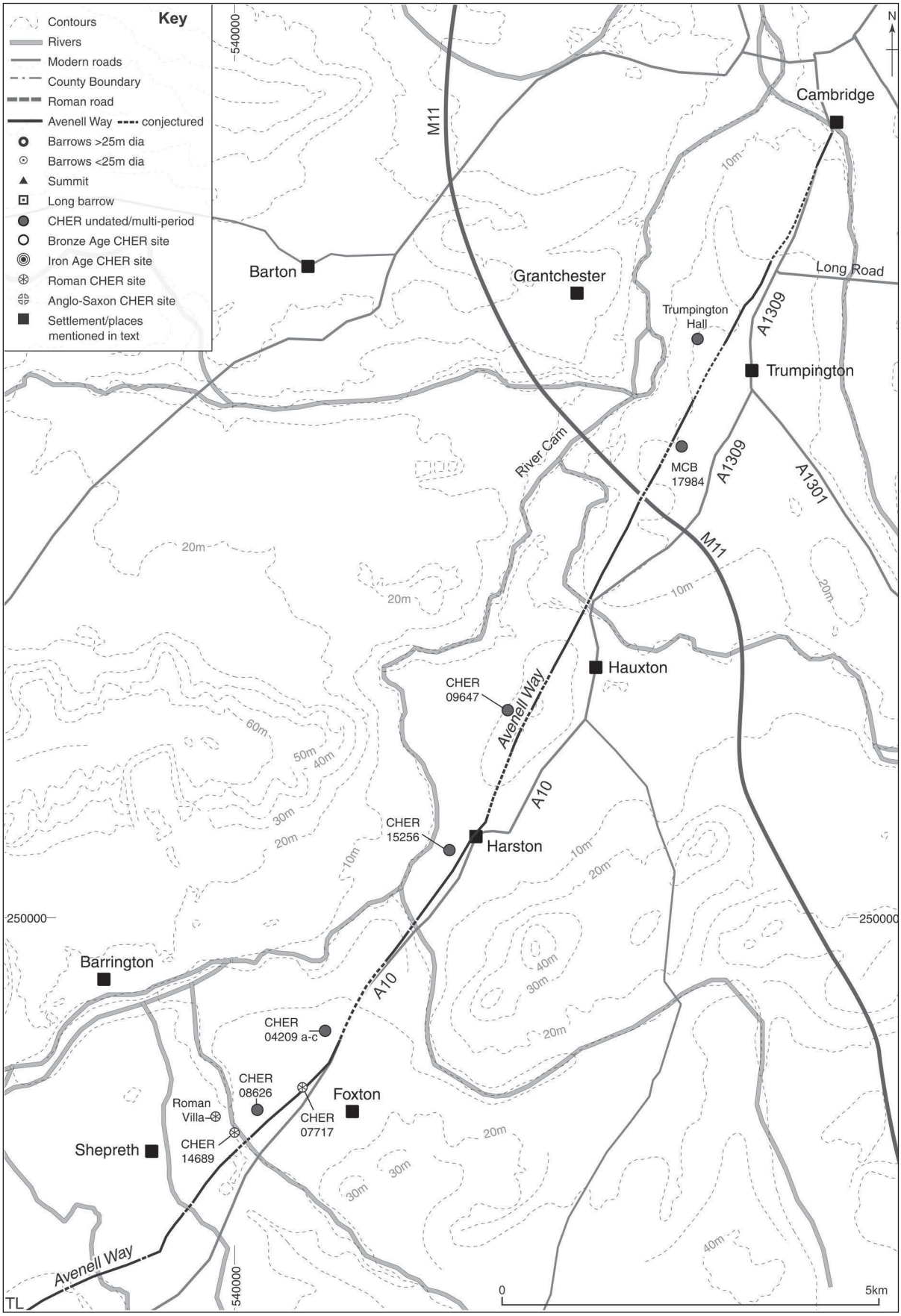

Figure 5. *North-eastern part of Avenell Way in relation to adjacent sites.*

edge of the medieval green, between Mill Lane and Church Street. The route is marked by a boundary forming the earlier, straighter edge of the A10, then by a boundary shown on the 1799 Inclosure Map (CRO P85/26/1). The 16th century buildings on either side of Church Road here are aligned with the track, as is the boundary hedge of Harston Hall.

Although there is no direct evidence, the track probably then crossed a stream and continued across the south part of North Field. As it approaches the back boundary of the High Street closes, a line on the same alignment of the track (although 50m further east) is shown on the Inclosure Map and the track is again visible on an aerial photograph as it crops the corner of a rectangular feature (CHER 09647) before passing east and then west of two small hills. From here it follows the western boundary of Rectory Farm and a headland, before descending to Hauxton Ford a few metres to the west of the present bridge. Tracks can be seen from here heading north-eastwards towards a slight hill where 'Shepherd's Cottage' sits, beyond the M11.

From there to the slightly higher ground around Trumpington church, only one section of aerial photographic evidence has been found for the route, where it approaches the line of the dismantled railway. There are, however, a number of features which may indicate the remainder of its course. It is likely that it kept close to the 15m contour, rather than the river, since places such as Lingey Fen and Byron's Pool next to the Cam would have been boggy at times. It appears that Bronze Age burial mounds were used as markers elsewhere on the route, such as at Steeple Morden and Kneesworth. The remains of one such monument were recorded in this locality during archaeological investigations at Trumpington Meadows. The ring ditch (MCB17984) was described as being on "a gravel 'spur' which jutted out towards the river, providing a visually dramatic setting" (Brudenell and Dickens 2007, 65). The authors suggested that this burial mound continued to play a pivotal role in the landscape throughout the Iron Age. The excavations revealed evidence for considerable multi-period settlement and also identified the long headland visible on aerial photographs and geophysical surveys as being of medieval date. The latter was described as aligning "very well with Haigh's Ridgeway, an early route north of the village heading towards Cambridge" (Haigh 1975, in Brudenell and Dickens 2007, 3). This is the probable route of Avenell Way. Interestingly, Fox noted that the name 'The Ridgeway' was still in use in *c*. 1580 (Fox 1923, 113). Further excavations (Brudenell and Dickens 2007; Ladd 2013) close to the church and Anstey Hall Farm, also show a linear feature following a similar alignment to the track's. On the north side of Grantchester Road, opposite the church, an angled property boundary on Trumpington's Enclosure Map of 1804 (CRO R60/24/2/70(a)) also aligns with the route. It may be that these features followed the line of the 'The Ridgeway' which in turn followed the earlier route of Avenell Way.

In the grounds of Trumpington Hall, Avenell Way is again visible on aerial photographs. The northern boundary of the hall grounds is formed by another (east to west aligned) ancient route from Red Cross to Grantchester and beyond. Excavation at Clay Farm, Trumpington (Phillips forthcoming) provided evidence of the ancient route east of Trumpington Road. The crossing of Avenell Way and this track is close to a bend where a barrow may once have stood (Taylor 1997, 127) and presumably the bend may mark the point where the tracks diverted around it.

Beyond Trumpington Hall the route is once again traceable on aerial photographs, which show it deviating slightly east probably to avoid crossing a stream which flows towards River Farm. Further north there is no aerial photographic evidence to indicate the route but at this point it passes so close to the A1307 that this is perhaps not surprising, due to roadworks over the years. The route joins the present Trumpington Road into Cambridge, at a bend just north of Bentley Road, and continues to Vicars Brook.

The extension of the roughly straight line from Hauxton Mill ford into Cambridge may indicate the possible continuation of the route, although, due to modern expansion of the city, no aerial photographic evidence is currently available for this stretch. Following Trumpington Road to the corner with Brooklands Avenue, it must have forded the river into the present Botanic Gardens, known as *Ford Field* in 1270 (Stokes 1908). This name, however, probably relates solely to the present path of Trumpington Road which turns left, heading for the Great Bridge and Castle Hill. This sharp, 45°, change in angle suggests that originally the route continued straight ahead to meet the River Cam near the present footbridge on Stourbridge Common, and the medieval or earlier ferry crossing to Chesterton. The areas of Trumpington, south and east of the church; the Latham and Chaucer Roads area, close to the Botanic Gardens; Stourbridge Common and Chesterton, were settled from the Late Iron Age onwards, with many connections by land and river to other major settlements, they may have been the settlements around modern Cambridge which marked the end of the route.

The Excavations at Steeple Morden (Figs 6–13)

The trackway, represented by at least two phases of intermittent hollow way, was intensively sampled by means of 1m-wide hand-excavated slots spaced at intervals of between 10m and 15m (Fig. 6). In addition, the remains of five timber buildings were revealed to the south of the trackway (Fig. 13); where dated, these all appear to be Roman.

The trackway and associated elements

Perhaps the earliest element associated with the track was a ditch or hollow way (275) that was revealed for a distance of *c*. 46m on a roughly south-west to north-east alignment in the north-eastern corner of the exca-

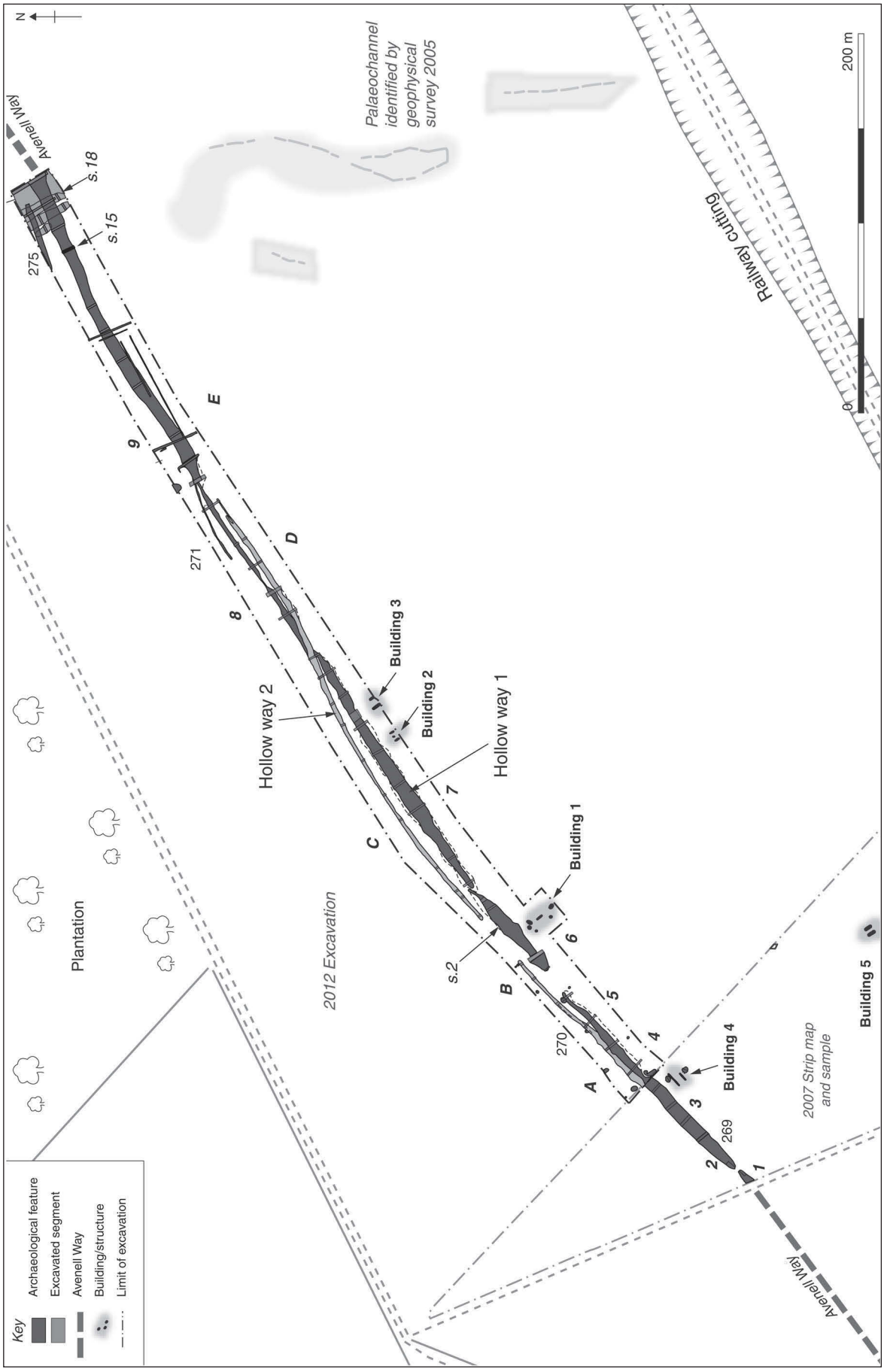

Figure 6. *Excavated areas (2007 & 2012) and geophysical survey (2005).*

vation. Measuring up to 2.7m wide and between 0.19m to 0.40m deep, this feature, like the hollow ways to the south with which it ran broadly parallel, cut across the prehistoric channels to the east. A single Late Iron Age pottery sherd was recovered from the sole fill; the earliest pottery recovered by the excavation.

Hollow way 1

The earlier of the two main tracks, although intermittent in plan, traversed the entire length of the excavated area (Figs 6 and 7). It was far from homogeneous along its length, comprising nine distinctly different elements or segments (numbered 1–9 on Fig. 6). These varied from deep, wide lozenge-shaped depressions (segments 3, 6, 7 and 9; Fig. 6) to shallow linear scoops (segments 1, 4 and 8). Between these were two or three places (segments 2 and 5) where no hollow ways or depressions were present, with the longest gap being 15m long (segment 5).

In addition, the north-eastern end of segment 6, about a third way along the track, appeared to narrow and kink slightly northwards about a metre away from segment 7, creating a further apparent break in the hollow way. It is not certain whether these breaks were intentional or a result of variable erosion/truncation (see Discussion). In segment 7 the width of the hollow way varied significantly from 4.18m to 10.4m and, although grouped together into a single segment, it may represent a number of smaller hollows.

Overall the hollow way was up to 10.4m wide and 0.9m deep and invariably had gently sloping sides with a gradual break of slope and a wide, generally flat base. Wheel-ruts were found in a number of localised areas (*e.g.* segment 7), cutting the base of the hollow way (Fig. 8; Fig. 12, S.2, 15 and 18). The ruts were all similar, displaying a U-shaped profile with widths of between 0.08m and 0.18m. In three sections the distances between pairs of ruts could be measured and were found to be 1.40m and 1.70m. The longest stretch was along the centre/base of segment 9, where a pair of wheel-ruts was recorded for a distance of *c.* 50m; these were, on average, spaced between 1.40m and *c.* 1.60m apart (Fig. 12). Occasionally the largest areas of rutting had been repaired with a hard compact silt/sand tempered with small stones and flint. Shallow swathes of dense loose chalk (*c.* 0.05m thick) were present on one or both sides of the hollow way in segments 6 and 7 and may have been the result of traffic erosion (Fig. 13).

Up to five main deposits were found to infill the hollow way. The earliest fills were largely consistent, being mostly composed of chalk fragments in a sandy silt matrix. The overlying silts, probably washed into the hollow way after the track went out of use, varied only in slight changes in colour (generally getting darker towards the top of the sequence) and frequency of chalk inclusions.

Very few finds were recovered, mostly comprising occasional abraded Roman pottery sherds and fragments of animal bone, the majority of which were

Figure 7. *Hollow way 1 (darker fill) and 2 (paler fill), looking east from crane.*

Figure 8. *Detail of wheel ruts cutting across Hollow way 1, looking south from crane.*

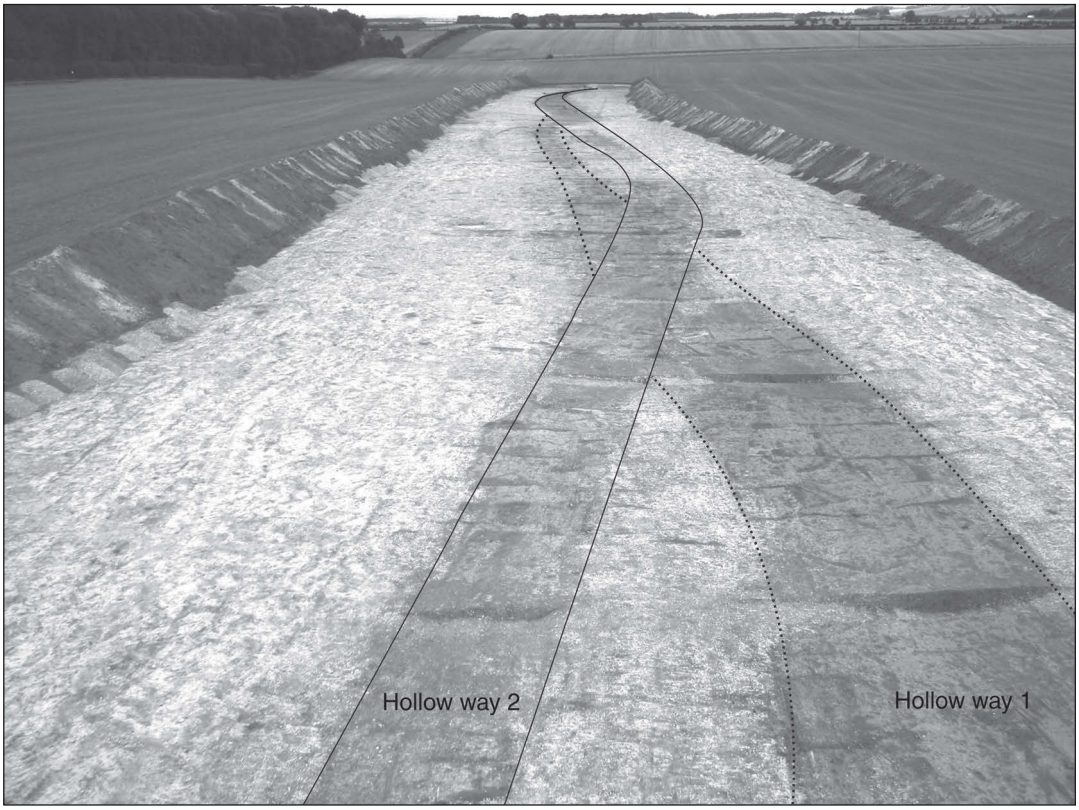

Figure 9. *Detail of Hollow way 2 crossing over Hollow way 1, looking north-east from crane.*

recovered from those sections nearest to Buildings 3 and 4. One of the larger assemblages, comprising 29 Roman pottery sherds representing 12 different vessels, was found in segment 7 from both the primary silting and the later infilling deposits. Several of the sherds dated from the 2nd to 4th century and include 12 sherds from a single Nene Valley folded beaker which was made after AD 170 (Wadeson 2013).

Hollow way 2 and causeway

The second hollow way was present along the whole length of the 2012 excavation area but was not seen in the 2007 area to the south-west (Fig. 6). Somewhat sinuous in plan, this hollow way displayed a broadly similar orientation to the earlier hollow way, although it was generally shallower, narrower and more consistent in width than its precursor. Initially running to the north of Hollow way 1 the later track, which was distinguishable by its paler fill, cut across the earlier track and then ran to the south of it before merging with its eastern extent (Figs 6, 7 and 9). This second hollow way also displayed a sharper outline in plan, which may suggest a shorter period of use.

Five segments (A to E) have been assigned to this hollow way, to reflect differences along its length (Fig. 6). As with the earlier hollow way, this phase of track was intermittent, with a number of apparent gaps or breaks being present between the main hollows, for example segment B, which represents a 29m-wide gap adjacent to Building 1.

In general the hollow way measured between *c*. 2m–3m wide, although it widened to 4m on the curve/bend within segment C; it was very shallow at between 0.03m and 0.23m deep. A single pale greyish brown sandy silt fill with varying concentrations of redeposited chalk nodules was present along its length, which may have provided a firm surface but probably represents the gradual erosion of the natural chalk.

Segment A formed the south-western (93m) part of the hollow way, to the north-east of which was a break (segment B) beyond which it recommenced as segment C. This latter segment curved slightly away from the earlier track, but after some 80m began to bend back towards it, where the hollow widened to *c*. 4m. This curve may imply a deliberate diversion around the earlier track at this point. Beyond this, segment D comprised the section where the hollow way crossed the earlier trackway and then continued for over 100m to the south and parallel to it until another apparent break. To the north-east of this break the two hollow ways appeared to merge (segment E) for a distance of *c*. 180m, the latter *c*. 70m of which comprised a causeway with a metalled surface (Fig. 10).

Although elsewhere along the hollow way silting appears to have occurred naturally over time, it is possible that efforts were made to fill in the former hollow way along the entire segment including the causeway area. This would have built the track up, making the route less steep. The causeway was con-

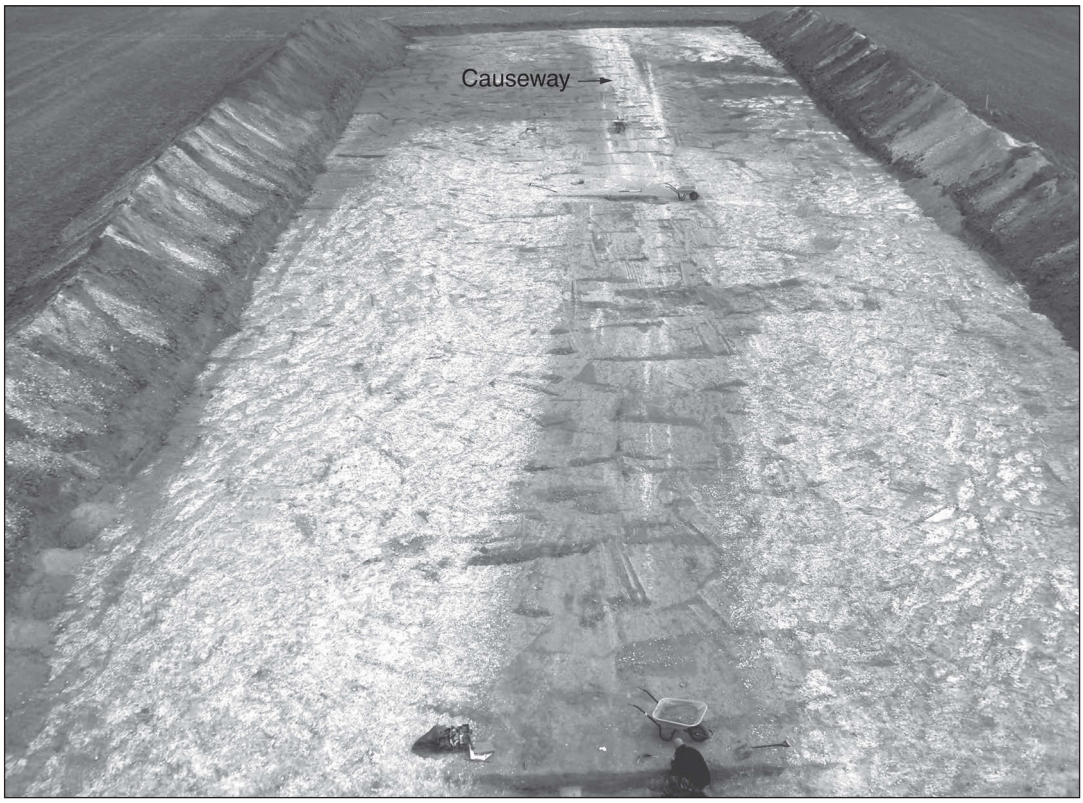

Figure 10. *North-eastern end of hollow ways with causeway across palaeochannels showing wheel ruts backfilled with chalk, looking east, taken from crane.*

structed on top of the infill and was more than 4.4m wide and 0.28m thick, surviving best at the eastern baulk of the excavation where it was noticeably convex in profile (Fig. 11). Here it measured 5.4m wide and survived to a height of 0.42m but is likely to have been higher before being truncated by modern ploughing. The make-up of the surface here comprised a lower 0.2m thick deposit of dark grey brown firm silty sand with occasional small stones overlain by a paler 0.22m-thick layer of very firm gravelly sand (Fig. 12, S.18).

Wheel-ruts were recorded cutting this surface (Fig. 10) and were visible for approximately 68m, with up to six parallel ruts surviving in places. The wheel-ruts were all U-shaped and between 0.14m and 0.42m wide and 0.08m to 0.26m deep (Fig. 12, S.15), with the distances between them varying from 0.8m to 1.6m. They were filled by a mixture of compacted silt sand and small chalk pieces implying that attempts had been made to keep the surface level by the addition of hard materials as ruts occurred.

A small quantity of pottery was recovered from five of the sections across the causeway, most of which is Roman and dates to the 2nd century AD or later. A single medieval sherd and a medieval key, both presumably intrusive, were also present. The hollow way as a whole produced only 17 small sherds, the earliest of which is a piece from an Early Roman platter (AD 43–110) while the latest is from a 3rd to 4th century AD colour coated vessel (Wadeson 2013).

Ditch 271

Located immediately to the north of and on a similar orientation to the hollow ways was a shallow ditch (271; Fig. 6), which varied between 0.95m and 2.05m wide and up to 0.13m deep. Revealed for a distance of *c.* 44m before curving southwards to meet the track and terminating, the ditch contained four sherds of Roman pottery that are not closely datable.

Buildings

Four of the probable buildings were positioned adjacent or close to the south side of Hollow way 1, ranged over a distance of *c.* 300m, while the fifth was found 120m to the south of the track (Figs 6 and 13). One of the buildings was parallel and the remaining four were set at right angles to the track, suggesting that they were associated. No internal features survived.

Four of the five buildings were in the form of paired beamslots of a similar size (Fig. 13) although the fifth (Building 1) had just a single beamslot surviving. Dimensions of four of the buildings can be calculated by measuring the external widths across the pairs of beamslots (between 3.8m and 5.6m), and the external lengths (between 3.3m and 4.8m). The depths of beamslots of four of the buildings (1–3 and 5) varied between 0.07m and 0.28m deep with the fifth (Building 4) being notably deeper at 0.46m. Their sides were either vertical or steep and their bases flat. All five had single sandy silt backfills with

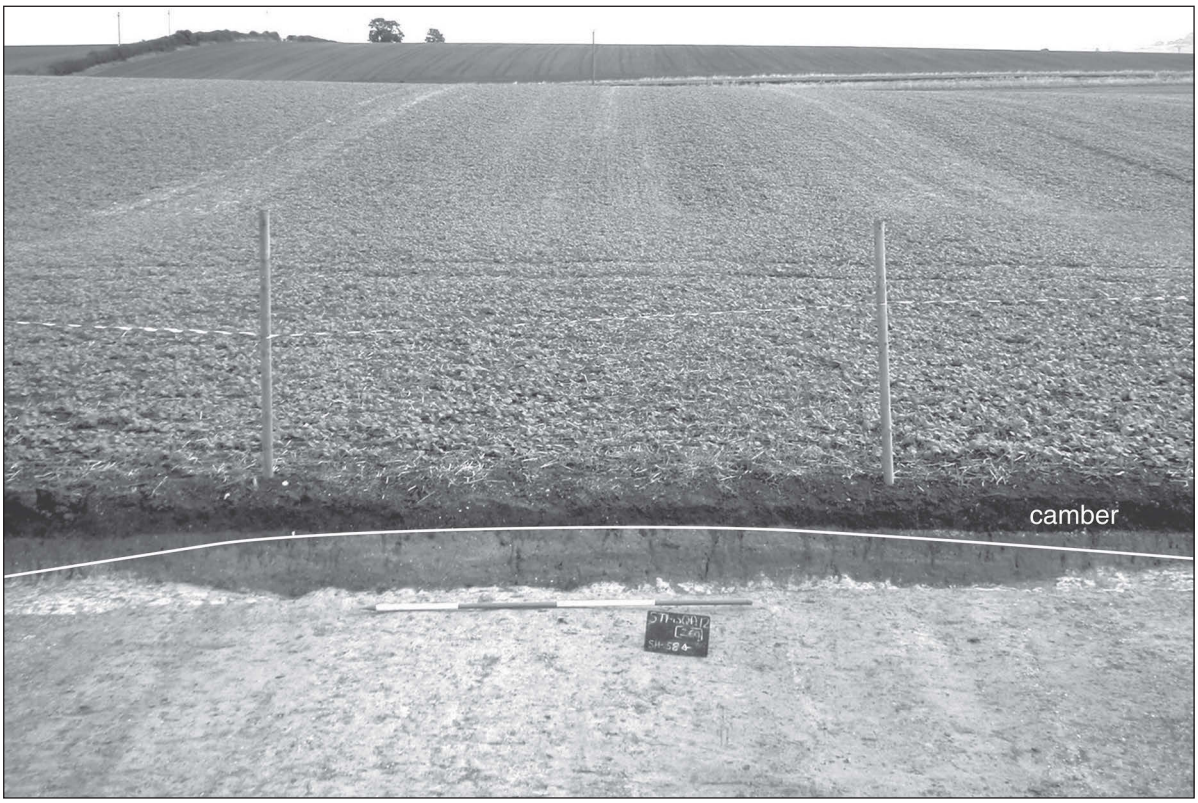

Figure 11. *South-west facing baulk showing camber of metalled causeway across palaeochannels.*

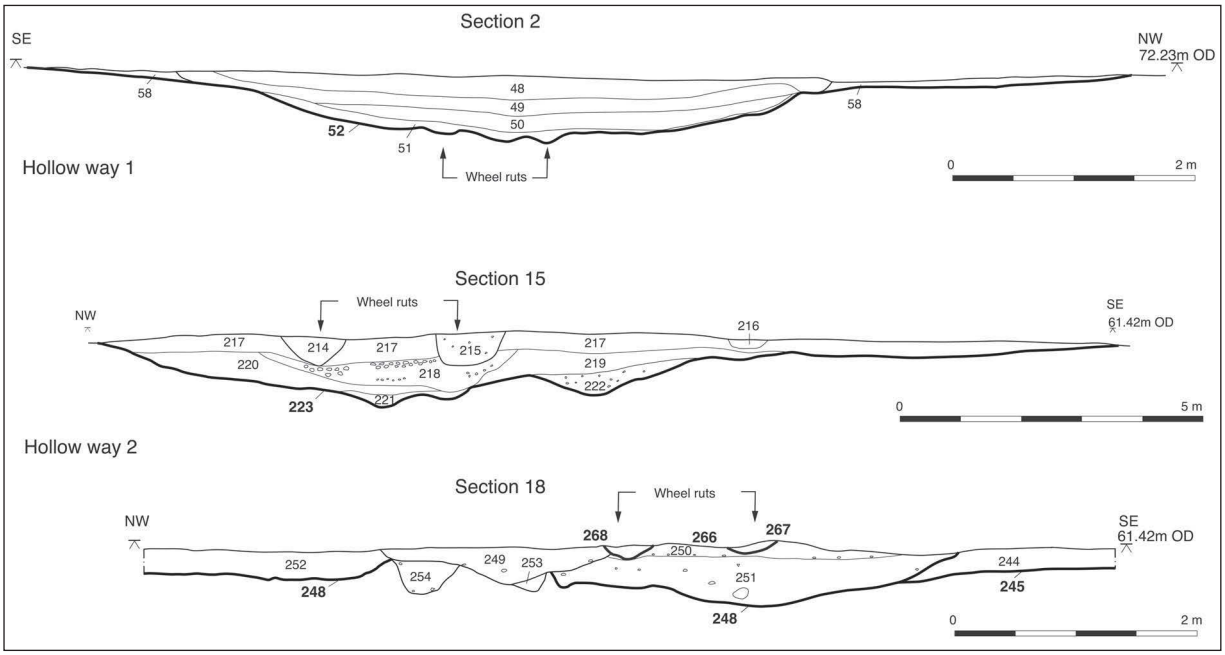

Figure 12. *Selected sections across hollow ways.*

varying amounts of chalk inclusions. Four of the five buildings produced Roman pottery (collectively 37 sherds), all of which dates from at least the early/mid 2nd century with the latest being two sherds of Hadham ware dating to after AD 170, from Building 2 (Wadeson 2013).

Discussion

Origin and date of the track

The date at which Avenell Way first came into use is difficult to determine, but a Late Iron Age origin is considered most likely. Over the length of the track it appears to exhibit certain characteristics:

The track is not straight.
- *it appears to bend around the possible settlements at Kneesworth and Foxton;*
- *wet, boggy areas are avoided, such as in Shepreth and Trumpington;*
- *easiest slopes are taken where possible.*

Bronze Age ring ditches/barrows appear to have been used as markers

Such characteristics are unlikely to be exhibited by major Roman roads. However, there are examples locally of non-straight Roman roads. A sinuous track (numbered W3) identified during recent work in north-west Cambridge (Evans *et al.* 2013, 17; fig. 2) was initially believed to be medieval, but excavation demonstrated it to be of probable Roman date, linking two contemporary settlements.

When considering the Addenbrooke's area, south of Cambridge and approximately 1.5km east of Avenell Way, Evans discusses at length the difficulties of assigning a date of origin to the excavated road on the Hutchinson site. He states that "it is not inconceivable that the site's Roman road represents only the 'regularization' of an Iron Age route … though the issue remains ambiguous" (Evans *et al.* 2008, 135). Fox (1923, 112) also believed that some straight roads around Trumpington may have been of an earlier date and were then utilised by the Romans. It is possible that Avenell Way was essentially a Roman track, however it appears to pass close to considerably more Iron Age sites than Roman. If Bronze Age burials were used as route markers that is unlikely to have been a Roman characteristic.

- One used for this purpose appears to have been the large bell barrow in Odsey on the Icknield Way, close to the beginning of the track, at the south-west corner of present day Cambridgeshire
- the two barrows at Ashwell and Morden Station between which the track passes, marking a change in direction from north-east to east-north-east
- a series of ring ditches in Bassingbourn marking the end of the valley across the Litlington / Bassingbourn boundary and the change in direction to the north-east
- the double ring ditch in Kneesworth clipped by the track and marking a change in angle of the route to a more northerly one
- a ring ditch in a prominent position in south Trumpington
- a barrow at the crossing of an ancient route from Red Cross to Grantchester.

The alignment of Avenell Way is quite distinct from other better known tracks of likely earlier prehistoric date, such as the Icknield Way and its seasonal alter-

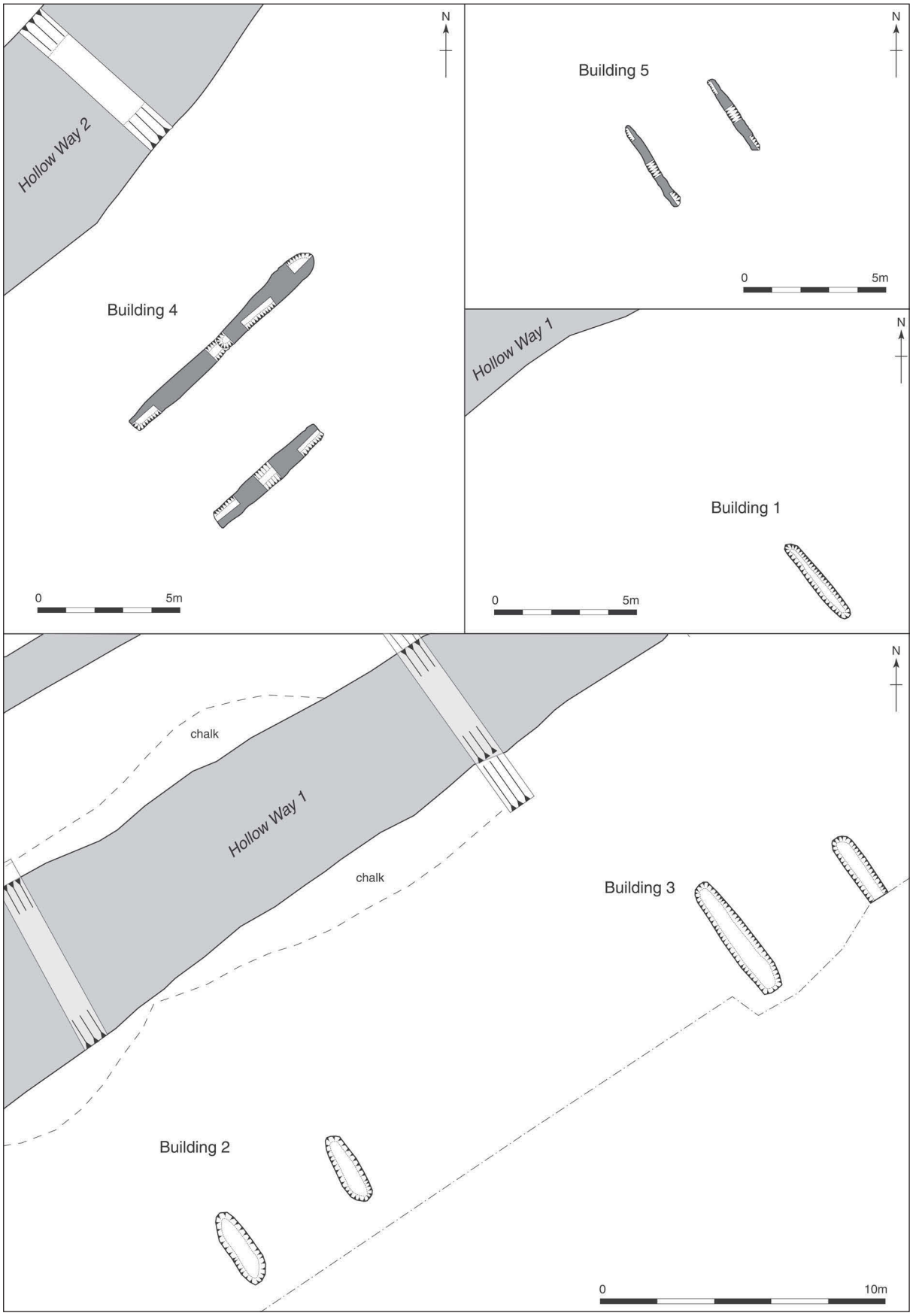

Figure 13. *Roman beamslot buildings.*

native, Ashwell Street (Fig. 2). Avenell Way diverged from the Icknield Way at Odsey before proceeding north-eastwards, crossing the other tracks on its route, suggesting that it was not part of the same network as the Icknield Way tracks. Instead it was heading for a different, possibly more recently-established destination, such as the extensive high status Iron Age settlement identified at Cambridge (Alexander and Pullinger 1999, 17; Evans and Ten Harkel 2010, 53). Perhaps significantly, Evans and Ten Harkel found in excavations in Cambridge that Akeman Street was of Late Iron Age origin. Avenell Way may have been a new route to allow direct communications between the two markets of Baldock and Cambridge.

A tentative Late Iron Age date for the start of the track could also be argued based on the presence of the ditch at Steeple Morden quarry, which ran parallel with the hollow ways and produced a single sherd of Late Iron Age pottery. Whilst this is scant evidence on its own, it is possible that the lack of finds of this date is simply a reflection of the distribution of nearby settlement during this period.

The discovery of Iron Age urns of the Aylesford type in Ashwell, Odsey, Foxton, Hauxton, Trumpington, Castle Yard Cambridge, Stourbridge Common, Chesterton, Milton (Fox 1923, 90) and amphorae in Trumpington, Stourbridge Common and Chesterton, of a similar type to those found in the Welwyn burials of Catuvellaunian Hertfordshire may also be of significance (Fox 1923, 90–96) given their proximity to the route. The Cambridge area marks the northern limits of the Aylesford-Swarling zone.

At its south-western extent Avenell Way linked with another track at Odsey, into present day Hertfordshire, which suggests that the route was part of an extended network that would have provided communication between the Late Iron Age settlement at Cambridge and similar destinations in Hertfordshire, including Baldock and possibly Welwyn and St Albans.

In addition, it has been suggested (Hill 2000, 10) that from the 2nd century BC this south-western part of what was to become Cambridgeshire appears to have acted in an independent manner, with a noted increase of imported goods; a situation that would have required a good transport network both within and outside the region. Cambridge had an established trade network with Britain and beyond in the Late Iron Age. It was a significant local regional centre, though not a major centre as Baldock was (Evans and Ten Harkel 2010, 48; 53).

When considering a date earlier than the Late Iron Age, it is important to note that at Kneesworth Avenell Way clipped the outer ditch of a Bronze Age double ring ditch. This indicates a later prehistoric origin for the route.

Collectively the evidence points to a Late Iron Age origin for the track. In the eastern region, and much of the rest of Britain, the later Iron Age witnessed increased population levels and establishment of new settlements connected by a network of tracks and droveways (Taylor 1979, 21; Cunliffe 1995, 113; Hill 2000, 10; Abrams and Ingham 2008; Wright *et al*. 2009). The settlements (or probable settlements) identified at Bassingbourn, Kneesworth, Foxton, Trumpington and Cambridge along or close to Avenell Way, while of different sizes and importance, testify to this expansion (Bryant 1997, 28; Brudenell and Dickens 2007; Evans *et al*. 2008).

The hollow ways: formation and function

In addition to the excavated section of Avenell Way at Steeple Morden there are a number of examples of remaining hollow ways along the route of the track, notably in Litlington, Bassingbourn, Meldreth and Shepreth. These are of varying widths and, though all are very difficult to measure due to prolonged use, are approximately 10–20m wide.

Hollow ways were sometimes formed after only a short period of regular use; compaction causes poor drainage (even on normally free draining geology such as chalk), standing water then makes the soil within them soft thereby accelerating the rate of formation (Davies 2006, 22). Once formed, however, they could continue to be used over long periods: some country lanes in current usage are ancient hollow ways that are now stabilised by the introduction of modern road surfacing (S Oosthuizen pers. comm.).

It is worth noting that other perhaps 'more significant' tracks in the area also manifest as hollow ways. For example excavation of a track (possibly the Icknield Way) near Letchworth revealed a hollow way containing wheel-ruts from which a fragment of mid 1st-century AD pottery was recovered (Moss-Eccardt 1964).

The hollow ways excavated at Steeple Morden appear to have formed via a number of processes, largely as a result of erosion, although the effects were variable across the excavated sections. Later truncation, changes in local geology and topography and attempts to stabilise the track during its use may also have contributed to their formation.

Analysis of the changes in depth of the earlier hollow way in relation to the fall in natural ground level from south-west to north-east towards the dry valley, indicates that although there is a general correlation between steepness of slope and greater depth of hollow way this was by no means consistent. Equally, localised changes in geology do not appear to have been a major factor in terms of the depth of the hollows, although areas of softer chalk may have led to the formation of the characteristic lozenge-shaped hollows in segments 6 and 7. Local variations in the natural topography may also have played a part, since slight depressions within the ground level appeared to coincide with the deepest and most heavily rutted sections. It is also worth noting, however, that this deeper section of the hollow way was located adjacent to several small buildings (see below), which may also be relevant. Some attempt seems to have been made to repair/infill the ruts within this section of the track, although this may only have been temporary as it was subsequently by-passed by the second/

later hollow way.

Truncation, notably by ploughing, may have removed those parts of the hollow way where little or no hollow survived. It is feasible, however, that some of the gaps between the hollows may have been to allow access to one of the nearby buildings, or to control animal movement. A possible nearby comparison might be at Hinxton, Cambridgeshire, where excavation identified a series of Late Iron Age animal pens/corrals adjacent to a minor trackway (Lyons forthcoming). These, however, were in the form of multiple post hole alignments forming the corrals, no evidence of which was found at Steeple Morden although the two smaller ditches associated with the hollow ways may conceivably have fulfilled a similar function.

Only one section of Avenell Way (where it crosses the dry valley and relict palaeochannels) showed any evidence that metalling had been attempted, and then only after severe erosion and silting had taken place, presumably after many years of use. The change in geology here to sandy silts, coupled with the low-lying situation would have made this area prone to becoming boggy which in turn may have necessitated the consolidation of this stretch of the track. The metalling was made up of crushed chalk, sand, flint and gravel, all heavily compacted, and in one place the surface even showed as a raised camber. Evidence for further wheel-ruts cutting through the surface indicate that it could still be eroded by heavy traffic and attempts had clearly been made to fill in the wheel-ruts in order to keep the track open via this causeway (Fig. 10). This metalling probably occurred at some point during the Early to Mid Roman period; pottery recovered dates to the 2nd century AD or later.

Similar evidence for the metalling of specific lengths of tracks to combat local conditions has been observed along other road locations (Chevallier 1976, 89). Direct comparison to Avenell Way can be seen in two Roman roads (P207 and P308) found in excavations at Areas 2 and 3 along the A505 by-pass just east of Baldock (Phillips *et al.* 2009, 91–101 and fig 8.2). These roads were recorded running roughly parallel *c.* 140m apart and aligned north-west to south-east heading towards Braughing. For the majority of their lengths the two roads consisted of a simple track defined by two flanking ditches but when they crossed a linear depression created by the same dry valley they both formed a low mound or *agger*, up to 5m and 12m wide respectively, and up to 0.45m thick. As was found at Steeple Morden, the upper sections had a metalled surface comprising compacted chalk and occasional flint pieces up to 0.1m thick.

Avenell Way does not display other characteristics of classic Roman roads such as the *agger* (other than over the causeway) or roadside ditches, perhaps affirming its earlier origin. Recent analysis of over 600 excavation sites where a Roman road was located, however, has demonstrated that often only a single ditch was present, or none at all (Davies 2006, 77). Roads were an innovation introduced to Britain with the Roman invasion of AD 43, initially to facilitate the military advancement by allowing messages, reinforcements and supplies to be quickly deployed to the zones of conflict. Subsequently the construction and maintenance of roads fell under the auspices of civil authorities; a good transport network was vital to ensure supply of produce to the towns as well as the import and export of goods further afield. It has been estimated that by *c.* AD 150 at least 10,000 miles of Roman road had been built across England (Smith 2011, 2).

During the late 1st and 2nd centuries AD, and perhaps into the 3rd and 4th centuries, numerous secondary roads linking Romano-British agricultural settlements and industrial sites were also constructed, many of which were unmade trackways that continued to be used after the collapse of Roman rule (Smith 2011, 5). It is possible that Avenell Way, although probably already in existence at the time of the Roman Conquest, was incorporated into this secondary network of trackways and subsequently repaired and maintained.

The type of transport utilising Avenell Way can, to some extent, be surmised from the excavated evidence. At a basic level the two hollow ways would seem to have catered for different types of travel. The earlier track with its deeply eroded sections and wheel-ruts frequently occurring in its base would appear to have been used by wheeled traffic; those on horseback or foot and animals may also have used it. At some point the earlier hollow way appears to have become impassable and lighter traffic began to bypass the worst sections, creating a second hollow way just to the north. No evidence that wheeled transport used the second hollow way was found, apart from the area of the metalled causeway where the two tracks converged to cross the palaeochannel.

Some estimation of the approximate size of cart being used is possible by assessing the measurements of the distance between the wheel-ruts. In seven of the excavated sections through the earlier hollow way, the average distance between the wheel-ruts was 1.40m to 1.50m. Those recorded at Pompeii and Herculaneum were 1.44m apart (Adams 2000), while wheel-ruts revealed during excavation of Stane Street, near Chichester suggested the use of carts with a wheel gauge of 1.47m; about 5 Roman feet (Davies 2006, 79).

Roman rules for road dimensions dictated that a minimum width of a via, a single track road suitable for vehicles and pack animals, was 2.37m on straight sections and 3.55m around bends. The notional preferred width for a Roman traffic lane was, however, 2.9m with the absolute minimum for a two-way flow being 4.35m (Davies 2006, 111–112). The width of the earlier hollow way was at least 2.08m with much of it being more than 4m wide, whereas the shorter-lived later hollow way was between 1.94m and 5.7m wide; at its widest over the former palaeochannels. Overall, most of the later hollow way was less than 4m wide, perhaps signifying that the route was largely used as a single track, possibly for more local non-wheeled

traffic.

Avenell Way would have formed an important element of the well-developed network of roads, tracks and droveways that was established in and around Cambridge (Duroliponte) during the Late Iron Age and Roman periods. The route appears to have started at Odsey, located *c.* 4km to the north-east of Baldock, and extended to Cambridge; both significant Iron Age and Roman settlements. It has been estimated (Burnham and Wacher 1990, 44) that for a day's journey a radius of about 10–12km would be feasible for foot transport, 20–24km for pack animals and carts and up to 30km for riding horses. The distance along Avenell Way between Odsey (and on to Baldock) and Cambridge was around 24km, an important consideration as this theoretically meant that both towns were close enough to allow for travel in a day by all except those on foot.

Buildings

Pottery from the buildings indicates their usage in the 2nd to 4th centuries AD, broadly contemporary with the later use of the track. Although most of the pottery was recovered from the beamslots and the sections of hollow way located close to them, the general paucity of finds or environmental remains from the buildings hampers interpretation of their function. Despite the pottery being wholly domestic in character, there is too little to imply permanent settlement and seasonal or occasional visits are more likely.

Their most probable use was agricultural and one interpretation is that they may have been shepherds' huts providing shelter for travelling herdsmen. Evidence for Roman sheep farming has been found nearby at Litlington (Wessex Archaeology 2010, 21) and to the north at Wimpole, where ribbon settlement adjacent to Ermine Street was investigated. Analysis of the sheep/goat assemblage from Wimpole indicated that most animals were butchered when adult, possibly indicating that they were kept for both their wool and their meat (Horton *et al*. 1994, 45). Four of the buildings at Steeple Morden, however, were adjacent to deeply eroded and rutted sections of the earlier hollow way, perhaps indicating that wheeled carts stopped here to load or unload goods. It is even possible that sections had been deliberately deepened to facilitate loading onto high carts. Thus an alternative function could be that the buildings were used as barns for the temporary storage of locally harvested crops before they were taken for processing. A very similar building (structure 3) was uncovered near to Chignal Roman villa and adjacent to a possible Roman threshing barn which measured 15.02m by 7.6m in size (Clarke 1998, 24 and 135, fig. 17). This structure was represented by two parallel trenches 3.3m and 3.15m long with almost vertical sides and flat bases, up to 0.37m deep. Its overall external dimensions were 3.35m by 2.94m. Given its location, the structure was thought to be agricultural in nature but no direct parallels could be found for it (*ibid*, 135).

An alternative explanation for these buildings is that they were temporary storage/shelters for tools and associated material related to the maintenance and repair of the track. However, the only place where any significant effort appears to have been made to maintain the track was the causeway/metalled section across the dry valley several hundred metres to the north-east of the buildings.

End of use of Avenell Way

Avenell Way presumably continued in use, along the entire route, for as long as the Iron Age and Roman settlements that it served (*i.e.* Baldock (via Odsey) and Cambridge) were in active operation. In both cases the towns are thought to have endured to at least the end of the 4th or early 5th century (Stead and Rigby 1986, 410; Alexander and Pullinger 1999, 83). The years following the Roman withdrawal would have dramatically reduced traffic along the track with excess grain, for example, no longer needed to feed the military or the urban centres.

The location of two possible Saxon cemeteries and/or burials identified at Steeple Morden and at Foxton close to Avenell Way tends to indicate that the route was still in use. Early and Middle Saxon cemeteries were often sited adjacent to Roman roads, for example outside Great Chesterford in Essex (Medlycott 2011) and near Botolph Bridge, where five examples of Saxon burials/cemeteries clustered along the probable Roman road from Peterborough to Oundle were identified (Spoerry and Atkins in press).

Along the south-western part of the route, Avenell Way seems to have continued to have been used for local traffic during the post-Roman period. Pollen records from Litlington and Bassingbourn combined with Williamson's work (1987) on field boundary survival in East Anglia, indicates that fields continued to be farmed in this period (Hooke and Burnell 1995, 14; Phillips 2009). The establishment of a minster at Meldreth before AD 870, possibly in the 7th century, may also have influenced a continuance of traffic utilising adjacent parts of the route.

Later landscape features have clearly employed elements of and/or respected the route, for instance, the named headland in Litlington and the boundaries of the ridge and furrow and present fields in Kneesworth and Meldreth. This phenomenon has also been noted further north in Cambridgeshire's Bourn Valley, where fragments of an earlier system are fossilised within the medieval common fields (Oosthuizen 2006, 68 and 134; Knight 2009).

The reason for the final demise of the route, particularly in the west, was probably the shift from predominantly pastoral agriculture to predominantly arable farming during the 11th to 13th centuries AD, as shown by Oosthuizen (2006) only slightly further north in the Bourn valley. Avenell Way's somewhat oblique alignment would have been at odds with the later agricultural use of the land, as it now appears to cut diagonally across the medieval fields. Perhaps also the track declined as other routes, in better condition, connected settlements which rose in impor-

tance, in much the same way as Ermine Street and the Great North Road altered in importance over time, as the main route to the north from London.

It seems that the actual end date was different for each section. From Odsey on the Icknield Way to just west of the excavated area of the quarry, the OS Surveyor's map (BL OSD147) shows a footpath still remained in use until at least 1804, although it was gone by 1845 when the railway plans were drawn up (CRO Q/Rum/16). The Litlington headland entitled 'Avenell Way' was used until Enclosure in 1828. Bassingbourn's Field Book of 1563 shows several large *Pieces of Old Bury Lands* in the appropriate furlongs, but no other indication of a route crossing them, even though the large linear depressions at the parish boundary and near Moules Farm remain today. It seems likely the track here went out of use well before 1563.

The section between Kneesworth and Shepreth must at least have been a landscape feature when it was used to delineate later field boundaries (CHERs 09539 and 8556a), but as Hooke and Burnell (1995, 102) indicate, this could have been any time from the Mid-Saxon period to the 13th century AD. A section in Meldreth, before the river, was marked as a footpath on the 1885 OS map, although after the crossing it then joined the footpath along Chiswick End. The adjacent section is still a field boundary today; but closer to Meldreth the track was incorporated into the field, presumably when more land for arable was required, after the 12th century. The Meldreth-Shepreth boundary was probably established in the Late Saxon/early medieval period and takes a sharp turn at the point where it crosses the track.

In Shepreth, short changes in both the field boundary and the river's course combined with the place name (meaning the 'brook where sheep were washed' (Reaney 1943, 81)), probably indicates that this part of the route was in use until the medieval period, or perhaps later.

From Foxton onwards, Avenell Way appears to have been covered by the medieval road from Royston, meeting the route near Foxton Crossing. Royston Priory was established by 1189 and soon became an important local settlement, and presumably the development of the new route was designed to provide a good connection between the town and Cambridge.

In Harston, the predecessor of the A10 was diverted at some point, presumably after the closes to the west of the High Street were laid out and that area increased in importance. On both sides of Church Street, The Bakehouse, which was built in the mid-16th century, the cottage opposite and the boundary of Harston Hall, were aligned with Avenell Way, so it may have still been a track at that time, again indicating its endurance.

Perhaps a combination of emparkment of Trumpington Hall and the growing importance of the London route through Great Shelford resulted in that section of the route moving to its present position by 1793. The presumed final section of Avenell Way, between Bentley Road and Brooklands Avenue, is still in use as Trumpington Road.

Settlement and farming adjacent to Avenell Way

Evidence for possible Iron Age or Roman enclosures and settlements pepper the route of Avenell Way, some of which (notably in Bassingbourn; NMRs 1395394, 1395346 and 1430364 and Kneesworth (Fig. 2)) are clearly aligned with the track. A Roman farmhouse (Malim 1990, 24) is located *c.* 800m away to the north of the route, with associated fields (Hurst 2011), while a possible Iron Age or Roman field system extends across the Well Head Field (MCB19213) 300m north-west of the farmhouse.

Conclusions

Was Avenell Way an ancient single track across south Cambridgeshire?

Detailed landscape, documentary and excavation work has provided a considerable body of evidence to enable the identification of a probable ancient track and an understanding of its origins, purpose and demise. As such it has significantly contributed to current knowledge of the local Late Iron Age and Roman communications network in this area and to a certain extent the formation of hollow ways. Unmetalled roads and trackways are notoriously difficult to date (Smith 2011, 5), making the recovery of pottery from the later phases of use of the hollow ways of some importance. The presence of associated and broadly contemporary buildings, albeit of uncertain function, that do not appear to have been part of any nearby settlement, is also a relatively rare occurrence.

Avenell Way may have developed at a time when the population increased dramatically and new settlements needed more accessible routes to newly-established markets at Baldock and Cambridge. Previously these two burgeoning settlements appeared to have no direct route connecting them, as the established trackways such as the Icknield Way and Ashwell Street ran roughly east to west rather than north-eastwards.

This southern part of what became Cambridgeshire seems to have evolved separately from much of the surrounding area, reflecting a period when the kings of the *Catuvellauni* and *Trinovantes* sought to strengthen and expand their influence here in the 1st century BC (Hill 2000, 10). It is tempting to think that Avenell Way may have been a significant element within wider developments that included the laying out of a new communication network to link the main administrative and commercial centres.

Utilising a number of methods, this study has identified around 79% of the *c.* 24km-long route and has indicated that it may have originated as a single track in the Late Iron Age and may have been subsequently adopted and maintained during the Roman period. The demise of the route as a presumably continuous track probably occurred in the 5th century

(or earlier) when the Baldock and Cambridge markets diminished after the end of Roman rule. Small local farming settlements presumably became largely self-sufficient and such routes became less important. The south-western section of Avenell Way in particular was largely abandoned, becoming integrated into local fields as paths or occasionally fossilised as boundaries. Elsewhere, parts of Avenell Way remained as a track.

By the time Baldock re-emerged as a main market, it was linked to other newly established settlements, such as Royston, along different road routes. Conversely the emerging importance of Royston and its new road links attaching it to Cambridge meant that parts of the eastern section of Avenell Way were maintained from Foxton to Cambridge, a route now fossilised as the A10.

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Appendix: Aerial Photographs

CCC: Cambridgeshire County Council; CUCAP: Cambridge University Collection of Aerial Photography; GE: Google Earth, NMR: National Monument Record. RAF: Royal Air Force.

Odsey, Guilden Morden: TL 5295 2379 – TL 5296 2380
Steeple Morden: TL 5296 2380 – TL 5314 2402
GE1/1/2003
CB15315 and CB15317, CgMs2002, C Cox
GE 1/1/2000
GE 2/21/2003
GE 1/1/2005
GE 17/10/2008
GE 17/10/2007
GE 17/10/2008
GE17/10/2006
Linear cropmark associated with CHER 09448, supplied by HER 18/09/2003

Litlington: TL 5314 2402 – TL 5330 2418
GE 21/02/2003
GE 10/16/2003
GE 7/30/2008
GE 17/10/2008
NMR21593/04 TL3241/45–27-MAR-2002

Bassingbourn: TL 5330 2418 – TL5348 2433
NMR 21593/04 TL 3341/45 27-MAR-2002
NMR 23067/18 TL 3342/35 17-APR-2003
ZEISS 406302 6 OCT 1972
GE 2/21/2003
GE 10/16/2003
GE 10/17/2008
NMR21593/07 TL 3342/7 27-MAR-2002
CUCAP BLQ 79
CUCAP BLQ 80
CNZ41
CNZ43
RAF 58/1983 30
NMR 21548-19 TL3342-16 27 Mar 2002
NMR 21548-23 TL3342-14 27 Mar 2002
NMR 21593-22 TL3442-13 27 Mar 2002
GE 1/1/2000

Kneesworth: TL 5348 2433 – TL 5360 2447
NMR Aerial TL 3442-14 27 Mar 2002 21593-23.jpg
NMR 21549-04 TL 3543-23 27 Mar 2002.jpg
NMR 21598/01 TL 3543/11 27-MAR-2002.
NMR 21598/03 TL 3443/3 27-MAR-2002
GE 1/1/2003
GE 10/17/2008
GE 10/16/2003
CUCAP BHZ 20
CUCAP BHV 94
RC8 CO131
GE 1/1/ 2007

Meldreth: TL 5360 2447 – 5387 2468
GE 1/1/2007
GE 05/03/2007
GE 10/17/2008
GE 1/1/2003
GE 10/16/2003
CUCAP CO55
CUCAP CO54
RAF 58 1119 3
TL 3846 36 TL 386469 31-MAY-2002 NMR 25613/04
TL 3846 37 TL 386469 31-MAY-2002 NMR 25613/05

CCC 1962 Run 15 565843
OS 74186 154

Shepreth: TL5387 2468 – TL5400 2480
RAF/CPE/UK/1993 4101
OS/74186 154
OS/72415 773
OS/52R31 168
RAF/106G/UK/1635 2427
GE1/1/2007

Foxton: TL5400 2480 – TL5415 2499
Foxton boundary to Foxton Rail crossing
GE1/1/2007
GE 10/16/2003
GE 1/1/2003
Foxton Rail crossing to Harston boundary
GE 1/1/2005
Aerial analysis for CHER 08636

Harston: TL5415 2499 - TL5428 2522
CCC 1962 survey Run 17 565882
Fairey June – August 201 592
GE 01/01/2003
GE 01/01/2005
GE 01/01/2007
GE 10/17/2008

Hauxton: TL5428 2522 – TL5431 2528
CCC 1962 survey Run 15 565990
GE 01/01/2007
GE 10/17/2008
GE 01/01/2003
GE 10/16/2003

Trumpington: TL5431 2528 – TL5452 2569
CCC 1962 survey Run 15 565990
GE1/1/2003
GE 1/1/2000
GE 10/16/2003
GE 01/01/2002
GE 9/10/2006
GE 1/1/2007
GE 4/29/2002

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Fleam Dyke, Fen Ditton: a reappraisal of excavated evidence from 2006–7

Tim Malim

Investigations in 2006–7 at Home Farm, Fen Ditton, discovered an unexpected concentration of medieval features but concluded that there was no evidence to support the conjectured existence of Fleam Dyke. Although the published synthesis did not contain the evidence on which this interpretation was based, reassessment of the original grey literature reports has suggested to the author that the recorded trench sections could be reinterpreted as including a bank and ditch feature that closely resembles the scale and flat-based form typical of the Cambridgeshire Dykes. This reinterpretation identified a ditch in two trenches, which was c. *2.75m wide and survived to a depth of 1m, with a scarp and bank on the northern side which survived to a height of 2m above the top of the surviving ditch. Medieval and post-medieval artefacts were stratigraphically assigned to an earlier deposit in the original report, but an argument is presented which introduces ambiguity into the stratigraphic analysis based on discrepancies within the recorded plans and sections. Historic mapping and previous commentaries are also used to provide contextual evidence for the existence of a continuous dyke through Fen Ditton.*

Introduction

The Cambridgeshire Dykes have long formed a topic of research interest to Cambridge Antiquarian Society (CAS) members from the 19th century studies by McKenny-Hughes, through 20th century investigations and debate by well-known names such as Fox, Palmer, Lethbridge etc, and thus the apparently negative results from investigations into Fleam Dyke (High Ditch) at Home Farm, Fen Ditton in 2006 – 7 (NGR TL488601; Cambridgeshire Historic Environment Record MCB17521) were intriguing, as they questioned accepted wisdom as to the existence of the dyke. Such results were unexpected. The published article for this study (Kenney 2009) did not include the detailed record with the evidence gathered during the archaeological investigations, an unfortunate result of a modern policy for publishing only synthesis without supporting data. The grey literature reports (Kenney 2006; Kenney 2007), however, were kindly supplied by Oxford Archaeology East when requested, and these have also been uploaded to the OASIS web site hosted by the Archaeology Data Service in York.

Background

Examination of William Collisson's 1807 Inclosure map ([Cambridgeshire] County Record Office (CRO) R60/24/2/24) (Figure 1) provides little direct field-name evidence to suggest the presence of a linear earthwork, a dyke, running through the parish, but nonetheless does include some elements which might support the hypothetical line of the dyke. What is now known as High Ditch Road was labelled on this map as Quy Road. The division of the landscape appears to have used this road as a baseline, as the closes and modern fields formed by inclosure of the medieval open fields lie parallel or perpendicular to it. This suggests the road itself is ancient, or follows an important ancient boundary. In contrast Newmarket Road appears to diagonally cross several sub-divisions through what used to be High Ditch Field. Superimposition of the modern map with the location of the archaeological trenches over the 1807 map shows that Trenches 1 and 3 lie within plot 117 (called "Allotment by Home Close"), with Trench 2 in plot 118 ("Home Close") and Trench 4 straddling both plots (Figure 2). Trenches 5, 6 and 7, however, all lie within plot 119 ("Homestead"). Plots 79, 116, and 117 are narrow strips lying along the northern side of Quy Road, and their existence could indicate the presence of a feature which effectively separated Home Close from the road: perhaps circumstantial evidence for the dyke. Further east other narrow plots can be seen along the road, this time on its southern side, immediately after the road kinks to the north (plots 277, 280, and 281). This again could indicate the presence of a linear feature, perhaps the result of the road deviating slightly to take advantage of the bank of the dyke as the slightly wetter land of High Ditch Field was encountered towards the boundary with the Quy Water.

Wider evidence that has been used in the past to substantiate the likely presence of a dyke along High Ditch Road included not only this specific name, but also the place-name for Fen Ditton as *dic-tun*, or the settlement by the ditch (or dyke), which was questioned in Kenney's article (2009, p.72). Ditton place-names from other parts of the country were cited which have been interpreted as having meanings other than a connection with a ditch. Unfortunately Kenney's

Proceedings of the Cambridge Antiquarian Society CIII pp. 107–115.

Figure 1. *Fen Ditton as shown in Collisson's 1807 Inclosure map, Cambridgeshire County Record Office R60/24/2/24).*

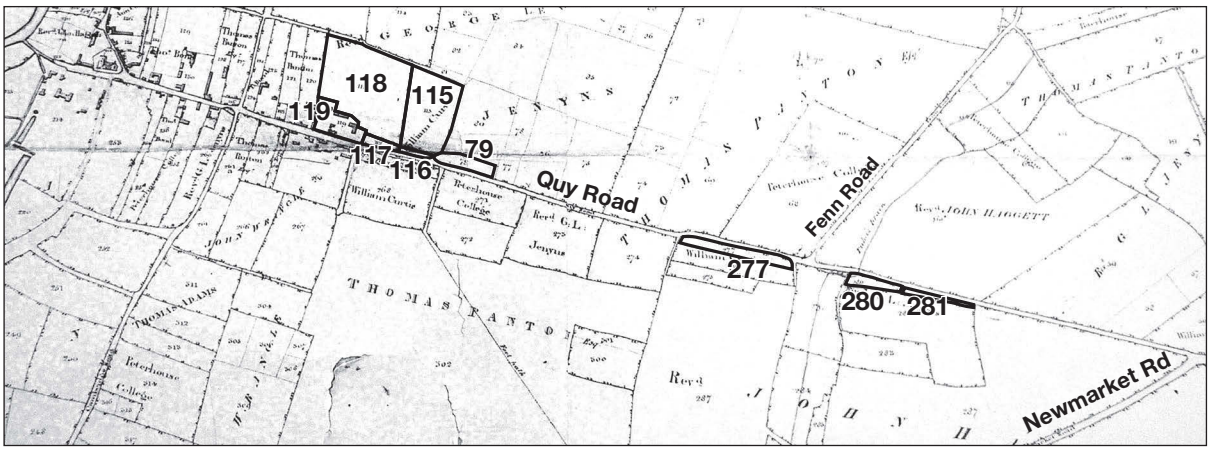

Figure 2. *An excerpt from Collisson's 1807 Inclosure map showing plots suggesting the presence of a linear feature running parallel to Quy Road, the modern High Ditch Road.*

argument has not quoted etymological studies to examine the earliest examples of the names, and two of his three examples come from interpretations of earlier writers (E. Hasted in 1797 for Ditton in Kent, and H.E. Malden in 1911 for Thames Ditton in Surrey's *Victoria County History* (VCH) volume 3). Such early interpretations have often been amended by later place-name scholars using an approach based on earliest recorded names and their subsequent deviations. For Kenney's third parallel he referred to Ditton Priors in Shropshire which C.R.J. Currie interpreted as "place near a hill" (1998, Shropshire VCH volume 10), but other studies do not agree (Gelling 1990, p.109–110; Poulton-Smith 2009, p.52) as the derivation of Ditton is shown to come from *Dodintone* in 1086, not *dic-tun*, and thus meant "farmstead of the family/followers of

Dod(d)a or Dud(d)a". Thames Ditton does not derive from *dic-tun* either as it has two entries in Domesday: *Ditone* and *Ditune* (for Thames and Long Ditton), whilst Ditton in Kent does derive from *dic-tun* as recorded by the Domesday survey, and this seems to refer to a stream running through the village.

Quy Road as depicted on the 1807 Inclosure map (and since 1821 known as High Ditch Road (Wareham and Wright p.120)) appears to run in a straight line from its junction with the Cam to the Newmarket Road, although later 19th century mapping shows some small variations in its course. The first edition 1" to the mile Ordnance Survey map (*c.* 1836) (Figure 3) shows that the road had a slight curve to the south, to the east of Home Farm, for example, and a probable bank feature is depicted running along the northern edge of the road, until it curves north again where it joins the fen edge lane that runs northwards to Biggin Abbey and Quy-cum-Stow Fen (called Fenn Road on the 1807 Inclosure map). The north-eastern part of the parish is described in the VCH as previously wet land that was drained and used for arable agriculture in post-medieval times, and notes that High Ditch Road runs through the centre of the parish (Wareham and Wright 2002). The south-eastern part of the parish was formed by a large open field called High Ditch Field (including the present Newmarket Road) which in medieval times would have formed a continuation of Low, Rough and High Fens which covered the north-eastern part of the parish.

Synthesis of the 2006 and 2007 reports

These two reports record investigations on neighbouring plots of land along the hypothetical course of the dyke as it was loosely described by Fox: "***The Fen Ditton Sector***. *This has been for the most part destroyed. The present east-and-west road through Fen Ditton roughly preserves its alignment; in the village the road represents the ditch* (a footnote here adds "*Sir William Ridgeway drew my attention to the fact that all the better-class farmhouses in the village are on the north side of the road – on the site of the high dry bank – and the poorer cottages on the south side*"); *further to the east on the outskirts of the village both bank and ditch are faintly visible to the north of the road; beyond the railway and a narrow boggy valley the road follows the crest of the bank, which is very well marked near the Newmarket Road junction*." (Fox 1923 p.126). Home Farm lies in the area on the eastern outskirts of the village, north of the road.

The array of seven trenches from both evaluations are depicted in Figure 1 of Kenney's *Proceedings of the Cambridge Antiquarian Society* (*PCAS*) article (2009) with trenches 1, 4, 5, 6 and 7 all aligned perpendicular to the supposed course of the dyke. The eastern-most trenches, Trenches 1–4 (Figure 4), were excavated in 2006, and the western Trenches 5–7 in 2007. Of the latter, the results were briefly outlined without section drawings or photographs (Kenny 2007 p.5). Results showed that the area where Trench 5 was located had been levelled down to natural chalk by modern activities, whilst Trench 6 comprised at least 2.5m depth of 20th-century infill, capped by 0.3m of topsoil, and Trench 7 extended up to 1m in depth with soil and rubble hardcore beneath 0.3m of topsoil. The results are perhaps not surprising within the bounds of a farming complex, and demonstrate that there had been severe landscape change in the recent past. A check on Google Earth[1] showed an aerial photograph for the Home Farm complex dated 2006 which showed hard-standing and four or five large modern agricultural buildings within the western part of the site (the 2007 investigation). The eastern end of the site, however, did not contain such evidence for modern disturbance, but by the aerial photograph dated 2007 the eastern part of the site was already under development. Looking back to the 1945 aerial photograph no structures were apparent at the eastern end, although a barn can possibly be discerned in the western part of the site.

Trenches 1 and 4 were of more interest and these are reproduced here in Figures 5 and 6. Although neither are recorded with chalk forming the natural, it is assumed that this was the reason for the cessation of

1 *Accessed 27.12.12*

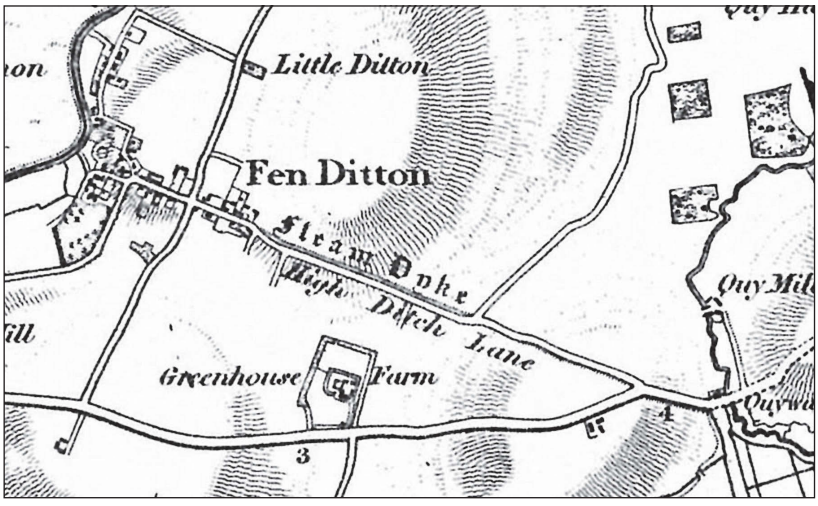

Figure 3. *Excerpt from the first edition 1" to the mile Ordnance Survey map (*c. *1836) showing a bank feature labelled 'Fleam Dyke' north of High Ditch Road.*

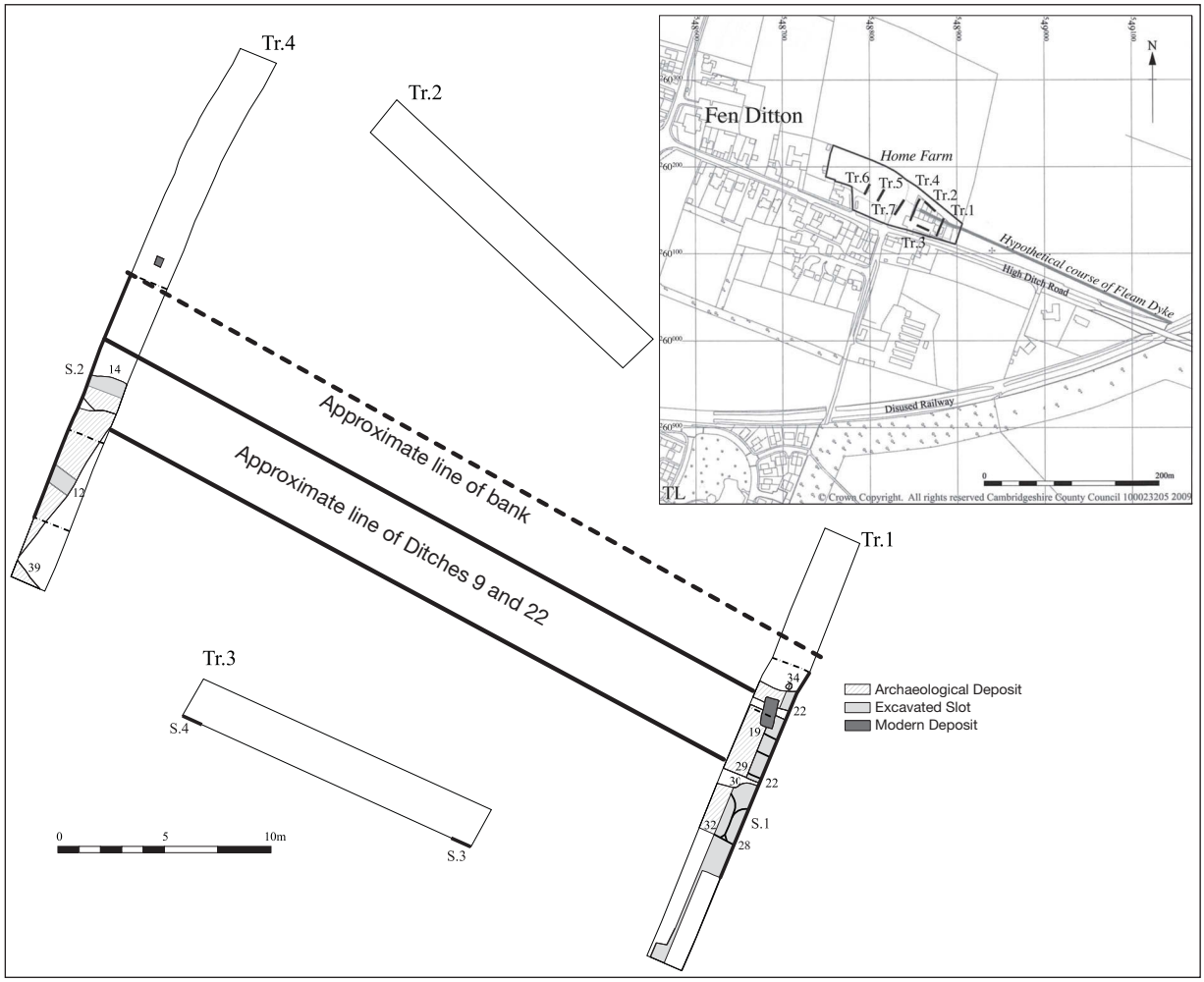

Figure 4. Kenney's *Fen Ditton trenches redrawn from figure 2,* Post-medieval Ditches at Home Farm, High Ditch Road, Fen Ditton, Cambridgeshire: CAM ARC Report No. 914. *The lines of the bank and ditches, and an inset map showing location in the village have been added.*

excavation in both trenches, except the southern part of Trench 4 which shows a dashed line within the *olive grey silty clay* fill 11 of Ditch 12. This ditch was oriented north-east to south-west, and at the south end of Trench 4 (see Figure 4) it appeared to turn towards the southeast (Cut 39). It sealed the earliest archaeological feature, Cut 14, which was described as the butt end of a ditch terminal (Kenney 2006, p.9). The report states that 18th-century pottery, brick and clay-pipe fragments were found in fill 11.

The drawn sections for Trenches 1 and 4 both show a scarp in the chalk, with the northern ends in both trenches higher than the southern ends. In Trench 1 (Figure 5) the truncated southern surface at the interface between brick rubble hard core (layer 2) and underlying archaeological deposits, is at 12.72m OD, whereas the top of the chalk beneath the *orange-brown sandy-clay silt subsoil* (layer 3) is 1m above this level, and the subsoil is mounded up *c.* 0.8m above this, whilst the archaeological sequence at the southern end extends *c.* 0.75m beneath the base of the modern hard core, making a total difference in height of 2.8m. At the junction between higher and lower parts of the chalk a flat-based ditch (Cut 22) was recorded which also appeared to be stratigraphically later than two pits (30 and 28), and a possible earlier ditch on the same alignment (24). Ditch 22 was oriented south-east to north-west.

In Trench 4 (Figure 6) a similar pattern was recorded. The base of chalk at the northern end of the trench is a little more than 1m higher than the recorded level used for drawing the section at 12.75m OD, whereas the base of Ditch 12 is about 0.8m below this datum string-line, making a total difference of 1.8m. A second flat-based ditch (Cut 9) is recorded at the base of the slope, cutting through an accumulation of deposits and into the fill of Ditch 11. Ditch 9 was oriented south-east to north-west.

The basal widths of each of these flat-based ditches were 3m for Ditch 22 and 2.5m for Ditch 9, and the angles of ditch cut rising from the base were *c.* 121–128º for Ditch 22 and *c.* 75–136º for Ditch 9. A comparison with the average dimensions and profiles of the Cambridgeshire Dykes (Malim *et al* 1997, p.101)

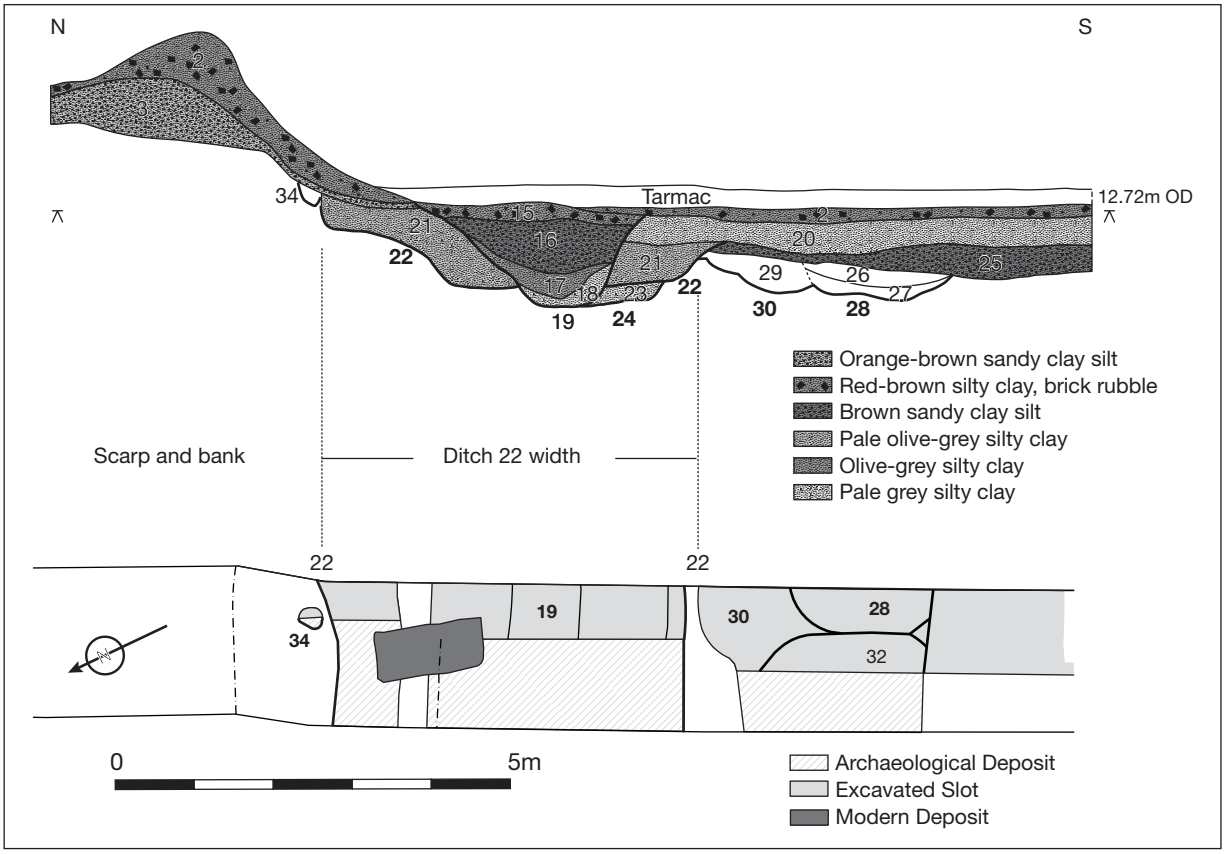

Figure 5. *Kenney's Trench 1 as shown in* Post-medieval Ditches at Home Farm, High Ditch Road, Fen Ditton, Cambridgeshire: CAM ARC Report No. 914. *Top, Section 2 redrawn from figure 3; below, basal plan of features redrawn from trench plan, Figure 2. See also Plate 1.*

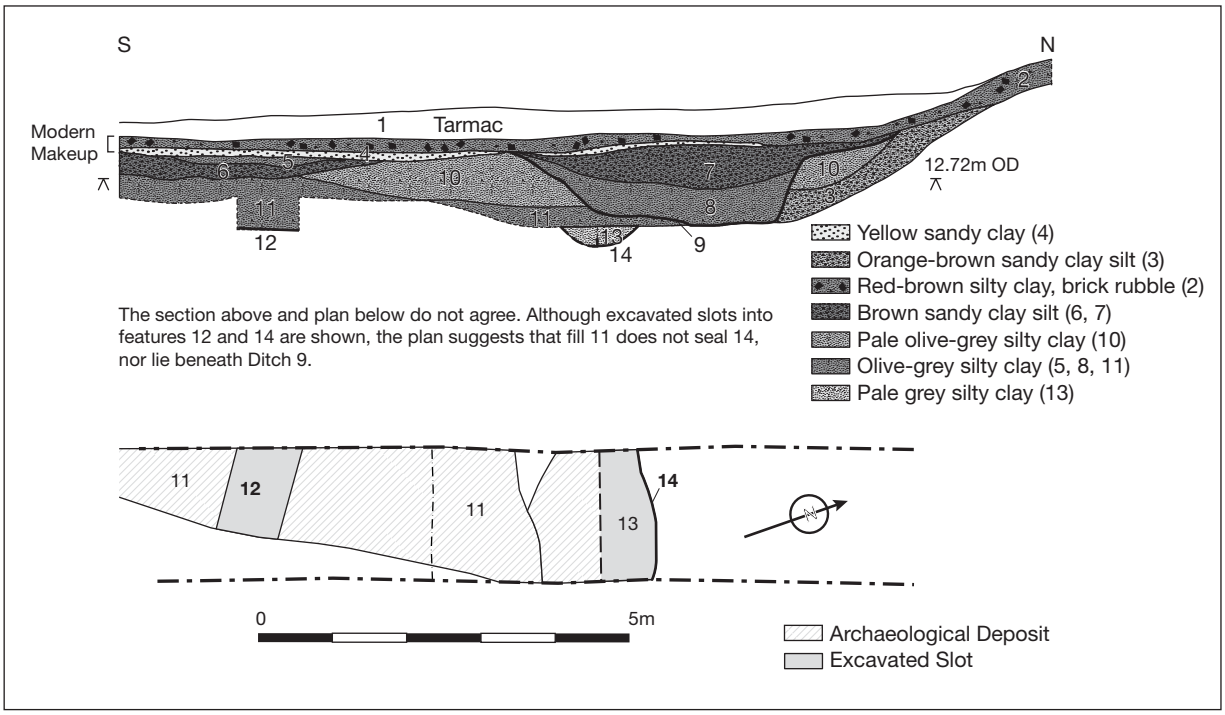

Figure 6. *Kenney's Trench 4 as shown in* Post-medieval Ditches at Home Farm, High Ditch Road, Fen Ditton, Cambridgeshire: CAM ARC Report No. 914. *Top, Section 1 redrawn from figure 3; below, basal plan of features redrawn from trench plan, Figure 2. See also Plate 2.*

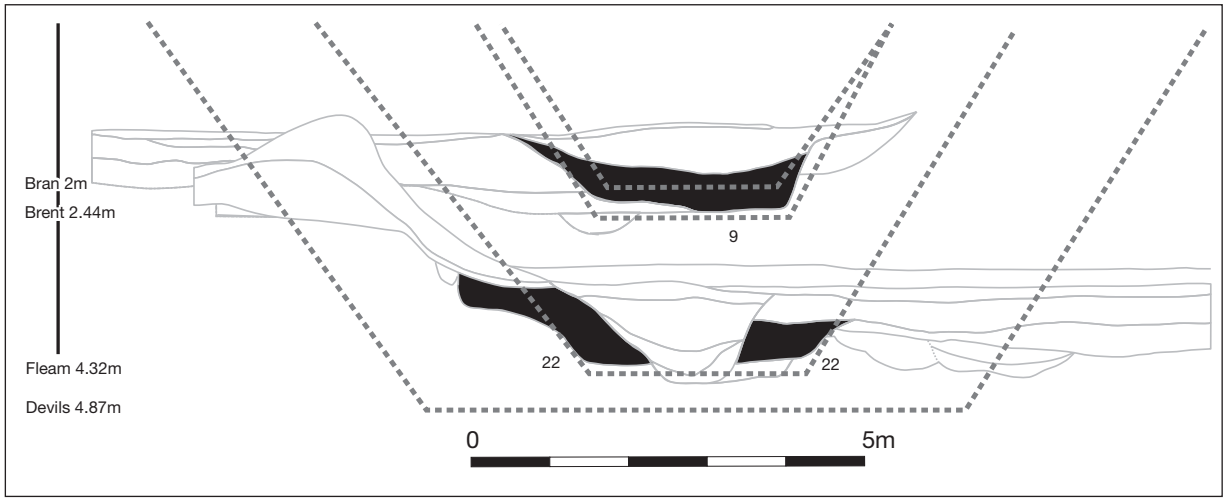

Figure 7. *Profiles of the Cambridgeshire dykes superimposed on Ditches 9 and 22.*

shows that the basal profiles of these two ditches are almost identical to those of Fleam Dyke and Brent Ditch (Figure 7). Flat-based ditches are unusual, and the description in Kenny's reports as V-shaped is confusing if not misleading. The interpretation for this feature was of a drainage ditch at the base of terracing accentuating the scarp between Townsend Close Allotment and a higher field to the north (Kenney 2009, p.72), but field-drainage ditches are not flat-based, they are generally cut as a V-shape because water must flow along them, and over time this will erode the base into a U-shape. The 1790 map of Fen Ditton (Wareham and Wright 2002, p.119) names a large area north of High Ditch Road to the parish boundary as Abbots Ditch Field, which is shown as an area of old inclosure in contrast to the open-field arable in Little Ditton Field south of the road, and in High Ditch Field in the south-eastern part of the parish. This distinction supports the assumption of a major boundary along which the line of High Ditch Road subsequently ran.

There is therefore much to disagree with in the published discussion and emphatic negative conclusions of the investigations of 2006–7. It appears as though there was in fact considerable archaeological evidence within the trenches excavated, including sections of a substantial flat-based ditch in both Trenches 1 and 4 which is demonstrably similar to the template for excavated sections of the Cambridgeshire Dykes. Nonetheless there is a chronological dilemma to resolve first, if an alternative interpretation for the ditch as the potential base for one of the Cambridgeshire Dykes is to be considered acceptable. Although no dating evidence was recorded within this ditch for Trench 1, within Trench 4 the report states that brick, clay pipe fragments and 18th century pottery was found in an *olive grey silty clay* (11) which filled Ditch 12, and that 18th century glass bottles and pottery were found in the *pale olive grey silty clay* (8) primary fill of the flat-based Ditch 9.

The details of the artefactual evidence are contained within Appendix 1 of the 2006 report (Fletcher in Kenney 2006, p.14–16). From the primary fill of Ditch 9 "*seven sherds from the base and body of a single [Post-medieval Red ware] glazed jar*" were found, and "*alongside this pottery were the fragments of two dark natural green glass wine bottles … of mid to late 18th century*". From the fill of Ditch 12 (context 11) "*four large relatively unabraded sherds from a [Sible Hedingham jug] a medieval glazed ware from Essex, a small sherd of Refined White Earthen ware, from a willow pattern plate, and a fragment of clay pipe stem were also identified*" plus part of an 18th-century brick; it was concluded that the medieval pot was residual. Further medieval sherds were found in one of the earlier pits, the fill (31) of Pit 32 from Trench 1, which contained two sherds of a medieval Ely type ware coarse bowl of 13th – 14th century date.

Within Trench 4 the exact locations of these artefacts within contexts 11 and 8 are not reported, for example whether the finds were made at the top or the bottom of the layer, whether they were found all together, or whether they were dispersed throughout the deposits. The presence of artefacts within a ditch fill, however, does not necessarily date the feature itself. The finds can be intrusive through animal activity or root action for example, or the in-fill deposit can derive from a later event. The finds from within Ditch 12 could be the product of waste being incorporated into a fill event during the 18th century, and there is considerable similarity in description of the matrix forming deposits 8, 10 and 11 as an "*olive grey silty clay*" which suggests that some of the surrounding deposit was used for infilling the ditch, forming its primary fill (Figure 6). All these deposits are sealed by a "*brown sandy clay silt*" (contexts 6 and 7). This deposit was later cut into by modern disturbance to form a hard surface, resulting in deposition of a "*yellow sandy clay*" (layer 4) with "*red brown silty clay subsoil, brick rubble and hard core*" (layer 2) as a foundation for a layer of tarmac. If the artefacts from context 11 (which is recorded as stratigraphically earlier than

Ditch 9) were from the top of the deposit at its southern end, then they could represent medieval and later activity which had formed the upper part of a gradual infill of a depression caused by the underlying Ditch 12, and which were then in turn disturbed and redeposited in part as fill 8 within Ditch 9. This scenario would allow a possible explanation for the apparent chronological discrepancy between Ditch 9 if it was the Fleam Dyke or High Ditch, and the occurrence of later artefacts within an apparently stratigraphically earlier deposit. By analogy at Devils Dyke a skeleton found at the base of the fill of the ditch was radiocarbon dated to cal. AD1180–1290 (BM966) (Malim *et al* 1997, p.73 and table 11a, p.107), but this did not make the ditch and dyke Norman in date.

The similarity in the matrix of the deposits could have obscured subtle changes from lenses of accumulation, and indeed the firm lines as reproduced within the section drawings, are unlikely to have been quite so definite during recording in the field. Unfortunately the plan of the trenches shown in the 2006 report presumably only shows basal features (i.e. the base of excavation as shown in the section drawing), and a scaled comparison between the section drawing and the plan in Trench 4 shows that the two do not match up (as reproduced here in Figure 6), which does not help to test the veracity of the stratigraphic relationships from the drawn record. The plan does not agree with the section in showing Ditch 12 extending beneath where the flat-based ditch (9) should be, whereas the section drawing clearly labels a part of the fill (11) of Ditch 12 as lying beneath deposit 10 and thus beneath the flat-based ditch (Figure 6). The section also shows that this labelled part of 11 has no excavated physical connection with the deposit also labelled 11 further south (as 10 briefly forms the base of excavation between the two parts), and it was from this context 11 that the medieval and later artefacts were found. The part of 11 beneath the flat-based ditch, for example, could even have been a continuation of deposit 10, as the description of the fill for both is very similar and the base of deposit 10 slopes down into the base of excavation which on the section drawing has been labelled as deposit 11. If 11 had been wrongly labelled and should instead have been a continuation of deposit 10, then this would help explain why 11 is not shown overlying feature 14 and fill 13 in the plan of Trench 4. It is also not helpful that the section drawings and report texts do not state what formed the base of excavation, and therefore the assumption is that this would have been natural chalk, rather than further deposits or some change in geology. The plan would suggest that chalk was reached between Ditch 12 and feature 14, but the section drawing does not show the natural chalk intervening in this manner.

Trench 1 had less obvious direct chronological relationships as were evident in Trench 4, but the cut for the potential Fleam Dyke/High Ditch which formed Ditch 22 seems on the section drawing to be stratigraphicaly later than Pit 30 (Figure 5). A neighbouring Pit without direct stratigraphic relationship to Ditch 22, Pit 32, contained medieval pottery, of 13th – 14th century date and the same origin as the sherds found in fill 11 in Trench 4 (i.e. medieval Ely type ware). The fill within Ditch 22 is described in a very similar way to the primary fill within Ditch 9 in Trench 4, as "*pale olive grey silty clay with small stones*". As with Trench 4 an earlier feature, a possible ditch (cut 24, fill 23), lies beneath, but unlike Trench 4 a later ditch has been cut through the fill of Ditch 22 forming a shape more likely to be a field-drainage ditch (Ditch 19). The chalk scarp is well defined in the section drawing for Trench 1 and also shows the possible remnants of a bank, which appears to be 0.8m high when scaled-off from the drawing. This is described as "*orange-brown sandy clay silt sub-soil*" (context 3), a small band of which has slumped over the northern end of the infill to Ditch 22 and sealed post-hole 34, which may have acted as a revetment for the bank above (Figure 5). The later ditch (Ditch 19) is shown to have cut through this deposit, but was sealed by a layer of "*reddish-brown silty clay subsoil with brick rubble and hard-core*" (layer 2) which acted as a foundation for a tarmac surface. Ditch 19 is therefore a modern feature.

In summary there are attributes from both Trench 1 and Trench 4 which suggest that a feature such as Fleam Dyke/High Ditch could have run through the area. These consist of a flat-based ditch which conforms to the profile established for the other Cambridgeshire dykes, and remnants of a bank on a scarp of chalk on the northern side of the ditch (see Figures 4 and 7). There are also earlier features, including undated ditches beneath the flat-based profile in both trenches (Ditch 14 and Ditch 24). Apart from the possible evidence for Fleam Dyke, other earlier ditches (12 and 39) and pits (28, 30 and 32) with medieval pottery would appear to extend medieval settlement at Fen Ditton much further east than had previously been believed (Wareham and Wright 2002, p.120), perhaps indicating a High Medieval precursor for the 17th century building that is now Home Farmhouse. Within the keyhole investigations from trial trenching it is not surprising that we are left with a glimpse of much more complex archaeology, and that any interpretation must be tenuous until it can be been tested through analysis of a larger body of evidence.

Discussion

The other dykes that run further south across the Icknield Way zone, survive today in part as both boundaries and paths (Fleam and Devils have paths along their banks and act as parish and hundred boundaries (for Fleam), whereas the course for Bran or Heydon Ditch is delineated by both parish and field boundaries). It is therefore perfectly reasonable to suggest that the present road developed from a route that followed the most direct and highest land through a predominantly wet landscape (the highest part of the causeway formed by High Ditch Road

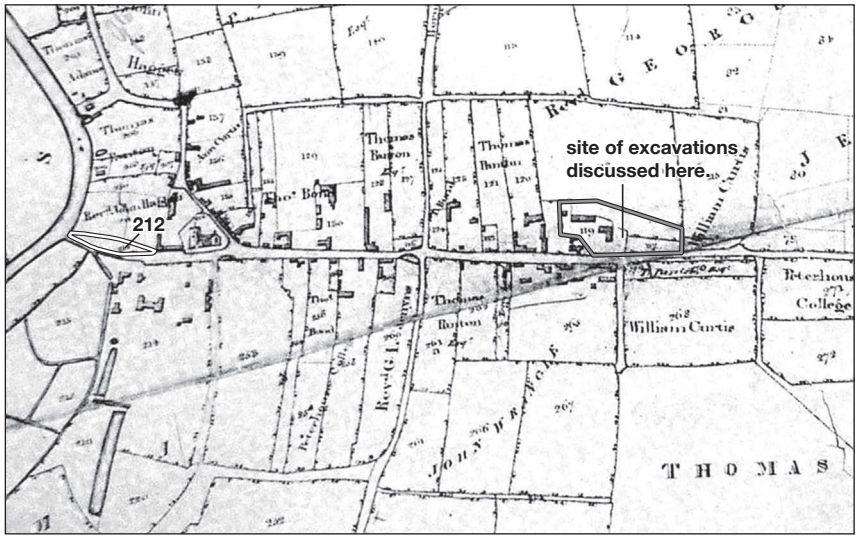

Figure 8. *Location of the linear plot that may indicate a bank at the western end of Fen Ditton in relation to the excavations discussed here.*

is at 13.5m whereas the parish is generally recorded as *c.* 6m above sea level (Wareham and Wright 2002, p.118)). At its western end an earthwork parallel to the road appears to survive within the garden of the Old Rectory, and a linear plot (212) is shown adjacent to the road on the 1807 Inclosure map (Figure 8), either of which could indicate the presence of a bank. This would benefit from further study to establish its nature and the possibility as to whether this once formed the terminus for a dyke. Near its eastern end, Anglo-Saxon weapons were found in the fill of the ditch (Lethbridge 1958; Briscoe *et al.* 1964) identified by Lethbridge as a fosse and vallum, a dyke, which he observed during road works in 1957. There is thus circumstantial evidence for the dyke's existence, with a possible banked terminus at its western end and a ditch of at least early Saxon date at its east end.

In addition and contrary to the *Discussion* section in Kenney's PCAS article, a more recent detailed survey and assessment of the dyke has been made since Fox and Lethbridge's time, published by the Royal Commission on Historical Monuments for North-East Cambridgeshire (RCHME 1972, p.144–147). The careful field study notes the physical remains of a bank and ditch along a reasonable proportion of the length of High Ditch Road, especially immediately to the east of Home Farm "*... but at TL 49076004 the bank reappears and can be followed for 260 yds. until it reaches the outskirts of Fen Ditton village at Home Farm (TL 48846015). For the first 190 yds. of this length the bank is well marked: it is 10 ft. wide, 2 ft. high on the N. and drops steeply 4 ft. towards the road which apparently lies in the ditch. Just S.E. of Home Farm the S. face of the bank has been cut into for farm buildings and now remains as a steep scarp 5–6 ft. high with some traces of the other side of the bank in the field to the N.*" (RCHME 1972, 146). Contrast this with the concluding remarks in Kenney's article: "*It is rather more likely that there never was a major dyke across this landscape … and that the features identified as part of the 'dyke' were over-enthusiastically interpreted in the past*" (Kenney 2009, p.72). The Royal Commission volume clearly articulates physical evidence in many locations to the east and west of Home Farm where remnants of the dyke were visible, and where historic mapping provide documentary evidence. The volume also notes that in Baker's 1821 map of Cambridgeshire the road is labelled as High Dyke Road. It suggests that the origin of this dyke might have been earlier than the surviving earthworks across the Icknield Way zone, and was similar to some of the Norfolk dykes in that it cut off a promontory of dry land (Fen Ditton village and Horningsea) that juts out into the fen. It also suggests that the change of course at Newmarket Road was to ensure that the dyke defended the crossing point of Quy Water where Quy Bridge was later located.

Conclusions

The results from Kenney's investigations were interesting and should have been published so that readers could assess the validity of the interpretations presented in his brief synthesis. The current trend for minimising archaeological publication limited the evidence that could be presented, when what was found was so important that it should have been made more widely available for study and for academic debate. Those results leave a chronological enigma, and argue for new campaigns of investigation as opportunity allows. It is hoped that this paper will contribute to and actively stimulate that debate.

Acknowledgements

Thanks are due to Liz Popescu and Steve Macaulay of Oxford Archaeology East who kindly sent him copies of the original grey literature reports and gave permission for re-use of the location plan showing the trench layout in Figure 4. Staff of the Cambridgeshire Record Office assisted with research into historic mapping and permitted copying of relevant sections. Caroline Malim kindly redrew the colour figures

used for analysis in black and white and greyscale for publication in PCAS. The article has also benefited from the review of the referees whose comments have helped refine this paper.

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An Anglo-Saxon site at Thrapston Road, Spaldwick, Cambridgeshire

Susan Clelland and Lorraine Mepham

with contributions by Catherine Barnett, Lorrain Higbee and Chris J Stevens

The excavation of an area adjacent to Thrapston Road, Spaldwick, revealed archaeological remains ranging in date from early prehistoric to post-medieval, focusing in particular on the Iron Age and Anglo-Saxon periods. This report focuses on the evidence for Anglo-Saxon activity on the site, which comprises possible small-scale 'industrial' use in the early/mid-Anglo-Saxon period, before being formally reorganised in the late Anglo-Saxon period into tofts, each containing rectangular post-built structures.

Introduction

Wessex Archaeology was commissioned in 2010 by SD Construction and Developments Ltd to carry out an archaeological excavation at 33 Thrapston Road, Spaldwick, centred on NGR 512780 272917 (Figure 1). This followed on from an earlier desk-based assessment and evaluation of the site, both also carried out by Wessex Archaeology, in 2001–2 (Wessex Archaeology 2002a; 2002b).

This report focuses on the early and late Anglo-Saxon/early medieval and post-medieval archaeology; a full report may be found at http://www.scribd.com/doc/219615611/Thrapston-Spaldwick.

Site location and geology

The site, which lies on the north-western fringes of the village of Spaldwick, comprised at the time of excavation a parcel of overgrown scrub covering approximately 0.12 hectares. Located on a gentle north-east facing slope, the site is bounded to the north-east by Thrapston Road, originally part of the road running from Huntingdon to Thrapston, which forms the village High Street, and which is now bypassed by the A14 (Figures 1 and 2). The site is bounded to the north-west and south-east by residential properties and to the south-west by further overgrown scrubland backing on to St James' Church.

The underlying geology is shown by the British Geological Survey (Sheet 2) as comprising Oxford Clays with Kellaway Beds.

Archaeological and historical background

The manor of Spaldwick is first mentioned in the 10th century when it was granted to Ely Abbey by Brithnoth, *ealdorman* of Essex, in AD 991. From 1109 to 1543 it was held by the Bishop of Lincoln who may have had a palace or hunting lodge to the east of the site, near to his deer park (the 12th century 'Forest of Spaldwick'), of which there is now no trace (Wessex Archaeology 2002a).

The banked enclosure around the presumed historic core of the village (Figure 1) is the site of the shrunken village of 'Danesfield', although the name Spaldwick (*Spalduice*) was in use by *Domesday* (Mawer and Stenton 1926, 247). The settlement of 'Danesfield' may have been in existence before AD 991 when Spaldwick was granted to Ely Abbey. The enclosure is roughly oval with the south and west sides marked by small surviving banks; the bank on the northern and eastern sides has been destroyed. The earthworks within the enclosure (see Figure 1) may range from building foundations, in the south, to a windmill mound or perhaps a very small motte in the west.

Previous archaeological investigations within the village of Spaldwick found two Anglo-Saxon or early medieval buildings succeeded by later medieval rubbish pits in yards with some industrial activity on a site on the northern side of Thrapston Road (Cambridge County Council Archaeology Field Unit (CCCAFU) 1996), and a medieval ditch and plough marks were recorded at Ferriman Road, to the south of the site (Murray 1998) (Figure 1).

The many 16th, 17th and 18th century Listed Buildings in Spaldwick may indicate the prosperity of the village, though none of these lie close to the site, and map regression shows that the village has changed little from 1775 (Wessex Archaeology 2002a, fig. 3). The line of the earthwork enclosure around 'Danesfield' may be seen on the 1775 Enclosure map, curving around and running along the northern edge of the site (see Figure 1).

Excavation results

Early/mid-Anglo-Saxon (5th to 8th centuries)

Despite the fairly extensive late prehistoric activity on the site only a few residual sherds of Romano-British pottery were recovered, and no features could be

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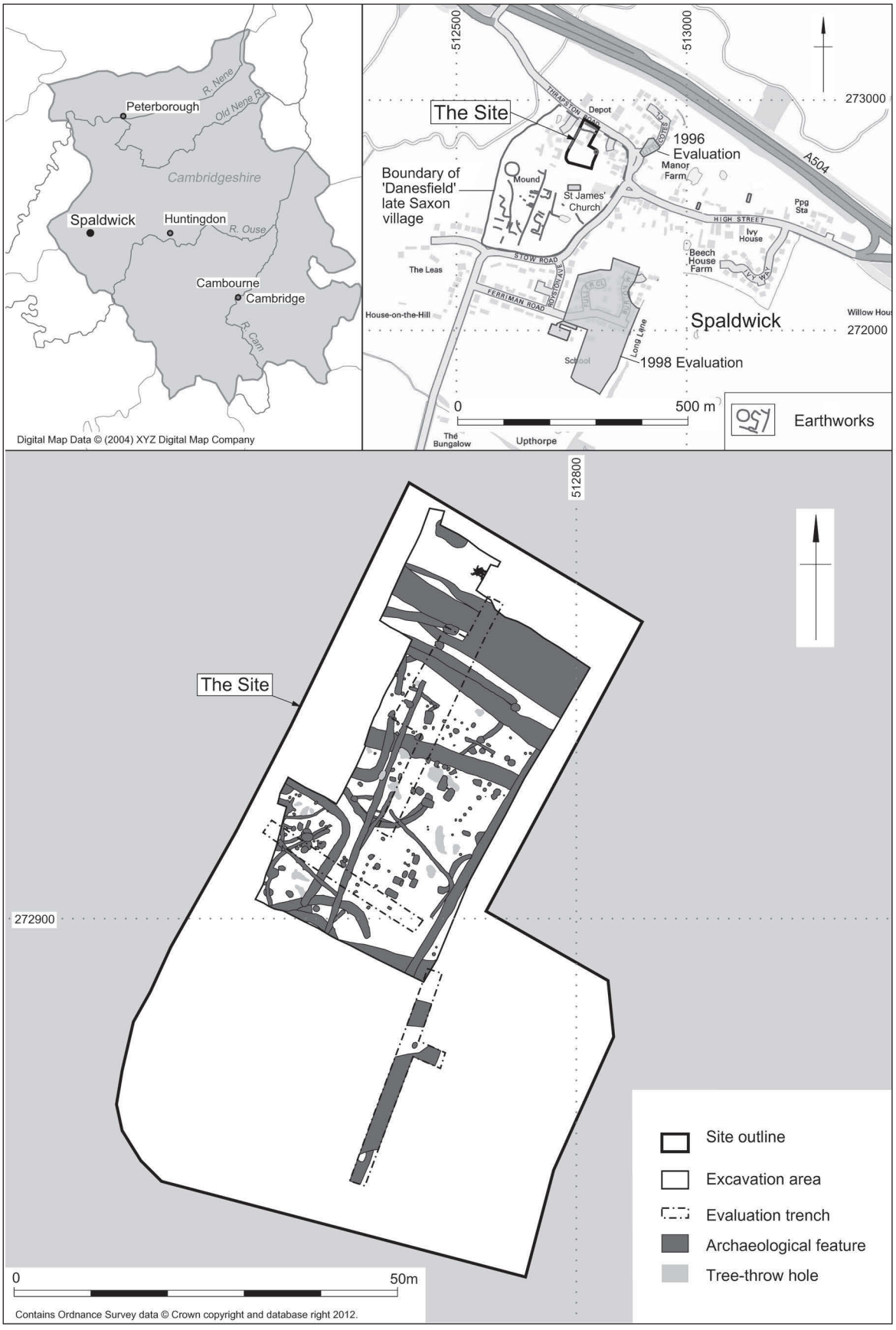

***Figure 1**. Site location.*

Figure 2. *Overall view of site during excavation, view from the south-west.*

definitively dated to this period. It appears that the site was abandoned, possibly around the time of the conquest until the 5th–8th centuries when a number of pits and other features were dug.

Evidence for activity in the early/mid-Anglo-Saxon period comprises a number of pits (Figure 3). The base of large oval pit 663 (2.3m x 1.6m x 1m deep), adjacent to the eastern edge of the excavated area, cut through a sandy layer within the Oxford Clay, breaching the water table and has been tentatively interpreted as a watering hole; the profile shows one steep side and the other more gradually sloping, which could have allowed access for animals to drink (Figure 4). The base of the pit was filled after going out of use through the gradual accumulation of laminated silt deposits (666–671), and this was followed by a series of dumped layers (672–4); subsequently, late Anglo-Saxon-medieval boundary ditch 791 cut through the top. Pit 663 produced 12 early/mid-Anglo-Saxon sherds, as well as animal bone (64 fragments) and a possible iron smithing hearth bottom (a full quantification of finds by feature for all Anglo-Saxon and early medieval features is given in Table 1).

Nine shallow, sub-rectangular 'fire pits', forming two clusters (433, 729 and 752 to the north; 435, 705, 715, 724 and 725 to the south) with one outlier (450), have been assigned to the early/mid-Anglo-Saxon period, although the only dating evidence recovered comprised four early/mid-Anglo-Saxon sherds from two intercutting pits (435, 725). Within the two clusters the pits were located close enough together to perhaps imply successive rather than contemporaneous use, a suggestion supported by the fact that pit 435 cut the corner of pit 725. The pits were all of broadly similar shape and size (1.2–1.8m long, 0.8–1.2m wide, 0.1–0.2m deep; near vertical sides and flat bases), and most had similar burnt material in their fills. The sides of most of the pits were heat-affected, although this was not consistent or continuous around the sides of any of the pits, while the pit bases were only slightly heat-affected.

The depositional sequence recorded in pit 724 (Figure 4) is somewhat different to the others, and may provide an insight into how the pits may have functioned. A dense layer of charcoal (723), mainly consisting of large pieces of roundwood and dominated by blackthorn (*Prunus spinosa*), lay at the base of the pit. This was overlain by a layer of slightly heat-affected flint nodules (722), apparently dumped into the pit rather than burnt or heated *in situ*. A deposit of accumulated debris comprising a fine dark silty loam with a distinct ashy grey hue and small fragments of charcoal (721) sealed the layer of stones. Layer 721 was sealed by an upper fill of topsoil-derived

Figure 3. *Phase plan: early/mid-Anglo-Saxon features.*

Feature	Animal Bone	Burnt Flint	Fired Clay	Pottery	Slag (g)
Early/mid-Anglo-Saxon					
Fire pit 433	116	159	31		
Fire pit 435	10			2	
Fire pit 450					5
Fire pit 705	46		2		
Fire pit 715	11				
Fire pit 724	47				
Fire pit 725	3			2	
Fire pit 729	4				
Fire pit 752	7				
Pit 525	125			21	33
Pit 455	14			3	
Waterhole 663	64			12	112
sub-total	**447**	**159**	**33**	**40**	**150**
Late Anglo-Saxon/early medieval					
Pit 448	11			3	
Pit 490	5			3	
Gully 539	1			1	
Pit 543	5			2	
Posthole 776	4			2	
Ditch 782	21			20	
Fence 786	2			1	
Ditch 791	26			13	13
Gully 793	40			15	
Structure 799	12			13	226
sub-total	**127**	**-**	**-**	**73**	**239**

Table 1. *All finds by feature.*

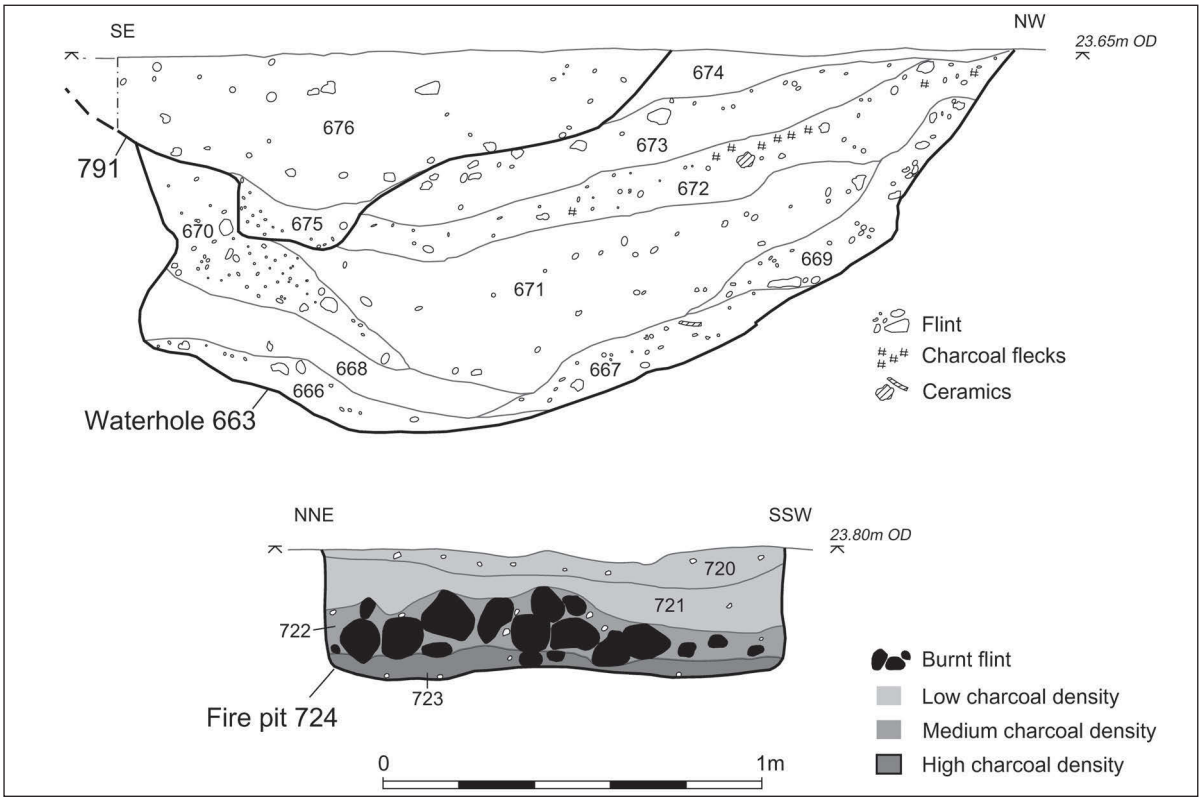

Figure 4. *Sections of selected early/mid-Anglo-Saxon features (waterhole 663, 'fire pit' 724).*

material (720). The remaining eight pits were filled with a mixed layer of silty loam including abundant charcoal (again dominated in most cases by blackthorn) and heat-affected flint nodules of varying size (Figure 5). The density and size of the charcoal increased towards the bases of these pits, but there were no clearly differentiated charcoal and stone deposits as seen in fire pit 724.

Apart from the four sherds of pottery noted above, other finds from the pits comprised 244 fragments of animal bone (mostly cattle and sheep/goat, but also a few pig, red deer and bird bones), 33 fragments of fired clay, 159 pieces of burnt, unworked flint, and one piece of ironworking slag. There was a concentration of finds in pit 433 (all of the burnt flint, most of the fired clay, and approximately half of the animal bone).

The possibility that these pits may be slightly later in date, perhaps late Anglo-Saxon, cannot be ruled out, although the southern cluster was cut by timber structure 799 (see below).

Two other pits (455, 525), both on the eastern side of the excavation area, may also belong to this phase of activity; both produced early/mid-Anglo-Saxon pottery (three sherds from pit 455, 20 from pit 525) and although one sherd of medieval pottery was also recovered from 525 this was small and could well have been intrusive. Pit 525 also produced 125 fragments of animal bone and two pieces of ironworking slag, and a small quantity of cereal grains (barley and free-threshing wheat).

Figure 5. *'Fire pit' 433 after partial excavation.*

Late Anglo-Saxon/early medieval (9th to 11th/12th centuries)

Two right-angled gullies (539 and 793) appear to be related, forming a 'pair', and may be the earliest features in this phase (Figure 6). These two gullies ran parallel across the southern half of the site before turning to the south-west, though their full extent is unclear. Pottery indicates a late Anglo-Saxon/early medieval date (three sherds of St Neots ware and one of early medieval shelly ware, alongside 12 early/mid-Anglo-Saxon sherds), and both gullies were cut by later boundary ditches (780 and 791 respectively).

The main focus of activity in this phase, however, was the construction of two timber structures, probably domestic buildings, and associated fences within clearly defined ditched boundaries (tofts). This marks a significant period of landscape reorganisation, and may represent the earliest evidence for the village of 'Danesfield' (Figure 6). The excavated area constitutes the majority of one toft and part of a second, both oriented north-east to south-west and respecting the present-day alignment of Thrapston Road along the north-east side of the site.

The tofts were separated by ditches 780 and 791, with ditch 782 to the north; a sample taken from the latter proved to be rich in cereal remains, of free-threshing wheat, probably characteristic of threshing waste (see Stevens, below). The main toft exposed extended for at least 37m and tapered from 17m wide at the northern end to 11m at the southern end. Ditch 782 along the northern side exhibited at least three episodes of recutting, by ditches 422 and 587 (Figure 7), resulting in a broader ditch (3.6 m wide, 1.1m deep) than the two forming the sides of the plot. Deposits within ditch 782 suggest the presence of a bank to the south, apparently backfilled during the medieval period. The two side ditches (780 and 791) were between 1m and 2m wide, and approximately 0.5m deep. Thirteen sherds of early/mid-Anglo-Saxon pottery were recovered from the eastern ditch 791 (which cut possible waterhole 663) and 20 late Anglo-Saxon/early medieval sherds from ditch 782 recuts 422 and 587 to the north.

Within the central toft lay a rectangular timber structure (799), just over 20m south of ditch 782, and following the same alignment as the side ditches, but closer to ditch 780. Structure 799 comprised 12 postholes, and measured 8m by 4m. The postholes varied in size and the profile and plan of several indicate that posts were replaced during the structure's use. The two postholes on the east side may indicate the location of a centrally placed doorway in this wall. Three postholes produced early/mid-Anglo-Saxon pottery (a total of 13 sherds), but the sherds are small (mean sherd weight 4g) and are considered likely to be intrusive here. Furthermore, one of the postholes in the east wall cut one of the earlier Anglo-Saxon 'fire pits' (715), and the projected wall line passed very close to three others.

To the north of structure 799 was a probable yard. A number of postholes formed two sides of a fence alignment (786) running parallel to the eastern and

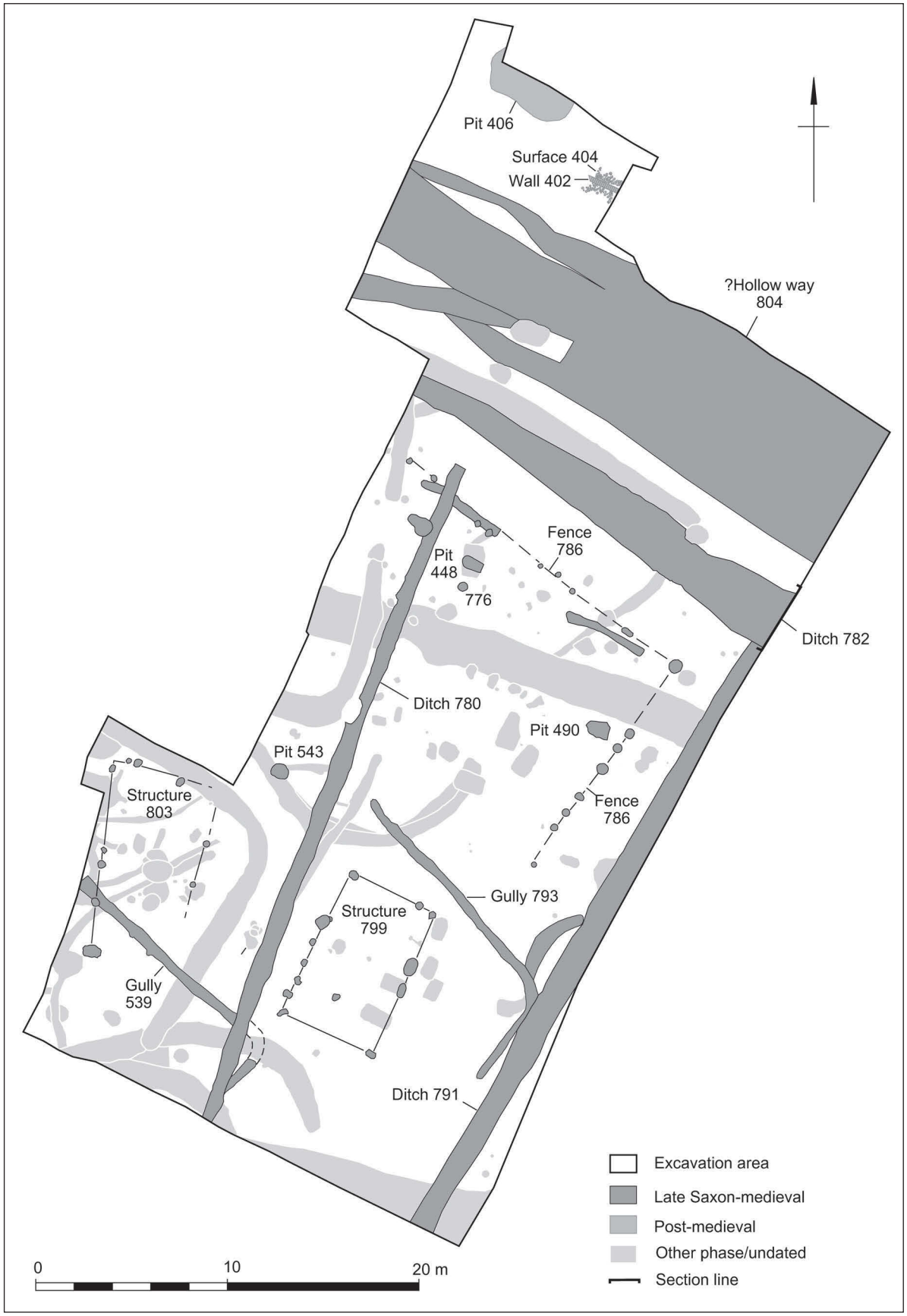

Figure 6. *Phase plan: late Anglo-Saxon/medieval and post-medieval features.*

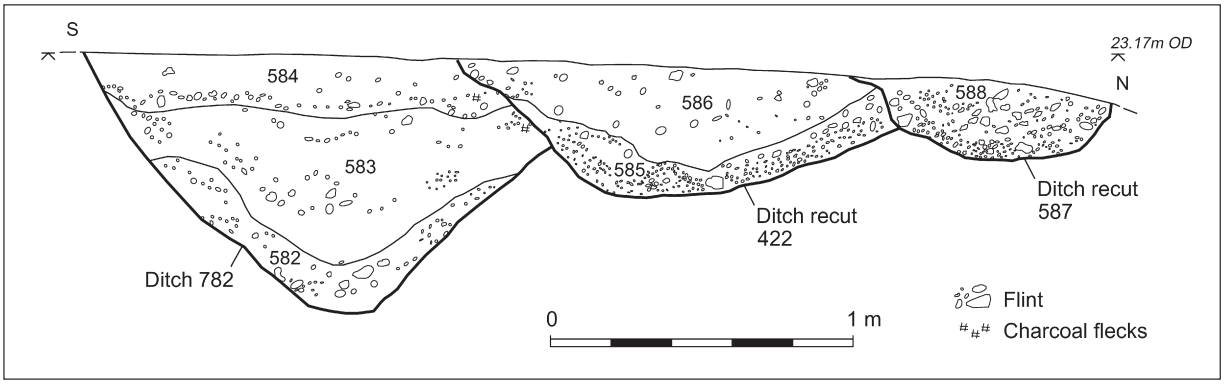

Figure 7. *Sections through late Saxon/medieval boundary ditch 782.*

northern boundary ditches (786 and 791 respectively) and at a distance of about 4m inside them. Two small pits (448, 490) and posthole 776 comprised the other contemporary features identified in this area and these produced a total of one sherd of early/mid-Anglo-Saxon and seven sherds of late Anglo-Saxon/early medieval pottery.

A second possible rectangular structure (803), on a similar alignment to structure 799, was more tentatively identified within the plot or toft to the west. Structure 803 comprised ten postholes forming a ground plan measuring an estimated 10m by 4m. No dating evidence was recovered from any of the postholes. Pit 543, probably a rubbish pit, to the north-east of structure 803, yielded two sherds of late Anglo-Saxon St Neots ware.

Late medieval (13th to 15th century)

Features dated to the later medieval period (Figure 6) suggest that the area reverted to agricultural use at this time. Late medieval feature 804 comprised an 8m wide series of ditches 10m to the south of and parallel with Thrapston Road. Parallel and less than 3m to the south was the late Anglo-Saxon-medieval ditch 782 bounding the north side of the tofts. It is possible that feature 804 represents a hollow-way, with possible origins in the late Anglo-Saxon period, comprising a sequence of linear hollows and ditches, the latter perhaps drainage ditches which broadly confined the shifting course of the route. Cobble patch 404 may also have been an element of this complex, and the gravel in the lowest fills (585 and 588) of the recuts (422 and 587) of ditch 782 may derive from similar metalled surfaces of which no other trace survived.

Finds

Pottery

Lorraine Mepham, with a contribution by Patrick Quinn

Only the Anglo-Saxon and early medieval pottery (109 sherds; 652g) is discussed here; details of all other pottery are held in the project archive, while a full report including the prehistoric material can be found online (http://www.scribd.com/doc/219615611/Thrapston-Spaldwick). Anglo-Saxon and medieval pottery is quantified by feature in Table 2.

Methods of analysis

The Anglo-Saxon pottery has been subjected to full fabric and form analysis, following the standard Wessex Archaeology pottery recording system (Morris 1994), which accords with nationally recommended guidelines for the recording of post-Roman pottery (Medieval Pottery Research Group 2001). Fabrics have been defined and coded on the basis of predominant inclusion type; totals and summary descriptions are given in Table 3. To support the fabric analysis, samples of six selected fabric types were submitted for thin section analysis by Dr Patrick Quinn (University College, London). His full report is held in the project archive, and a summary of his results is incorporated below.

Description of assemblage

The identification of an Anglo-Saxon element within the assemblage is somewhat problematic. A total of 109 sherds have been dated as early/mid-Anglo-Saxon solely on the grounds of fabric; there are no clearly diagnostic sherds. Nearly all fabrics are sandy and are almost entirely unoxidised; these are harder-fired than those sandy wares identified as later prehistoric (although petrographic examination indicates that all were fired to less than 850°C, the same as the prehistoric fabrics), and coarser. The condition of the sherds is fair; despite their hard-fired nature, sherds on the whole are smaller than in the prehistoric assemblage, and are at least slightly abraded. Mean sherd weight is 6.0g.

	Saxon	St Neots ware	Stamford ware	early medieval Shelly	early medieval Sandy	Total
Early/mid-Anglo-Saxon						
Fire pit 435	2/14					2/14
Fire pit 525	20/152			1/7		21/159
Fire pit 725	2/36					2/36
Pit 455	3/19					3/19
Waterhole 663	12/98					12/98
sub-total	**39/319**			**1/7**		**40/326**
Late Anglo-Saxon/early medieval						
Pit 448	1/15			2/32		3/47
Pit 490		3/18				3/18
Gully 539	1/3					1/3
Pit 543		2/48				2/48
PH 776		1/8			1/2	2/10
Ditch 782		9/215	2/14		9/113	20/342
Fence 786	1/6					1/6
Ditch 791	13/60					13/60
Gully 793	11/40	3/11		1/4		15/55
Structure 799	13/48					13/48
sub-total	**40/172**	**18/300**	**2/14**	**3/36**	**10/115**	**73/637**

Table 2. *Anglo-Saxon and early medieval pottery by feature. Number/weight in grammes.*

Fabric Code		No. sherds	Weight (g)
QU400*	Quartz inclusions <0.5mm, derived from arenitic sandstone in slightly calcareous clay matrix; crushed sandstone possibly added as temper	28	184
QU401*	Sandstone inclusions (quartz, polycrystalline quartz, and rock fragments) <1mm and fossil shell <1mm in fine, non-calcareous clay matrix; both possibly added as temper	44	222
QU402*	Coarse fabric: rounded quartz and polycrystalline quartz <2mm, some possibly added as temper, in fine, non-calcareous clay matrix; sparse carbonate inclusions	13	92
QU403	Fine fabric: finer variant of Q400; inclusions <0.25mm	13	58
QU404*	Quartz-rich sandstone inclusions <2mm (quartz and polycrystalline quartz), poorly sorted, probably naturally occurring; possible plant temper, in non-calcareous clay matrix	1	16
QU405*	Abundant quartz, polycrystalline quartz and sandstone <2mm (derived from coarse arkosic sandstone); sparse carbonate inclusions, whether temper or naturally occurring uncertain; in non-calcareous clay matrix	2	11
QU406*	Sand-sized inclusions of quartz and polycrystalline quartz <0.5mm (well sorted, probably added as temper) in silty non-calcareous clay matrix; sparse chert and sandstone inclusions	3	37
VE400	Organic-tempered fabric: moderate, fairly well sorted organic inclusions <3mm; rare quartz	5	32
Total		**109**	**652**

Table 3. *Anglo-Saxon pottery fabric totals and summary descriptions. * indicates fabrics samples for petrographic analysis.*

Fabrics
Lorraine Mepham and Patrick Quinn

A total of eight fabrics has been identified (Table 3), and samples of six were thin-sectioned (Q400, Q401, Q402, Q404, Q405, Q406).

The Anglo-Saxon fabrics are compositionally distinct from the prehistoric sherds analysed in that they are dominated by quartzose inclusions rather than shell and/or grog. In all but one sample (Q402) this material appears to have derived from sandstone. The source of this sandstone material is not entirely clear. Sandy layers occur within the Oxford Clay and in the Kellaway Beds below it. However, these are doggers or sandy clay rather than pure sandstones of the type seen in these fabric samples. Nevertheless, the calcareous sandstone seen in Q402 could have derived from a calcareous cemented sandy layer in the Oxford Clay or other Jurassic marine sedimentary unit. Vince found calcareous sandstone inclusions in Iron Age ceramics from Cambridgeshire and interpreted it as having a Lower Cretaceous origin (Vince 2006); he also found calcareous sandstone temper in Anglo-Saxon ceramics from the county, which he interpreted as the Jurassic Spilsby Sandstone (Vince 2007a).

Non-calcareous quartz arenite sandstone (as in Q400) does not occur as a primary outcrop in the region around Spaldwick and the nearest *in situ* sandstone outcrops may be some distance away. However, eroded sandstone clasts could be present in the glacial till or fluvio-glacial material that covers the Oxford Clay in places. Given that the sandstone clasts in several of the samples are thought to have been added as temper (Q400, Q401, Q406), it is possible to envisage the selection of glacial erratic for this purpose. Vince also attributed the presence of sandstone inclusions in Anglo-Saxon ceramics from Cambridgeshire to the use of boulder clay (Vince 2007a and b).

Forms
There are only four rim sherds amongst the Anglo-Saxon assemblage. One of the rims (from 'fire pit' 725) is from a fairly thick-walled vessel with an upright, rounded rim. The other rims are simple and rounded in profile, but the rim orientation and overall vessel profile are unknown in all cases. These do not, therefore, help to confirm the dating of the assemblage. No decoration is present, and only eight sherds (three in fabric Q401, four in Q403, and one in Q404) are burnished.

Discussion
The dating of this small group of sherds, then, has to rely heavily on parallels with the fabric types, and there are similarities with early/mid-Anglo-Saxon wares identified at other Cambridgeshire sites, such as Cambourne New Settlement and Eynesbury (Seager Smith 2009; Mepham 2004), as well as the assemblages previously analysed by Vince (2007a and b). In the absence of a well-understood and well-dated early/mid-Anglo-Saxon ceramic sequence for the region, the Eynesbury assemblage was dated broadly, on typological grounds, to the 5th–7th centuries, and it is likely that the Spaldwick assemblage falls within the same date range.

Only 16 Anglo-Saxon sherds came from features stratigraphically phased as Anglo-Saxon (12 from pit 663, 2 from 'fire pit' 435 and 2 from 'fire pit' 725). In addition, 20 sherds from pit 525 may serve to date this feature, if one small medieval sherd can be considered as intrusive, while three sherds from pit 455 have been taken as dating evidence, albeit tentative. A further 13 sherds formed the only dating evidence in three postholes in timber building 799, but their small size and highly abraded nature precludes their use as firm evidence. All other Anglo-Saxon sherds came from later features and topsoil contexts.

Animal Bone
Lorrain Higbee
A total of 552 bones (refitting bones counted as 1) was recovered from Anglo-Saxon and early medieval contexts, more than half (290) from early/mid–Anglo-Saxon contexts. The number of identified fragments, however, is quite small (162) and this limits their potential for detailed analysis.

In terms of the numbers of identified specimens compared by species proportions (see Table 4), the early/mid-Anglo-Saxon phase appears to be dominated by cattle, while the late Anglo-Saxon/medieval phase appears to be sheep/goat-dominated. Whether or not this apparent difference in the relative importance of livestock species is real and reflects a shift in husbandry strategy is uncertain given the small sample size. It is also difficult to assess how the Spaldwick assemblage fits with regional trends since variations in the relative importance of sheep/goat

Table 4. *Animal bone: number of identified specimens present (or NISP) by period.*

Period/Species	cattle	sheep/goat	pig	horse	red deer	domestic fowl	rat	Unidentifiable	**Total**	**Identified specimens**
Early/mid-Anglo-Saxon	46	32	5		2	1	1	203	**290**	**87**
Late Anglo-Saxon/medieval	15	33	12	3	4	8		187	**262**	**75**
Total	**61**	**65**	**17**	**3**	**6**	**9**	1	**390**	**552**	**162**

and cattle have been noted (Crabtree 2010). Less common species represented include pig, horse, dog, red deer (mostly antler) and domestic fowl.

Analysis of body parts and age data indicates that livestock were raised locally and slaughtered on-site, and suggests that the local economy was a self-sufficient producer of meat and secondary products.

Other finds

A small fragment of an antler comb was recovered from possible early/mid-Anglo-Saxon pit 525; this is part of the tooth plate from a double-sided composite comb of a type current from the Romano-British period through to the medieval period (MacGregor 1985, fig. 51).

A small quantity of slag was recovered from Anglo-Saxon and medieval features (329g). Some of this clearly represents iron smithing slag, and includes one possible hearth bottom, from early/mid-Anglo-Saxon waterhole 663. However, the small assemblage also includes a few pieces of a very light vesicular material, grey in colour, which results from some kind of pyrotechnic activity, but not necessarily metalworking and not necessarily of Anglo-Saxon or medieval date as similar material also occurred in Iron Age contexts on the site. Overall, the quantities of slag are insufficient to postulate on-site metalworking, or any other industrial activity.

Environmental

Charred plant remains

Chris J. Stevens

Introduction

Three samples were selected for full analysis; these came from two early/mid-Anglo-Saxon features ('fire pit' 433; pit 525), and one late Anglo-Saxon/medieval (ditch 782). The samples were processed using standard flotation methods with the flot collected on a 0.5mm mesh. For the three samples selected for analysis all identifiable charred plant macrofossils were extracted from the flots, together with the 2mm and 1mm residues. Identification was undertaken using a stereo incident light microscope at magnifications of up to x40, following the nomenclature of Stace (1997) for wild species and the traditional nomenclature as provided by Zohary and Hopf (2000, tables 3 and 5) for cereals. The results are presented in Table 5. In the case of the 0.5mm to 1mm fraction from ditch 782 the sample was extremely rich in small weed seeds and for this reason only one-third of the sample was examined. The results were then multiplied by three to provide estimates for the flot as a whole.

Results and discussion

Of the three samples, that from the early/mid-Anglo-Saxon 'fire-pit' 433 produced very little in the way of plant remains, being dominated by wood charcoal. However, those present did include several thorns of sloe/hawthorn (*Prunus spinosa*/*Crataegus monogyna*), along with three intact fruits of sloe (*Prunus spinosa*), of which two had the stones clearly visible, and a well preserved stone. The only other remains in this sample were a single grain of rye (*Secale cereale*) and a seed of vetch/wild pea (*Vicia*/*Lathyrus* sp.).

The charcoal from 'fire pit' 433 contained large quantities of sloe or blackthorn (*Prunus spinosa*) (Barnett, below), and it is probable that many of thorns derive from the burning of blackthorn or hawthorn (*Crataegus monogyna*) twigs and branches. Several whole fruits of sloe (*Prunus spinosa*), while possibly representative of the collection of such fruits for consumption, are also likely to have come in with scrub/hedge material collected as fuel, still attached to the plant. Fruits of sloe gradually dry on the plant and become quickly wrinkled and this would imply that the wood with the berries is likely to have been collected between September and November. More importantly, it suggests that at least some of the wood, if not a large part of it, was burned green with the berries still attached.

The remaining two samples had a greater quantity of cereal remains, although only that from late Anglo-Saxon/medieval ditch 782 might be deemed rich in cereal remains. Unlike the Iron Age samples, these samples produced no remains that might be associated with turves. Early/mid-Anglo-Saxon pit 525 produced a few grains of barley (*Hordeum vulgare sl*) and a single rachis fragment and several grains of free-threshing wheat (*Triticum aestivum*/*turgidum* type). A possible grain of hulled wheat (*Triticum dicoccum*/*spelta*) was recovered along with two extremely badly preserved glume bases. This sample also has a single fragment of hazelnut (*Corylus avellana*) shell. Seeds of wild species were relatively few but comprised a similar range of species to those seen in the Iron Age samples. These included fig-leaved goosefoot (*Chenopodium ficifolium*), dock (*Rumex* sp.), clover (*Trifolium* sp.), meadow grass/cat's-tails (*Poa*/*Phleum* sp.), oats (*Avena* sp.) and stinking mayweed (*Anthemis cotula*).

The richer sample from late Anglo-Saxon/medieval ditch 782 had a large number of grains of free-threshing wheat (*Triticum aestivum*/*turgidum* type), with a similar number of rachis fragments of free-threshing wheat. In most cases these rachises were not identifiable, but in a few cases they could be indentified as from hexaploid free-threshing wheat, (*Triticum aestivum sl*).

The cereals from ditch 782 and pit 525 are relatively typical of Anglo-Saxon and medieval assemblages with a high prevalence of free-threshing wheat, along with smaller amounts of barley and rye (Stevens 2009). The high numbers of rachis fragments is of some significance, particularly since they are far more readily destroyed during charring than grains (Boardman and Jones 1990). The ratio of rachis fragments to grain is 1:2–6; as such, a higher ratio of rachis fragments, as seen here, is characteristic of threshing waste (van der Veen 1992, 82), in particular rachises removed by raking or coarse sieving.

	Phase	***EMAS***	***EMAS***	***LAS/EM***
	Feature Number	433	525	782*
	Feature type	'fire pit'	pit	ditch
	Context	434	524	748
	Sample	5	18	27
	Size/Litres	17	18	2
	Flot size (ml)	1650	100	20
	% Roots	3	30	10
	Common Name			
Cereal				
Hordeum vulgare sl (grain)	barley	-	3	-
H. vulgare sl (rachis fragments)	barley	-	1	-
Triticum dicoccum/spelta (grain)	emmer/spelt wheat	-	1	-
T. dicoccum/spelta (glume bases)	emmer/spelt wheat	-	2	-
Triticum aestivum/turgidum (grains)	bread/rivet wheat	-	7	127
T. aestivum/turgidum (rachis fragments)	bread/rivet wheat	-	-	105
T. cf. *aestivum* (hexaploid rachis fragments)	hexaploid rachis fragment	-	-	3
Secale cereale (grain)	rye	1	-	1
Secale cereale (rachis frags)	rye	-	-	13
Cereal indet. (grains)	cereal	-	2	-
Cereal culm nodes	cereal	-	-	2
Corylus avellana	hazelnut	-	1	-
Chenopodium ficifolium	fig-leaved goosefoot	-	1	-
Chenopodium album	fat-hen	-	-	19
Atriplex sp.	orache	-	1	36
Rumex sp.	dock	-	2	8
Prunus spinosa (fruit/stones)	sloe	3/1	-	-
P. spinosa/Crataegus monogyna (thorns)	sloe/hawthorn thorns	++	-	2
Trifolium sp.	clover	-	3	-
Galium aparine/tricornutum	cleavers/corn cleavers	-	-	36
Vicia./Lathyrus sp.	vetch/pea	1	-	5
Prunella vulgaris	selfheal	-	-	1
Sambucus nigra	elder	-	-	1
Asteraceae indet. >2.5mm	Indet. daisy/thistle type	-	-	1
Anthemis cotula	stinking mayweed	-	1	24
Poaceae large (culm node)	grass culm node	-	-	1
Lolium perenne L.	ryegrass	-	-	4
Poa/Phleum sp.	meadow grass/cat's-tails	-	2	-
Avena sp. (grain)	oat grain	-	1	33

Table 5. Charred plant remains.
*EMAS = early/mid-Anglo-Saxon; LAS/EM = late Anglo-Saxon/early medieval; ++ = frequent; * flot estimated.*

Weed seeds mainly comprised both small and large seeded species. In the former group were those of fat-hen (*Chenopodium album*), orache (*Atriplex* sp.), dock (*Rumex* sp.) and stinking mayweed (*Anthemis cotula*). In the latter group were seeds of vetch/wild pea (*Vicia/Lathyrus* sp.), cleavers (*Galium aparine/tricornutum*) and oats (*Avena* sp.).

Both small and large seeds are relatively prolific in the samples, although it might be noted that around half of the small weed seeds are of stinking mayweed (*Anthemis cotula*), which has a tendency to remain in the heads and therefore is often removed with coarse sieving waste. The samples are likely to come from the waste generated from processing sheaves for clean grain. It is quite possible that the crops were stored as sheaves after harvesting in summer. However, whether this was a common practice, or one that was only conducted in years when poor weather conditions restricted the processing of crops following harvest, is difficult to gauge from two samples.

The presence of stinking mayweed (*Anthemis cotula*)

can be associated with the cultivation of heavy clay soils. This species occurs in earlier periods, but only upon Romanised settlements, and its widespread occurrence in the Anglo-Saxon period as seen here is quite probably related to the introduction of heavy mouldboard ploughs (Stevens with Robinson 2004).

Wood Charcoal
Catherine Barnett

Introduction
Five samples were analysed for charcoal, all from the early/mid-Anglo-Saxon 'fire pits'. All wood charcoal >2mm was separated from the processed flots and the residue scanned or extracted as appropriate. The samples proved rich and so were sub-sampled, with a number of fragments felt to be representative of the sample as a whole identified, normally 100 fragments. The fragments were prepared for identification according to the standard methodology of Leney and Casteel (1975, see also Gale and Cutler 2000). Identification was undertaken according to the anatomical characteristics described by Schweingruber (1990) and Butterfield and Meylan (1980) to the highest taxonomic level possible, usually that of genus, with nomenclature according to Stace (1997). Individual taxa were quantified (mature wood and twig separated) and the results tabulated (Table 6).

Results and Discussion
A minimum of eight woody species were represented: ash (*Fraxinus excelsior*), blackthorn (*Prunus spinosa*), buckthorn (*Rhamnus cathartica*), elder (*Sambucus nigra*), field maple (*Acer campestre*), pomaceous fruits (Pomoideae), hazel (*Corylus avellana*), oak (*Quercus* sp.). The charcoal from each of these five early/mid-Anglo-Saxon features proved relatively similar, supporting the assumption that they are related in function and chronology. Three of the five were heavily dominated by blackthorn (*Prunus spinosa*) at 60–86%, with common Pomoideae (usually indentifiable further as hawthorn, *Crataegus* type) at 10–14%. Pomoideae, however, formed the dominant type in pit 435 at 70%, with ash (*Fraxinus excelsior*) in pit 724 at 46%, though blackthorn was still common in the latter. Oak (*Quercus* sp.) occurred in three contexts, while field maple (*Acer campestre*), buckthorn (*Rhamnus cathartica*) and elder (*Sambucus nigra*) each occurred in one context.

All the taxa found are relatively common deciduous types and most are tolerant of a variety of free-draining soils. However, in combination, the taxa found are strongly suggestive of hedging or open scrub. In addition, for all of the species represented, there proved to be an overwhelming predominance of juvenile wood, twigwood and young roundwood, usually 3–10 years old when cut. Although there was clearly a substantial presence of roundwood, this varied in age, diameter and species, so there is no clear indication of management of woody resources, for example by coppice rotation. Instead, exploitation of substantial quantities of immature scrub and/or hedges for fuel is indicated. Whether this was purposeful or as a result of extensive earlier deforestation in the area which limited availability of larger trees and shrubs or access to remaining resources is unclear. However, it is apparent that a very open landscape occurred locally during the Anglo-Saxon period.

Despite the fact that young narrow pieces dominated, a high temperature of burn was achieved with the selected fuel, as attested to by the glassy, vitrified appearance of many of the pieces. According to the experimental work of Prior and Alvin (1983), temperatures >800^{o}C are necessary to achieve this. It might be suggested that, given the young wood and types used, careful management of the fire, possibly within a restricted area or structure, would be needed to reach such temperatures, and casual domestic fires are not indicated.

Discussion

Early/mid-Anglo-Saxon (5th–8th centuries)
Activity on the site during this period is somewhat enigmatic. There are no definite structures, but this is in line with the general pattern across the region, where settlement was concentrated in the valleys and is rare on the clay uplands, which were probably used primarily for pasture (Wright 2009, 115–6). The presence of a probable waterhole certainly fits the latter supposition.

The nine sub-rectangular 'fire pits' excavated are of uncertain function, and the dating evidence from them is very slight (four sherds of pottery). The charcoal found within them indicates the exploitation of large quantities of immature scrub or hedges for fuel. The relatively small size of the pits, the type of fuel burnt in them, and the presence of variable quantities of lightly burnt flint nodules renders their initial interpretation as charcoal-burning pits highly unlikely. The 'pitsteads' used in the Anglo-Saxon charcoal-burning industry were usually circular, often banked around the edges, and at least 4 metres across (see Steane 1985, 222 for medieval examples), and would have used very large quantities of mature wood (up to several tons in each episode of burning) which in this instance, given the evidence for the deforestation of the surrounding landscape, would not have been easily available. A link with metalworking is unsupported by any other firm evidence for on-site metalworking in the form of slag, but some kind of craft or industrial function still seems to be the best interpretation. The relatively large quantity of animal bone recovered from the pits should be noted (more than was recovered from the whole of the late Anglo-Saxon/medieval phase), as should the concentration of this material, together with fired clay and nodules of lightly burnt flint, in one of the pits; it may be that these pits were used for cooking. Continuity between this phase of activity and the late Anglo-Saxon/early medieval phase cannot be demonstrated, and any

Feature	**729**	**724**	**450**	**435**	**433**
Context	**730**	**723**	**452**	**436**	**434**
Sample	34	32	16	11	5
Size Litres	2	2	8	9	17
Flot Size ml	400	250	425	1700	1650
Charcoal 4/2mm	240/100 ml	160/50 ml	150/150 ml	950/425 ml	700/500 ml
Comments	Moderate sample but inc v large pieces. **inc 12–22mm 8–11 yrs*	Moderate sample but large pieces (esp Pomoideae), occ. fissured and vitrified. **10–30mm 3–8 yrs, **10mm 4–5 yrs*	Moderate sample, several warped and vitrified but friable and fragmentary, all young rwd 10–15mm diameter, **3–5 yrs, **5 yrs, ***3–10 yrs*	Rich sample, large pieces (esp Pomoideae), occ. vitrified	V large sample, big pieces, occ. fissured and vitrified. **8–22mm 5–13 yrs, **10–22mm 5–22 yrs*
Acer campestre	-	-	2	6	-
Corylus avellana	-	-	-	-	2 rwd
Fraxinus excelsior	-	46 rwd*	10 rwd*	3	1
Pomoideae	13, 1 twd	16	10 rwd**	-	-
Pomoideae, *Crataegus*-type	-	-	-	70	14*
Prunus sp.	-	18 rwd*	-	1	-
Prunus spinosa	80 rwd*, 6 twd	-	60 rwd***	-	83 rwd**
Quercus sp.	-	20 rwd**	2 rwd	12	-
Rhamnus cathartica	-	-	-	5 twd	-
Sambucus nigra	-	-	-	3	-
Unidentified	-	-	16, 1 twd	-	-
Total no. frags. used	**100**	**100**	**100**	**100**	**100**

Table 6. Charcoal from early/mid-Anglo-Saxon 'fire pits'. rwd: roundwood; twd: twigwood.

connection with the later village development seems fortuitous.

Late Anglo-Saxon/early medieval (9th–11th/12th centuries)

The evidence from the late Anglo-Saxon to early medieval period is of particular interest in throwing some light, albeit somewhat dim, on the origins of the modern village. Comparable evidence is scarce within the county. This period saw the creation of formalised land divisions or tofts which extended south from what is now Thrapston Road, a medieval route which perhaps originated as a hollow-way through the settlement. These tofts appear to have contained rectangular post-built timber structures with fences sub-dividing the yard areas and perhaps represent the beginnings of the village. Evidence of the cultivation of the clay soils of the area, probably related to the introduction of heavy mouldboard ploughs, comes in the form of seeds of stinking mayweed recovered from one of the boundary ditches.

The area at this time formed part of Mercia, with Cambridge as a possible frontier *burh*, but it is assumed that the arrival of the Danes in 875 and a settlement at Cambridge from *c*. 889 must have stimulated some reorganisation of land ownership, from multiple estates with dependent tenures, to the Danish system of free tenancies (Ellis *et al*. 2001, 103). In this context it is perhaps significant that the early village was named 'Danesfield'. After the reconquest of the Outer Danelaw in 916–7, serfdom and the manorial system were reintroduced. It is more likely that the laying out of tofts in Spaldwick is linked to the latter phase, given the pottery evidence, which includes St Neots and Stamford wares and other 10th–12th century wares from the boundary ditches, although the rectangular buildings produced only residual early/mid-Anglo-Saxon sherds. The village may, however, have slightly later origins. A possible parallel can be seen at Bassingbourn in the south of the county,

where there is a suggestion of an earlier (early/mid-Anglo-Saxon) origin to the village with subsequent changes in layout taking place in the 10th/11th century and possibly linked to land ownership changes after the Norman conquest (Ellis *et al*. 2001, 123).

In terms of pottery, the late Anglo-Saxon and early medieval village shows less reliance on local supplies, with regional wares (from St Neots and Stamford) appearing from the 10th century; this may reflect the position of the settlement on what may have been even at that time a major route between Cambridge, Huntingdon and Thrapston. There is little else, however, to illustrate the material culture of the settlement. In contrast to the early/mid-Anglo-Saxon period, cattle were predominant rather than sheep/goat (although quantities are very small), while weed seeds suggest that the heavy clay soils of the area were being increasingly cultivated; crops include wheat, barley and rye.

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The archive is currently stored at the offices of Wessex Archaeology under the project code 75070, but in due course will be deposited with the Cambridge Archaeological Store under the accession code ECB3445.

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Fifteenth Century Changes, and Sixteenth Century Evidence for Bell Founding in Easton Parish Church, Cambridgeshire

E M Davis

In 2010, while the ground floor of the tower of St Peter's church, Easton, was being excavated for a new floor, evidence for a temporary bell foundry was discovered. Excavation below an exposed circular scorch mark in the floor of the south-west corner of the tower revealed a shallow pit edged with tiles. The pit contained fragments of flattened clay, some lumps of dross or flash, charcoal pieces and greasy, black sand. Near the pit the remains of a small furnace or oven, also scorched from intense heat, were uncovered and close by those was a quantity of refined clay on a slate, apparently ready for use. The use of a shallow, heated pit for drying out bell moulds is supported by descriptions of bell founding from the 12th century onwards. The circular scorch mark in the floor of the tower and the excavated pit below this had a diameter sufficient to accommodate one of the two surviving 16th century bells. The two bells have been attributed to the Newcombe family from Leicestershire who cast 17 bells in Huntingdonshire over a period of 70 years. They were the second and fourth bells, formerly in a ring of four; the second thought to be a pre-Reformation bell. The late 14th century tower and early 15th century rood screen suggest a period of wealth affording the alteration and changes to the building that included the recasting and rehanging of the bells in a 'new' 16th century bell frame.

The excavation of the tower floor 2010

In 2010, the floor of the west end of the nave and tower of St Peter's church, Easton (a village historically in Huntingdonshire) was taken up and re-laid with new limestone slabs and bricks (Fig. 1). The excavation of the floor entailed lifting the cracked and broken floor tiles that were probably laid in the late 18th or early 19th century and which had been covered by later repairs and some cement infilling. Coarse orange-coloured sand below the tiles was carefully removed, revealing a lime-washed floor surface. This kind of finish would have been used to seal the floor of the tower when it was built; the external tower walls had also been lime-washed, like the rest of the church, and remains of lime wash can be seen in protected areas of the masonry today. In the south-west corner of the tower floor, equidistant from the side walls, was a circular scorch mark approximately 40 inches (1.02m) in diameter. Excavation revealed that this was underlain by a circular, shallow pit, 9 inches deep, cut into the floor surface, it had a scorched perimeter and an extended flare mark on the south-west side suggests a draught from the use of bellows. The rim of this shallow pit, *c*. 9 inches (0.23m) deep and 39–40 inches (1.02m) in diameter, was edged with tiles laid obliquely towards the centre against a backing rim of clay. In the centre of the base of the pit was a flat piece of limestone that had been broken. It was noted that the south and west walls of the tower were also lightly scorched above a height of 18 inches (0.46 m). The area of the pit and the scorch marks are shown on photographs (Figs. 2, 3), taken at different stages of the excavation, and in the plan drawing of the pit (Fig. 4). Half of the area of the pit was excavated by removing sand backfill, revealing blackened sand, greasy in texture, mixed with some pieces of charcoal and several large and small pieces of dross or flash, flattened lumps of fine clay and three small pieces of 18th /19th century domestic pottery.

After being photographed and measured, the debris was returned to the pit. The excavated area was then covered with a membrane to protect it from the laying of a new brick floor.

Excavation also revealed the remains of a small furnace or oven in the north-west corner of the tower with accompanying scorch marks on the floor and walls (Fig. 5); it had probably been damaged when a safe was installed in the 1960s. Near the furnace/oven were the remains of a light-coloured metal dross, possibly of tin, and a large quantity of refined clay putty, some of which was in a small heap on a slate, as if in preparation for use.

Surveys and dating of the bells and bell-frame

The Reverend Theodore Owen carried out a meticulous survey of church bells in Huntingdonshire in the late 19th century, published as The Church Bells of Huntingdonshire in 1899. There were four bells at that time, two clearly much older than the others. Owen attributed the two ancient bells, by their marks or stamps and inscriptions, to the Newcombe bell founding family of Leicester. From the inscriptions on the ancient bells Owen believed one was

Proceedings of the Cambridge Antiquarian Society CIII pp. 133–142.

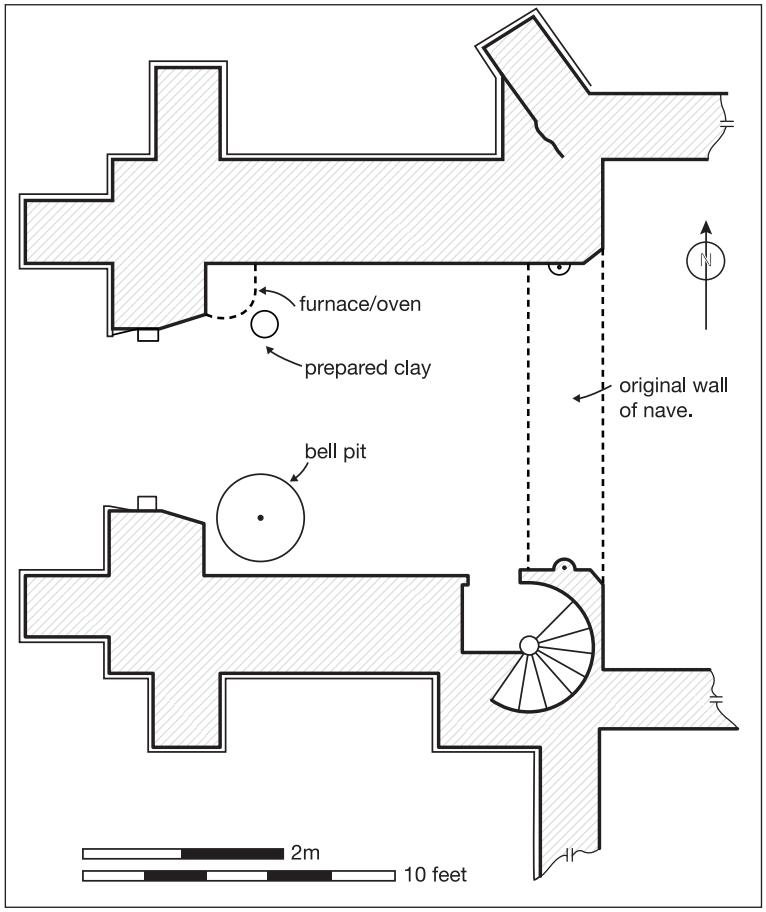

Figure 1. *Plan of west tower, Easton church.*

cast in the Leicester foundry before, and the other after the Reformation. These bells, almost certainly early to late 16th century, are described as the second and fourth in the ring of four. The second bell inscribed SANCTA MAREA in a Gothic script and stamped with a cross was described by Owen as having a diameter of 34 inches (0.86m) and has been attributed to Robert Newcombe, 1510–1557 (RCHM (E) Huntingdonshire 1926). The fourth bell has the Leicester Crown and the rebus shield with the initials TN, interspersed between the words PRAISE THE LORD (with the E's reversed); it has a diameter of 39 inches (1.0m). The rings or cannons on these two Easton bells differ from each other, those on the fourth bell have a refined chamfer on their outer edge while the cannons on the second bell are plain (Owen 1899, RCHM (E) 1926, plate 7) (Figs. 6, 7a, 7b).

Thomas North comments on some changes in the casting of bells due to the Reformation, and establishes that there were 147 "ancient" bells in Leicestershire (North 1876, 20, 3304). He found some of their inscriptions and marks to be specific to the Newcombe family. Some marks, the Leicester cross and one with the initials TN (see Fig. 7b), were clearly identified with a Thomas Newcombe, who was either the founder of the family business and died in 1520 or his grandson, Thomas, who died in 1539; three generations of the Newcombe family were casting bells in the 16th century. North further comments that the marks and inscriptions used by foundries may have been in use for several generations; a change was made at the Newcombe foundry by the beginning of the 17th century when the old sets of letters and marks were 'set aside for plain Roman capitals' (North 1876, 55). Therefore the Gothic script on the second Easton bell dedicated to "Sancta Marea" may have been used at any time in the 16th century but more specifically in the early to mid-16th century, when the dedication of the bell indicates its use by a Lady chapel. The presumably later inscription on the fourth bell could imply it is post-Reformation, but as it is undated, whilst many 17th century bells were dated, it was probably cast in the later 16th century.

Owen also describes the two other bells in the church, the first with the inscription HENRY PENN MADE ME 1718 (diameter 30 inches), and the third, inscribed to the church warden, Mr Whitehead, was founded by Taylor and Son of St Neots in 1821 (diameter 35ins). The respective diameters of all four bells are within the 39–40 inch diameter (1.00–1.02m) of the excavated pit. More accurate measurements of the bells were recorded in 1971 when they were rehung by Taylor's of Loughborough, giving diameters of 32.75 inches and 39.25 inches for the older bells.

During the period of the Reformation in 1552, Edward VI's commissioners recorded four bells in Easton church, with a sanctus bell, 'Remaining at Eston 'Item iiij belles and a Sauntus bell" (Lomas,1906).

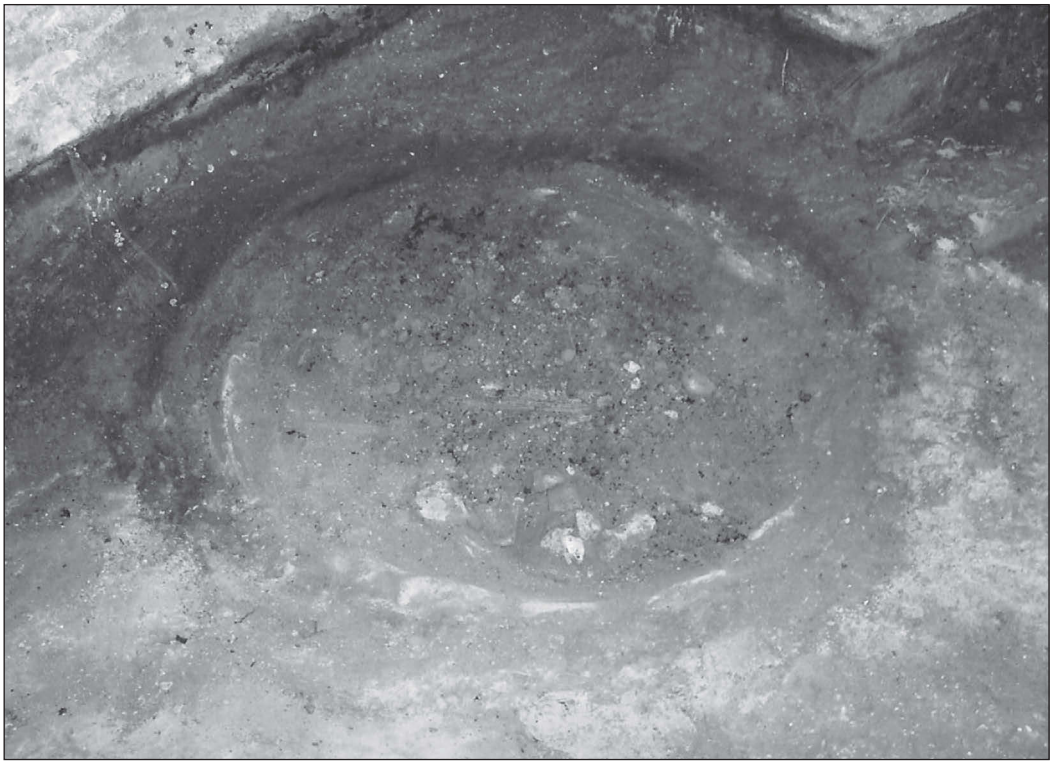

Figure 2. *The bell-pit on initial discovery in 2010. See also Plate 3.*

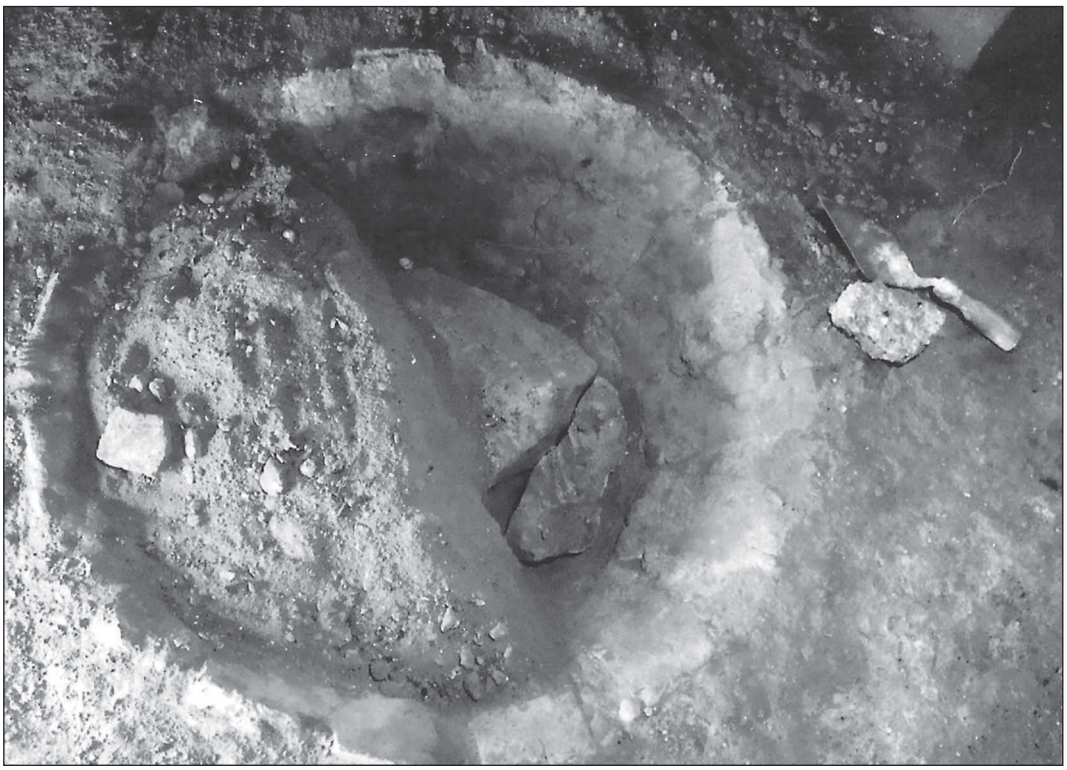

Figure 3. *Excavated bell-pit with stone for pivot* in situ, *burnt ring of tiles with clay, blackened sand with fragments of charcoal, note the lime-washed floor (2010). See also Plate 4.*

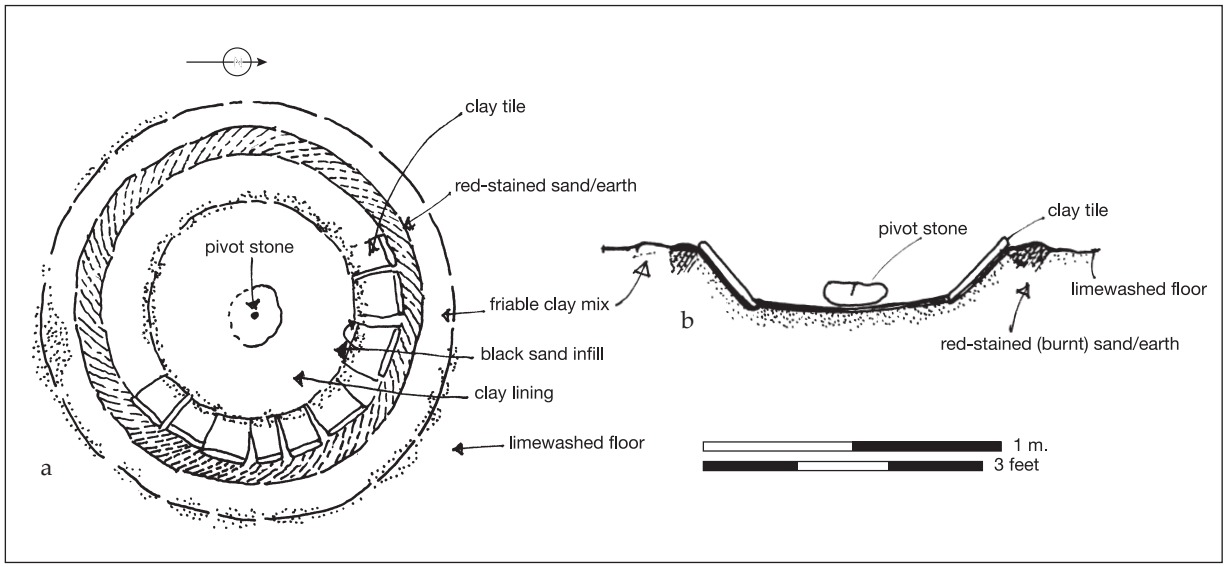

Figure 4. *Scale drawings of excavated bell casting-pit: 4a, plan of casting pit; 4b, section of casting pit.*

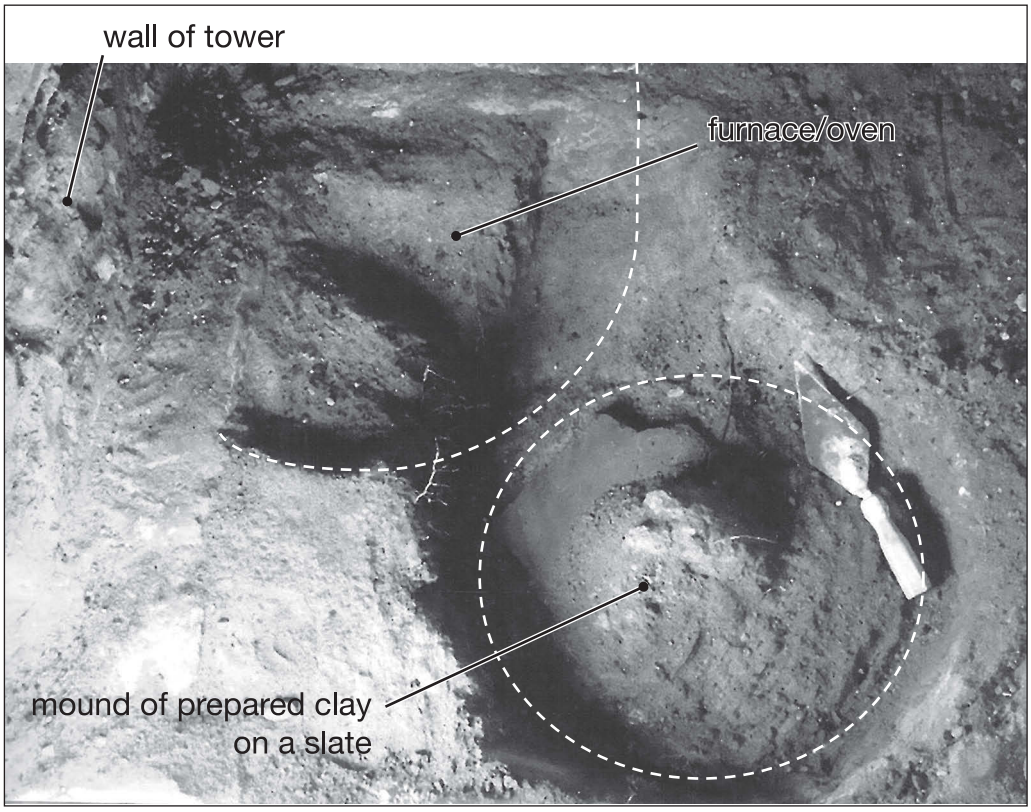

Figure 5. *Remains of small furnace/oven and prepared clay on a slate in the north-west corner of the tower.*

It is possible that one or both of the Newcombe bells were included in this survey, the other two, presumably older, bells at that time making up the four in number in the bell frame. The two oldest bells were eventually replaced by the later 18th and 19th century bells mentioned above (Owen 1899).

The bell frame in Easton church has 'pits' for four bells and is placed diagonally across the tower where the foundation beams rest in the belfry window openings, Cattermole (1990) remarks on bell frames occupying a diagonal position in smaller church towers in Norfolk and Walker (2006) notes that the Easton bell-frame is unusually set on the diagonal; the Easton tower is internally approximately 10 feet

Figure 6. *The two 16th century Newcombe bells, second bell in forefront, by Robert Newcombe, fourth bell founded by Thomas Newcombe. Photo taken 2013.*

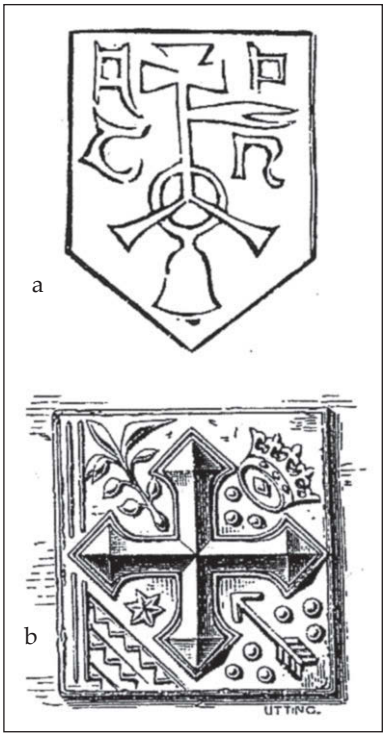

Figure 7a, 7b. *Newcombe bell stamps from* The Church Bells of Huntingdonshire, *Owen 1899.*

(3.5 m) square. John Ladds and his son, Inskip Ladds, who was the Ely diocesan architect, were respectively responsible for the 1868 and 1904 restorations of Easton church; their archive of sketches and photographs is held in the Norris Museum, St Ives, where Inskip Ladds' sketch of the bell frame can be seen. It shows the position of the bells as they were (Fig. 8) before two of the peal of four bells were sold in 1970 to Taylor's of Loughborough as a parish contribution to the costs of rehanging the bells and repointing the tower. The two older bells were rehung together on metal girders within the 4th bell pit, as shown by Walker in his drawing of 1998 (Walker 2006) (Fig. 9).

The most recent survey of bell frames in Huntingdonshire was made by Walker (2006) who noted that Huntingdonshire was more prosperous than Cambridgeshire in the 17th century evinced by alterations to the bell towers. He cites twenty-three 17th century bell frames in Huntingdonshire, including the existing, altered, bell frame in Easton parish church. It is interesting to note that the bell frame in Easton is composed of five king-post trusses (Fig. 9), two trusses in a long frame formed on the foundation beams, and three, in the angles of the tower separately mounted on sill beams. The trusses stand independently without corner posts where the pits 1, 2 and 3 are open. Cattermole (1990) and Walker (2006) both date the king-post bell frames to the 16th century. There are grooves on the king-post braces of the Easton bell frame made from full circle ringing. Alterations to the bell frame are noted by Walker (2001, 2006) who suggests the bell frame was remade in the 17th century, but, on recent examination, the alterations he cites would seem to be the original foundation beams with repairs to the frame of the kind typically made in the 18th or 19th centuries.

The bell founders and evidence for bell founding in Easton

A bell foundry is recorded in Leicester in the 14th century. This may have been the original foundry used by Thomas Newcombe after his marriage to the widow of the bell founder in All Saints parish Leicester, after his death his widow remarried another bell founder, William Bett, who died in 1538 leaving his stepson Robert Newcombe the foundry. In 1540 Robert Newcombe bought land near All Saints church for a new foundry. Both he and his son

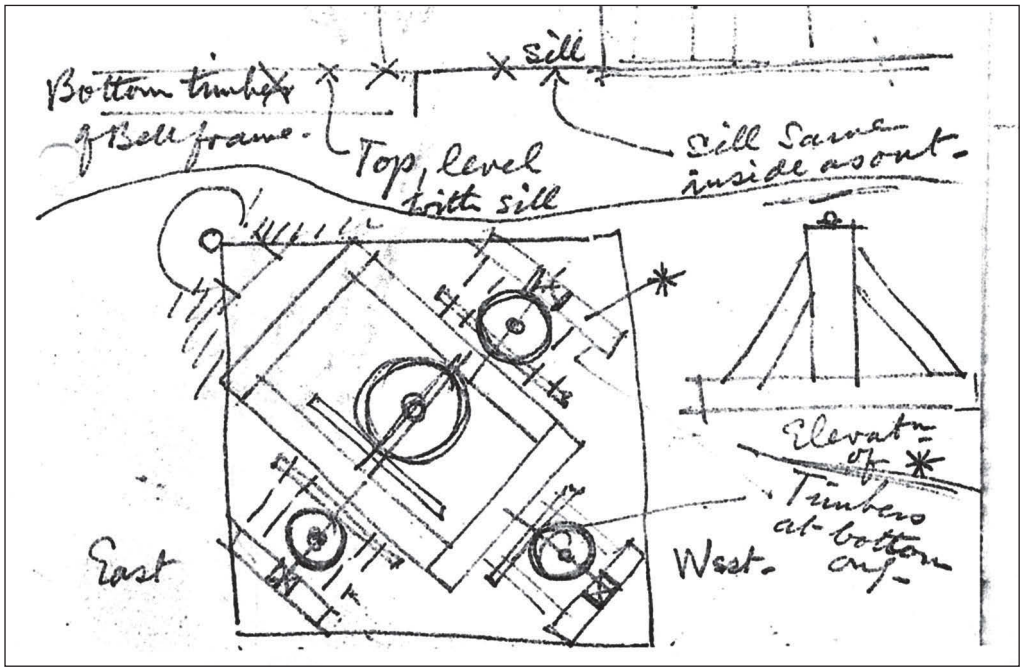

Figure 8. *Sketch of the bell-frame by S. Inskip Ladds, 1904, Norris Museum, St Ives.*

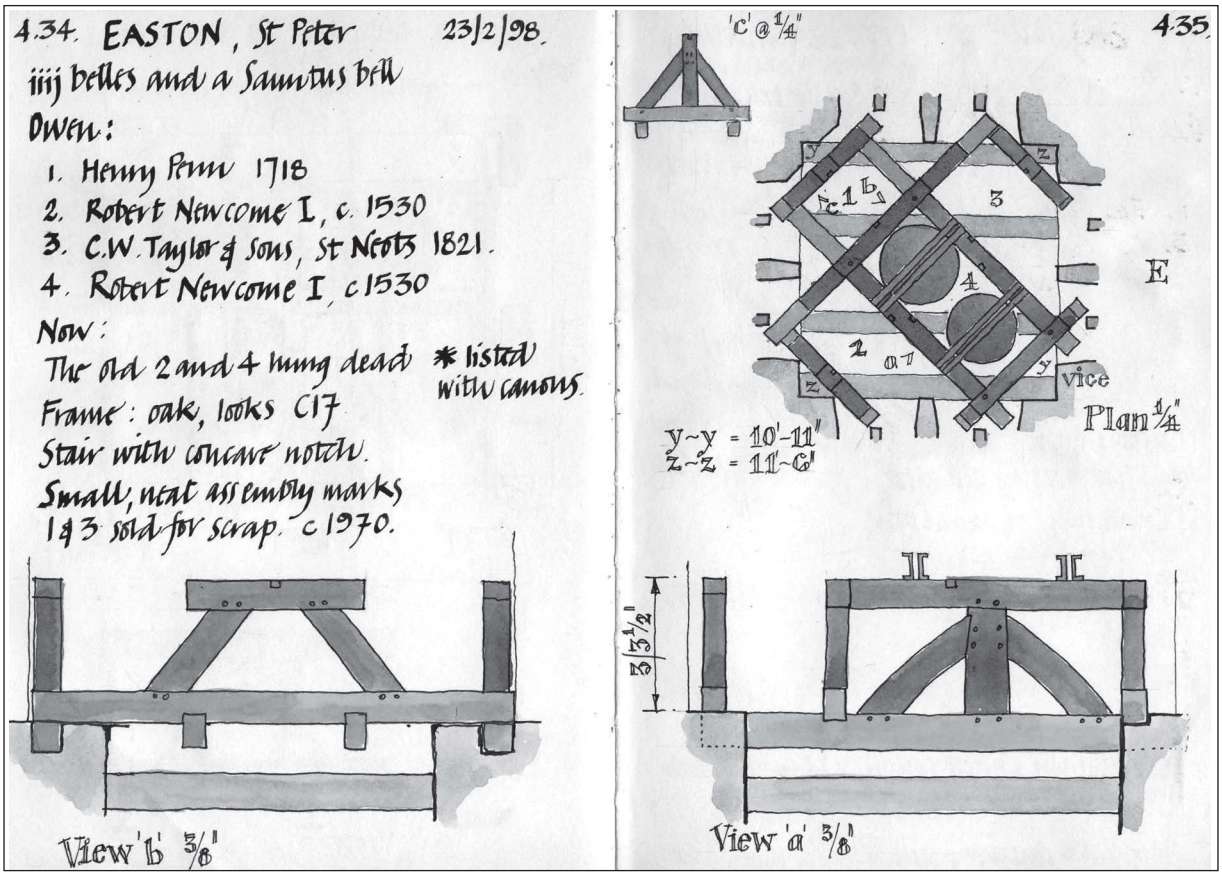

Figure 9. *Survey drawing of bell-frame showing the king post, 1998, Robert Walker.*

Thomas Newcombe (1541–1579) purchased bells from redundant abbey buildings, and brass "probably, in part, effigies," from churches in Leicester (North 1879, 47). Robert and Thomas Newcombe could have fulfilled most of their contracts on the foundry site. A Thomas Newcombe, by his mark, would appear to have been a prolific bell founder in the mid/late 16th century; 17 bells by the Newcombe family have been identified in Huntingdonshire by Owen (Figs 7a, 7b) (North 1876, Owen 1899).

Travelling with heavy loads on country roads at a distance from the foundry added to the expense of producing a bell, so having local materials and labour available in a rural area away from the foundry would have been an incentive to cast a bell near a church. The oldest bells in Easton church may have been reused in the 16th century for casting a bell *in situ*. Examples of the activities of itinerant bell founders are given in numerous excavation reports cited by Jennings (2006) in *Temporary Site Bellfounding Technology and the Itinerant Bellfounder's Technique.* He states 'Sites within buildings were preferred even if restrictions of space and stringent terms of occupancy were imposed', and continues, 'a tower with … a very high first floor chamber could act as a chimney' (Jennings 2006, 102–103). He also comments on the destabilising effects of the Reformation which 'restricted the travelling bell founder's freedom of movement and his acquisition of metal supplies.' This appears in his summary of evidence for temporary bell casting sites, which were apparently few, four in number, in the immediate post-Reformation period (Jennings 2006, 96–98). It is possible, therefore, that the second bell was cast within the tower before the Reformation, and the fourth bell in the Leicester foundry, after the Reformation. The remains from bell casting in Easton are not enough to establish which of the two bells were founded there as most remains from breaking the moulds to release the bell would have been cleared away from the tower floor.

The nature of the shallow pit in Easton church (Figs. 1, 2, 3, 4) closely matches that of those described by Rodwell (1976), especially the 16th-century bell pit beneath the tower at St Peter's, Barton-upon-Humber (Rodwell, pers. comm.). The circular scorch mark feature and excavated pit, associated with the small furnace or oven nearby, in the tower of Easton is substantive evidence for the use of the tower as a temporary bell-casting site. The debris from the excavation, listed above, is similar to that associated with the casting of bells found by Blagg (1974) and Dungworth and Maclean (2004). It is regrettable that the finds from the pit in Easton were not systematically analysed before they were returned to the pit and covered over.

The process of bell founding was described by Theophilous in 1100 and by Biringuccio in 1540 (Blagg 1974, 133–4). The methods they described, although somewhat modified over time, with individual processes being jealously guarded by bell founders, remained little changed until the 19th century (Jennings 2006). Historic methods of bell founding are described by Elphick (1988) and are recognised in the excavation report on San Paolo, Di Valdiponte by Blagg (1974).

Jennings (2006, appendix) reprints an article on *The Foundery or Foundry of Bells* which describes a bell founding process involving the creation of a 'false bell' from fine clay. This article, of unknown date and origin, reproduced in a 19th century reference work, gives information on the preparation of the casting-pit used in drying bell-moulds and the false bell; when dry the latter is removed from the mould, leaving a cavity between the core and the shell or cope for the casting.

Another process of founding a bell, the lost wax method, involved three phases: the manufacture of the moulds, the pre-firing of the moulds, and the casting itself.

Phase 1. A furnace was set up outside the church to produce the molten bell metal, and a shallow pit dug for the bell casting inside the church. A rough core was made over the pit from a wooden or other framework around a central iron rod or pivot. The core was then covered with layers of clay mixed with dung and then fine clay which was moulded to the internal shape of the bell by a strickle attached to the pivot (Fig. 10). When the clay was dry it was covered with sheets of tallow wax to the required thickness of the bell and again moulded to the outer shape of the bell by a second strickle. The wax bell then had the founder's stamps added to it with the wires that encircle the bell. Several layers of fine clay were then built up over the wax to form the cope or outer mould. Biringuccio recommended the use of templates first drawn on paper to shape the strickles and gives tables to determine the precise diameter and thickness of the bell for the required tone (Blagg 1974).

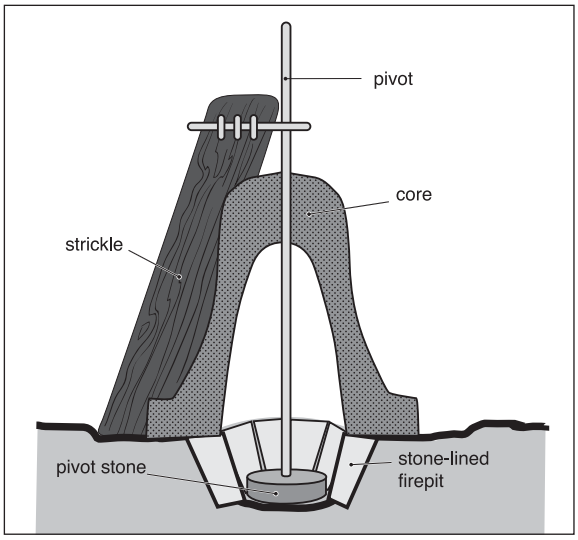

Figure 10. *Section of bell pit showing the use of the strickle to form the core mould.*

Phase 2. A wall of stone was then built around the mould and heaped with charcoal with a channel below for air. After this was lit, and the melted wax carefully channelled away for reuse, the furnace was covered with an insulating blanket of loam and turf and the mould 'fired for a day and a night'

until it was red hot inside (Fig. 11).

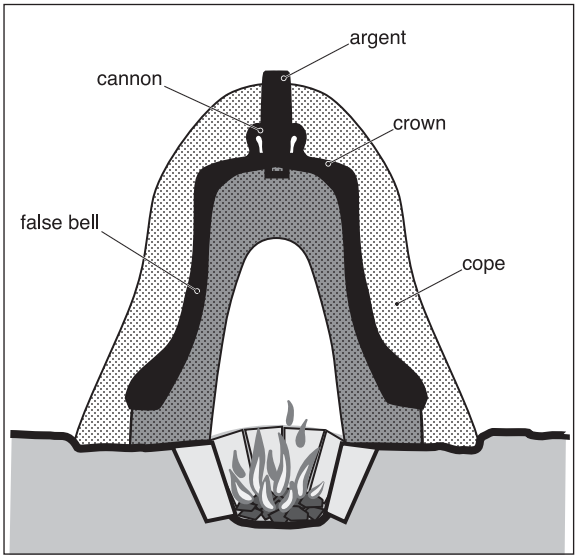

Figure 11. *Section of bell pit showing the moulds with the cavity ready for casting over the bell-pit.*

Phase 3. The wall was broken down before casting and the mound filled in with earth rammed down to hold the mould firmly. Molten bell metal was then carried from the furnace in crucibles and poured in through an opening, called the gate, at the top of the cope. The cooling period could last for several days to prevent cracking after which the cast bell was removed by breaking open the moulds and usually destroying the core (Blagg 1974; Jennings 1988; Elphick 1988).

The lost wax method was superseded by the false bell method using fine clay.

Dating of the tower and spire, with the church alterations in the 15th century

The tower was frequently the last element to be added or changed in the development of a parish church (Braun 1985). The tower in Easton church was added to the west end of the nave and has an unusually small plan with very elegantly proportioned details culminating in a broach spire with three tiers of spire-lights on the cardinal faces (Fig. 12). The tower and spire share similarities with other bell towers and broach spires in the area, particularly in the very fine, transomed, paired belfry-lights seen also at nearby Spaldwick, Keyston, Ellington, and Buckden. The great west window of the tower at Easton lights the nave and mirrors details in the 15th-century east window of the chancel. The tower arch handsomely reflects the Late Gothic period with evidence above it of the west nave wall of the former steeply pitched nave roof, altered in 1630. Recently, when the tower floor was replaced underneath the tower arch, the footings of an earlier, perhaps late 13th-century, west wall were uncovered in line with the arch (Davis 2010). The rood screen is 15th century (Fig. 13) (RCHM(E) 1926). The belfry stair has a distinct notch by the newel and treads that are severely worn by use. This notch detail was noted by Woodger (1984) who attributed it to a 17th-century Mixed Gothic style, a date and style he gave to a number of Huntingdonshire towers. The belfry stair was built within the plan of the tower but projects as a buttress on the south-east corner rising above the belfry floor to the level of the bell frame. The rood stair has similar notches (Fig. 14) and was probably constructed by the same masons as the tower; the belfry and rood stairs are dated late 14th and 15th century respectively in RCHM (E) Huntingdonshire (1926) and Page *et al.* (1936).

Other changes in the church that suggest a period of alteration in the 15th century are the addition of the north porch, the replacements of the chancel east window, and two nave windows with similar details in style to the west window of the tower. The design of the western facade of the tower (Fig. 12) has the inverted proportions of other 15th century towers, e.g. Ellington, and Buckden (RCHM(E) 1926) where the

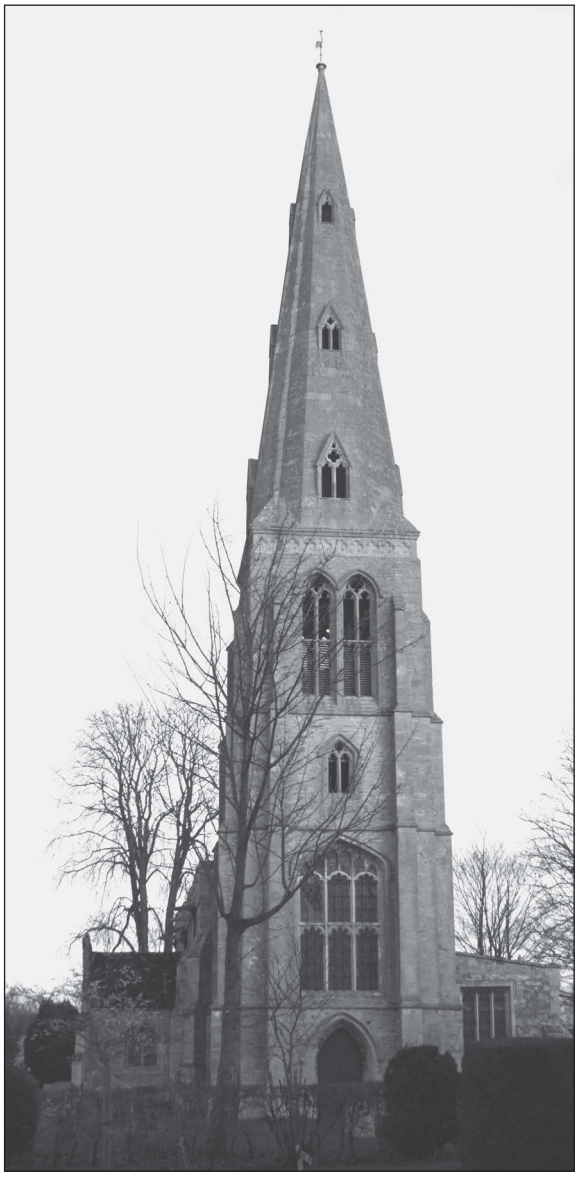

Figure 12. *Easton Church west tower in 2014.*

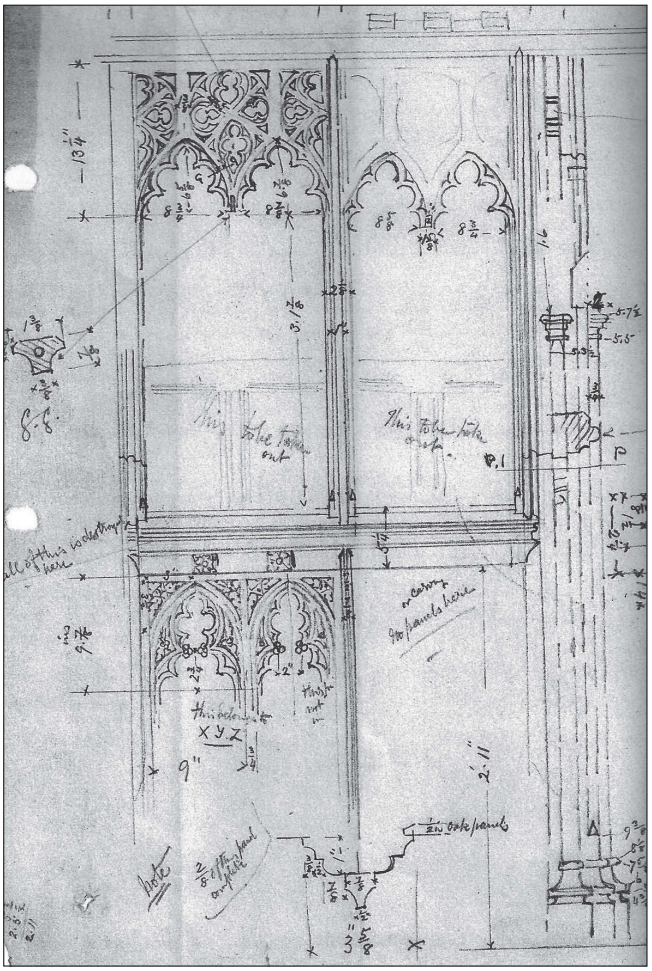

Figure 13. *Drawing of the rood screen by John Ladds 1868, Norris Museum, St Ives.*

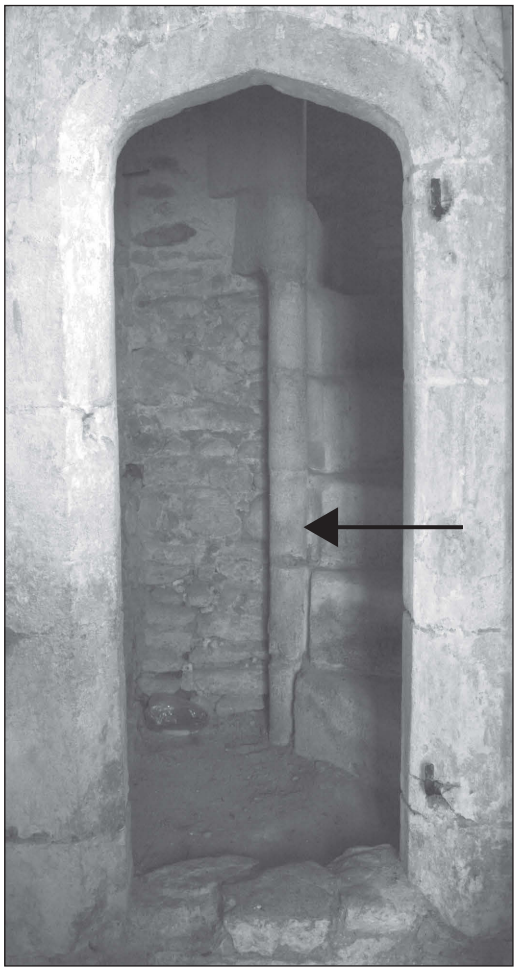

Figure 14. *Doorway to rood stair showing notch to newel, 2014.*

west window is considerably larger than the doorway and has a smaller window above it and beneath the great paired belfry windows.

Discussion and conclusion

The findings at Easton fit well with the cited descriptions of bell casting: the evidence of a heated shallow pit with a stone at the bottom that could have supported a pivot, the flare marks on the wall of the tower above 18 inches (0.45m), which could be explained by the protection from heat afforded by the earth mound that surrounded the moulds before casting started, while the debris in the pit of charcoal, dross, clay pieces and blackened sand and grease would be predictable remains from the whole bell-casting process. Sited within the tower the small temporary foundry would have had the necessary draught 'like a chimney' and be protected from the weather when preparing and drying the moulds. The massive floor beams in the tower are ideally positioned to raise the cast bell with ropes and pulleys, and higher in the spire the cross beam would have provided a natural support above the belfry to hoist the new bell into its position in the bell frame. The west door in the church tower of Easton would allow easy access from the churchyard where a furnace may have been sited, and the tower would give protection for preparing and drying the moulds on top of the temporary casting pit.

The building of bell towers, porches and screens in the Late Gothic period is associated with the increased prosperity from the production of wool in the 15th century (Braun 1985), the pattern of alteration and change goes hand in hand with changes in liturgy which was to change with the Reformation (Duffy 1992). In Easton the alterations were completed by the recasting of the fourth bell by Newcombe bell founders of Leicester.

Acknowledgements

The author acknowledges the grant of £200 towards the publication of this paper from the Goodliff Fund of the Huntingdonshire Local History Society, and thanks Tim Reynolds, archaeological advisor to the Ely Diocesan Advisory Committee who carried out the excavation with her; and Julian Limentani, Easton church architect, for information on Easton church bells and information on Hamerton church nearby, where he describes finding a similar feature site now destroyed. The author was encouraged by the interest shown at the time of the discovery by the Huntingdonshire Church Bell Restoration Society and their chairman, Chris Higgins, and would like to include in her thanks Bob Burn Murdoch. the recent curator of The Norris Museum, St Ives, for his generosity and interest in her researches using the Inskip Ladds collections which have so comprehensively added to her present understanding of Easton church, and, finally, Robert Walker, who recorded the bell-frames of Huntingdonshire for the first time and who kindly allowed the use of his sketch-book drawing of the Easton bell-frame.

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Glossary

Bell frame and pits: a wooden frame designed with pits [spaces in which] to hang each bell, formed of trusses designed to withstand turning the bells for full circle ringing.

Cannons and **Argent:** cast on the crown of the bell, the *cannons* are used for securing the bell to the headstock, the *argent* provides solidity to the crown. The cannons on the crown were called the 'ear'.

Dross and **Flash**: *dross* is the residue from the furnace skimmed from the molten bell metal, *flash* is the excess metal from the casting.

Gate: an opening for the molten bell metal to be poured into the mould, air vents are also made in the cope for escaping gases.

Moulds: the core and the cope are moulds that are formed to the shape of the bell.

Pivot or **stake:** a vertical rod inserted in the core, sometimes used to hold the strickle or compass as it turns to form and smooth the bell moulds.

Strickle: a board usually cut from timber and used as a template to precisely shape the bell moulds.

Wheels: attached to each bell and secured to the bell frame holds bell ropes for full circle ringing.

Fieldwork in Cambridgeshire 2013

Sarah Bultz, Rachel Clarke, Sally Croft and Kat Hamilton

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 (CHER), 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://english-heritage.org.uk

Abbreviations
ALBION Albion Archaeology
ALL Allen Archaeological Associates
APS Archaeological Project Services
AS Archaeological Solutions
ASE Archaeology South East
BA Britannia Archaeology Ltd
BCC Bartlett-Clark Consultancy Report
CAU Cambridge Archaeological Unit
CFA CFA Archaeology
CgMs CgMs Consulting
COT Cotswold Archaeology
GA GamArch
GSB Geophysical Surveys of Bradford
HA Headland Archaeology
HN The Heritage Network
IVES St Ives Archaeology Group
NA Northamptonshire Archaeology
MM M&M Archaeological Services
NHA Northamptonshire Archaeology
NPS NPS Archaeology
OA East Oxford Archaeology East
PCA Pre-Construct Archaeology
PDA Pre-Develop Archaeology
SCCAS Suffolk County Council Archaeological Services
TVAS Thames Valley Archaeological Services
WA Witham Archaeology

Babraham, Research Campus
TL 5068 5100 (CAU report 1194)
S Timberlake
A programme of archaeological monitoring and recording for the second phase of the Flood Compensation Scheme at the Babraham Research Campus was undertaken. No archaeology was revealed in Area A, but in Area B at the southern end, a number of amorphous burnt flint spreads and pits of probable Neolithic to Early Bronze Age date were identified. These features were cut by a series of ditches of probable Roman date. To the north-east of this excavation, a fieldwalking and metal detecting survey was carried out on the stripped topsoil. This revealed an interesting assemblage of material including Mesolithic to Early Bronze Age flint, Roman pottery, lead scrap and a coin, plus medieval metalwork including a well-preserved Henry III silver penny, and a few post-medieval to modern finds.

Bourn, Skylark Meadow Solar Park
TL 3249 5800 (ALBION report 2013/152)
K Pilkington
Twelve trial trenches were excavated in advance of the expansion of an existing solar park. Three trenches were investigated revealing a ditch indicative of a Roman boundary. Other undated ditches were identified and shallow ridge and furrow remains suggest an agricultural system rather than settlement activity.

Brington, Hill Close
TL 0831 7626 (OA East report 1508)
N Gilmour
In advance of a proposed housing development, an archaeological evaluation identified a small Iron Age ditch, likely to be part of a wider field system. The ditch measured 0.80m wide and 0.30m deep, and had a visible length of 12m, continuing out of the trench at both ends. The ditch contained three body sherds of handmade vessels most likely Middle Iron Age in date. A single sherd of medieval Lyvenden-Stanion pottery was also recovered.

Burwell, land and barn between 64–76 Low Road
TL 5951 6699 (AS report 4291)
T Collins, L Prosser, P Thompson and K Henry
An historic building recording was carried out on a stone-built barn. Comparison with other buildings in the vicinity, together with surviving structural carpentry, suggests that the barn was constructed in the 18th century. Nineteenth century remodelling can be seen and during the 20th century an associated lateral range was largely demolished and the original roof replaced.

Cambourne, Cambourne Secondary School
TL 3096 5996 (OA East report 1518)
C Thatcher
Archaeological evaluation followed by excavation of four open areas at the site of a proposed new school immediately to the west of Cambourne revealed evidence of Iron Age, Roman and medieval activity. The edge of a possible Late Iron Age settlement, comprising post-built structures, pits and enclosure ditches, was identified in the southern part of the site, including a probable contemporary droveway extending to the west. During the Roman period a field system that was probably largely related to pasture and animal husbandry was established and appeared to respect the Iron Age land divisions. The presence of a possible barn within one of the fields may hint at proximity to a small Roman farmstead located somewhere to the north-west of the site. Following the abandonment/disuse of the site during the later Roman period this area appears to have reverted to agricultural use, represented by the remains of ridge and furrow.

Cambridge, Addenbrookes MSCP site
TL 4622 5485 (CAU report 1151)
J Tabor
An archaeological excavation undertaken in advance of the construction of a Multi-Storey Car Park (MSCP) at Addenbrooke's Hospital, Cambridge revealed elements of multiple phases of field systems dating from potentially as early as the Middle Bronze Age, through to the Early Roman period. A small number of pits recorded to the west of the site were probably associated with the Late Iron Age/Conquest period settlement formerly excavated at the Boulevard site (CHER ECB3039).

Cambridge, Barnwell, Eastern Gate, 15 Harvest Way
TL 4635 5887 (OA East report 1551)
R Atkins
Evaluation of the site, in advance of redevelopment, which is located within the medieval settlement of Barnwell and was associated with Barnwell Priory (CHER MCB5622), comprised monitoring of the removal of a concrete slab followed by the excavation of six trenches. Survival of archaeological deposits was found to be good across the site, with relatively little truncation associated with the construction of a factory complex in the 1960s. A plethora of medieval, post-medieval and 19th century pits and wells, some of them of substantial size, as well as several layers were found across the site. These indicate densely-occupied settlement dating from at least as early as the building of Barnwell Priory near this location in the early 12th century, and continuing into the 16th century. There may have been a reduction in activity/occupation in the immediate post-Dissolution period but by around the late 17th century the land was once again being heavily utilised. The density of occupation continued to increase such that in the 19th century the site was covered with a mass of buildings, back streets and yards that were recorded in documents and maps as slums.

Cambridge, Castle Hill mound
TL 4457 5919 (OA East report 1519)
M Webster
Further monitoring was carried out during remedial conservation work at the base of the Castle mound (NHLE 1006905) and retaining walls adjoining Braeside House and Undercroft, to the south and east of the mound. The resulting groundworks exposed part of the construction and make-up of the original medieval castle mound.

Cambridge, 169–173 Chesterton High Street
TL 4646 5992 (CAU report 1173)
S Timberlake
An evaluation comprising six trial trenches was undertaken prior to the redevelopment of the former site of the 'Dog and Pheasant' public house (no. 169) and a number of associated buildings. Medieval archaeology was encountered towards the street frontage of no. 169. Amongst the earliest features was a south-west–northeast aligned ditch dating to the 12th century which cut an earlier northwest–southeast ditch, whilst to the rear of this lay a series of c. 12th century rubbish pits which appeared to have been infilled by the 14th century. In front, set back some 6–7m from the edge of the present High Street were a number of clunch wall footings associated with one or more post-medieval (16th–17th century) dwellings, the base of these walls cutting a Late Medieval (15th century) dark occupation horizon with good preservation of environmental evidence. During the later post-medieval period (18th–19th century) a considerable amount of pitting and rubbish deposition took place to the rear of this plot. Meanwhile a possible early boundary ditch to 169/ 171 High Street was identified within the adjacent garden/carpark area to the rear of 173 High Street.

Cambridge, Darwin Green (NIAB)
TL 4342 6121 (GSB report G1361)
J Gater
A geophysical survey identified three areas of archaeological interest. The first is a group of anomalies focused around a large D-shaped enclosure. It measures 70m by 60m and is flanked by two square enclosures to the south with the west one further subdivided by a smaller enclosure. The second area shows a large D shaped enclosure 70m by 50m with further smaller enclosures to the north. The last area

consists of a rectilinear enclosure group which encompasses a circular anomaly to the south, a double enclosure to the north, an oval group and a larger rectilinear set of features. This appears to create a type of settlement area, possibly dating to the Iron Age or Romano-British period.

Cambridge, Judge Business School
TL 4490 5790 (CAU report 1187)
R Newman
An evaluation was conducted prior to redevelopment at the Judge Business School site. The earliest feature to be encountered was a substantial, undated ditch. This was cut by a series of later regular south-west–northeast aligned inhumation burials, laid out in rows. Although no dating material was recovered from these burials, stratigraphic evidence indicates that this cemetery is 14th century or earlier in origin. It was therefore most probably associated with the medieval proprietary chapel of St. Edmund (CHER MCB5895), which is known to have been situated in the general vicinity. It appears that the area is located within the former monastic precinct. The priory was dissolved in 1538 and the area returned to secular use. The original Addenbrooke's Hospital was established at the site and a series of post-medieval gravel quarries were identified, probably for use during the hospital's construction.

Cambridge, 30–31 Occupation Road
TL 4623 5879 (OA East report 1496)
J House
A single 10 metre long evaluation trench was positioned at the south side of the site to avoid above-ground obstructions. Evidence of medieval or later quarry pits containing heavily-abraded pottery of 12th to 14th century date was found in addition to 19th century building foundations.

Cambridge, Trumpington Road, Nuffield Hospital
TL 4526 5675 (CAU report 1156)
S Timberlake
A trial trench evaluation was carried out prior to development. Although no datable features were identified, two large and intercutting flat-bottomed ditches were investigated. Nearby a small amount of residual Late Neolithic to Early Bronze Age flint was encountered within two pre-modern tree throws.

Cambridge, Trumpington, Anstey Hall Farm
TL 4424 5487 (OA East report 1555)
S Ladd
Evaluation comprising three trenches positioned around the farm yard and two small trenches in the garden identified structural features, pits and enclosure ditches of Middle to Late Saxon date. These were sealed by a buried soil layer, which in the north-east part of the farm yard was overlain by a cobbled surface of possible Late Saxon date. No definite evidence of medieval occupation was revealed. Later soils appeared to derive from post-medieval farm activity and garden landscaping.

Cambridge, Trumpington, Fawcett Primary School
TL 4505 5527 (OA East report 1512)
T Phillips
Three trenches were excavated, two of which contained archaeological remains. A large V-shaped ditch, most likely Middle Iron Age in date, was revealed that correlates with a long-running boundary or routeway identified during excavations at Clay Farm (CHER ECB3686) in the field to the east. Within the second trench part of a cremation cemetery was found, comprising five seemingly un-urned cremations that were clustered together in the eastern end of the trench, while a large post-medieval quarry pit occupied the western end.

Cambridge, Westminster College
TL 4433 5904 (CAU report 1175)
M Collins
A trial trench evaluation was carried out in advance of proposed development. Three ditches and a pit dated to the Romano-British period were identified and yielded high quantities of pottery, animal bone and fragments of quern stones.

Chatteris, 24 Bridge Street
TL 3901 8670 (WA report 52)
R Trimble
Two trial trenches were excavated prior to development revealing a ditch of possible late medieval date and evidence relating to occupation, such as wall foundations dated to the 18th century and floor layers from the 16th–17th century and later.

Chatteris, 84 High Street
TL 3917 8640 (BA report 1019)
M Adams
A single trial trench evaluation revealed two medieval pits containing pottery of 12th to 14th century. A post-medieval structure was uncovered and appears to be a small chamber along with a robbed out wall foundation trench which cuts into the medieval pits.

Chatteris, Hollyhouse Farm
TL 4311 8751 (CAU report 1193)
M Brittain
Following a fieldwalking survey, six archaeological evaluation trenches were opened. Two small and truncated sub-circular pits were identified. Neither contained any datable material; however, later Bronze Age worked flint was collected during the fieldwalking, and mid-20th century farm buildings are known from within the proposed development area.

Chatteris, Ireton's Way
TL 4181 8328 (BA report 1042)
T Schofield
A detailed fluxgate gradiometer survey was undertaken in advance of a trial trench evaluation prior to the construction of a Bio-Digester and reservoir. A range of anomalies of potential archaeological origin were identified. In the north-eastern field a series of discrete, parallel and perpendicular anomalies were

interpreted as pits, banks and ditches. In the adjoining field to the south-west linear features were also present.

Chatteris, Ireton's Way
TL 4169 8309 (CAU report 1197)
M Brittain and M Collins
Following the geophysical survey, a programme of evaluation trenching was undertaken. Trenching in field 1 identified prehistoric ditches and postholes that correspond with cropmarks identified on aerial photographs as a coaxial system of ditched field system of probable prehistoric date. A palaeochannel also identified was shown to predate human activity. In field 2 a number of post-medieval ditches were investigated, including a ditch demarcating the current boundary of the two Cambridgeshire districts of Fenland and East Cambridgeshire. Also, several prehistoric pits, including one dated to the Early/Middle Neolithic and three dating to the Early Bronze Age were recorded.

Chatteris, New Road
TL 4030 8650 (CAU report 1200)
A Wright
A trial trench evaluation consisting of four trenches was carried out prior to development and revealed the remnants of medieval ridge and furrow cultivation, and two ditches aligned east–west and parallel to each other spaced approximately 3.75m apart which suggests a narrow trackway. One sherd of Roman or medieval pottery and a fragment of imbrex tile were recovered from the ditches.

Doddington, land off Wimblington Road
TL 40515 9084 (APS report 125/13)
N Jefferson
Detailed geophysical survey was undertaken in connection with proposed development on land off Wimblington Road. The survey recorded several dispersed pit type anomalies, the interpretation of which is uncertain. An alignment of iron spikes which probably indicated a removed fenced boundary was also recorded.

Ely, proposed Almonry Restaurant extension
TL 5426 8028 (PCA report R11436)
P Boyer
An archaeological excavation was conducted on the footprint of a proposed extension to the Almonry Restaurant within the precinct of Ely Cathedral (CHER MCB8836). The excavation revealed features dating to the Late Saxon period including a number of postholes indicating one or more timber structures. An extensive linear feature was identified, indicating a large perimeter ditch at the edge of the early precinct. The area was later occupied by a large medieval masonry building that was constructed over three phases of development. Contemporary activity with the masonry building including the construction of further timber structures and pit digging was also detected. In the post-medieval period the masonry structure was largely robbed out and much of the northern part of the excavation area was dominated by a series of pits of 16th to 18th century date.

Ely, land north-west of Ely
TL 5441 8217 (OA East report 1448)
T Phillips
The evaluation discovered three discrete settlements or areas of activity where there was a high density of archaeological features, all of which had been identified by a previous geophysical survey. The first of these was a farmstead established in the Middle Iron Age and continuing in use until the early Roman period, although there was little evidence of activity after the 2nd century AD. The second area was a small early Roman site consisting of a large pond feature set amongst several small field enclosures. The third area was part of an early Roman settlement probably extending to the north, underneath the housing of King Edgar Close. Scattered features dated to the early Neolithic and Early Bronze Age were present, as was a cremation dating to the early Roman period. A possible Iron Age field system was preserved at the northern edge of the site, close to a seemingly isolated inhumation. A concentration of post-medieval features, correlating with the location of a building shown on the First Edition Ordnance Survey map (1888), was also found.

Ely, The Vineyards, Eye Green
TL 5462 8041 (Pre-Develop Archaeology report)
D Roberts
Archaeological investigations were limited to a small building plot. Late Neolithic to Early Bronze Age features were revealed including tree throws, pits, gullies and a post hole. All were associated with quantities of flint flakes, some of which were worked, scrapers, hammer stones and associated debitage. Also found were decorated, possible, beaker pottery sherds. One pit contained human teeth of which only the enamel survived.

Ely, TNS site, Lisle Lane
TL 5454 8025 (ASE report 2013208)
M Germany
An archaeological excavation was carried out, following on from a previous trial trench evaluation (CHER ECB2921). The investigations revealed a pair of linked ponds which were backfilled in the mid 16th century. A single gully and seventeen modern pits and postholes were also revealed. The majority of pottery recovered dated to the late 15th to 17th centuries.

Fen Ditton, land north of Cambridge Airport (The Wing Project)
TL 4917 5963
A Bartlett (BCC report) M Collins (CAU report 1190)
A trial trenched evaluation was undertaken prior to the proposed redevelopment of the area. Within the western half of the site features identified include a metalled Iron Age trackway and several track-side ditches. Within the eastern half of the site significant

remains were identified including an area of probable early prehistoric activity, a concentration of Late Bronze Age/Early Iron Age ditches and a small Late Iron Age/Early Roman settlement.

Foxton, 59 High Street
TL 4115 4843 (OA East report 1568)
H Stocks-Morgan
This small evaluation revealed four Victorian rubbish pits located along the frontage of the plot and two undated quarry pits to the rear.

Gamlingay, Allotment Field, Long Lane
TL 2461 5254 (GamArch report 1)
K Rayner
A fieldwalking training exercise was conducted by GamArch with support from Jigsaw Cambridgeshire at the Allotments site, Long Lane, Gamlingay. The exercise produced small quantities of finds dating from prehistoric to modern, suggesting that there has been limited occupation on the site despite its close proximity to the village.

Gamlingay, St Mary's Field
TL 2429 5219 (BA report 1028)
T Schofield
A detailed magnetometry survey was undertaken on 1.25 hectares of land to the south-west of Gamlingay village on the site of a proposed new cemetery. Despite poor conditions for magnetometry, a series of anomalies were recorded, many of which correlated with features depicted on medieval and post-medieval maps. An area of strong magnetic enhancement was present in a similar location to that of the 'tithe barn' depicted on a 1602 map and could be the remains of the structure believed to have been demolished after a fire. An anomaly directly to the east of this has been interpreted as a boundary ditch depicted on an 1844 map and anomalies that correlate with a field boundary that transects the field on the 1844 map were also recorded. A broad linear anomaly of high magnetic disturbance towards the south-western and south-eastern corners of the field also aligns with the potential moat depicted on both maps. Three linear anomalies arranged on a different alignment to those depicted in the maps suggest a second potential archaeological phase of unknown origin.

Gamlingay, St Mary's Field
TL 2426 5224 (OA East report 1528)
R Atkins
Evaluation comprising seven trenches designed to target geophysical anomalies identified the remains of a late medieval timber building in the far north-western part of the site. This building possibly dates from the 14th or 15th century and is likely to have gone out of use in the 17th century. A 1601/2 map of the site shows that this structure was within a large courtyard of buildings belonging to Mertonage Manor. Relatively sparse archaeological features spanning the medieval to modern periods were found in the remaining trenches.

Gamlingay, 21 Station Road and 4 Church End
TL 2420 5211 (GamArch report 2)
K Rayner
A test-pitting training exercise was conducted by GamArch with support from Jigsaw Cambridgeshire at 21 Station Road (test pit 1) and 4 Church End (test pit 2). The exercise produced small and medium quantities of finds dating from the medieval to modern periods, suggesting that there has been occupation on the sites which are in close proximity to the church, in particular at 4 Church End.

Great Gransden, Rectory Farm
TL 2701 5557 (OA East report 1505)
J House
Excavation undertaken in advance of the installation of ground source heating pumps on land adjacent to Rectory Farm, to the southwest of the parish church, revealed a sequence of boundaries, pits, ponds and possible buildings spanning the Roman to post-medieval periods. The type of archaeology and relatively low levels of finds indicate that the site lay on the periphery of settlement during the Roman and Late Saxon to medieval periods, although the identification of a possible Sunken Featured Building (and an unassociated sherd of Middle Saxon pottery) makes an important addition to the little understood history of the early development of the village. The main structural remains in the west of the site probably relate to buildings associated with College Farm, as Rectory Farm was formerly known when it was owned by Clare College (Cambridge), that are shown on 18th and 19th century maps.

Great Shelford, Cambridge Road
TL 4535 5371 (OA East report 1499)
G Rees
Evaluation showed that no archaeological features were present in trenches to the rear of the property, although ditches, possibly representing part of a field system, were present in two trenches located towards the frontage; the ditch closest to Cambridge Road contained fragments of Early Roman pottery.

Great Shelford, Rectory Farm
TL 4575 5188 (OA East reports 1472 and 1474)
T Fletcher
Historic building survey (both Level 3 and Level 2) was undertaken on a range of disused farm buildings associated with Rectory Farmhouse (NHLE 1331067), a listed building which is known to have origins in the 14th century. The earliest building surveyed was a large clunch barn thought to date to the early 19th century and is first depicted on a map of 1822. None of the other buildings depicted on this map survive. The 19th/early 20th century buildings surveyed all centered around a farmyard area and comprised a north to south orientated clunch structure with a corrugated tin roof, a timber granary on a brick and flint plinth and stables. The later buildings included a chicken shed, an open-fronted shed with breeze-block extension and a small brick and timber shelter/

store. Cartographic sources revealed that there had been several other contemporary or earlier buildings in this group, which were gradually replaced or demolished in subsequent periods as farming methods and technologies changed. A number of original features survived in many of the buildings, including feeding troughs, tack hooks (in the stables) and a series of carpenter's marks in the main barn.

Subsequent evaluation consisted of four trenches located on land to the rear of the farmyard, between St Mary's Church and the River Cam (Granta) on the western side of the historic village. One trench contained a number of quarry pits tentatively dated to the Roman period, while elsewhere features associated with late 19th/early 20th century farming activities were present. A large quarry pit back-filled with late 19th/early 20th domestic rubbish was found in the north-east corner of the site.

Haslingfield, 71 New Road
TL 4066 5240 (CAU report 1146)
M Brittain
A single trial trench evaluation partially revealed two large sub-circular features tentatively described as a quarry pit and a well. Pottery recovered from the features dated from 10th to 13th centuries and accompanied by animal bones and burnt clay daub.

Hauxton, Church Road rising main
TL 4356 5214 (NPS report 3154)
S Hickling
An archaeological watching brief was conducted during ground works associated with the construction of a new rising main. Several ditches and quarry pits were found, but the lack of associated artefacts suggests that these were not related to any adjacent settlement. The ditches were thought to be agricultural boundary features, while the quarry pits may be associated with the surfacing of Church Road.

Hemingford Grey, Hemingford Grey Primary School
TL 2981 7074 (OA East reports 1515 and 1529)
S Graham and L Bush
Three trial pits were excavated, only one of which contained archaeology in the form of a single undated shallow ditch aligned at right angles to the present road and sealed by an 18th century subsoil. The ditch may relate to the medieval village layout or could have been associated with the Iron Age/Roman settlement located directly to the west/north-west of the site.

Subsequent trial trenching revealed a series of ditches and pits, the majority of which correspond with features identified by aerial photographic survey. No datable finds were recovered from the ditches, which may be agricultural enclosures. Two large sub-rectangular pits were identified, one of which contained unabraded sherds of 6th century Anglo-Saxon pottery along with parts of a bone comb of the same date and animal bone. These features have tentatively been interpreted as sunken featured buildings (SFBs).

Huntingdon, A14 Huntingdon Viaduct improvement scheme
TL 2295 7160 (OA East report 1467)
J House
No cut archaeological features were present however; demolition material comprising 17th to 18th century bricks was present within a small intervention on George Street and probably derives from structures that formerly stood on the street frontage.

Huntingdon, Hartford, land at 1–7 Sapley Road
TL 2563 7279 (HN report 821)
G Jones
In order to investigate the archaeological potential of a proposed development site, a programme of targeted trial trenching was undertaken. Five trial trenches were excavated across the site, focussing on the areas of greatest potential impact. Two undated linear features, two irregular pits, one undated, the other containing Saxo-Norman pottery sherds, and a large post-medieval quarry pit were investigated. Brick wall foundations dating to the post-medieval period were also revealed and some modern wall foundations, probably associated with a recently demolished bungalow.

Huntingdon, Hartford, West Anglia Training Association Site, Old Houghton Road
TL 2603 7278 (OA East report 1557)
J Diffey
An evaluation found a single ditch dating to the Saxon period, a post-medieval field system including ridge and furrow, and a posthole, pit and ditch/channel of unknown date.

Ickleton, land to rear of Norman Hall
TL 4961 4393 (CAU report 1172)
S Timberlake
A trial trench evaluation was undertaken in advance of development and revealed a post-medieval boundary ditch. A buried soil layer contained moderate amounts of Mesolithic to Iron Age worked flint and a small amount of Iron Age and medieval pottery was also recovered.

Kimbolton, Bicton Wind Farm
TL 1000 7040 (HA report BWFK12)
J McNicoll-Norbury
Fourteen trenches were excavated over the wind farm development area. They revealed the ploughtruncated remains of ditches and pits representing field systems and enclosures consistent with the Iron Age and Roman periods. The relative paucity of artefactual material indicates the remains are unlikely to be associated with settlement activity.

Linton, former Police Station site 9–15, Cambridge Road
TL 5580 4659 (OA East reports 1471 and 1494)
N Gilmour and T Fletcher
Evaluation to the south of Cambridge Road revealed several postholes and pits containing unabraded 13th

to 14th century pottery overlain by a thick layer that produced pottery of the same date. Elsewhere on the site, several 19th century features were recorded that are likely to relate to structures shown on 19th and early 20th century maps of the site.

Subsequent excavation revealed two phases of timber building, represented by postholes, spanning the early medieval and medieval periods, adjacent to Cambridge Road. An early medieval building was identified at the eastern end of the site and a medieval building was constructed within a deliberate terraced cut at the western end. It is possible that the structures represent outbuildings used for the storage of grain and possibly stabling for horses. The nature of the associated pottery, however, indicates some domestic occupation on or close to the site from the mid-11th century onwards. The relatively low levels of material recovered suggests that this part of the village was under-developed throughout the early medieval and medieval period, with the site having been completely abandoned by the mid-14th century.

Littleport, Cemetery
TL 5672 8775 (CAU report 1195)
M Collins
A trial trench evaluation in advance of proposed development of the site as a cemetery identified the presence of a roddon within the western half of the development area; several small, shallow, undated gully features and a large number of post-medieval clay extraction pits located towards the eastern end of the site. Also identified was a layer of dumped, probable Romano-British, briquetage material abutting the roddon.

Manea, Williams Way
TL 4757 8941 (AS report 4364)
L Lichtenstein
An archaeological evaluation consisting of seven trenches revealed two pits containing a few fragments of medieval pottery. There were also some post-medieval and modern ditches, and a pit, uncovered. Of the pottery recovered, two sherds dated to the 12th–13th centuries and the rest dated to the 18th–20th centuries. Brick and animal bone were also recovered.

March, 93–113 Grounds Avenue
TL 4278 9676 (PCA report 11395)
T Woolhouse
An archaeological trial trench evaluation on the fen edge prior to residential development of the site, consisted of six trenches. Three fairly large but undated ditches were identified in addition to two post-medieval or modern field boundary or drainage ditches, a post-medieval or modern pit, and three tree hollows. High groundwater levels meant that large parts of the trenches flooded soon after being opened and several features (two ditches and three possible pits) could not be excavated. While fen-edge locations were often foci for settlement and agricultural activity, particularly during the later prehistoric and Roman periods, this site would appear to have been too flood-prone to attract any intensive occupation or land-use.

March, south of Phoenix House
TL 4009 9843 (BA report 1040)
M Adams
An archaeological trial trench evaluation was carried out in advance of residential development. The evaluation revealed four phases of activity all dating to the post-medieval and modern periods. The site had suffered significant modern truncation, and also dumping of modern material especially to the east. A second phase was associated with the demolition of a burnt out rectory that had occupied the site directly north of the investigation area. A third phase corresponded with the rectory and finally the earliest phase was associated with potential agricultural activity. A brick surface dated between the 17th and 19th centuries was recorded towards the south of the site and may have been a path or garden feature associated with the rectory. Two joining fragments of fired clay were recovered from a buried soil layer. It is possible that the fragments are part of a loom weight.

Murrow, Murrow Bank
TF 3753 0630 (OA East report 1552)
J House
An evaluation revealed remains of post-medieval date, including ditches and animal burials that appear to have been related to a farmyard that is shown on the 1888 25" Ordnance Survey map. Although the farmhouse still stands (known as Bank Farm House) to the north, the associated buildings within the evaluated area were demolished by the mid-20th century.

Parson Drove, 242 Main Road
TF 3865 0891 (OA East reports 1465 & 1479)
J Diffey and R Atkins
An evaluation uncovered a possible Roman ring gully and a number of medieval ditches and pits in addition to post-medieval and modern disturbance. Subsequent excavation found two phases of medieval features dating from the mid 13th to 15th centuries. The first phase comprised a "fen circle" (a corn or haystack ring gully) and a number of pits, several of which may have been domestic in origin, within the northern and central parts of the site, to the south of which were fields. A one-bay domestic building with a possible internal hearth was subsequently built over the area of the former fen circle in the 14th or early 15th century. A few postholes directly to the north may relate to other buildings, such as barns. Several pits were identified across the rest of the site, which also appeared to date to this second phase. From the 15th century the site reverted to fields, a condition that has continued until the present day. In the 18th century a large drainage ditch was excavated across the northern edge of the site, parallel with the main road; a few modern pits were also present across the site.

Parson Drove, Emmanuel Church, 37 Main Road

TF 3726 0859 (WA report 51)
G Trimble
An archaeological watching brief undertaken during ground works relating to the construction of an extension at Emmanuel Church recorded several undated pits. Numerous pottery sherds ranging in date between the 15th to 17th centuries were recovered from the subsoil deposits in the same area along with an assemblage of animal bone. Taken together, the evidence suggests activity of a probable domestic nature in this location in the late medieval to early post-medieval period. Evidence for a palaeochannel was also recorded.

Perry, Grafham Resilience Scheme
TL 1492 6569 (CAU report 1153)
M Collins
An archaeological fieldwalking survey was undertaken on open farmland along the proposed route of a pipeline forming part of the Grafham Resilience Scheme. Widely dispersed prehistoric worked flints and medieval pot sherds were recovered along with a moderate quantity of post-medieval and modern artefacts

Reach, Spring Farm, 50 Great Lane, Blackberry Droveway
TL 5593 6596 (AS report 4462)
S Egan
A trial trench evaluation consisting of four trenches and three test pits was carried out in advance of development. Three ditches were uncovered at the higher, drier end of the site representing a field boundary system of post-medieval date. Residual finds of later Mesolithic and earlier Neolithic date were recovered from the ditches. The test pits revealed peat and alluvial deposits commonly associated with fenland environments.

St Ives, The Priory, Priory Road
TL 3145 7110 (IVES Report)
A Hunter
A geophysical survey was carried out in a lawned garden area at the rear of the Priory in St Ives to identify any remains related to the priory. The results identified some ditches and pits that could be associated with the priory.

St Ives, Wiggin Hill Farm
TL 3100 7480 (OA East report 1488)
G Rees
An evaluation uncovered a single undated ditch in the eastern part of the proposed development area, while evidence of ridge and furrow cultivation was present in several trenches. Two lithic tools were the only finds recovered from the site.

Sawston, 82 Mill Lane
TL 4802 4948 (OA East report 1481)
S Graham
A watching brief on the excavation of foundation trenches for a bungalow and garage revealed a number of post-medieval pits and a well, in addition to a former ploughsoil that was undated.

Sawtry, Chapel End
TL 1727 8373 (NHA report 13/67)
J Walford
A magnetometer survey on a proposed development site revealed a trackway, traces of medieval ridge and furrow field cultivation, and some linear features of uncertain significance. Two circular earthworks were previously known on the site but proved to be magnetically invisible.

Sawtry, Chapel End
TL 1721 8367 (OA East report 1550)
H Stocks-Morgan
Evaluation comprising two trenches identified archaeological remains dating to the high medieval period, including two phases of field system on separate alignments. Evidence in the form of postholes for contemporary domestic structures, probably small outbuildings, was found in both trenches. The presence of Late Saxon pottery within later features hints at settlement of this date within the vicinity.

Soham, land north of 10 & 23 The Oaks
TL 5957 7261 (AS report 4290)
K Orzechowski and P Thompson
Two trial trenches were excavated in advance of construction of four dwellings with garages, a car port and vehicular access. Five pits and a ditch were identified. Medieval pottery dating to the 12th to 14th centuries and some post-medieval pottery, brick and animal remains were recovered from the pits.

Southoe, Church Farm, Rectory Lane
TL 5174 2652 (CFA report Y080/13)
P Mann
An archaeological evaluation was undertaken on the proposed site of three wind turbines and associated tracks and infrastructure. Fifteen trenches were excavated, targeting geophysical anomalies and cropmarks. Two concentrations of archaeology were identified, both of Late Iron Age to Romano-British date. Features included a ring ditch, related to a possible round house, a hearth, pits and ditches. Finds recovered from these features included Iron Age and Romano-British pottery, animal bone and a small amount of worked flint.

Stapleford, 34 Mingle Lane
TL 4701 5207 (AS report 4275)
K Orzechowski and A Mustkin
An evaluation consisting of three trial trenches was carried out in advance of the construction of two new dwellings. Two of the trenches revealed ditches and post holes but no dateable material was recovered.

Stapleford, Swaffham Bulbeck, Willingham ACA test pits
Stapleford, Swaffham Bulbeck, Willingham
A series of test pits were excavated at Stapleford, Swaffham Bulbeck and Willingham in 2013 by school children, teachers and members of the general public as part of the University of Cambridge Archaeology Department Higher Education Field Academies Programme. Pottery sherds dating from the Bronze Age, to post-medieval periods were recorded.

Stretham, rear of 7B Wilburton Road
TL 5106 7448 (AS report 4271)
M Gorniak, P Thompson and A Mustchin
An archaeological evaluation undertaken in advance of residential development revealed pits and ditches of various dates at both the northern and southern ends of the site. Dating evidence ranged from medieval to late post-medieval. One pit at the northern end of the site contained pottery dating to the 13th-14th century and a pit in at the southern end of the site contained 14th–16th century pottery sherds. A ditch terminus could not be reliably dated. It is possible that the medieval features relate to those recorded directly to the east of the site including medieval structural remains in an earlier investigation (CHER ECB1505).

Swaffham Prior, Rogers Road
TL 5733 6461 (PCA report 11551)
L Morgan-Shelbourne & T Woolhouse
A trial trench evaluation revealed a single ditch and pit. From the ditch a sherd of Late Saxon pottery was recovered, and, from the pit, a large quantity of burnt flint and medieval pottery.

Tydd St Giles, Ebenezer Church, Kirkgate Street
TF 4752 1042 (AS report 4246)
M Gorniak and P Thompson
One trial trench was evaluated in advance of the proposed demolition of the existing church and hall and the construction of three dwellings with ancillary works. Several undated pits and post holes were identified. The only pottery recovered came from the subsoil layer and dated to the 13th to 15th centuries.

Tydd St Giles, Land adjacent potential house at Kirkgate
TF 4324 1661 (APS report 112/12)
N Jefferson
Five trial trenches were excavated prior to residential development. The evaluation revealed three enclosure or drainage ditches and two pits. Two sherds of 12th to 15th century pottery were recovered from the features. A large ditch containing post-medieval brick fragments was also identified.

Westry, Land south of Phoenix House
TL 4009 9837 (BA report 1040)
M Adams
An archaeological evaluation was carried out in advance of residential development and revealed activity dating to the post-medieval and modern periods. A recent phase of dumping of waste and demolition material was evident at the eastern extent of the site. A rough brick surface was recorded towards the south of the site and may have been part of a path or garden feature. The bricks date to the 17th–19th centuries.

Whittlesey, land east of East Delph
TL 2730 9790 (CAU report 1201)
R Patten
Investigations comprised an initial test pit survey followed by a trial trench evaluation. Earliest evidence for occupation was identified in the form of an undated clay-lined pit of probable Iron Age date and suggestive of occupation. Two separate areas of Romano-British occupation, most likely associated with the Fen Causeway, were recorded comprising a series of enclosure and boundary ditches with large pottery dumps in two of the ditches. Widespread evidence was present across the site of late medieval to post-medieval land use in the form of furrows and clay land drains.

Whittlesey, land north of Snowley Park
TL 2608 9799 (OA East report 1454)
T Fletcher
An evaluation, consisting of 20 trenches excavated across two fields, revealed evidence for a small, undated field system or boundary, medieval furrows aligned north to south, in addition to post-medieval postholes and quarry pits. The site is heavily truncated, most likely as a result of its use as a nursery during the mid- to late 20th century.

Wicken, land adjacent to 11 Cross Green
TL 5709 7057 (ALL report 2013 125)
M Wood
An historic building survey and trial trench evaluation was carried out. The building survey recorded a group of agricultural buildings dating from the 1960s and early 1970s. Two buildings are possibly late 19th century with timber framed structures and pantile roofs. These can be seen on the 1902 OS map. Two trial trenches were excavated between the buildings and contained features dating to the early medieval period. These included a north-south ditch running across two trenches, an early medieval pit and various other ditches. Pottery recovered from the features date to the 11th–12th centuries.

Wimblington, 24 March Road
TL 4138 9316 (OA East report 1539)
N Gilmour
An evaluation revealed a ditch, which may be of Roman date, along with several quarry pits, of uncertain date. Significant modern dumping had taken place on the site, leveling the area, which naturally sloped from west to east, away from March Road.

Wimpole, Wimpole Park
TL 3350 5102 (OA East report 1453)
J Fairbairn
A total of 161 test pits was excavated on behalf of the National Trust in advance of tree planting to restore the historic parkland of the formal gardens. Evidence of the 17th century bowling green, a leveling layer relating to a medieval trackway and surfaces of the Jacobean stable was revealed within the test pits.

Wisbech, Old Lynn Road
TF 4732 1073 (OA East report 1560)
S Ladd
Archaeological trenching at the rear of the plot revealed features and pits dating from the 11th to mid-12th century showing evidence of domestic waste and hammerscale. Environmental evidence from the pits suggests that they most likely relate to backyard activity within plots either fronting north onto Old Lynn Road (as the modern properties do) or east onto Kirkgate Street, the road leading up from Walsoken village to the Old Lynn Road.

Woodditton, proposed endurance track, Church Hall Farm
TL 6608 6004 (AS report 4310)
G Barlow and P Thompson
An evaluation was carried out consisting of nine trial trenches in advance of the construction of an endurance track and ancillary works. Two ditches, one gully and a pit were recorded. The ditches contained Neolithic worked flint and Mid-Late Iron Age pottery. The pit and gully were modern in date.

Yaxley, land off Main Street
TL185 9216 (ALBION report 2013/150)
M Koziminski, R Wardill and J Wells
In advance of residential development, a trial trench evaluation was carried out, revealing early to late medieval pits, ditches and a possible hearth as well as a possibly associated occupation horizon. The hearth showed evidence of *in situ* burning and deliberately dumped ashy material. Post-medieval activity was represented by a possible pond, located to the rear of the property in the northern part of the site. Fish bones were retrieved from the fills of the possible pond. Later post medieval remains took the form of yard surface and a retaining wall for a cellar that had been subsequently backfilled.

Yaxley, 2 Park Close
TL 1860 9248 (OA East reports 1495 and 1509)
G Clarke and G Rees
Evaluation revealed two pits probably dating to the Iron Age period and one undated pit. During the subsequent excavation, Prehistoric, Roman and medieval artefacts were recovered although the bulk of activity appeared to have occurred in the medieval period. A sherd of Early Bronze Age pottery and several lithics recovered from a pit indicate prehistoric activity. The presence of postholes in the south-west corner of the site may represent contemporary settlement, while a background scatter of Roman material was present in later features. In the medieval period the site was exploited for its sand and gravel resource by strip quarries, located mainly in the western part of the proposed development area. Although most of the quarries were devoid of finds, one pit contained a large amount of medieval pottery indicating that domestic activity may have been located nearby in this period.

The following sites produced little of archaeological interest:

Burrough Green, land to south west of Sheriffs Court
TL 6370 5539 (HN report 793)

Cambridge, Courtney Way
TL 4521 6019 (ALL report 143)

Cambridge, English First Language School, 221 Hills Road
TL 4634 5621 (ASE report 2013169)

Cambridge, 100 Histon Road
TL 4437 5978 (CAU report 3967)

Cambridge, Jesus Lane
TL 4510 5882 (OA East Report 1444)

Cambridge, Latimer Close
TL 4809 5913 (PCA report)

Cambridge, 191 Mill Road
TL 4678 5764 (BA report 1027)

Cambridge, 8 Montreal Road, Cambridge
TL 4726 5750 (CAU report 1183)

Cambridge, 21–28 New Square
TL 4562 5856 (AS report 4347)

Cambridge, Stanesfield Road
TL 4746 5904 (PCA report R11593)

Cambridge, Trumpington Meadows
TL 4440 5530 (OA East Report 1513)

Caxton Gibbet, St Neots Road
TL 2971 6064 (COT report 13070)

Chatteris, 7 Dock Road
TL 3912 8683 (AS report 4429)

Coton, Coton Primary School
TL 4079 5895 (OA East Report 1563)

Doddington, land south of 50 Benwick Road
TL 3968 9084 (ALL report 2013119)

Dry Drayton, Hackers Fruit Farm, Huntingdon Road
TL 3958 6273 (ALBION report 2014/17)

Duxford, Imperial War Museum
TL 4666 4629 (HN report 832)

Ely, The Gardens, Lynn Road
TL 5454 8187 (HN report 790)

Ely, 6 The Vineyards
TL 5442 8032 (OA East Report 1498)

Great Stukeley, land between 4 and 10 Ermine Street
TL 2192 7463 (ALBION 2013/167)

Guilden Morden, Odsey Grange Natural Swimming Pool
TL 2953 3806 (PCA report 11357)

Horseheath, 9 Audley Way
TL 6114 4733 (SCCAS report 2013/049)

Linton, Chalklands
TL 5646 4715 (OA East Report 1489)

Longstanton, 53 Woodside
TL 4007 6618 (MM report)

Molesworth, New Data Hall, RAF Molesworth
TL 0722 7757 (SCCAS report 2013/044)

Peterborough to Guyhirn Bridge
TL 2080 9740 (OA East Report 1470)

St Ives, 4 St Audrey's Lane
TL 3137 7216 (OA East Report 1460)

Sawtry, Double Bank Lane
TL 4433 5904 (CAU report 1181)

Somersham, Envar Site, The Heath
TL 3383 7546 (NHA report 13/58)

Swavesey, Lairstall Drove
TL 3658 6903 (APS report 54/13)

Tydd St Giles, Magnolia Cottage, Kirkgate
TF 4335 1653 (WA report 44)

Tydd St Giles, The Wirrels, Kirkgate
TF 4288 1658 (APS report 40/13)

Waterbeach, Soldiers Hill, Waterbeach Barracks
TL 4915 6795 (TVAS report 13/27)

Waterbeach, Waste Management Park, Ely Road
TL 4860 6880 (CAU report 1141)

Whittlesey Washes, between Stanground and Whittlesey
TL 2105 9740 (OA East Report 1545)

Whittlesey, Whittlesey Washes
TF 3880 0218 (OA East Report 1525)

Wimblington, Knowles Transport Limited, Manea Road
TL 4170 9210 (APS report 139/13)

Wisbech, land off Council Road
TF 4729 0998 (APS report 6/13)

Wisbech, Grammar School
TF 4554 0958 (APS report 146/13)

Woodditton, proposed Foaling Unit, Woodditton Stud, Kirtling Road
TL 6600 5779 (AS report 4339)

Desk-based assessments were produced for the following sites:

Cambridge, Huntingdon Road, former Service Station site
TL 4429 5944 (OA East Report 1490)

Fulbourn, land off Cox's Drove
TL 5169 5659 (OA East Report 1510)

Ramsey, Field Road
TL 2792 8518 (CgMs Report 16374)

Sawston, land south of 41 Mill Lane
TL 4812 4929 (OA East Report 1476)

Sawtry, land to the east of Glebe Farm
TL 1623 8363 (CgMs Report 16377)

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Ann Hudson

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