



Archaeological Discoveries along the Farningham to Hadlow Gas Pipeline, Kent

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Archaeological Discoveries along the Farningham to Hadlow Gas Pipeline, Kent

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and illustrations by Rob Goller and S.E. James

Introduction

Middle–Late Bronze Age cremation burials, Late Iron Age and Romano-British enclosures, a probable Romano-British villa, and an early Anglo-Saxon cemetery were among the discoveries made during mitigation works (targeted strip-map-and-record excavation and watching brief) undertaken in 2008–9 prior to the laying of the Farningham to Hadlow Natural Gas Pipeline, in Kent (Wessex Archaeology 2011a) (Fig. 1).

The 22 km pipeline route runs between Horton Wood in Fawkham (NGR 557870 562350), 3 km east of Farningham, to the north, and the Tonbridge Road gasworks (NGR 562350 149300), 1 km west of Hadlow, to the south. The northern end lies within the North Downs, and the southern end within the Weald, and between them the pipeline crosses Upper, Middle and Lower Chalk, Gault/Upper Greensand, Lower Greensand and Wealden Clay (BGS sheets 287 (Sevenoaks) and 271 (Dartford)). The drift geology along the route includes alluvium, gravel terrace deposits, head deposits and clay-with-flints. The route crosses mainly gently undulating ground, although the southern edge of the Upper Chalk is marked by a steep, south-facing escarpment at Exedown near Wrotham, between the M20 and M26 motorways, and there are further minor scarp slopes to the south associated with the Folkestone Beds and Hythe Beds.

The pipeline route had previously been subject to desk-based assessment, walk-over survey and fieldwalking (RSK 2008a), and geophysical survey (Bartlett-Clark Consultancy 2007), the combined results of which indicated a number of areas of high archaeological potential. These areas were subject to trial trench evaluation (Wessex Archaeology 2008), the results of which led to the identification of five mitigation areas which were subject to strip-map-and-record excavation (Table 1). Of these, only the sites at New Ash Green (MT01) and Pilgrim's Way, Wrotham (MT02) produced significant archaeological remains.

The results at New Ash Green did not match the site's anticipated potential; instead it produced an assemblage of Mesolithic flints, and contained a complex of Romano-British features, including enclosure and other ditches, pits and a crop-dryer, as well as evidence of Anglo-Saxon activity. The site at Pilgrim's Way contained a section of possible trackway and an early Anglo-Saxon inhumation cemetery; as the cemetery is being published in detail in a separate paper (Stoodley 2015) only a summary description of it is given in this paper. The only other feature recorded from the remaining mitigations sites was a modern hearth (not further discussed) in Golden Stable Wood (MT04). The excavations were undertaken in accordance with the standards set out in a Written Scheme of Investigation (WSI) (WA 2009).

Table 1 The mitigation areas

Area	Plots	Name	Area	Potential	Archaeology
MT01	4/01–3	New Ash Green	7.6 ha	Medieval manor	Mesolithic flint assemblage; Late Iron Age–Romano-British enclosure ditches and associated features; Anglo-Saxon activity
MT02	8/03	Pilgrim's Way, Wrotham	11.1 ha	Remains associated with Pilgrim's Way ancient trackway	Possible trackway; Anglo-Saxon cemetery
MT03	11/02–03	Kemsing Road	1.9 ha	Iron ore and slag suggesting industrial activity	-
MT04	19/13	Golden Stable Wood	3.1 ha	Activity represented by varied groups of finds	Modern hearth
MT05	19/15	High House Lane, Pittswood	0.7 ha	Record of post-medieval 'High House'	-

The watching brief was conducted during topsoil and subsoil stripping along the whole pipeline route, within a working area generally 45 m wide, as well as in areas identified for off-easement access groundworks. Where archaeological remains were identified, access to investigate them was agreed, and sample excavation and recording was carried out in accordance with a separate WSI (RSK Environment Ltd 2008b). Archaeological features were revealed in 15 plots (Table 2). These include three groups of features, which are described in detail below. The first comprised the six Middle Bronze Age unurned cremation burials and three other cremation-related features (distributed over 1.9 km, in four plots west of Wrotham and Borough Green); the second consisted of a Late Iron Age–Romano-British enclosure and associated features (east of Ightham Court, west of Borough Green); and the third was a Romano-British stone (possibly villa) building with associated features (in Fairlawne Park, Plaxtol).

Table 2 Archaeological features and selected finds recorded during the watching brief, by plot (those in bold are described in detail in this report)

Plot (site name)	Archaeology
0/00	Post-medieval boundary ditch
2/03	Post-medieval boundary ditch
3/03	Two Romano-British boundary/enclosure ditches
3/08	Small later prehistoric pit
5/04	Undated post-hole
10/01	Two Middle Bronze Age possible unurned cremation burials; nine pits of Middle Bronze Age to Iron Age date, and undated features
11/01	Middle Bronze Age unurned cremation burial; two residual 4th century AD Roman coins; two pits, one containing Anglo-Saxon pottery, one undated; post-medieval quarry pit
11/02	One Middle Bronze Age unurned cremation burial, and three other cremation related features (two of them also possibly burial)
12/07	Middle Bronze Age unurned cremation burial
12/08	Late Bronze Age pits; Late Iron Age–Romano-British enclosure and associated features; Anglo-Saxon ditch; modern trackway
(East of Ightham Court)	
16/01	Romano-British villa and associated features; two copper alloy tokens – one post-medieval, the other for 1½d inscribed <i>Vinson Ruxley</i> (19th–early 20th century)
(Fairlawne Park, Plaxtol)	
17/02	Romano-British pit, gully and ditch; undated pit
18/01	Modern pits
19/13	Modern hearth; copper alloy halfpenny of George II struck 1729–39, and three 18th or early 19th century copper alloy tokens
20/02	Undated ditch

Early Prehistoric Flintwork

by Phil Harding

Palaeolithic

Following recognition in the desk-based assessment (RSK 2008a) of at least a moderate potential for Palaeolithic flints at several locations along the pipeline route, a walk-over survey was undertaken of the stripped easement, followed by targeted test-pitting, designed to locate and sample for Palaeolithic material (Wenban-Smith 2010). Although no significant Palaeolithic remains were identified, the work produced a scraper in a rolled and stained condition (Object Number (ON) 119) and a core tool thinning flake (ON 120), both from Plot 13/7, and a large slightly stained flake from Plot 13/5.

These plots fall within a small outcrop of ‘head’ gravel (BGS sheet 287, Sevenoaks), immediately east of Ightham. This deposit coincides with ‘Highfield’, where in the late 19th century a local collector and tradesman from Ightham, Benjamin Harrison, found five Palaeolithic artefacts (Wessex Archaeology 1993, NWK 6 No. 26). The three additional pieces confirm that Palaeolithic material is present, probably in some quantity, in the area.

Mesolithic – New Ash Green (MT01)

Site description

This mitigation site, measuring 270 m east–west by up to 35 m wide, centred on NGR 560200 164690, lay south of New Ash Green, occupying a plateau on the North Downs at 145 m aOD, the ground sloping slightly to the north-east. The underlying geology is Upper Chalk, capped with clay-with-flints.

Crossing the centre of the site was a broad band, 11–13 m wide, of pale greyish brown silt loam (6342) quite distinct from the surrounding reddish brown silty clay found across most of the rest of the site (Pl. 1; Fig. 9, below). The formation of this deposit, however, was not securely established. When cut through by the pipeline trench it appeared to fill a wide depression over 2 m deep with a concave profile, and was interpreted as a coombe. The location and orientation of the feature may be reflected in the slightly in-turned line of the 145 m aOD contour, and it was subsequently followed by historic field boundaries and trackways; a series of parallel ditches (below) were recorded cutting, or on the edge of the layer, and the 1885–94 OS map shows a field boundary and two parallel trackways at this location. An alternative view is that the localised and linear nature of the layer 6342 may be related to variable soil processes caused by rooting action, related the long-term presence of boundaries and trackways at this location; the soil's pale colour suggests that it is heavily gleyed, and the band of dark reddish soil at its base could represent iron pan formation, rather than the base of a coombe.

Irrespective of its origins a significant assemblage of Mesolithic flintwork was recovered from the upper part of layer 6342 and from the surrounding area. (In addition, there was evidence of Late Iron Age, Romano-British and Anglo-Saxon activity, see below.)

Contexts of the Mesolithic flintwork

A total of 540 pieces of worked flint was recovered from 73 excavated contexts at the site (Table 3). Thirty-six pieces were hand collected from a box-section (6174) in layer 6342 (cutting first through the northern end of ditch 6172 which cut the layer; Pl. 1; Fig. 9, below), with additional pieces recovered from the sieved residue of a 20 litre soil sample from this layer. A further 119 pieces were collected less systematically from the wider surface of layer 6342. Features of blade technology within the assemblage, and four microliths, points to the Mesolithic exploitation of the Clay with Flints geology, which is relatively rare in Kent. The layer also produced over 1000 g of burnt flint.

Worked flints were also recovered from sections excavated through Romano-British features on the site. These produced relatively low densities of material, ranging from 52 pieces (context 6421 in feature 6452) to single pieces (mean six pieces).

Table 3 Breakdown of worked flint assemblage from New Ash Green (all contexts), and other locations along the pipeline

Flint types	New Ash Green		Other sites	Total	
	No.	% of assemblage	No.	No.	% of total assemblage
<i>Retouched tools:</i>					
Microliths	4	0.74	-	4	0.61
Scrapers	7	1.30	6	13	1.99
Core tools (picks, axes, etc)	3	0.56	-	3	0.46
Piercers	1	0.19	-	1	0.15
Barbed-and-tanged arrowhead	1	0.19	-	1	0.15
Misc. retouched pieces	52	9.63	5	57	8.82
Retouched tools sub-total	68	12.59	11	79	12.08
<i>Debitage:</i>					
Flakes (incl. broken)	387	71.67	97	484	74.00
Blades/bladelets (incl. broken)	36	6.67	2	38	5.81
Core preparation/rejuvenation pieces	4	0.74	-	4	0.61
Cores/core fragments	21	3.89	4	25	3.82
Irregulardebitage	24	4.44	-	24	3.67
<i>Total</i>	<i>540</i>	<i>100.00</i>	<i>114</i>	<i>654</i>	<i>100.00</i>

The assemblage

The worked flints from box section 6174 (within spread 6342) included a bladelet core with an opposed secondary platform, a plunging broken flake also from an opposed platform core, eight flakes, six broken flakes, three possible core tool thinning flakes, six blades, a bladelet, six broken blades, a broken bladelet, a fragment ofdebitage, a small end scraper on a primary flake, and a large plunging blade removed from the edge of a core tool. In addition, the residue from the soil sample from this context contained a blade, two broken blades, five broken flakes, three flakes, a bladelet, three broken bladelets, 14 chips, including two bulbar scars, and a backed rod microlith, 12 mm long. The recovery of microdebitage (chips) is a significant indicator that this material is likely to be *in situ*. Blades and bladelets accounted for 32% of the assemblage from the box section, with flakes comprising 39%, demonstrating a clear trend towards blade production with supplementary manufacture of microliths and core tools. The presence of failed and successful blade cores with primary and tertiary flakes and blades represent the entire production sequence.

The flints collected by hand from the surface of layer 6342 lacked precise locations, were larger and less certainly from sealed contexts, but the presence of four blade cores

indicated that some of them undoubtedly derived from the same source as those in box section 6174. These cores included a well worked example with opposed striking platforms, two single platform cores and a failed core with opposed platforms. The group from 6342 was otherwise dominated by flakes, which accounted for 75% of the total; some of which were patinated, but most were not. Post-depositional edge damage on individual artefacts confirmed that this collection was less securely stratified. Despite the relative frequency of unpatinated blade cores, there were only a few blades, some of which were patinated. These may have migrated down through the soil profile or have derived from residual topsoil. There were no crested pieces or rejuvenation tablets. Mode was mixed, with both soft and hard hammer characteristics. The group also included evidence for production of tranchet axes and picks and probably contemporary with the blade industry.

The material from layer 6342 clearly represents no more than a small sample from what remains a potentially well preserved, undisturbed site. Diagnostic Mesolithic by-products of debitage and retouched tools were also found beyond the margins of the layer, in a number of excavated ditch and pit contexts – ditch 6172 (context 6173), pits 6118 (6119), 6229 (6234), and 6432 (6387), and feature 6452 (6421 and 6422) (Fig. 9). These pieces included artefact types present in layer 6342 (notably blade/bladelet cores), but also present were technological attributes that were anticipated but absent from it, principally evidence for creasing – ditches 6440 (6189) and 6448 (6143) – and platform rejuvenation. Diagnostic retouched pieces included a backed blade (Fig. 2, 1) 48 mm long from the topsoil (6000), an obliquely blunted point (Fig. 2, 2) from the subsoil (6001), and a snapped backed blade (Fig. 2, 3), 25 mm long, from ditch 6444 (6379). There was also corroborative evidence for core tool preparation – an unfinished pick (6045) made on an elongated cylindrical nodule from ditch 6448 (Fig. 2, 4), and a pick/tranchet axe (6197) (Fig. 2, 5); a tranchet axe (Fig. 2, 6) from pit 6432 (6387); and a number of possible bifacial core tool thinning flakes – topsoil (6001), ditches 6172 (6173), 6439 (6211) and 6444 (6379), pit 6122 (6124), and feature 6452 (6423).

Many of the most diagnostic pieces, principally artefacts of blade technology, were located within 25 m of layer 6342, thereby defining a possible corridor of Mesolithic activity; the distribution of less diagnostic pieces, including probable axe thinning flakes and a scraper, was more diffuse, but did not contradict the overall pattern. This confirms the importance of this broad feature, particularly if it marks the line of a relict coombe, for determining site location and as a catchment for flaking debris extending into the base of the feature, within an

area that has undergone subsequent truncation. The excavation could not establish whether the assemblage represents a single scatter or a series of interconnecting, chronologically distinct workshops.

A large, undated and unrefined, multi-platform blade core made of relatively poor quality flint was found in Romano-British feature 6452, 12 m east of layer 6342, along with an irregular blade that refits to the core; the surface of the core and the dorsal surface of the blade are slightly glossy although the refitting surfaces of the blade and core are not. It is unclear how these presumably reworked, yet refitting pieces should have been found together in the base of a later feature, but the possibility that intrusive later prehistoric worked flints were present in the total assemblage cannot be ruled out. These artefacts are more likely to be contained within the robust undiagnostic flake component. Unfortunately, such by-products are indistinguishable from many blade core preparation flakes, or from the splitting of large nodules to produce flakes suitable for blade cores.

Discussion

These findings have produced significant new information that adds to the debate about the degree and type of exploitation of the Chalk Downs by Mesolithic groups. The period is most well known in Kent from microlith and blade assemblages that are concentrated along the Greensand Ridge (Harding 2006), continuing a trend found throughout the Weald (Jacobi 1982). Evidence for groups using microliths on the North Downs is scarce; indeed Clark (1932) considered that this type of activity may have been entirely absent from the Chalk. Mellars and Reinhardt (1978) attributed this lack of penetration to scrub cover and the relative scarcity of fresh water supplies.

More recent studies of the natural vegetation cover on the Chalk in the Holocene (Allen and Gardiner 2009) have argued that large parts of the forest were more open and would not have prohibited access to hunting groups. Indeed the Chalk is known to have been a major source of flint in the Mesolithic, especially the clay-with-flints capping that was exploited for the production of tranchet axes and picks (Care 1979). These tools are common (Kent County Sites and Monuments Record) along the watershed dividing the Rivers Cray and Darent, immediately west of New Ash Green, but less frequent eastwards towards the River Medway. Harding (2006) attributes this variation to the nature of the data, or the lack of serious fieldwork, rather than to the lack of Mesolithic landscape exploitation. A corridor 10 km wide, centred on New Ash Green, that extends from the scarp of the North Downs

northwards down the dip slope to the Thanet Sand, contains ten entries of generally poorly provenanced Mesolithic material (Wymer 1977), recording 48 tranchet axes, 15 picks and seven other axes. Of these locations only one could be given an 'estimated' grid reference, the remainder could be allocated to a 'general' parish. However the distribution of tranchet axes and picks as mapped within modern parishes does coincide broadly with the northern limits of the clay-with-flints capping; no sites were recorded from the crest of the North Downs. This pattern, which demonstrates considerable penetration into the heart of the Chalk, is repeated to the west of the sample corridor where similar poorly provenanced material clusters around the fringes of the clay-with-flints and drainage courses.

Records of blades and microliths on the Chalk, in contrast, remain virtually unknown in Kent; only three blade-flakes and two microliths were recorded (Wymer 1977) from the 10 km-wide corridor. The microliths (from the Burroughs Wellcome collection and listed as being in Dartford Museum) were apparently both from the general area of West Yoke, approximately 500 m north of the site at New Ash Green. Unfortunately they do not appear on a catalogue compiled from notes amassed by the late Roger Jacobi, nor are there records of their presence at the museum, so there is no way of confirming their existence.

One of the most detailed studies of comparable Mesolithic settlement patterns on Clay with Flints was undertaken using surface collections from Cranborne Chase, Dorset (Green, 2000). This work demonstrated that Mesolithic sites with microliths could be identified on this geology and were often concentrated around the margins of the deposit in close proximity to water supplies. If layer 6342 marks the line of a coombe, this model finds favourable comparisons with the results of work at New Ash Green, even if the relict channel merely supported less dense vegetation and therefore acted as a convenient artery of communication, rather than containing an active watercourse. This feature can be traced as a slightly in-turned contour line that marks the head of a coombe aligned north-east down the dipslope of the Chalk.

Site function

The current model of Mesolithic settlement patterns and land use (Mellars and Reinhardt 1978; Barton 1992) defines two types of camp sites. Large-scale wintering riverside base camps are characterised by retouched tools that represent a broad range of activities. Conversely seasonal upland hunting camps are typified by microliths and tranchet axes, where tools and equipment were refurbished during a hunting campaign. Green (2000)

concluded that the sites located on the clay-with-flints on Cranborne Chase were primarily long-term base camps. The scarcity of retouched tools from New Ash Green makes it impossible to fit the site into either of these categories with confidence, although the presence of microliths and tranchet axes favours the hunting camp. Whatever the function, the availability of good quality flint is likely to have featured in the selection of this location, whether on a long or short-term basis. It is possible that the flaking debris itself, which together with burnt flint provides strong evidence of activity on the site, defines the site's main function.

Date

The recovery during a controlled excavation of stratified Mesolithic material characterised by blade and microlith manufacture from the clay-with-flints on the North Downs is extremely rare, and the date of this material is of particular importance. However, as Jacobi (1982) stressed, material of limited quantity or context should be treated with caution. At New Ash Green, despite the controlled excavation, only one microlith was obtained from a secure location in layer 6342; one other piece was recovered from a ditch section, albeit cut through the layer, with the last two pieces recovered from the topsoil and subsoil. The presence of obliquely blunted points and backed blades, over 40 mm long, is strongly indicative of Early Mesolithic activity (Reynier 1994). Detailed studies of this period in Britain (Reynier 1994; 1998) have recognised three varieties of Early Mesolithic material – *Star Carr*, *Deepcar* and *Horsham* – which developed sequentially from c. 9600 BC. Deepcar material, the most prevalent, is found across much of southern England but also occurs in the north. Microliths, characterised by partially backed points, but also with fully backed pieces, provide the most appropriate match to those from New Ash Green. Reynier (1998) noted that assemblages of Deepcar-type were more prevalent in river valleys. This might suggest that Early Mesolithic migration into the heart of the Chalk spread up the valley and coombe network both from the Thames and Darent and from the south via coombes incised into the scarp slope of the North Downs (Harding 2006). This slender thread of information provided at New Ash Green may hint at the way in which the Chalk of this part of south-east England was re-colonised from northern Europe in the Early Mesolithic.

The material from New Ash Green joins eight Horsham points that were found in a shallow pit/hollow cut into an outlier of Chalk at Saltwood Tunnel, Hythe (Devaney 2006) on the route of High Speed 1. Previously, Champion (2007) could find only three obliquely

blunted pieces of Early Mesolithic date from Kent and a tranchet axe sharpening flake from Ditton, near Maidstone (Clark 1932, 70–1), a site which lay south of the Chalk escarpment on the Lower Greensand.

Far more frequent are the large numbers of small microliths, including geometric pieces, from Late Mesolithic (8000–4000 BC) sites in Britain. These are similar to the isolated piece from the residue of the sieved soil sample. This specimen illustrates the difficulty and uncertainty that individual examples provide; however it does make it necessary to consider whether the site may have been revisited over a long period of time.

The results of the excavation have provided a tantalising indication of the extent, products, technology and date of the activity represented. It confirms the presence of microlith producing communities on the Chalk in the Mesolithic, very probably with associated manufacture of tranchet axes and picks. The preservation of microdebitage indicates that flaking may have taken place at the margins of a possible coombe and that the site is likely to remain well preserved. The work has also confirmed that fieldwork of this type can produce new sites in unexpected circumstances. It is possible that some of the artefacts, including the larger microliths, might have been found using surface collection; however, the crucial detail was sealed within a soil layer, possibly filling a coombe undetectable on the ground surface. Other sites of this type and location may well exist elsewhere on the Chalk sufficient to require a major reconsideration of Mesolithic activity in southern Britain with their discovery.

Other sites

Two other tranchet axes were found in the course of the work, one (ON 217) from the topsoil in Plot 11/02, the other (ON 124) unstratified in Plot 3/3.

An end scraper (ON 244), from the topsoil at Pilgrim's Way (MT02), had been made on a trimming flake from a blade core, and appeared to be Mesolithic.

Illustrated Mesolithic flints from New Ash Green (Fig. 2)

1. Backed blade, topsoil 6000
2. Obliquely blunted point, subsoil 6001
3. Snapped backed blade, context 6379, cut 6377, ditch 6444
4. Unfinished pick, context 6045, cut 6043, ditch 6448
5. Pick/tranchet axe, context 6197, cut 6193, ditch 6444
6. Tranchet axe, context 6387, pit 6432

Neolithic and Early Bronze Age

A flake from a heavily polished Neolithic flint axe from was found in pit 20016 (Plot 11/01) (Fig. 3), along with animal bone (460 g).

An end scraper of Late Neolithic/Early Bronze Age type, with a knife-like retouch on one ventral margin, was recovered from the positive lynchet (7088/7101) at Pilgrim's Way (MT02, Fig. 19); all other pieces of flint (total 59) from this site were unretouched (including a flake core and a core fragment). Another end-scraper of similar date was found in pit 7124 in Plot 10/02, 200 m to the south (Fig. 3).

Twenty pieces of worked flint were recovered from the site East of Ightham Court (Plot 12/08; Fig. 7), all of them unretouched debitage (one a burnt and broken blade fragment) with the exception of an end- and side-scraper of Late Neolithic/Early Bronze Age type.

An Early Bronze Age barbed-and-tanged arrowhead of Green's (1980) Sutton c type was found in Romano-British oven 6110 (6059) at New Ash Green (MT01; Fig. 9).

Middle–Late Bronze Age and Iron Age features

Middle/Late Bronze Age cremation burials and related deposits

Nine small features containing cremated human bone, six of them probably graves for unurned cremation burials, were recorded during the watching brief, over an area 1.9 km long (in Plots 10/01, 11/01–02 and 12/07), to the south of the escarpment at Exedown, and west of Wrotham (Fig. 3). The majority had what appeared to be single fills which also contained variable amounts of charcoal and burnt flint (up to 996 g), representing deposits of pyre debris.

Five samples of cremated bone were submitted to the Scottish Universities Environmental Research Centre, East Kilbride (SUERC) for radiocarbon dating. The radiocarbon determinations were calibrated using OxCal 4.1.7 (Bronk Ramsey 2001; 2009) and the IntCal09 calibration curve (Reimer *et al.* 2009) and are quoted in the form recommended by Mook (1986) with the end points rounded outward to 10 years. The samples produced dates falling mainly within the latter part of the Middle Bronze Age, possibly extending into the Late Bronze Age (Table 4) (Fig. 4).

Table 4 Radiocarbon dates from cremation graves

Feat.	Cxt.	Sample material	Lab. code	$\delta^{13}\text{C}$ (‰)	Date BP	Calibrated date (2 sigma 95.4%)
20014	20015	Cremated bone 2.2 g	SUERC-34548	-23.5‰	3085±30	1430–1270 cal BC
20027	20028	Cremated bone 2.0 g	SUERC-34549	-21.1‰	3010±30	1390–1130 cal BC
20080	20079	Cremated bone 2.6 g	SUERC-34555	-19.8‰	2975±30	1370–1050 cal BC
20072	20073	Cremated bone 2.0 g	SUERC-34554	-21.9‰	2945±30	1270–1040 cal BC
20035	20036	Cremated bone 2.7 g	SUERC-34553	-21.0‰	2930±30	1260–1020 cal BC

Plot 10/01

Grave 20014 measured 0.4 m wide and 0.13 m deep and contained 318 g of cremated bone from an individual aged over 30 years. A sample of the bone, concentrated in the north-eastern part of the grave, produced a radiocarbon date of 1430–1270 cal BC (SUERC-34548, 3085±30).

Approximately 13 m to the south of grave 20014 was a 10 m long arc of three small (0.7 m wide) pits, two of which (7127 and 20018) contained Middle/Late Bronze Age pottery and were therefore broadly contemporary with grave 20014. The largest quantity of pottery (116 sherds weighing 873 g), from pit 7127, came from a single, small ovoid jar (ON 242) (Fig. 5, 1). Pit 20018 contained eight sherds (101 g), including one decorated with a fingernail-impressed cordon. These were the only finds of Middle/Late Bronze Age pottery from the entire pipeline route. Other finds from these two pits included small numbers of struck flints, and small quantities of burnt flint and animal bone. The third, undated (and not necessarily associated) pit (7141) contained eight fragments of ironstone (weighing 3759 g), along with comparable quantities of struck flint, burnt flint and animal bone.

Grave 20080, 380 m to the east of grave 20014, measured 0.4 m wide and 0.08 m deep. It contained 451 g of cremated bone from a male aged over 18 years, concentrated in the eastern part of the grave. A sample of the bone produced a radiocarbon date of 1370–1050 cal BC (SUERC-34555, 2975±30). A smaller feature (20081), 3 m to the west, may be associated with it; it had a similar fill but contained no bone.

Plot 11/01

Grave 20027, 480 m south of grave 20014, measured 0.3 m wide and 0.14 m deep and contained 39 g of bone from an infant aged 2–3 years, concentrated in the southern half of the grave. A sample of the bone produced a radiocarbon date of 1390–1130 cal BC (SUERC-34549, 3010±30).

Plot 11/02

Four cremation-related features (grave 20035, possible graves 20029 and 20033, and pit 20031), all heavily disturbed by machining, lay in 11 m long line aligned approximately ESE–WSW. They were between 0.25 and 0.45 m wide, and up to 0.25 m deep, and all contained cremated human bone and pyre debris; to their immediate south was a similar feature (20037) the fill of which contained charcoal but no human bone.

Grave 20035 contained 339 g of bone from an adult aged over 30 years, concentrated in the southern part of the grave; a sample of the bone produced a radiocarbon date of 1260–1020 cal BC (SUERC-34553, 2930±30). Possible grave 20029 contained 26 g of bone from an individual aged over 13 years, concentrated in the northern half of the grave, while possible grave 20033 contained 70 g of bone from an adult aged 35–55, concentrated in the southern part of the grave. Pit 20031 contained redeposited pyre debris, including 26 g of bone from an individual aged over 18 years, concentrated in the eastern part of the cut.

Plot 12/07

Feature 20072 (Fig. 7), which was 0.4 m in diameter and 0.15 m deep, contained two fills (20073 at the base and charcoal-rich 20074 above), which together contained 20 g of cremated bone from an individual aged between 16 and 45 years. The small quantity of bone suggests this may be a deposit of pyre debris, rather than a burial. A sample of the bone produced a radiocarbon date in the Middle to Late Bronze Age of 1270–1040 cal BC (SUERC-34554, 2945±30). No burnt flint was recorded in this feature.

The cremated human bone

by Jacqueline I. McKinley

Introduction

Cremated human bone was recovered from nine features (10 contexts) distributed across 2 km of the pipeline route. Most comprised dispersed singletons, but a small group of four features lay in an area 11 m by 2 m in the centre of this zone (Fig. 3). The nature of many of the deposits is not well defined (see below) but they include a minimum of two, probably four unurned burials with redeposited pyre debris (described above), and one possibly ‘placed’ deposit. The latter was recovered from the terminal of the Late Iron Age enclosure ditch (5374) excavated at East of Ightham Court (Plot 12/08), at the southern end of this section of

the route (described below); as this was the only context with cremated human bone from that area it is included in this report. It was also the only deposit with any dating evidence (although it could have been redeposited and earlier than the ditch). Consequently, bone samples from five of the deposits were submitted for radiocarbon analysis; all returned broadly Middle Bronze Age dates (Table 4).

Methods

All the cremation-related deposits were subject to whole-earth recovery as separate samples from each quadrant of the feature. These sub-contexts were maintained throughout analysis to enable details of the formation processes to be ascertained. The bone weights presented in Table 5 are the total weights from individual deposits, a more detailed break-down by sub-context is held in the archive.

Osteological analysis followed the writer's standard procedure for the examination of cremated bone (McKinley 1994a, 5–21; 2000a). Age was assessed from the stage of skeletal and tooth development (Scheuer and Black 2000), and the general degree of age-related changes to the bone (Buikstra and Ubelaker 1994). Sex was ascertained from the sexually dimorphic traits of the skeleton (*ibid.*; Gejvall 1981). The unsorted <5 mm sieve residues were subject to a rapid scan by the writer for the recovery of identifiable skeletal elements. A summary of the results is presented here, full details are held in the archive.

Table 5 Summary of results from analysis of cremated bone

Plot	Feat.	Cxt.	Deposit type	Bone wt.	Age/sex	Pathology
10/01	20014	20015*	?un. burial + rpd	312.1 g	adult >30 yr. ??female	hyper-cementosis
	20080	20079*	?un. burial + rpd	447.4 g	adult >18 yr. male + ?immature	-
11/01	20027	20028*	un. burial + rpd	39.6 g	infant 2–3 yr.	-
11/02	20029	20030	?un. burial + rpd/ ?rpd	24.2 g	subadult/adult >13 yr.	-
	20031	20032	?rpd/?un. burial + rpd	22.5 g	adult >18 yr. ??male	-
	20033	20034	?un. burial + rpd/?rpd	57.1 g	adult 35–55 yr.	cyst – finger phalanx
	20035	20036*	un. burial + rpd	318.3 g	adult >30 yr. ??male	-
12/07	20072	20073*	?rpd/?un. burial + rpd	8.2 g	subadult/adult 16–45 yr.	-
		20074	?rpd/?un. burial + rpd	8.4 g	= 20073	-
12/08	5374	5382	R/?placed	12.6 g	subadult/adult >13 yr.	-

KEY: * = radiocarbon dated; un. = unurned; rpd = redeposited pyre debris; R = redeposited

Results and discussion

Disturbance and condition

The surviving depths of the discrete features containing cremated bone varied from 0.06 m (feature 20029) to 0.24 m (grave 20035), with most being between 0.1 m and 0.2 m. There was no intercutting between features but most showed charcoal-rich fills at machine surface level and the upper levels had clearly been truncated to some degree. In all but four cases cremated bone was also evident at surface level and it is probable that a variable quantity of bone will have been lost from at least some of the deposits as a result of truncation. It should be noted, however, that where the clearly undisturbed remains of unurned cremation burials have been observed elsewhere the bone lay in the lower 0.05–0.06 m of the grave; ie, the redeposited pyre debris in the grave fill above the burial may have been subject to truncation but the burial remains themselves were not (eg, Egging Dinwiddy and Schuster 2009, figs 36–38; McKinley forthcoming). It may be pertinent to note that the largest quantity of bone was recovered from the second shallowest feature (20080, 0.08 m deep).

The bone from most of the features is worn and, in some cases, chalky in appearance, and a small amount of trabecular bone was recovered from only three of the deposits. Both observations are characteristic of cremated bone recovered from an acidic burial environment, such as that (clay and silty clay) prevalent across much of this section of the pipeline route (McKinley 1997a, 245; Nielsen-Marsh *et al.* 2000). The best preserved bone tends to be from the larger deposits (though not consistently so), and the surviving depth of the feature appears to be of no significance to preservation (includes deepest and one of shallowest features). All the deposits were charcoal-rich, though in most cases this comprised very fine particle material which was not recovered in environmental processing. It may be significant, however, that moderate amounts of charcoal fragments were recovered from two of the features containing the best preserved bone (see Barnett, below), suggesting its inclusion may have had an ameliorating effect on the aggressive burial environment.

Deposit formation processes and demographic data

Deduction of the minimum number of individuals (MNI) within the assemblage was rendered difficult due to the uncertain nature of many of the deposits. This has undoubtedly been exacerbated by the poor condition of the bone and probable loss of some of the material from several of the features. A variety of deposit types and features may be associated with the cremation rite, each of which may contain variable quantities of the same archaeological

components; the distribution of this material is often key to interpretation of the deposit type. Consequently, the product of one cremation may be distributed between several features and fills of similar appearance.

Very small quantities of bone (<50 g) were recovered from most of the deposits on this site, representing only 3% or less of the total expected weight of bone from an adult cremation (McKinley 1993); even allowing for the loss of trabecular bone due to soil acidity there is unlikely to have been a substantially greater quantity of bone than that recovered (see below). In at least two cases (features 20031 and 20035) the distribution (mixed throughout) of this small amount of material within cuts of >0.1 m in depth suggests the bone represents that collected incidentally together with other pyre debris for redeposition, rather than that collected for formal 'burial' (McKinley 1997b; 2000b; 2013). None of the identifiable skeletal elements is indicative of duplicates, and this bone could have derived from the same cremation as that in any one of the other deposits.

In the case of cuts 20029 and 20033, although the quantities of bone are still very low, the distribution in each instance suggests most was in a discrete deposit (68% in northern half and 77% in southern half, respectively). However, the small amount of bone and lack of duplicate skeletal elements between these and other deposits within the assemblage still render the interpretative categories questionable, and the bone from both could have derived from the same cremation as burial 20036 (grave 20035) located within the same small group of four features.

Consequently, a MNI of three, probably five, individuals has been deduced for the assemblage. These derived from the two Middle Bronze Age deposits confirmed as burials (20028 and 20036; 62% of bone in a NE–SW concentration and 83% in the southern half, respectively), and the two probable burials 20015 and 20079 (67% in northern half and 72% in eastern half, respectively), and the one Late Iron Age deposit which, whilst unlikely to denote a burial represents the only material of this date. The Middle Bronze Age assemblage comprises the remains of an infant and three adults, one probably female and two male.

A single bone fragment (mandibular condyle) from burial 20079 (grave 20080), whilst not representing a duplicate element, was not of a size commensurate with the rest of the bone from this deposit. Although not conclusive, it strongly suggests this bone derived from a second individual – either a female (ie, more gracile) adult or a juvenile/subadult (10–18 years) of either sex. The bone could have been intrusive – eg, accidentally incorporated due to the re-use of an inefficiently cleared pyre site – or the deliberate incorporation of a 'token'

bone from another cremation. A few such ‘tokens’, symbolic or *memento mori* deposits, are believed to have been recognised in cremation burials from various periods including the Bronze Age (eg, McKinley 2006; 2011; 2013). This possible additional individual has not, however, been included in the MNI since the bone could have derived from the same cremation as one of the individuals already included in the count.

Singletons or small groups of mortuary features such as these are characteristic of the period and were probably associated with small individual settlements situated in close proximity. However, the apparent isolated and dispersed distribution of these remains could be misleading. Many of the features containing cremated bone lay close to the margins of the main easement or in remote trenches (Fig. 3), and further adjacent deposits may lay outside the area of investigation. Such an occurrence may render the relatively unusual presence of the isolated infant burial less singular.

Pathology

Minor pathological changes were observed in the remains of two of the adults identified (Table 5). The aetiology of hypercementosis, excessive cement formation around the tooth roots, is unclear but repeated minor trauma to the tooth may be one factor, possibly associated with a diet high in tough fibrous foodstuffs. The small juxta-articular erosion/cyst in the posterior medio/lateral margin of a middle finger phalanx head had not affected the joint surface; it may reflect one of the seronegative arthropathies but in the absence of supportive evidence diagnosis is limited.

Pyre technology and cremation ritual

The majority of the bone is white in colour, indicative of full oxidation (Holden *et al.* 1995a and b), but a few fragments from the four burials (20015, 20028, 20036 and 20079) show blue or grey colouration indicative of incomplete oxidation. Only one or two fragments of any one skeletal element is affected and never the entire bone. In the case of the infant (20028) only the skull was affected, whereas with the adults three elements were involved, generally the skull vault and elements of the lower limb. A variety of intrinsic and extrinsic factors may have an impact on the efficiency of oxidation (McKinley 1994a, 76–8; 2004, 293–5; 2008). The slight variations seen here are likely to reflect only an incidental shortfall in fuel affecting time/temperature towards the end of the cremation process, and/or the peripheral position of the skull on the pyre.

The weights of bone recovered from each context has been discussed above with respect to interpretation of deposit type. Amongst those most confidently interpreted as burial remains, the weight of bone recovered varied between 39.6 g (infant) and 447.4 g, with an average of only 359.3 g for the adult burials. In two of the burials (20015 and 20036), the apparent absence of cremated bone visible at surface level suggests the remains were relatively (or completely) undisturbed; taken alone these would give an even lower average of 315.2 g. Even the maximum weight recovered represents only 20% of the average weight of bone expected from an adult cremation (McKinley 1993) and falls towards the bottom end of the lower range of weights recovered from burials of this date (McKinley 1997b). Undoubtedly, the bone weight will have been adversely affected by the taphonomic loss of trabecular bone (see above), but it is unlikely to have made a substantial difference (the approximate weight of bone from the <2 mm sieve fraction suggests that up to 15% of the bone in a deposit may have been lost due to taphonomic factors) and still suggests that the majority of the cremated bone was not being placed in the graves.

The maximum fragment size recovered from the deposits was between 12 mm (?redeposited pyre debris from cut 20072) and 38 mm (adult ??female burial 20015), the majority of the bone in all cases (53–72%) deriving from the 5 mm sieve fraction. The bone from the four burials is slightly less fragmentary than that from the other deposit types, with an average maximum fragment size of 32 mm compared with 21 mm, and a higher proportion of the bone in the larger sieve fraction (5 mm fraction 53–68% of bone, average 58% compared with 55–72% of bone, average 63%). Many of the factors affecting the size of cremated bone fragments are exclusive of any deliberate human action other than that of cremation itself (McKinley 1994b). Here, the general size of the bone fragments was relatively small, possibly in response to taphonomic factors but possibly also due to post-cremation manipulation of the remains, be that accidental/incidental or deliberate (see below). It seems that the form of the deposit may have been of some relevance to how heavily fragmented the bone was; this may be related to how the bone was recovered from the pyre site and the varying degrees of care taken of this very brittle material dependent on what role it was intended to fulfil – that of bone for burial or inclusion in pyre debris.

Between 31% and 58% (average 41%) by weight of the bone from each burial was identifiable to skeletal element (compared with an average 30% for other deposits); the low percentage undoubtedly affected by the relatively small size of many of the bone fragments. Elements from all four skeletal areas are represented within each burial, with the commonly

observed under-representation of axial skeletal elements and over representation of skull elements (taphonomy and ease of identification; McKinley 1994a, 5–6).

Tooth roots and the small bones of the hands and feet are commonly recovered from the remains of cremation burials of all periods and it has been suggested that their frequency of occurrence may provide some indication of the mode of recovery of bone from the pyre site for burial (McKinley 2000a; 2004, 299–301). Between five and 27 elements were found in each of the four burials, the lowest number from the infant burial (grave 20027) and the highest from grave 20080. Few (<two), if any such elements were recovered from the other deposits. The writer has observed that Middle Bronze Age burials elsewhere generally include in the region of five to 20 such elements, placing those reported here within the average for the period. Their relatively frequent inclusion may suggest that rather than hand collection of individual fragments, the material in the upper levels of the burnt-out pyre (including most of the bone) was raked-off and subsequently winnowed (by wind or water) which would enhance the ease of recovery of such small bones. The small size of many of the fragments may indicate extensive and possibly particularly robust manipulation of the remains prior to collection, causing increased fragmentation of the brittle and heat-fractured bone. The observed smaller size of the fragments in what may be other than burial deposits could suggest either additional raking after the bone for burial had been removed, trampling of the pyre site at this stage, or less careful storage (?) of pyre debris prior to final deposition than was afforded the bone collected for burial.

The deliberate inclusion of pyre debris in the fill of Bronze Age cremation graves is frequently observed. Generally such deposits were made after the burial, around or above it (McKinley 1997b), as was probably the case here. Formal deposit of pyre debris, either in pre-existing features or apparently deliberately cut features has also been recorded for the Bronze Age amongst other periods (*ibid.*; 2000b; Walker and Farwell 2000). Whether this represented a purely practical ‘cleaning-up’ process or part of the ‘closure’ of burial is uncertain, but the latter is likely to be the case where formal disposal has occurred. The frequent absence of all the cremated bone which would have survived the pyre from the burial and/or the pyre debris suggests that much was sometimes removed and either ‘curated’ or disposed of in a currently archaeologically unrecognised fashion (eg, scattered).

Environmental remains from the cremation graves

Charcoal

by Catherine Barnett

Methods

The methods described here apply to all the analysis of charcoal from the pipeline. All wood charcoal >2 mm was separated from the processed flots and the residue scanned or extracted as appropriate. The samples varied greatly in volume of charcoal, smaller ones were identified in their entirety and richer ones were sub-sampled and 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). Each was fractured with a razor blade so that three planes could be seen: transverse section (TS), radial longitudinal section (RL) and tangential longitudinal section (TL). The pieces were mounted on a glass microscope slide using modelling clay, blown to remove charcoal dust and examined under bi-focal epi-illuminated microscopy at magnifications of x50, x100 and x400 using a Kyowa ME-LUX2 microscope. 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).

Results

Charcoal from three of the cremation graves (20014, 20029 and 20035) and cremation-related feature 20072 was examined (Table 6). They varied in the quantity and quality of the charcoal, but three of the assemblages proved similar in terms of taxa. All were highly restricted, with oak (*Quercus* sp.) heavily dominant in features 20014, 20029 and 20035, and with ash (*Fraxinus excelsior*) forming the whole of the assemblage from feature 20072. Clearly these formed the bulk of the individual structural pyre timbers and fuel. The only lesser type found was a small quantity of hazel in feature 20072, which may represent kindling or perhaps a placed object. Oak is the usual timber of choice for cremations throughout antiquity, being a dense, highly calorific wood, capable of the sustained high temperature burn required to consume a human body.

The assemblage from feature 20072 proved different; the feature was not a grave but a small pit containing a deposit of pyre debris. Ash may have been a pragmatic choice, being a common constituent of the Chalk downland woodland but the use of substantial quantities of

roundwood is somewhat surprising. These pieces would have burnt relatively quickly and needed to be replenished frequently and the assemblage may represent a basal kindling layer; other elements of the pyre including large timbers were absent from the sample.

Table 6 Charcoal from the cremation-related deposits

Plot	10/01	11/02	11/02	12/07
Feature	20014	20029	20035	20072
Context	20015	20030	20036	20072
Sample	20004	20051	20029	20042
Size (l)	4	2	3	2
Flot size (ml)	30	100	125	120
Charcoal 4/2 mm	2/7 ml	3/40 ml	3/20 ml	15/40 ml
<i>Corylus avellana</i>	-	-	2	-
<i>Fraxinus excelsior</i>	-	-	-	70*, 10 rwd
<i>Quercus</i> sp.	15	99	38	-
Unidentified	1	1	1	-
Total no frags used	16	100	41	80

Key: * = some may also be roundwood but too fragmented to confirm

Comparable analyses are not numerous for the region, but wood charcoal related to later Bronze Age cremation activity was analysed for two features at Northfleet, Kent (Barnett forthcoming). Oak heavily dominated the pyre debris but small quantities of elm, (*Ulmus* sp.) willow/ poplar (*Salix/ Populus* sp.) and Pomoideae were also found. Assemblages related to burnt mound and domestic activity at Northfleet and from pits at West Malling, Kent (Barnett 2009) increase the locally available species list of large shrubs and trees to a minimum of fourteen types for this period, with those found in later features here (see below) including alder, birch, dogwood, hazel and ash also found for Middle–Late Bronze Age contexts, with the later addition of taxa such as blackthorn (*Prunus* sp.) and beech (*Fagus sylvatica*). Analysis of charcoal pits of this period at Westhawk Farm near Ashford (Challinor 2007) also indicates the occurrence of open scrub land, with the presence of heather (*Calluna vulgaris*) and broom/ gorse (*Cytisus/Ulex*), and a greater presence of Pomoideae (eg, hawthorn) in that area, in addition to common oak and hazel.

Charred plant remains

by Chris J. Stevens

Methods

The methods described here apply to all the analysis of charred plant remains from the pipeline. The samples selected for analysis were processed by flotation in a modified Siraf-type machine, with the flots collected onto a 500 µm mesh, with the exception of those seen to be mineralised or containing richer ‘ashy’ deposits, which were collected onto a 250 µm mesh. The residues were fractionated and sorted. The flot was dried sorted under a low-powered binocular microscope. Plant macrofossils were then extracted, identified and quantified. Nomenclature follows Stace (1997) for native species, and Zohary and Hopf (2000) for cultivated taxa.

Results

Pyre material was relatively sparse, although the sample from the lower fill (20073) of feature 20072 included three whole fruit stones and three fragments of sloe, and four of hawthorn; the only other seed was that of ribwort plantain (*Plantago lanceolata*). The upper fill (20074) also included these remains, along with a charred tuber of onion couch grass (*Arrhenatherum elatius*). Single tubers of onion couch grass were noted from graves 20031 and 20033.

Bronze Age pyre debris often contains evidence, in the form of tubers of onion couch grass and grass rootlets, for the clearance of the area and use of this material on the pyre for the cremation (Stevens 2009a). As such these tubers and rootlets can be seen as indicative generally of the locating of cremation pyres in less intensively grazed, long grassland (cf. Robinson 1988). The presence of fragments of hawthorn and sloe might be associated with the collection of such remains for food, although it is more likely they may have entered the deposit during clearance for the creation of a firebreak, or possibly with the collection of firewood for the pyre. However, it might be noted that only fragments of ash were identified from the pyre fuel (see Barnett, above).

Late Bronze Age to Middle Iron Age features

A number of Late Bronze Age to Middle Iron Age features were recorded along the pipeline, all but one of them lying along the same section of the route as the Middle–Late Bronze Age unurned cremation burials and related deposits (Fig. 3). In addition, three residual small

abraded sherds of Late Bronze Age/Early Iron Age pottery were recovered from Romano-British ditches (6441 and 6446) at New Ash Green (MT01; Fig. 9).

Late prehistoric – Plot 3/08

To the north, near New Ash Green (Fig. 1), was an isolated small, heavily truncated cut (20009), 0.25 m in diameter, containing three sherds (124 g) of flint-tempered pottery, identifiable only as late prehistoric. The feature's charcoal-rich fill contained charred seeds of vetch/wild pea and fragments of hazelnut shell.

Late Bronze Age – Plot 12/08 (East of Ightham Court)

Clear evidence for Late Bronze Age activity was concentrated at just this one location, with almost 6 kg of Late Bronze Age pottery being recovered from three widely spaced shallow features, and from an unidentified cut in the subsoil (Fig. 7). In addition, 20 sherds (101 g) of mainly flint-tempered pottery, definable only as late prehistoric, were residual in the ditch of the Late Iron Age/early Romano-British enclosure on this site (see below) and other features within it. It may be significant that all the Late Bronze Age features were within 170 m of Middle–Late Bronze Age cremation-related feature 20072 (above).

The largest quantity of pottery (268 sherds, weighing 5387 g) came from the single fill of feature 5387, which measured 1.8 m in diameter, and had gently sloping sides and a concave base. These derived from 17 Late Bronze Age vessels (see Marter Brown, below), including shouldered jars of various sizes, some with very thin-walled rims, and small, rounded cups (Fig. 6, 1–6). Decoration included fingertip and fingernail impression, while surface treatments consist of smoothing, tooling and finger-smearing. Their fabrics varied in the frequency and coarseness of the flint inclusions. The feature also contained a large piece of sarsen (7.4 kg) with one flat, slightly polished surface, possibly a saddle quern fragment, along with 23 pieces of unworked stone (3.5 kg), eight pieces of struck flint, and burnt flint. The few charred plant remains included indeterminate grain fragments, and pieces of hazelnut shell.

Approximately 80 m to the south-east (in the north-western corner of a Late Iron Age/early Romano-British enclosure, see below), there was another shallow oval pit (5068), 1 m by 1.2 m. The only finds from its single fill were nine sherds (57 g) from a weakly-shouldered Late Bronze Age ovoid jar with a flat-topped rim.

A further 40 m to the south-east (also within the later enclosure), shallow pit 5046, 1.2 m in diameter and 0.15 m deep, contained three joining rim sherds from a Late Bronze Age necked, shouldered jar.

In addition, a further 66 sherds (458 g) were recovered from an unspecified location within the subsoil (5001) on this site, deriving from the base and lower body of one, possibly two, large jars. Sufficient survived to suggest that the vessel(s) may have been deliberately deposited.

Later prehistoric – Plots 8/03 and 10/01

Features within these two adjacent plots produced 60 body sherds (246 g) of flint-tempered pottery, that could only be assigned a broad later prehistoric date in the absence of diagnostic sherds.

In Plot 8/03 a length of north–south ditch (7098) of unknown date produced five sherds (20 g) of later prehistoric pottery. Another sherd was recovered from an adjacent lynchet (7101) (along with Romano-British sherds).

In Plot 10/01, a large subrectangular pit (7134), possibly a storage pit, measuring 1.1 m by 1.6 m, and 1.7 m deep (hand-excavated only to 1.1 m), contained a sequence of at least six fills. The uppermost fill (7144), which appears to have accumulated naturally after the pit's backfill had settled, produced a fragment of copper alloy (ON 312), 15 sherds (92 g) from a thin-walled jar of later prehistoric date, 37 pieces of struck flint, as well as small quantities of animal bone and burnt flint.

A pair of immediately adjacent small pits (7120 and 7122), each 0.6 m in diameter and 0.2 m deep, and with single fills, produced similar finds. Together they contained 27 sherds (89 g) of flint-tempered later prehistoric pottery and five pieces of struck flint; pit 7120 also contained three fragments of ironstone (42 g).

Approximately 7 m to their south was a subrectangular feature (7124), measuring 0.8 m by 1.2 m, and 0.2 m deep with a shallow concave profile. It contained 12 sherds (33 g) of later prehistoric pottery, 16 pieces of struck flint including an end scraper (ON 244) of Late Neolithic/Early Bronze Age type, three pieces of ironstone (2009 g), and two pieces of sandstone, one of them possibly part of a rubber/pounder/grinder, as well as burnt flint (433 g) and animal bone (7 g).

Later prehistoric pottery

by Kayt Marter Brown

The largest quantity of Middle/Late Bronze Age pottery (116 sherds weighing 873 g), from pit 7127 (Plot 10/01), came from a single, small ovoid jar (ON 242) (Fig. 5. 1). It had a rounded, in-turned rim decorated with finger nail impressions, with a ring of raised bosses, spaced approximately 50 mm apart, placed below the rim. A similar vessel, from Pingewood (Bradley 1985, 28) was assigned an 11th century BC date. A further eight sherds, including one with a finger-impressed cordon were found in adjacent pit 20018 during the watching brief. Further flint-tempered body sherds from this area could only be assigned a broad later prehistoric date in the absence of diagnostic sherds.

The pottery of Late Bronze Age or Early Iron Age date (356 sherds, 6024g) includes a range of finer and coarser flint-tempered fabrics. Where diagnostic sherds are present, these fabrics can be relatively confidently dated to either period, although the continued use of flint-tempering significantly hinders identification by fabric alone (Barclay *et al.* 2006, 78).

The majority of the later prehistoric sherds were found in pit 5387, in Plot 12/08 (East of Ightham Court). Within the single fill of this feature were 268 sherds from a minimum of 17 vessels (as represented by rim count). All were flint-tempered and, despite variation in the size and quantity of the crushed calcined flint-temper, all had the same basic clay matrix. A simple distinction has therefore been made during recording between medium-coarse (fabric F1) and fine (fabric F2) flint-tempered fabrics (full fabric descriptions are in the archive).

The vessel forms include the complete profile of a round-shouldered jar with simple upright rim (Fig. 6, 1), similar to SLT/35 at Saltwood Tunnel on the route of High Speed 1 (HS1) (Barclay *et al.* 2006), with wiped external surfaces. Other identifiable forms included a slack-shouldered jar (Fig. 6, 3) and two jar/bowl forms, one with a flattened rim (Fig. 6, 2, 4). A rim fragment from a jar/bowl is notable for its thinness (Fig. 6, 5) as in the case with a similar vessel from Cliffs End Farm, Thanet (McKinley *et al.* 2014). Two small rounded cups were also present in the group (Fig. 6, 6). A further ten rim fragments were too small to be assigned a more specific vessel form, although are likely to comprise a range of small bowl and cup forms. Only two body sherds, both from the same vessel, were decorated, consisting of a single row of fingertip impressions. Other diagnostic sherds were recovered from pits 5046 and 5068, both jar rims (fabric F1).

Similar forms to those observed here occur commonly in Kent. Locally, flint-dominated Late Bronze Age assemblages occur at Hoo St Werburg (Moore 2002), Margett's Pit, Burham (Leivers in prep.), and sites such as White Hill Road, Cobham Golf Course and White Horse Stone on the HS1 route (Barclay *et al.* 2006). In the east of the county, similar material also occurs at Beechbrook Wood, Little Stock Farm, and Saltwood Tunnel on the HSI route (*ibid.*), as well as Monkton Court Farm (Macpherson-Grant 1994) and Highstead (Bennett *et al.* 2007) on the Isle of Thanet, and at Cliffs End Farm, Ramsgate (Leivers 2014). The concentration of numerous vessels within a pit has also been observed on other sites within the region, for example at White Horse Stone, where there was a single Late Bronze Age pit containing six vessels (99 sherds). Similarly at Cobham Golf Course bowl, and jar fragments from five vessels (391 sherds) of 10th–9th century cal BC date were located within a single pit (Barclay *et al.* 2006, 117).

Illustrated late prehistoric vessels (Figs 5–6)

Fig. 5

1. Small ovoid jar with a rounded, inturned rim decorated with finger nail impressions with a ring of raised bosses, context 7129, feature 7127

Fig. 6

1. Complete profile, round shouldered jar with simple upright rim, feature 5387
2. Bowl with flattened rim, feature 5387
3. Slack-shouldered jar with upright, finger-impressed rim, feature 5387
4. Jar/bowl rim, feature 5387
5. Thin-walled jar/bowl rim, feature 5387
6. Rim from small, convex cup, feature 5387

Discussion

The loose group of unurned cremation burials and related features are of a comparable date to a small 'cemetery' of seven unaccompanied cremation burials at Kingsborough, Isle of Sheppey, dated to 1430–1260 cal BC (Allen *et al.* 2008). Their relatively confined distribution, and their general correspondence with other features of later Bronze Age to possible Middle Iron Age date, suggests that this general location was very favourable to the settled farming communities over this period. The area spanned the spring line at the boundary of the Lower Chalk and the Gault, and would have provided access not only to the spring water which fed the streams flowing to the south, but also to the varied resources of the

predominantly wooded Weald to the south and the more open downland above the Chalk scarp to the north.

Late Iron Age/early Romano-British

East of Ightham Court (Plot 12/08)

Site description

This site, centred on NGR 559850 157450, lay immediately east of Ightham Court, to the west of Borough Green, on land at 85 m aOD sloping slightly to the south-east towards a south-flowing stream. The geology comprises Folkestone Beds of the Lower Greensand, with a patch of clay-with-flints at the west of the site (BGS sheet 287, Sevenoaks). The watching brief revealed a Late Iron Age enclosure, subsequently enlarged, which appears to have remained in use into the early Romano-British period (Fig. 7). (A series of parallel ruts (not illustrated), running south-east to north-west across the enclosure, matches the line of a trackway shown on the 1st edition OS map (1870–1872) running from the Ightham–Borough Green road to Ightham Court.)

The enclosure ditches

The first phase ditch (5409) described a roughly D-shaped enclosure of 1360 m², measuring 40–44 m internally, and with a 5.6 m wide entrance near the northern end of its western side. Much of the ditch circuit had been recut by the second phase ditch (below), but in its undisturbed section along the south-east side its dimensions and profile could be clearly seen, measuring 2 m wide and up to 1.3 m deep with steep, straight sides and a concave base. Due to the later recutting, most of the finds from the first phase came from this south-eastern side. They included pottery of Iron Age, Late Iron Age and Late Iron Age/early Romano-British date. No diagnostic early Romano-British pottery was recovered, suggesting a Late Iron Age date for the enclosure's construction. A small quantity of cremated human bone (13 g) was recovered from fill 5382 (immediately above the primary fill) in the ditch terminal on the north side of the entrance (see McKinley, above).

The second phase ditch (5410), which recut ditch 5409 to an average depth of 0.8 m, but was of a similar width, extended the enclosure by 6.5 m towards the south-east, increasing its interior area to 1600 m². This ditch continued across the first phase enclosure entrance (Pl. 2), and the absence of any other break in its circuit indicates that it must have been bridged,

possible at the same location, although no evidence for such a structure was observed. The ditch contained pottery of Late Iron Age, Late Iron Age/early Romano-British and Romano-British dates, although it is likely that some of this was redeposited material from the recutting of the first phase ditch. In contrast, the pottery from the new south-eastern section of ditch contained no diagnostic Late Iron Age sherds; apart from two sherds of Late Iron Age/early Romano-British pottery, all the rest (32 sherds weighing 749 g) was of early Romano-British date, suggesting a post-Conquest date for this phase.

Internal ditches

Two lengths of apparently associated curvilinear ditch lay within the western half of the enclosure. Ditch 5407, which was 8.5 m long, 1.3 m wide and 0.6 m deep, with a terminal at either end, lay 1.7–2.7 m inside the south-western corner of the first phase enclosure. Towards its eastern end it converged slightly with ditch 5409, and it is possible to see it as being associated with either phase of the enclosure. However, among the small pottery assemblage (nine sherds weighing 71 g) approximately a third (by weight) comprised early Romano-British sherds.

A 7.3 m gap, which if viewed in isolation, has the appearance of an entrance, separated ditch 5407 from ditch 5408. Ditch 5408 lay 0.8–1.8 m inside the western side of the enclosure, running approximately north for 17 m before turning sharply to the east at a point just within the entrance of the first phase enclosure, and continuing for 14 m, on a line matching that of the enclosure's north side, to a terminal. The western section of this ditch was only 0.5 m wide and 0.1 m deep, but its northern section was of similar dimensions to gully 5407. Again, the small pottery assemblage (five sherds weighing 50 g) included one early Romano-British sherd.

Other internal features

There was a range of other features – mostly post-holes and pits of various size and form – inside the enclosure (summarised in Table 7). They were, however, unevenly distributed, there being two areas largely devoid of pits, one 18 m wide in the eastern corner of the enclosure, and the other 15 m wide in the angle formed by internal ditch 5408. A significant number of these features contained no dating evidence, and given the presence of two Late Bronze Age pits (5046 and 5068, above) within the enclosure, it is possible that some others were also of a similarly earlier date; a short length of undated gully (5291/5381) pre-dated

ditch 5409 at the south. All the other features lay within the circuit of the first phase ditch, and could potentially, therefore, belong to either phase of the enclosure.

Table 7 East of Ightham Court: summary of features inside the enclosure (by type)

Feat.	Width (m)	Depth (m)	No. of fills	Pottery	Other finds
<i>Pits</i>					
5007	1.1	0.2	2	LIA (26/302 g)	Fired clay (1334 g) – ?loomweights; burnt flint (4 g)
5022	0.9	0.2	2	-	-
5027	0.7 x 0.9	0.2	2	-	-
5033	0.9 x 1.0	0.2	1	LIA/ERB (2/143 g)	-
5040	1.1 x 1.4	0.2	1	LIA (28/405 g)	-
5042	0.9 x 2.0	0.3	1	-	-
5048	0.5 x 0.8	0.1	1	-	-
5052	1.1 x 1.2	0.2	2	LIA (1/28 g) LIA/ERB (14/295 g) ERB (8/312 g)	-
5053	0.7	0.2	3	-	Burnt flint (36 g)
5087	0.6	0.3	1	-	-
5137	1.0 x 1.5	0.2	2	ERB (17/123 g)	Fired clay (5 g); 4 struck flints
5215	1.2	0.2	4	LIA/ERB (1/14 g)	Fired clay (14 g); 7 struck flints; burnt flint (322 g); stone (5 g)
5238	2.2	0.3	3	LIA/ERB (25/209 g) ERB (79/561 g) RB (2/18 g)	Stone (5294 g); burnt flint (52 g); animal bone (1 g)
5242	1.7	1.04	14	LIA (84/976 g) LIA/ERB (47/910 g)	Fired clay (1793 g) – ?loomweights; 5 struck flints; burnt flint (90 g);
5340	3.2	1.10	19	Late prehist (6/24 g) IA (3/13 g) LIA (25/274 g) LIA/ERB (11/42 g) RB (8/39 g)	Fired clay (12 kg) – incl. daub and ?loomweights; 2 struck flints; stone (29 g); burnt flint (369 g); slag (27 g)
5251*	1.0	0.2		ERB (3/37 g)	-
<i>Irregular feature</i>					
5085	1.0 x 1.4	0.4	1	LIA (35/417 g), LIA/ERB (1/20 g)	Fired clay (6 g), 2 struck flints; stone (1562 g)
<i>Post-holes Group A</i>					
5058	0.3	0.2		-	-

Feat.	Width (m)	Depth (m)	No. of fills	Pottery	Other finds
5089	0.2	<0.1		-	-
5091	0.3	0.2		-	-
5273	0.4	0.3		IA (2/5 g) LIA/ERB (1/8 g)	-
5274	0.2	0.2		-	-
5276	0.2	0.3		-	-
5290	0.3	0.3	1	-	-
<i>Post-holes Group B</i>					
5211	0.5	0.2	1	-	-
5256	0.2	0.1	1	-	-
5258	0.2	0.1	1	-	-
5260	0.3	0.2	1	-	-
5270	0.3	0.1	1	-	-
<i>Other post-holes</i>					
5050	0.3 x 0.4	0.1	1	-	-
5054	0.8	0.2	1	-	-
5075	0.7	0.2	1	ERB (9/34 g)	-
5077	0.6	0.2	2	LIA (8/67 g)	-
5209	0.3 x 0.4	<0.1	1	-	-
5278	0.4	0.1	1	-	-
5280	0.4	0.1	1	-	Burnt flint (25 g)

*pit 5251 outside enclosure

Of those features containing datable material, some contained Late Iron Age pottery and no Romano-British sherds, while others contained Romano-British pottery but no sherds of certain Late Iron Age date; yet others contained only sherds datable as Late Iron Age/early Romano-British (Table 7). While this may allow some tentative phasing of the internal features, there is no obvious pattern in the resulting distributions.

There were two main clusters of small post-holes. One group of seven (Group A) lay immediately south of the east–west part of ditch 5408, of which at least four lie on an arc with a projected diameter of 3.6 m, possibly representing a small post-built structure, an interpretation supported by the recovery of burnt daub from an adjacent large pit (5340, below). The other group of five (Group B) forms a line 8 m long aligned NNW–SSE, possibly a fence line; their very uneven spacing (between 0.6 m and 5.3 m) may be due to the complete truncation of others in the line; their average depth was 0.13 m.

Pit 5340

The largest discrete feature inside the enclosure was a subcircular pit (5340), 3.2–3.7 m wide and 1.1 m deep, which cut the northern part of ditch 5408, immediately north of post-hole Group A, and 10 m inside the entrance of the first phase ditch. It had near-vertical sides towards the very slightly concave base, but the upper sides were shallower, appearing to have eroded or collapsed. It contained a sequence of 19 fills, of which those above a thin (0.02 m) and very hard and compact layer of sand (5341) on the base appear to fall into three broad groups (Pl. 3). The lowest group (contexts 5341–9), 0.4 m combined thickness, comprised mainly horizontal layers of slightly gravelly, grey-brown sandy clay, which contained relatively few finds (six sherds of late prehistoric and Iron Age pottery, and small quantities of fired clay and worked and burnt flint).

These were overlain by a distinctly grey layer (5351) up to 0.15 m thick, containing charcoal and large quantities of fired clay (7.3 kg), probably daub, as well as fragments of a fired clay triangular object, possibly a loomweight. Most of the pottery from this layer was either late prehistoric/Late Iron Age (18 sherds, 208 g), or Late Iron Age/early Romano-British sherds (11 sherds, 42 g), but it also included eight abraded Romano-British sherds (39 g), suggesting that this dump of burnt material dates from the start of the Romano-British period. It seems unlikely that the Romano-British sherds are intrusive given that this layer was at approximately mid-depth within the pit (albeit rising towards the surface at the north side). However, it should be noted that the overlying layers of brown stony soil contained pottery of only late prehistoric to Late Iron Age date (14 sherds, 97 g), along with further fired clay (3.8 kg).

The original function of this feature is unclear. It would appear to have been too wide and shallow for effective crop storage, although this cannot be ruled out. It is possible that some of the fired clay derives from the destruction of a nearby wattle and daub structure, and the Group A post-holes to the immediate south are an obvious candidate. This may indicate the reorganisation of the enclosure interior, possibly associated with the recutting and extension of its ditch.

Pit 5242

The other large feature lay to the south of pit 5340, but in a comparable position in relation to the 'entrance' between ditches 5407 and 5408, and it too was closely associated with a cluster of post-holes (Group B), as well as having other similarities.

However, identifying the profile of this feature and its sequence of fills was hampered by the apparent erosion into it of substantial quantities of largely unmodified natural, which made it hard to distinguish some fills from the *in situ* natural it cut; this resulted in the feature probably being slightly over-dug at the sides (Pl. 4). The feature was 1.9 m in diameter and 1 m deep, and it appears to have had steep, irregular sides and a flat base.

Covering the base was a 0.05 m thick layer of grey sandy silt (5365) containing 17 sherds (286 g) of Late Iron Age pottery. This was overlain by a thin layer of stony redeposited natural, and there was similar, if largely stone-free, material lining the sides of the pit to near half its depth, and appearing to represent substantial slumping of the natural. Between these slumped layers, however, and just 0.1 m above the centre of the base, was a layer of black, charcoal-rich sandy silt (5287), up to 0.04 m thick, from which was recovered 47 sherds (910 g) from a single Late Iron Age/early Romano-British vessel (ON 2), apparently deliberately placed. There were also two sherds (123 g) of Late Iron Age pottery and fragments from at least two fired clay triangular objects, possibly loomweights (1784 g) (ON 3).

Slumping into the pit, and partly overlying layer 5287, were further thick layers of sandy silt, less clean than those around the pit sides and containing clear tip lines of stones; on the northern side this material became increasing stony towards the top, so that on the surface the pit's inner fills appeared to be surrounded by a distinct band of stones. These inner fills were of grey-brown, largely stone-free sandy silt, although stained noticeably darker at the base where they overlay layer 5287, and where they yielded further (if lesser) quantities of Late Iron Age pottery and fired clay, as well as worked and burnt flint.

As with pit 5340, the function of this feature is uncertain, and it is not clear whether it had some use prior to the placing of the pottery – possibly in two separate episodes (contexts 5365 and 5287) – deep within it. Although significant quantities of charred cereal remains were recovered from both of these contexts, the general nature of the finds is not characteristic of simple domestic waste, but suggests that one or more acts of deliberate deposition were intrinsic to the purpose of this feature.

External features

Only a narrow strip (1–4 m wide) around the enclosure was exposed within the main excavation area, which may account for the fact that only a single contemporary feature, early Romano-British pit 5251, was recorded immediately outside the enclosure. In addition, there was a short length of undated shallow gully (5303) running approximately north–south, 10 m west of the enclosure’s north-west corner.

Finds

The finds from the excavation at East of Ightham Court (Plot 12/08) are summarised by material type in Table 8.

Table 8 East of Ightham Court: finds totals by material type

Material type	No.	Wt. (g)
Pottery	1379	20,593
<i>Late Bronze Age</i>	365	6024
<i>Iron Age</i>	8	54
<i>Late Iron Age/early Romano-British</i>	988	14,362
<i>Romano-British (unspecified date)</i>	13	103
<i>Early Anglo-Saxon</i>	4	44
<i>Undated</i>	1	6
CBM (post-medieval)	1	51
Fired clay	659	15,872
Stone	108	56,194
Worked flint	57	382
Burnt flint	349	1035
Glass	1	1
Slag	8	53
Animal bone	9	7

Pottery

by Kayt Marter Brown

Sherds of Late Iron Age/early Romano-British date (Table 9) comprise the bulk of the assemblage and survive in a moderately good condition (average sherd weight 11.8 g), although rims are relatively scarce (8% of assemblage) and many are broken at the neck/shoulder junction, hindering the precise identification of vessel form.

Table 9 East of Ightham Court: quantification of pottery assemblage by period/fabric

Period	Fabric type	No. sherds	Weight (g)
Late Bronze Age	Flint	364	6019
	Sand	1	5
	<i>sub-total</i>	365	6024
Iron Age	Flint	8	54
Late Iron Age	Flint	2	17
	Glauconitic	203	2576
	Grog	160	2173
	Sandy	20	266
	Shell	32	408
	<i>sub-total</i>	425	5494
Romano-British	Samian	1	8
	Greyware (fine)	26	87
	Greyware (medium/coarse)	8	57
	Thameside greyware	6	49
	Sand	39	188
	Flint	1	10
	Grog	127	2300
	Patchgrove ware	339	6042
	North Kent/South Essex shell-tempered fabric	16	132
	Shell	6	69
	Oxidised	5	46
	Verulamium whiteware	10	37
	<i>sub-total</i>	584	9025
Saxon	Organic	2	40
	Sand	2	4
	<i>sub-total</i>	4	44
Undated	Shell	1	6
Total		1379	20,593

The assemblage is dominated by grog-tempered fabrics (45% by sherd count), including Patchgrove ware (Ward-Perkins 1939, 176–8), developing out of the Late Iron Age grog-tempering tradition, and which became especially common during the later 1st and early 2nd century AD. Forms include plain, everted rim, necked jars; tall narrow jars with corrugated shoulders; tall barrel jars; plain, everted rim jars; and large storage jars (Thompson

1982, types B1-1, B1-2, B2-3, B5-3, C2-3 and C6-1) as well as the ubiquitous bead rim jar forms (*ibid.*, types C1-2, C1-4, C3 and C5-1). Rarer examples of imitation Gallo-Belgic platters and girth-beakers (*ibid.*, types G1 and G4) and at least one lid were also noted.

An almost complete bead-rim jar (form C5-1, object number 1, Fig. 8, 1) was recovered from pit 5052 and could represent a deliberately placed deposit. A large group of vessels from pit 5242 included rim fragments from 14 vessels (Fig. 8, 2–10), including fragments from an imitation Gallo-Belgic Beaker. A post-firing hole drilled below the rim on this vessel may indicate a repair attempt (Fig. 8, 9). Traces of a black substance, possibly birch bark resin, were noted on a sandy body sherd; repairs utilising such substances are known elsewhere within the region (Seager Smith *et al.* 2011, 124–5). Bead and everted rim jar forms also occur in Patchgrove ware, with the addition of larger storage jars with incised herringbone decoration, and also carinated beakers (Monaghan 1987, form 3G1).

Other coarsewares include a range of sandy, shell- and flint-tempered wares. Glaucous fabrics account for 15% of the assemblage (by sherd count); diagnostic forms include plain upright or everted jar rims, bead rim jars and a body sherd from an imitation Gallo-Belgic platter. Conversely other, non-glaucous sandy fabrics were relatively scarce (2% by sherd count), albeit occurring in the same range of forms. North Kent/south Essex shell-tempered wares, predominantly used for bead-rimmed and large storage jars (Monaghan 1987, forms 3D and 3E), peaked in importance during the Flavian to Trajanic periods, declining sharply after the mid-2nd century AD.

More characteristically Romano-British wares comprise a single, highly abraded south Gaulish samian sherd from a Dr.18 platter, four oxidised body sherds and a disc-mouthed flagon rim sherd. Verulamium white ware is present as a single rim sherd from a ring necked flagon. A bead-rim jar, lid-seated jar and everted rim bowl were the only diagnostic Thameside vessels, the latter two forms both dating to the third quarter of the 1st century AD.

Discussion

The generally low numbers of sherds per feature, and the longevity of some fabrics and forms, hinder a close refinement of the site chronology. It is likely, based on the dating of vessel types and the proportions of fabrics present, that the main activity at the site (excluding the Late Bronze Age pits) occurred over a relatively short period, perhaps no more than 150–

200 years, ending towards the end of the 1st century AD, and certainly by the opening decades of the 2nd century.

Sherds dated to the Late Iron Age broadly span the period from *c.* 100 BC until *c.* AD 70. Although the period is traditionally closed by Claudius' visit to Britain AD 43, the continued use of relatively coarse, handmade, fabrics tempered with flint, glauconitic sand, grog and shell well into the third quarter of the 1st century AD, if not beyond, means that the difficulties of distinguishing ceramic groups of pre- and post-Conquest date in this area are well known (eg, Pollard 1988, 29–33 and 41; Booth 2009, 4–10).

Evidence from the HS1 sites at Hockers Lane and Thurnham (Booth 2009, 5) and Queen Elizabeth Square, Maidstone (Biddulph 2004, 18) indicates that glauconitic fabrics preceded the appearance of the grog-tempered wares, although with a substantial chronological overlap between the two groups. The glauconitic fabrics seem to have been abandoned in the early decades of the 1st century AD (Pollard 1988, 33). Non-glauconitic sandy wares were never popular in west Kent (*ibid.*, 31; Barclay *et al.* 2006), while the calcareous wares were present in small quantities in the Medway valley from the later 1st century BC. Similarly, grog-tempered wares enjoyed a long period of popularity in this area (Booth 2009, 7). In general, the Late Iron Age vessel forms display the characteristics of the Aylesford-Swarling (Cunliffe 1978, 83–93) or 'Belgic' (Thompson 1982, 4–5) styles of pottery, with angular or rounded vessel shapes, some based on north Gaulish prototypes, and often with pedestal or footring bases and decoration based on curves, corrugation and cordons. The production of a wide range of sand-tempered wares (Thameside products) in the north Kent coastal zone also seems to have begun around the middle of the 1st century AD, with the industry experiencing a major expansion during the period between *c.* AD 70 and 120/130 (Monaghan 1987, 216); all of the vessel forms identified date to the start of this expansion period, *c.* AD 70/80. The single samian sherd is similarly of mid–late 1st century AD date.

Illustrated Late Iron Age/Romano-British vessels (Fig. 8)

1. Complete profile, bead-rim jar, grog-tempered ware; Object Number 1, context 5080, feature 5052.
2. Bead-rim jar, grog-tempered ware; context 5366, feature 5242.
3. Bead-rim jar, glauconitic sandy ware; context 5365, feature 5242.
4. Bead-rim jar, shell-tempered ware; context 5365, feature 5242.
5. Bead-rim jar with combed and finger-tip decoration, grog-tempered ware; joining sherds form contexts 5364 and 5287, feature 5242.

6. Jar rim, grog-tempered ware; context 5287, feature 5242.
7. Jar rim, grog-tempered ware; context 5287, feature 5242.
8. Jar rim, grog-tempered ware; context 5287, feature 5242.
9. Butt beaker rim with post-firing perforation, grog-tempered ware; context 5287, feature 5242
10. Cordoned jar, grog-tempered ware; Object Number 2, context 5287, feature 5242

Fired clay

by Kayt Marter Brown

A number of perforated clay items were recovered, comprising 28 fragments from seven flat, triangular objects with rounded corners, each corner with a transverse perforation. Three features contained these objects: pit 5007 (four examples), feature 5242 (two examples) and feature 5340 (at least one example).

The most complete examples were from pit 5007 and feature 5242, and, where measurements were obtainable, there does appear to be consistency in size within each group, those from 5007 being marginally smaller with side measurements of 105–110 mm, versus 145–150 mm side measurements within feature 5242. There is also a distinction between the fabrics of both groups, those from pit 5007 occurring in a silty, soapy fabric with argillaceous and ferruginous pellets, whilst those from feature 5242 are in a sandy fabric with occasional large, angular flint inclusions. In both groups the objects display evidence of burning, or at least exposure to heat, on one side only.

These items have traditionally been interpreted as loomweights, although alternative functions have been suggested, including their use as oven furniture (Lowther 1935; Poole 1995). The burning, and lack of any evidence for suspension of the objects via the perforations, is more suggestive of some kind of structural function rather than as loomweights, although the exact nature of this is unclear.

Items of this nature are common in Late Iron Age contexts across southern Britain, remaining current into the 2nd century AD (Wild 2002, 10). Locally, examples are known from the Farningham Hill Iron Age enclosure (Philp 1984, 35, fig. 14, 8), the Romano-British villa site at Keston (Philp *et al.* 1991, 151, fig. 42) and at Springhead (Poole 2011, 321).

A significant quantity of structural fired clay and daub was also recovered from pit 5340, all of it in the same, predominantly oxidised sandy fabric. Some of it has roundwood wattle impressions (see Fired Clay from New Ash Green, below).

Other finds

Twenty pieces of struck flint were recovered, all unretouched debitage (one a burnt and broken blade fragment) with the exception of an end and side scraper of Late Neolithic/Early Bronze Age type.

Most of the stone assemblage, comprising, pieces of ironstone and sandstone, showed no signs of working. One fist-sized sandstone pebble used as a rubber/pounder grinder was found in pit 5085, and a large piece of roughly squared Kentish Ragstone (6.2 kg), possibly used as a building stone, was recovered from the upper fill of enclosure ditch 5410, midway along the enclosure's north side (cut 5188).

Only 53 g of slag was recovered, all fuel ash slag (FAS), which may not necessarily derive from metalworking. On this site, where no other evidence for ironworking was found, it is most likely to derive from some other high-temperature process, possibly even an intense domestic fire within the Late Iron Age enclosure.

Burnt, unworked flint was also recovered, in small quantities. This material type is not intrinsically datable, although is often taken as an indicator of prehistoric activity.

Environmental

Charred plant remains

by Chris J. Stevens

Some 21 samples were taken from around the Late Iron Age enclosure ditch or from features within the enclosure. Most had only low numbers of hulled wheat grains and glume fragments, with occasional seeds of cleavers, vetch/wild pea, oat/brome grass and/or Polygonaceae, along with smaller seeds of fat-hen and scentless mayweed. The two samples from the second phase enclosure ditch (5410, cut 5215), in particular that from context 5217, had a number of grains of barley and hulled wheat with several grains of both barley and wheat having clear signs of germination (Table 10). Glume bases were relatively frequent with some clearly identifiable as spelt wheat (*Triticum spelta*), with also a glume base and spikelet fork of emmer wheat (*Triticum dicoccum*) wheat also present in both samples.

Weed seeds were less frequent in the sample from context 5351 than 5217, but otherwise generally similar to those seen earlier, with wild oats, fat-hen, docks, scentless mayweed (*Tripleurospermum inodorum*) and vetch/wild pea. Also present were a number of fragments of hazelnut shell and, more unusually, pinnules of bracken (*Pteridium aquifolium*).

Discussion

The samples indicate the cultivation of barley, emmer and spelt wheat. Unlike the Romano-British site at New Ash Green (below) free-threshing wheat, rye and flax were all absent from this earlier settlement. A number of fragments of hazelnut shell from several samples probably indicate the collection and exploitation of wild foods alongside the cultivation of cereals.

The general impression of the charred assemblages is that they derive from the dehusking of hulled wheat grains and barley taken from storage. Storage appears to have been probably as relatively clean spikelets that had been threshed and sieved prior to storage following harvest in mid- to late summer. The weed assemblage is fairly uncharacteristic of soil type, although it seems probable that crops would have been cultivated locally.

The germinated grains are unusual on sites of this date. Germinated grains of spelt are commonplace on many Romano-British sites in Kent, where they are associated with malting (see Stevens 2011). However, they are largely absent from pre-Roman sites and as such it seems more probable that they represent either grain that had been poorly stored, or potentially waste that had been left on the ground and germinated prior to being discarded in the fire.

Table 10 East of Ightham Court: charred plant remains

	Feature	Ditch 5410	
	Cut	5215	
	Context	5217	5351
	Sample	504	518
	Size (l)	16	19
Cereals			
<i>Hordeum vulgare</i> sl (hulled grain)	hulled barley	5	-
<i>Hordeum vulgare</i> sl (grain)	barley	45	-
<i>Hordeum vulgare</i> sl (germinated grain)	barley	4	-
<i>T. dicoccum</i> (spikelet fork)	emmer wheat	-	1
<i>Triticum dicoccum</i> (glume base)	emmer wheat	1	-
<i>Triticum spelta</i> (glume bases)	spelt wheat	4	1
<i>T. dicoccum/spelta</i> (grain)	emmer/spelt wheat	20	28
<i>T. dicoccum/spelta</i> (germinated grain)	emmer/spelt wheat	3	-
<i>T. dicoccum/spelta</i> (spikelet fork)	emmer/spelt wheat	1	-
<i>T. dicoccum/spelta</i> (glume bases)	emmer/spelt wheat	50	11

	Feature	Ditch 5410	
	Cut	5215	
	Context	5217	5351
	Sample	504	518
	Size (l)	16	19
Cereal indet. (grains)	cereal	43	-
Cereal (est. whole grains from frags.)	cereal	-	10
Other species			
<i>Pteridium aquifolium</i>	bracken	1	-
<i>Corylus avellana</i> (fragments)	hazel	12	2
<i>Chenopodium album</i>	fat-hen	33	-
<i>Chenopodium rubrum/urbicum</i>	red/nettle leaved goosefoot	1	-
<i>Stellaria media</i>	stitchwort	-	1
<i>Persicaria lapathifolia/maculosa</i>	persicaria	1	-
<i>Fallopia convolvulus</i>	black bindweed	-	2
<i>Polygonum aviculare</i>	knot grass	1	-
<i>Rumex</i> sp.	docks	5	-
<i>Rumex acetosella</i> group	sheeps sorrel	-	cf.3
<i>Viola</i> sp.	violet	-	1
<i>Vicia/Lathyrus</i> sp.	vetch/pea	4	8
<i>Trifolium</i> sp.	clover	1	-
<i>Galium aparine</i>	cleavers	1	-
<i>Tripleurospermum inodorum</i>	scentless mayweed	4	5
<i>Poa</i> sp.	meadow grass	3	-
<i>Poa/Phleum</i> sp.	meadow grass/cats'-tails	-	3
<i>Avena</i> sp. (grain)	oat grain	20	-
<i>Avena</i> sp. (floret base indet.)	oat floret base indet.	4	-
<i>Avena</i> sp. (awn)	oat awn	7	-
<i>Avena/Bromus</i> sp.	oat/brome	-	3
<i>Bromus</i> sp.	brome	-	1

Discussion

The site lies within the territory likely to have been controlled from the large Oldbury hillfort 2 km to the south-west, the occupation of which, although apparently not dense, continued up to the Roman Conquest, when the hillfort may have been remodelled (Ward-Perkins 1939; 1944; Thompson 1986). The hillfort's location is interesting, since it was not built on the prominent Chalk scarp 4 km to the north, but on a less elevated, if nonetheless pronounced outlier of the Greensand ridge. This location may have allowed its occupants to have more

effectively extended their influence over the Weald to the south. The enclosure lies within clear site of the hillfort, in the area fed by the south-flowing streams that emerge from the spring-line, just to its north, at the boundary of the Chalk and the Gault, making this a landscape favourable to a mixed farming economy. Ditched Late Iron Age settlements are relatively common in Kent, one of the densest areas being the Greensand zone, often in areas occupied in the later Bronze Age, indicating a renewed organisation of the landscape, and many of these continued in use into the Romano-British period (Champion 2007, 120).

The arrangement of the two phases of enclosure ditch, and the date range of the finds recovered from the site, clearly suggest activity spanning the period of the Roman Conquest. Beyond that, however, the phasing and interpretation of the site is problematic. It is possible, for example, that ditches 5407 and 5408 reflect pre-enclosure activity, since the apparent entrance between the two ditches would seem to have little purpose if contemporary with either phase of the enclosure. While the recovery from these ditches of early Romano-British pottery would suggest otherwise, it should be noted that both ditches had single fills and it is not possible to say from what level in the ditches these sherds, which may have been intrusive, were recovered.

However, the position of ditch 5408 in relation to the first phase entrance suggests that these two features may be related, with the ditch possibly defining an internal subdivision within the enclosure, partly enclosing an area which was largely devoid of features apart from a small cluster of post-holes. While the post-holes may represent a timber structure, it appears too small to have been a significant domestic structure as might be expected in a ditched enclosure of this sort. Although no certain buildings were identified within the enclosure, the range of finds, both from the internal features and from the enclosure ditches, suggest occupation.

The context of the Romano-British pottery in pit 5340, which cut ditch 5408, suggests that while the pit may have been dug in the Late Iron Age, its infilling was completed in the early Romano-British period; the layer of daub associated with the pottery may indicate the demolition of a contemporary structure, perhaps that represented by the adjacent Group A post-holes. This may signify a substantial reorganisation of the enclosure, marked also by its southward extension, and by the closing, or at least reconfiguring, of its entrance. The reason for the extension is unclear, since it would have resulted in only a minimal increase in the enclosure's interior, and no features were recorded in the extension, but together these

changes may reflect a significant change of use related to the changed social and political climate.

Pilgrim's Way (MT02)

A positive lynchet (7088/7101), up to 15 m wide, running east–west across the southern part of the excavation (Fig. 19) produced 15 sherds (192 g) of Late Iron Age/Romano-British pottery. The lynchet lies parallel to the present line of an ancient, possibly prehistoric trackway, now known as Pilgrim's Way (see below). The trackway passes south of an Anglo-Saxon cemetery (below), but its earlier course may have been marked by a 4.4 m wide, undated linear feature (7081) 10 m south of the lynchet.

Further small quantities of pottery were recovered from the subsoil (2 sherds, 45 g) and residual in the cemetery features (10 sherds, 44 g). Most of the pottery comprised grog-tempered wares (including Patchgrove ware), north Kent/south Essex shell-tempered wares and a single greyware sherd. All sherds were abraded. The only diagnostic forms were a grog-tempered everted-rim necked jar (Thompson 1982, form B1-1) a type common from the 1st century BC until the late 1st century AD, and a shell-tempered bead rim jar (Monaghan 1987, type 3E1), also of 1st century AD date.

Romano-British

New Ash Green (MT01, Plots 4/01–3)

Site description

In addition to the assemblage of Mesolithic flints (see above) and an Anglo-Saxon pit (6122, below), the excavation revealed a series of Romano-British enclosure and other ditches, and associated features. Pottery identifiable as Iron Age or Late Iron Age (17 sherds weighing 77 g) comprised only a small component of the total pottery assemblage (over 12 kg, Table 13 below), and while a small number of features contained pottery of potentially pre-Conquest date only, there is no clear phase of Late Iron Age activity on the site. Moreover, in nearly all cases sherds identifiable as Late Iron Age/early Romano-British (30 sherds weighing 195 g) were found in association with diagnostic Romano-British pottery.

The ditches

There is little coherent pattern in the layout of the ditches, many of which comprised only short lengths, and their interpretation is further hampered by the narrow width of the pipeline easement.

At the west, ditches 6434 and 6435 appear to form the western side of a subcircular enclosure, incorporating a 3.6 m wide entrance gap. While their regular curvature suggests a width for the enclosure of 45–50 m, no corresponding ditch was observed that distance to the east. This might indicate that they simply represent part of a curving boundary ditch, although it is possible that some of the straight ditches to the east could potentially combine with them to form an irregularly shaped enclosure. These include a stratigraphically early, and relatively shallow ditch (6450, recut as 6439) which ran NNW–SSE across the site, or ditches 6444 and 6447, further east, which were aligned NNE–SSW, and were of similar dimensions to the curving ditches – 1.3 m wide and up to 0.7 m deep.

Ditches 6444 and 6447 were the two most substantial features within a 22 m wide pattern of seven parallel ditches and gullies (from the west: 6443, 6444, 6449, 6445, 6446, 6172 and 6447) that shared the same alignment as soil layer 6342 (above), and some of which cut the layer. It is also notable that they lie parallel to the existing public footpath which crosses the site to the immediate east of layer 6342, and which is shown as a trackway on 19th-century Ordnance Survey maps; the same maps show an almost parallel trackway to the west, in a position corresponding roughly to the western side of the layer. It is possible that ditches 6444 and 6447 defined the outermost edges of a 18 m wide trackway.

It should be noted, however, that the dating of all the above ditches is far from secure. The only dating evidence from curving ditches 6434 and 6435 comprised two sherds (12 g) of Romano-British pottery from the uppermost (6037) of four fills in the terminal of ditch 6435, and two pieces of medieval/post-medieval ceramic building material (CBM) came from the upper two (6023–4) of four fills in the opposing terminal; the CBM is not necessarily intrusive, and it is possible that this ditch is of later date. Similarly, the seven parallel ditches and gullies to the east produced, between them, only 14 sherds (118 g) dated from late prehistoric to Romano-British, some of them abraded and only tentatively identified. Ditch 6450 and its recut (6439) produced eight Late Iron Age/early Romano-British (55 g) and two middle Romano-British sherds (100 g).

The small quantities of datable finds in these ditches contrasts markedly with those from ditch 6436, which appears to define the southern side (and south-eastern and south-

western corners) of a rectangular plot measuring internally 51 m east–west, which extended north of the pipeline easement. If this ditch was broadly contemporary with the rounded ‘enclosure’, this plot would have lain within it. The ditch, which was 1.7 m wide and 0.4 m deep (and which cut ditch the northern end of ditch 6439), produced 308 sherds (4921 g) of early–middle Romano-British pottery, as well as ten pieces (695 g) of Romano-British CBM, and an AD 1st–3rd century coin. As only a 2.5 m wide strip of this enclosure’s interior, and part of a single internal feature (middle Romano-British pit 6349), was exposed, the full extent and nature of this ditched plot cannot be determined.

The other ditches on the site comprised only short lengths, apparently arranged in an irregular west–east line, 80 m long, across the central part of the site. At the west, ditches 6437 and 6438 were arranged at a right angle, separated by a 1.6 m wide gap, and shared the same orientation as the rectangular ditched plot; ditch 6437 extended south of the excavation, but ditch 6438 was only 13 m long. To their east, after a 2 m wide gap, a slightly curving ditch (6440) ran for 15 m to the ENE, where, after a 6 m gap, the same line was followed by ditch 6442 for a further 11 m. Converging with ditch 6440 from the WNW was a 20 m long ditch (6441), the eastern end of which lay in the gap between ditches 6440 and 6442. The most easterly of these ditches (6448) ran for at least 15 m (again on a similar alignment as the rectangular enclosure) to a terminal. Perhaps related to this ditch was a possible ditch terminal (6048) on the northern edge of the excavation.

There were no stratigraphic relationships between these various short ditches, but they need not all be contemporary. Ditch 6442 was recorded as being cut by possible trackway ditch 6444 (and parallel gully 6443), while ditches 6438 and 6448 was recorded as cutting recut ditch 6450/6439, and possible trackway ditch 6447, respectively. In general, these ditches were less substantial than the other ditches, mostly between 0.5 m and 1 m wide and 0.3–0.5 m deep. Ditch 6441 and the western end of ditch 6448 were even slighter (0.3 m deep and no more than 0.2 m deep, respectively), although ditch 6448 expanded significantly towards its eastern terminal to 1.7 m wide and 0.5 m deep. Apart from a single Late Iron Age/early Romano-British sherd from this terminal, all of the small pottery assemblage from these ditches (29 sherds weighing 190 g), with a date range of early–late Romano-British, came from ditches 6347, 6348 and 6440. Ditch 6440 contained the complete skeleton of a cat.

Other features

There was a wide range of features, mostly pits and postholes, set among the ditches, and in most cases having no stratigraphic, or obvious spatial relationship with the ditches. Two substantial features, however, which cut two of the ditches, were a pond (6451) and a large pit (6452), while another large feature (6456) further east proved to be a series of intercutting pits.

Pond 6451

The largest feature on the site was a large (15 m wide) subcircular hollow recorded as cutting ditch 6439 immediately south of the south-eastern corner of the rectangular plot defined by ditch 6436. A 1 m wide, east–west slot was machine-excavated through this feature and while the slot did not reach the base, augering near its centre indicated a depth of 3.5 m; it was subsequently observed during the watching brief when the pipeline trench was cut through it (Pl. 5). It had moderately steep sides and was filled with a sequence of dark organic fills, which may suggest wet conditions in antiquity, and its possible use a pond.

Its regular form and the fact that it cut ditch 6439 suggest that it was not a natural feature – at least not wholly; it is possible that a natural depression had been enlarged, although there is no evidence for this. Hand collection of artefacts and the use of a metal detector, both on the surface of the feature and on the spoil from the trench, led to the recovery of pottery of middle and late Romano-British date, Romano-British CBM, a small quantity of animal bone, a broken copper alloy cup (ON 35), eight copper alloy coins ranging in date from the 1st to 4th century AD, a number of iron objects including a knife (ON 37) and a belt hook (ON 38), and small strip of folded lead sheet (ON 39) of Romano-British date.

Feature 6452

This large oval feature, centrally placed over ditch 6447 which it cut, measured 6 m by 7.8 m, and was excavated and recorded to a depth of 1.2 m – although observed during the excavation of the pipe trench to be 2 m deep. It had moderately steep convex sides, a sequence of nine fills were recorded in the upper 1.2 m of its depth. Two copper alloy Roman coins, one of them of late 3rd century AD date, were from the second lowest of the recorded fills (6415). Other finds, recovered from throughout the fills, included 45 sherds (594 g) of predominantly middle and late Romano-British pottery (seven late Anglo-Saxon sherds were

recovered from the uppermost fill, see below), Romano-British CBM (2679 g), fired clay (338 g), two iron nails, slag (2266 g), animal bone (5464 g), burnt flint (680 g), 96 pieces of struck flint and four pieces of worked stone. Most of the recorded fills comprised naturally accumulated layers of grey-brown sandy clay with little differentiation between them, but at 1 m depth there was a thin possibly dumped layer of yellowish clay (6418) sloping down from the eastern side, overlain by a 0.05 m thick charcoal-rich layer spread across the whole feature, containing 11% (by weight) of all the fired clay recovered.

Without an examination of the lower fills of this feature, its purpose and date of construction remain unclear, although its observed depth of 2 m suggests that it may have been a well.

Group of intercutting pits 6456

A large irregular feature on the north side of the excavation (initially partly recorded during the evaluation) proved to be a cluster of intercutting pits covering an area 7 m by 10 m, possibly dug for the extraction of brickearth. A slot excavated along its length revealed five of the pits in section, the largest of which (6399) appeared in section as 3.1 m wide and 1.3 m deep. Finds were only recovered from the westernmost, and stratigraphically late pit 6410, which was 2.7 m wide and 0.8 m deep; these comprised seven sherds (49 g) of Late Iron Age–early Romano-British pottery, along with Romano-British CBM (63 g), fired clay (3 g), animal bone (1282 g), burnt flint, slag (1267 g) and 28 pieces of struck flint.

Crop-dryer 6110 and feature 6147

Towards the south-west of the excavation, outside the curving line of ditch 6434/6435, a pit (6147) and a series of post-holes were associated with the base of a substantial burnt feature (6110), possibly the base of a crop-dryer. Its main surviving part, aligned approximately ESE–WNW, was subrectangular with rounded corners, and measured 2.7 m long by up to 1.7 m wide, and 0.5 m deep (Pl. 6). However, the feature was extended to 3.3 m long by a shallow sloping ‘ramp’ at the north-east corner, probably marking the location of the stokehole (partly exposed, and interpreted as a hearth, during the evaluation). A post-hole (6093) was recorded cutting this ramp on its south side, and perhaps this held a post that formed the stokehole arch; because only opposing quadrants of the dryer were excavated, it was not determined whether there was a matching post-hole to the north. Elsewhere, the crop-dryer’s sides were near-vertical at the top, curving below to a slightly concave base. The

natural on the sides and base was heavily reddened, and baked hard, by burning; that on the base was recorded in the field as an applied clay lining (7072/7079), but this is uncertain.

The lowest fill in the north-western quadrant was a thin loose layer of grey-brown silty clay (6063) containing flecks of white, possibly chalky material, perhaps deriving from the construction of the crop-dryer's superstructure. This was overlain, just against its western (back) end, by a small spread of charcoal-rich fill (6062) which contained substantial quantities of charred cereal grain (predominantly hulled barley, but with some hulled and free-threshing wheat), supporting this feature's as a crop-dryer. Another charcoal-rich layer (6077) covered the base in the opposing quadrant and extended up the ramp of the stokehole. These two layers, however, had completely contrasting charcoal assemblages and, to a lesser extent, plant remain assemblages (see below), and while both appear to relate directly to the crop-dryer's use, it may be that the regular raking out of charred waste from the base of the dryer via the stokehole accounts for the differing assemblages at the front and the back.

Above these layers the feature was filled largely with material derived from the demolition or collapse of its superstructure, principally fired clay (almost 70 kg), some of it with clear wattle impressions. Other finds included 14 sherds of predominantly undiagnostic Romano-British pottery, fragments of a possible iron knife (ON 41), CBM (69 g), burnt flint (453 g), animal bone (8 g), and five pieces of struck flint.

There were two pairs of post-holes just outside the crop-dryer at the north-east (6102 and 6104) and north-west (6106 and 6108), and another single post-hole (6095) to the south, which are likely to be associated with its construction and/or use.

Approximately 2 m south of the crop-dryer was an irregular pit (6147), 2 m wide and at least 2.5 m long but extending beyond the excavation. In the single excavated quadrant it had irregular steep sides and a sloping base, up to 0.8 m deep. It is possible that it was a quarry pit for the material used to build the superstructure of the adjacent dryer. If so, it appears to have remained open during the period of the dryer's use as it was filled to near the top with similar deposits to those in the dryer, comprising mostly fired clay (12.3 kg), and further relatively small quantities of pottery, burnt flint, animal and struck flint, as well as similar cereal remains (Table 11). The upper part of the pit appears to have silted up naturally with soil.

Other pits

There was a wide variety of pits distributed seemingly randomly across the site (summarised in Table 11), although there was a noticeable arc of large pits towards the west (among which was crop-dryer 6110 and feature 6147). The deepest of these (212) was first observed during the evaluation and interpreted as a ditch, but proved on excavation to be a pit 1.5 m deep containing moderate amounts of fired clay with wattle impressions, charcoal and charred plant remains (Wessex Archaeology 2008). This, like pit 6147, may have been a quarry pit associated with the construction of crop-dryer 6110.

Apart from an early/mid-Anglo-Saxon pit (6122, below) at the east end of the site, it is likely that the majority of the pits (if not all of them) are of Romano-British date. Some contained no datable finds, and from a small number the only pottery was of Late Iron Age date, although the sherds in these were few in number and invariably abraded suggesting that they were residual. The pits, which are generally of uncertain function, contained variable quantities of finds suggesting that at least some of them had been used, probably in a secondary capacity, for the disposal of rubbish, deriving from domestic, agricultural and craft/industrial activities.

A large number of fragments of Mayen lava (5910 g), probably derived from a quern, were found in pit 6380 (not shown on Fig. 9), which cut parallel ditches 6443 and 6444; one piece (ON 190) is sufficiently complete to suggest that it had a raised collar around a central hopper; further lava fragments were found in ditch 6448 and feature 6452.

Particularly notable was a large sub-circular pit (6084), which measured 3 m by 3.5 m, and was 1 m deep with moderately steep sides and a flat base. Above the initial weathering of its sides it appears to have been used largely for the dumping of iron working waste, in the form of almost 30 kg of slag (78% by weight of all the slag from the site). Much of the rest of the slag came from immediately adjacent features – ditch 6448 (9%) feature 6452 (6%), and pit group 6456 (5%), suggesting that the iron working took place in the immediate vicinity, although there were no hearths or associated features.

Table 11 New Ash Green: summary of individual pits

Pit	Width (m)	Depth (m)	No. of fills	Pottery	Other finds
212	2.3	1.5	4+	-	Fired clay
6011	2.0	0.5	2	-	Fired clay (207 g); burnt flint (32 g)

Pit	Width (m)	Depth (m)	No. of fills	Pottery	Other finds
6014	2.1	0.4	5	ERB (1/14 g)	-
6029	2.0	0.6	3	-	-
6080	1.5	0.4	4	LIA (1/1 g)	Iron frag. (ON 314); slag (271 g); 1 struck flint; burnt flint (98 g), animal bone (1133 g, incl. partial pig skeleton)
6084	3.0	1.0	9	LIA (6/30 g), LIA/ERB (8/17 g)	CBM (RB) (324 g); slag (29,269 g); 12 struck flints; stone (394 g); burnt flint (787 g); animal bone (647 g)
6118	1.4	0.3	1	-	Slag (100 g); fired clay (17 g); 2 struck flints; burnt flint (16 g); animal bone (25 g)
6135	1.0	0.5	2	LIA/ERB (1/1 g)	Fired clay (98 g); burnt flint (8 g); animal bone (66 g)
6147	2.0 x >2.6	0.8	5	ERB (1/6 g)	Fired clay (12,332 g); 6 struck flints; burnt flint (171 g), animal bone (2 g)
6153	1.7	1.0	7	LIA (4/21 g)	CBM (RB) (2/270 g); fired clay (59 g); 1 struck flint; burnt flint (167 g); animal bone (69 g)
6175	1.1	0.7	3	MRB (1/12 g)	Fired clay (1586 g); stone (324 g); burnt flint (17 g); animal bone (20 g)
6181	1.0	0.4	1	-	10 struck flints; burnt flint (124 g)
6186	0.6	0.1	1	-	-
6190	0.8	??	3	-	Slag (142 g); fired clay (14 g); 1 struck flint; animal bone (2 g)
6229	1.5	0.7	9	LIA/ERB (1/5 g)	9 struck flints; burnt flint 144 g); animal bone (65 g)
6241	1.8	0.7	5	LIA/ERB (3/23 g), RB (1/1 g)	Fired clay (5 g); 6 struck flints
6250	0.6	0.1	1	-	Fired clay (72 g)
6272	0.8	0.1	1	-	-
6349	1.6 x >0.9	0.8	1	MRB (13/44 g)	Slag (7 g); burnt flint (16 g); animal bone (54 g)
6366	1.6	0.6	2	-	CBM (RB) (14 g); 3 struck flints; burnt flint (94 g); animal bone (92 g)
6354	0.6	0.2	1	-	Animal bone (2 g)
6380	1.3 x 1.5	0.7	4	RB (1/2 g)	CBM (RB) (569 g); slag (17 g); fired clay (27 g); 1 struck flint; stone (6825 g); burnt flint (41 g); animal bone (5 g)
6452	5.0	>1.2	3+	LIA/ERB (5/76 g), MRB (20/295 g), LRB (15/398 g), RB (5/41 g), L Saxon (7/101 g)	2 copper alloy coins; iron (2); CBM (RB) (2679 g); slag (2266 g); fired clay (338 g); 96 struck flints; stone (396 g); burnt flint (680 g); animal bone (5464 g)

Post-hole linear settings

Thirty-six postholes were recorded across the site, including the six associated with crop-dryer 6110 (above). Of the rest, at least 16 appeared to be arranged in two parallel lines running west from ditch 6444 – six post-holes over 17 m in line 6435 to the north, and ten over 13 m to the south. Most were 0.3–0.4 m wide, with those in the northern line being slightly shallower (up to 0.1 m) than those in the southern line (up to 0.2 m). At the east the lines were 6 m apart, but they converged to 4 m apart at the west. The spacing between the post-holes was very variable, being much more closely spaced towards the east in both lines (possibly due to heavier truncation towards the west).

There was little evidence, direct or indirect by which to date the post-holes, the only find being a single piece of stuck flint. The easternmost post-hole in the northern line cut layer 6342 on its western edge, and lay 1.5 m from the southern terminal of ditch 6443, possibly indicating some spatial relationship; the ditch, however, is itself insecurely dated, the only pottery from it being a single small sherd (2 g) of general Romano-British date. Their most likely interpretation is as fence-lines, possibly having some combined function in relation to the control and management of livestock, but this is far from certain. There were a number of pits (6135, 6175, 6186 and 6272) between the two lines, but nothing to indicate there were associated or contemporary.

Finds

The finds from the excavation at New Ash Green are summarised by material type in Table 12.

Table 12 New Ash Green: finds totals by material type

Material type	No.	Wt. (g)
Metal	150	-
<i>Copper alloy</i>	69	-
<i>Iron</i>	51	-
<i>Lead</i>	29	-
<i>Silver</i>	1	-
Pottery	714	12,509
<i>Late Bronze Age/Early Iron Age</i>	3	8
<i>Iron Age</i>	3	19

Material type	No.	Wt. (g)
<i>Late Iron Age/ Romano-British</i>	691	12,234
<i>Early Saxon</i>	14	188
<i>Early medieval</i>	3	60
CBM	77	7827
<i>Romano-British</i>	75	6492
<i>Medieval/post-medieval</i>	2	247
Fired clay	3381	88,015
Stone	80	9073
Worked flint	656	15,112
Burnt flint	687	-
Slag	506	37,920
Animal bone	2367	11,434
Worked bone	1	168

Coins

by Nicholas Cooke

Nineteen Roman coins and two post-medieval and modern tokens were recovered from the New Ash Green site (Table 13). All but three of the Roman coins could be dated to period (see Fig. 10). These three poorly dated coins comprise two *asses* or *dupondii* (ON 14 and ON 18) and an illegible *denarius* (ON 24), all likely to be dated to the 1st to 3rd centuries AD.

The earliest closely dated coins from the site are a heavily worn *sestertius* of Trajan (ON 199, context 6415, feature 6452) and two *asses* of Faustina II (ON 11 and ON 16, both from the subsoil – 6001). These, together with the three poorly dated 1st to 3rd century coins, point to activity on the site from the late 1st century onwards.

There are significant periods of coin loss shown in Periods 13 and 14 on Fig. 10. These comprise radiate *antoniniani* of the late 3rd century AD. A large proportion of these are likely to be copies or irregular copies of ‘official’ coinage. These contemporary copies of ‘official’ coinage, also known as ‘Barbarous Radiates’, were probably struck to compensate for gaps in supply of coinage to Britain, providing sufficient small change for the province’s needs. It is unclear whether these copies were officially sanctioned, if at all, but they are common site finds, and seem to have circulated in the same fashion as officially struck coins.

The remaining coins all date to the 4th century, and include a *Soli Invicto Comiti* issue of Constantine I (ON 17, context 6001) struck in London, two *Gloria Exercitus* issues struck by Constantius II between AD 330 and 335 (ON 36 and ON 196, from contexts 6046 and

6372, pond 6451) and two period 18 coins – ON 19 (context 6046), a copy of a ‘Fallen Horseman’ issue, and ON 198 (Context 6372), struck by Constantius Gallus. The absence of any coins of the House of Valentinian (period 19 on Fig. 10) clearly suggests that there was little coin use on the site by this period.

Two tokens were recovered unstratified from the site. These comprise a heavily corroded post-medieval token struck on a thin flan (ON 309) and a 19th or early 20th century token for 1½d inscribed Vinson Ruxley (ON 13). Both were recovered from the subsoil (6001).

In addition to providing evidence for the longevity of coin use on the site, the coins can also be useful in providing dating evidence, particularly where more than one coin was recovered from a single context. In these cases, it is often possible to assign dates with some confidence, as well as allowing an assessment of likely residuality to be made. On this site more than half of the coins (14 out of 21) were recovered from three contexts.

Twelve coins were recovered from pond 6451. Eight were from context 6046, and range in date from the corroded 1st to 3rd century silver *denarius* (ON 24) to the ‘Fallen horseman’ copy (ON 19) struck in AD 350–360, and include five radiate *antoniniani* (ONs 20, 21, 25, 26 and 302) and a *nummus* of Constantius II (ON 36). Of the further four coins from context 6372, two date to the 4th century (ON 196, struck by Constantius II between AD 330 and 335, and ON 198, struck by Constantius Gallus in AD 352), whilst the other two (ON 195 and ON 197) are both copies of radiate *antoniniani* of the late 3rd century AD, neither of which are likely to have remained in circulation long into the 4th century AD.

This is an unusual assemblage for a single feature, as it contains a wide range of dates, but pond 6451 is a substantial feature. The two latest coins clearly suggest that deposition continued well into the 4th century AD, but neither the silver *denarius* nor the bulk of the *antoniniani* are likely to have been in circulation as late as AD 350. This suggests that either these deposits formed over a considerable period of time, the most likely interpretation, or that the bulk of the coins from the deposit are residual, and may have been disturbed from an earlier deposit. Two coins were recovered from feature 6452 (context 6415) – a radiate *antoninianus* copy of the late 3rd century (ON 200) and the worn *sestertius* of Trajan (ON 199), the coin of Trajan almost certain to be residual in this context.

The coins from the site indicate that there was coin use and loss from the late 1st or early 2nd centuries through to the mid-4th century AD. This activity appears to have declined

by the mid-360s AD, as no Valentinianic coins were recovered. Analysis of coin groups from contexts suggests that there is a moderately high level of residuality.

Metal objects

by Lorraine Mephram

Fifty-three objects were found in Romano-British contexts at New Ash Green, and to these can be added two further objects from topsoil or otherwise poorly stratified contexts, which are typologically Romano-British (total 49 iron, 4 copper alloy, 2 lead). Of this total, 23 are iron nails, which are not discussed further here. A further 21 are iron objects which are too corroded and/or fragmentary for identification, despite X-radiography.

Two objects fall into the functional categories of jewellery and other personal items: a possible armlet fragment from the topsoil (ON 22), and a hairpin from ditch 6442 (ON 86), both copper alloy. The pin has a head with a conical top and rounded lower half, and falls within Crummy's type 3 pins from Colchester, which have a currency through the Romano-British period (Crummy 1983, 29, no. 480). The possible armlet fragment comprises a curved rod, of circular cross-section, forming approximately one-third of an original diameter of around 70mm. There is no visible decoration. Size and form can both be paralleled amongst other Romano-British armlets (*ibid.*, fig. 42). Both ends are broken, however, so the identification as an armlet (lacking any distinctive terminal or fastening) is not conclusive.

Domestic equipment is represented by a copper alloy cup (ON 35), an iron knife (ON 37), an iron bucket handle (ON 194), and a lead pot-mend (ON 340). The cup, found in pond 6451, is a small vessel, made of sheet metal, and is torn and squashed, but its original form seems to have been simple and rounded, with a slightly recessed base. No decoration is visible on the surfaces, although there are concentric mouldings on the underside of the base. The knife is complete, and appears to belong to Manning's type 11a knives, with the back of the blade continuing the line of the handle, and with a triangular blade (Manning 1985, fig. 28), although this example is unusual in having a flat handle perpendicular to the line of the blade. As well as this knife, which was also recovered from pond 6451, two further possible knives (ONs 41, 87) were identified, but were too fragmentary and/or corroded for positive identification, even from X-radiographs; these came from crop-dryer 6110 and ditch 6437, respectively. Approximately half of the bucket handle (also from pond 6451) survives; it shows a rectangular cross-section, flattened at the apex (possibly from edge of U-sectioned grip), and with a simple hooked terminal for attachment (cf Manning 1985, pl. 47. The

Table 13 New Ash Green: coins

Object	Context	Type	Issuer/type	Issue date	Reference
<i>AD 98–117</i>					
199	6415	Cu alloy <i>Sestertius</i>	Trajan/reverse uncertain	AD 98–117	-
<i>AD 161–180</i>					
11	6001	Cu alloy <i>As</i>	Faustina II/Juno	AD 175–180	As RIC III, Antoninus Pius, 1647
16	6001	Cu alloy <i>As</i>	Faustina II/female fig uncertain	AD 161–180	-
<i>AD 260–275</i>					
21	6046	Cu alloy <i>Antoninianus</i>	Radiate copy of Tetricus I/Laetitia Aug	AD 270–296	-
25	6046	Cu alloy <i>Antoninianus</i>	Tetricus I/Pax Aug	AD 270–273	As RIC V, Part I, Tetricus I, 100
<i>AD 275–296</i>					
20	6046	Cu alloy <i>Antoninianus</i>	Radiate copy/reverse uncertain	AD 270–296	-
26	6046	Cu alloy <i>Antoninianus</i>	Radiate copy/reverse uncertain	AD 270–296	-
195	6372	Cu alloy <i>Antoninianus</i>	Radiate copy/?Pax reverse	AD 270–296	-
197	6372	Cu alloy <i>Antoninianus</i>	Radiate copy/Pax reverse	AD 270–296	-
200	6415	Cu alloy <i>Antoninianus</i>	Radiate copy/reverse uncertain	AD 270–296	-
302	6046	Cu alloy <i>Antoninianus</i>	Radiate copy/Pax reverse	AD 270–296	-
<i>AD 296–317</i>					
17	6001	Cu alloy AE 3 <i>Nummus</i>	Constantine I/Soli Invicto Comiti. London mint	AD 312–313	As RIC VI, London, 279
<i>AD 330–348</i>					
36	6046	Cu alloy AE 3 <i>Nummus</i>	Constantius II/2 soldiers 1 standard Gloria Exercitus type. Arles mint	AD 337–341	LRBC I, 439
196	6372	Cu alloy AE 3 <i>Nummus</i>	Constantine II/2 soldiers 2 standards Gloria Exercitus type	AD 330–335	As LRBC I, 49
<i>AD 348–364</i>					
19	6046	Cu Alloy AE 3 <i>Nummus</i>	Constantius II/Fel Temp Reparatio fallen horseman	AD 353–360	As LRBC II, 25
198	6372	Cu alloy AE 3 <i>Nummus</i>	Constantius Gallus/2 fcing victories. Rome mint	AD 352	Copy of LRBC II, 659
<i>1st–3rd century AD</i>					
14	6001	Cu alloy <i>As</i>	Illegible	1st–3rd century	-
18	6101	Cu alloy <i>As</i>	Illegible	1st–3rd century	-
24	6046	Silver <i>Denarius</i>	Illegible	1st–3rd century	-

pot-mend came from the topsoil; it is reel-shaped (Schuster 2011, 247-8, type 1), a type commonly found on coarsewares.

A short length of tapering iron strip, with one edge folded up and a slight longitudinal ridge close to that edge, could be part of a scythe, particularly the early type of scythe with a strengthening ridge along the blade, used in the 1st and 2nd centuries AD (compare Manning 1985, pl. 21, F18).

Part of a linch pin (used to keep a wheel attached to the axle) was identified from pond 6451; this consists of a spatulate head with integral loop, and falls into Manning's type 2b, the commonest type of linch pin (Manning 1985, 74, pl. 31, H42).

A small fragment of lead sheet (ON 39), comprising a strip with the ends folded in towards the centre, also from pond 6451, was tentatively identified as a possible curse, but there is no visible detail to confirm this.

Pottery

by Kayt Marter Brown

The Late Iron Age/Romano-British pottery assemblage from New Ash Green totalled 694 sherds (12,253 g), predominantly Romano-British in date (Table 14).

Fabric and form

Late Iron Age material (17 sherds, 77 g) was identified in sand-, glauconitic sand-, flint- or shell-tempered fabrics. Just two vessel rims were recovered, a vessel with slightly everted rim from pit 6084 (Fig. 11, 1), and a simple bead rim jar (Monaghan 1987, type 3E1) from ditch 6438 (Fig. 11, 2), the latter form being prevalent either side of the Conquest and into the early 2nd century AD. Evidence from the HS1 sites at Hockers Lane and Thurnham (Booth 2009, 5) and Queen Elizabeth Square, Maidstone (Biddulph 2004, 18) indicates that glauconitic fabrics preceded the appearance of the grog-tempered wares, although with a substantial chronological overlap between the two groups, the use of glauconitic fabrics ceasing by the early decades of the 1st century AD (Pollard 1988, 33). A small number of grog-tempered body sherds were identified; however, with the exception of fills 6228 (ditch 6438) and 6253 (ditch 6446), these occur alongside later, Romano-British wares.

The largest component of the assemblage is the 677 sherds (12,176 g) assigned to the Romano-British period. The proportions of sherds which could be assigned early, middle (c. AD 120/130 to the early/mid-3rd AD) and late (late 3rd–4th century AD) Romano-British

dates (as opposed to a generalised ‘Romano-British’ date) indicate the continued dominance of early Roman material at (53% early, 33% middle, 2% late and 15% general Romano-British) at the site.

Table 14 New Ash Green: quantification of pottery assemblage by period/fabric

Period	Fabric type	No. sherds	Weight (g)
Late Iron Age	Flint	2	13
	Glauconitic	2	6
	Sand	3	18
	Shell	10	40
	<i>sub-total</i>	<i>17</i>	<i>77</i>
Romano-British	Greyware (Fine)	19	136
	Flint	2	10
	Greyware	11	105
	Grog	7	68
	North Kent/south Essex shell	55	3514
	Oxidised	19	79
	Oxford colour-coat	3	28
	Patchgrove	202	5297
	Samian	11	114
	Sand	7	73
	Shell	15	50
	Stamped London ware	3	4
	Thameside greyware	285	2259
	White slipped red wares	38	439
	<i>sub-total</i>	<i>677</i>	<i>12,176</i>
Total		694	12,253

Within this material, finewares are scarce; imported material comprises 11 sherds of samian (unprovenanced within the Central Gaulish production area), including two Dr. 31 bowl forms and the rim from a Dr. 18 or 31, all mid-2nd century AD in date. Three joining pieces of Stamped London Ware were found in ditch 6436. Although generally found in 2nd century AD contexts, these wares were probably manufactured on the Hertfordshire/Essex border during the mid- to late Flavian period (Rodwell 1978, 234–45; Davies *et al.* 1994, 151). The oxidised ware sherds are mostly derived from flagons from a variety of unidentified sources, while the white-slipped red wares, mostly Hoo wares (Monaghan 1987, 253, fabric

N4/1a; Davies *et al.* 1994, 38), include both flagon and fine carinated bowl forms. The relative paucity of Oxfordshire colour-coated wares reflects the limited late Romano-British activity on the site. Three sherds, including a bowl rim, were found in ditch 6436 and pond 6451; however, the only diagnostic sherd is from a form made throughout the life of the industry (Young 1977, 158, type C49).

The coarseware assemblage is dominated by local products. The production of a wide range of sand-tempered wares (Thameside products) in the north Kent coastal zone seems to have begun around the middle of the 1st century AD, with the industry experiencing a major expansion during the period between *c.* AD 70 and 120/130 (Monaghan 1987, 216). Vessel forms in this assemblage indicate that the Thameside industry continued to be the major supplier of utilitarian coarseware vessels until its demise in the early 3rd century AD. At New Ash Green, these forms manifest themselves as a range of bead- and everted-rimmed jars, bowls and plain, flanged or grooved dishes (*ibid.*, vessel types 3E, 3J, 3H, 4A, 5A, 5C, 5F). Patchgrove ware (Ward-Perkins 1939, 176–8), a distinctive ware developing out of the Late Iron Age grog-tempering tradition during the later 1st and early 2nd centuries AD, occurred in similar quantities to Thameside products. Forms seen here are restricted to simple and bead-rimmed jars, with a single example of a flask with double neck cordon (Monaghan 1987, vessel type 1B3), dated mid-/late 1st century AD to late 2nd century AD. The only other significant coarsewares present, in terms of quantity, are the north Kent/south Essex shell-tempered wares, occurring as bead-rimmed and storage jars. This fabric type peaked during the Flavian–Trajanic period and declined markedly after the mid-2nd century AD (Seager Smith *et al.* 2011, 55).

Discussion

Over 67% (by number, 57% by weight) of the assemblage was located within three features: enclosure ditch 6436 (308 sherds), pond 6451 (106 sherds) and feature 6452 (45 sherds). No more than 24 sherds were recovered from within any other single feature.

Enclosure ditch 6436 contained significantly more pottery than the earlier enclosure ditches on the site. Early Romano-British sherds were present, but most of the pottery can be dated as mid-/late 2nd to 3rd century AD. The dominant wares are Patchgrove (124 sherds, 40% by sherd count) and Thameside greywares (94 sherds; 31%). The only other wares that occur in any quantity are white-slipped redwares (37 sherds) and north Kent/south Essex shell-tempered wares (18 sherds), including a storage jar (Fig. 11, 3). The Patchgrove vessel

forms are not particularly distinctive (a few jar and jar/bowl rims; Fig. 11, 4–5), but the Thameside products and fine greywares include poppyhead beakers (Fig. 11, 6), bead-rimmed and storage jars, an S-profile bowl, a straight-sided ‘pie dish’ (Fig. 11, 8), a grooved dish, and a cup imitating a samian form 27 (Monaghan 1987, vessel types 2A, 3D, 3E, 3F, 4A, 4H, 5C, 5F, 6C). There is also a carinated bowl in white-slipped redware (Fig. 11, 7), and two Central Gaulish samian Dr. 31 platters. The only piece from this feature that could be later is a single small sherd from an Oxfordshire colour-coated ware bowl (Young 1977, form C49) which, if later than 3rd century, may be intrusive here

The 106 sherds from pond 6451 are dominated by Thameside (59% by sherd count) and Patchgrove wares (29%); vessel forms represented amongst the Thameside wares consist largely of dishes (flanged, grooved, ‘dog dishes’ and ‘pie dishes’; Monaghan 1987, vessel types 5A, 5C, 5E, 5F). A similar or slightly later date to ditch 6436 seems likely, perhaps late 2nd to mid/late 3rd century AD.

Feature 6452 may be later still. More than half of the small group of 52 sherds comprises Thameside wares, amongst which are three jars. One of these is a cavetto-rimmed jar, one of the most common 3rd century forms (Monaghan 1987, vessel type 3H8; Fig. 11, 9). Also from this feature were four sherds of early Anglo-Saxon sandy wares, and three sherds of late Anglo-Saxon/early medieval shelly wares (see below).

Illustrated vessels (Fig. 11)

1. Jar, slightly everted rim, Late Iron Age shell-tempered; context 6087, pit 6084.
2. Jar, bead rim, Late Iron Age shell-tempered; context 6207, cut 6204, ditch 6438.
3. Storage jar (Monaghan 3D1), north Kent/south Essex shell-tempered; narrow band of oblique impressions around shoulder; context 6265, cut 6261, ditch 6436.
4. Everted rim jar, Patchgrove ware; cordoned neck; context 6099, cut 6097, ditch 6436.
5. Everted rim jar, Patchgrove ware; context 6099, cut 6097, ditch 6436.
6. Poppyhead beaker (Monaghan 2A4), fine greyware; context 6010, cut 6007, ditch 6436.
7. Carinated bowl (Monaghan 4H1), white-slipped redware; context 6009, cut 6097, ditch 6436.
8. ‘Pie dish’ (Monaghan 5C1), Thameside greyware; context 6028, cut 6025, feature 6436.
9. Cavetto-rimmed jar (Monaghan 3H8), Thameside greyware; context 6420, feature 6452.

Fired clay

by Kayt Marter Brown

The structural clay and daub from the entire pipeline route amounted to 3886 pieces (103 kg), the overwhelming majority of which is of probable Late Iron Age or Romano-British date. Over 85% of this material (88 kg) was recovered from the site at New Ash Green (largely from crop-dryer 6110 and adjacent feature 6147), and as a result the entire assemblage is considered here.

Most fragments are in soft, slightly sandy fabrics with occasional additional inclusions of shell, flint, organics and/or chalk inclusions. Most are oxidised (yellow, orange, red brown hues) although grey-brown, dark grey and black colours were also noted. The larger, better preserved fragments have a roughly flat, outer surface of variable quality, with roundwood wattle impressions, representing the core of the wall/dome, on the inside; the original wall would, therefore, be twice the thickness of the fragments. Most of the wattle impressions ran in a single direction, but occasional interwoven impressions are also preserved from crop-dryer 6110.

A sample of measurements was taken from impressions on fragments associated with crop-dryer 6110, feature 6147 and pit 6175 (and from pit 5340, East of Ightham Court, Plot 12/08); these ranged from 11–20 mm with a concentration in the 13–15 mm range. Although it may just be that smaller wattle was chosen for crop-dryer structures, the wattle impressions measured from wall daub at Springhead, Kent (Poole 2011, 318–20) show some chronological differentiation, with those from the early Romano-British period notably thinner than the middle Romano-British period; as at New Ash Green, the earlier wattles measure less than 26 mm and peak in the 14–16mm range.

Ceramic building material

(see Fairlawne Park Roman villa, below)

Animal bone

by Jessica M. Grimm

A total of 2203 fragments of animal bone were recovered from features of known or probable Romano-British date (ie, excluding Anglo-Saxon pit 6122). Conjoining fragments that were demonstrably from the same bone were counted as one bone in order to minimise distortion, resulting in a specimen count (NISP) of 152. The assemblage was dominated by cattle (NISP

103), with a much smaller representation of sheep/goat (NISP 21) and pig (NISP 15); it contained bones from both juvenile and adult animals. Also represented were horse, dog, deer (antler) and bird.

The bone from the site was in fair condition. The presence of canid gnawing marks (13 bones) indicates that bone waste was accessible or fed to dogs; this means that the assemblage is biased towards the larger bones of larger animals. The butchery marks (four bones) show that at least part of the material consists of butchery and kitchen waste. Burnt fragments (four bones) might derive from burning waste or cooking practices.

Metalworking debris

by Phil Andrews

This site produced by far the largest assemblage of debris from the entire route, amounting to approximately 37.4 kg. A single fragment of bun-shaped copper ingot weighing 223 g, of probable Late Bronze Age date, was recovered from topsoil, but virtually all of the remainder of the debris can be attributed to iron working.

The iron working debris comprises 36.84 kg of probable or certain smithing slag and a further 567 g of possible smithing slag; there is also 292 g of fuel ash slag (FAS), some hearth lining – often attached to lumps of slag – and one notably dense piece of slag that might be part of a furnace bottom (and thus evidence for smelting), though it too most likely derives from smithing. Soil samples were not taken from the contexts which contained most iron working debris and, therefore, no hammerscale was recovered; other, environmental samples were devoid of this material. No hearths or other features associated with iron working were present or survived, and no tools or offcuts of iron have been identified.

Amongst the material there are a moderate number of complete or fragmentary smithing hearth bottoms (SHBs), the bun-shaped accumulations of slag which accumulated in the base of smithing hearths. Thirty complete or near-complete SHBs were identified. Most of them came from the seven largest groups of debris, five of these in pit 6084 – contexts 6047 (3.1 kg), 6086 (2.3 kg), 6087 (15.8 kg, 19 SHBs), 6090 (5.8 kg, five SHBs) and 6091 (2.3 kg, two SHBs); the other two were in ditch 6448 (context 6144, 3.3 kg), and feature 6452 (context 6423; 2.2 kg, two SHBs). Single SHBs came from pits 6399 (context 6405) and 6410 (6413), both part of intercutting pit group 6456. Five SHBs weighed more than 1 kg, with the heaviest at 1258 g and measuring 160 x 110 x 50 mm. Eleven SHBs weighed less than 0.5 kg, with the lightest at 154 g and measuring 80 x 60 x 40 mm. Most of the features containing

iron working debris have been assigned to the early Romano-British period, although feature 6452 is almost certainly later, of mid–late Romano-British date.

Discussion

The relatively large quantity of material from the site, and pit 6084 in particular, with its concentration of 26 SHBs, points clearly to iron smithing activity within that part of the site, and the existence of a smithy can be suggested. How long this operated in the early Roman period is unknown, and it may have been only a temporary, relatively short-lived activity.

Although there may have been some small-scale localised production of iron, it is probable that this was imported from further afield, with the most likely source being the Weald of Kent and Sussex, 20 km to the south, where at least 76 Roman bloomery sites have been identified (up to 1995; see Cleere and Crossley 1995, 57–86, gazetteer B).

Evidence for iron working, often small-scale, is ubiquitous on Romano-British sites, in both urban, rural and villa contexts. While the nature and status of this site is somewhat unclear, it seems likely that it belongs to the latter category, with the iron smithing activity perhaps restricted to the periphery of the settlement and probably associated with agricultural production, for example the manufacture and maintenance of tools.

Environmental

Charred plant remains

by Chris J. Stevens

Of the 15 bulk environmental samples selected for analysis from the pipeline route, ten were from this site – from enclosure ditches 6435 and 6436, pits 6011, 6147, pond 6451, and crop-dryer 6110 (four samples) (Table 15); a single sample came from Anglo-Saxon pit 6122 (below).

Ditches

Ditch 6435 had predominately remains of hulled wheat (*Triticum dicoccum/spelta*), with both glumes and grains present. The glumes were extremely poorly preserved comprising only small remnant fragments and as such none were identifiable to species. No seeds of wild species were recovered, although this may in part be a product of preservation.

The sample from ditch 6436 contained a number of glume bases and grains of hulled wheat, although again the glumes were too poor for identification to species. As with ditch 6435 there were only sporadic weed seeds in this sample.

Crop-dryer 6110 and related feature 6147

One notably rich sample from crop-dryer 6110 (context 6077) was fractionated and a 25% sub-sample from the 0.5 mm fraction was fully sorted and estimates produced by multiplying these counts by four. All of the samples from the dryer were dominated by grains of barely, probably hulled barley, in particular in context 6062, with only smaller amounts of hulled and free-threshing wheat (*Triticum aestivum/turgidum*). The latter were most notable within context 6077, along with a single seeds of flax in context 6077. A single grain of rye was also recovered from context 6060, while unusually a grain of probable einkorn (*Triticum monococcum*) came from context 6062. In contrast, the sample from pit 6147 had a large number of grains of free-threshing wheat and quite a number of grains of barley, as well as three possible grains of rye.

Two of the four samples from the crop-dryer which were richer in grain (from basal layers 6062 and 6077) also had high numbers of weed species. The other two, from the demolition layers, had lower numbers of weed seeds but a generally similar range of species. There were enough differences between contexts 6062 and 6077 to suggest that they were derived from different sources – that from 6062 was dominated by seeds of fat-hen, orache and oats with a number of seeds of dock, while that from 6077 had a wider range of species present, with a much greater representation of seeds of stinking mayweed (*Anthemis cotula*), dock, meadow grass/cats'-tails and vetch/wild pea. Also well represented in 6077, but absent from the other samples, were seeds of clover (*Trifolium* sp.) and sheep's sorrel (*Rumex acetosella*), as well as several seeds of wetland species, spikerush (*Eleocharis* sp.) and sedges (*Carex* sp.). Comparable differences were noted in these layer's charcoal assemblages (see below)

The sample from feature 6147 had fewer seeds of fat-hen, but oat/brome grass and meadow grass/cats'-tails along with vetch/wild pea and sheeps sorrel were well represented.

Table 15 New Ash Green: charred plant remains

Feature type		Ditch	Ditch	Pit	Crop-dryer 6110 and related feature 6147					Pond
Feature		6435	6436	6011	6110					6451
Cut (or fill type)		6033	6007	-	Basal fills					6371
Context		6037	6009	6012	6062	6077	6060	6075	6148	6390
Sample		6003	6000	6002	6007	6013	6005	6012	6022	6037
Size (l)		10	9	10	5	7	30	5	18	8
Cereals										
<i>Hordeum vulgare</i> sl (grain)	barley	-	3	13	255	20	34	-	19	-
<i>H. vulgare</i> sl (hulled grain)	hulled barley	-	-	80	250	52	10	11	12	-
<i>H. vulgare</i> sl. (rachis fragment)	barley	-	-	1	-	-	-	-	-	1
<i>Triticum</i> sp. (grains)	wheat	-	-	19	10	5	11	3	-	2
<i>Triticum</i> cf. <i>monococcum</i> (grains)	emmer wheat	-	-	-	1	-	-	-	-	-
<i>Triticum spelta</i> (glume bases)	spelt wheat	cf.1	1	3	-	-	-	1	-	13
<i>T. dicoccum/spelta</i> (grain)	emmer/spelt wheat	48	15	14	-	-	9	1	6	9
<i>T. dicoccum/spelta</i> (spikelet fork)	emmer/spelt wheat	-	-	-	-	-	-	-	-	2
<i>T. dicoccum/spelta</i> (glume bases)	emmer/spelt wheat	41	15	7	-	-	-	-	-	51
<i>T. aestivum/turgidum</i> (grain)	bread wheat	-	-	-	3	40	-	3	85	-
<i>Secale cereale</i> (grain)	rye	-	-	4	-	-	1	-	cf.3	-
Cereal indet. (grains)	cereal	23	20	35	180	70	27	11	22	5
Cereal (est. grains from frags)	cereal	10	-	11	190	5	12	14	16	-
Other species										
<i>Ranunculus</i> sp. subg <i>Ranunculus</i>	buttercup	-	1	-	-	3	-	-	-	-
<i>Urtica dioica</i>	common nettle	-	-	-	-	est. 4	-	-	-	-

Feature type		Ditch	Ditch	Pit	Crop-dryer 6110 and related feature 6147					Pond
Feature		6435	6436	6011	6110					6451
Cut (or fill type)		6033	6007	-	<i>Basal fills</i>		<i>Demolition fills</i>		-	6371
Context		6037	6009	6012	6062	6077	6060	6075	6148	6390
Sample		6003	6000	6002	6007	6013	6005	6012	6022	6037
Size (l)		10	9	10	5	7	30	5	18	8
<i>Corylus avellana</i> (fragments)	hazel	-	-	-	-	2	2	-	-	-
<i>Chenopodiaceae/Caryophyllaceae</i>	goosefoot/campion	-	-	6	-	-	-	-	-	-
<i>Chenopodium album</i>	fat-hen	-	-	16	255	est. 135	5	2	6	-
<i>Atriplex</i> sp.	oraches	-	-	3	60	est. 33	-	-	1	-
<i>Stellaria media</i>	stitchwort	-	-	1	-	-	-	-	-	-
<i>Stellaria palustris/graminea</i>	stitchwort	-	-	-	-	-	-	1	7	-
<i>Agrostemma githago</i>	corn cockle	-	-	2	-	2	-	1	-	-
<i>Persicaria lapathifolia/maculosa</i>	redshank/persicaria	-	-	2	2	7	-	-	-	-
<i>Fallopia convolvulus</i>	black bindweed	-	-	9	7	10	-	-	-	-
<i>Polygonum aviculare</i>	knot grass	-	-	-	-	-	-	-	8	-
<i>Rumex</i> sp	docks	-	-	2	15	est. 411	1	4	-	12
<i>Rumex acetosella</i> group	sheep's sorrel	-	-	-	-	est. 32	-	-	15	-
<i>Rumex</i> cf. <i>crispus</i>	curled dock	-	-	-	-	-	-	-	6	-
<i>Brassica</i> sp.	wild mustard	-	-	4	-	-	-	-	-	-
<i>Vicia/Lathyrus</i> sp.	vetch/pea	-	-	10	6	348	17	12	20	-
<i>Pisum/Vicia</i>	pea/bean/vetch	-	-	-	-	-	-	-	-	cf.1
<i>Medicago lupulina</i>	black medick	-	1	-	-	1	-	-	1	-
<i>Trifolium</i> sp.	clover	-	-	-	-	est. 74	-	-	-	-

Feature type		Ditch	Ditch	Pit	Crop-dryer 6110 and related feature 6147					Pond
Feature		6435	6436	6011	6110					6451
Cut (or fill type)		6033	6007	-	<i>Basal fills</i>		<i>Demolition fills</i>		-	6371
Context		6037	6009	6012	6062	6077	6060	6075	6148	6390
Sample		6003	6000	6002	6007	6013	6005	6012	6022	6037
Size (l)		10	9	10	5	7	30	5	18	8
<i>Linum usitatissimum</i> (seed)	flax	-	-	-	-	1	-	-	-	-
<i>L. usitatissimum</i> (capsule frag.)	flax	-	-	cf.1	-	-	-	-	-	cf.1
<i>Conium maculatum</i>	hemlock	-	-	-	-	-	-	-	1	-
<i>Plantago lanceolata</i>	ribwort plantain	-	-	-	-	est. 5	-	-	-	-
<i>Odonites vernus</i>	red bartsia	-	-	1	-	est. 4	-	-	-	-
<i>Galium aparine</i>	cleavers	-	-	-	-	1	-	-	-	-
<i>Centaurea</i> sp.	knapweed	-	-	1	-	-	-	-	-	-
<i>Lapsana communis</i>	nipplewort	-	-	-	-	-	-	-	-	1
<i>Anthemis cotula</i>	stinking mayweed	-	-	1	3	est. 151	1	-	6	-
<i>Tripleurospermum inodorum</i>	scentless mayweed	-	-	-	2	-	-	1	2	-
<i>Cyperaceae</i> indet.	sedges	-	-	-	-	-	-	-	-	3
<i>Eleocharis</i> cf. <i>palustris</i>	spike-rush	-	-	-	-	est. 4	-	-	-	-
<i>Carex</i> sp. lenticular	sedge flat seed	-	-	-	-	est. 4	-	-	1	-
<i>Poaceae</i> (small indet.)	small grass seed	-	-	-	-	est. 30	-	-	7	-
<i>Poaceae</i> (culm node)	grass culm node	-	-	-	-	-	-	-	-	-
<i>Lolium perenne</i>	rye grass	-	-	-	-	est. 32	1	-	-	-
<i>Poa/Phleum</i> sp.	meadow grass/cats' -tails	-	-	7	4	est. 240	5	2	67	6
<i>Avena</i> sp. (grain)	oat grain	-	-	20	93	71	25	1	49	4

Feature type		Ditch	Ditch	Pit	Crop-dryer 6110 and related feature 6147				Pond
Feature		6435	6436	6011	6110				6451
Cut (or fill type)		6033	6007	-	<i>Basal fills</i>	<i>Demolition fills</i>	-	-	6371
Context		6037	6009	6012	6062	6077	6060	6075	6390
Sample		6003	6000	6002	6007	6013	6005	6012	6037
Size (l)		10	9	10	5	7	30	5	8
<i>Avena</i> sp. (floret base wild)	wild oat	-	-	5	-	est. 8	-	-	-
<i>Avena</i> sp. (floret base indet.)	oat	-	-	1	-	-	-	-	-
<i>Avena/Bromus</i> sp.	oat/brome	-	-	-	-	22	2	-	15
<i>Bromus</i> sp.	brome	-	-	-	-	2	1	-	6

Pit 6011

Pit 6011 had grains of barley, mainly of hulled barley (*Hordeum vulgare* sl.); hulled wheats were also present. The sample had a few grains of rye (*Secale cereale*) and a possible fragment of flax (*Linum usitatissimum*) capsule.

Weed seeds in the pit were reasonably abundant and included a wide range of species. These comprised a number of smaller weed seeds; fat-hen (*Chenopodium album*), orache (*Atriplex* sp.), stitchwort (*Stellaria* sp.), red bartsia (*Odontites vernus*) and meadow grass/cats'-tails (*Poa* sp./*Phleum* sp.). A single seed of stinking mayweed (*Anthemis cotula*) is indicative of the cultivation of heavier clay soils. Seeds of larger seed species were also relatively common and included those of corncockle (*Agrostemma githago*), redshank/pale persicaria (*Persicaria maculosa/ lapathifolium*), black bindweed (*Fallopia convolvulus*), wild mustard (*Brassica* sp.), vetch/wild pea (*Vicia Lathyrus* sp.), knapweed (*Centaurea* sp.) and oats (*Avena* sp.). It might be noted that wild and cultivated oats cannot be distinguished on grains alone, but can be on the basis of floret basis. Given the presence of several wild type floret bases the grains are thought to be those of wild rather than cultivated oats.

Pond 6451

The relatively sparse sample from the lowest recorded fill (6390 at 1.0–1.2 m depth) within the 3.5 m deep pond had much greater evidence (than crop-dryer 6011 and feature 6147) for hulled wheat grains and chaff.

Discussion

While spelt is common in many of the Late Iron Age assemblages from Kent, emmer wheat is often still well represented during this period in the region, with spelt only coming to dominate in the Romano-British period (Stevens 2006a; 2009b; 2009c; 2011). Unfortunately the samples from the potential Romano-British ditches have poorly preserved remains and such distinctions were not possible. While grains were slightly better represented in the sample from ditch 6436, given the extremely poor preservation it is probable that they largely derive from processing waste following the dehusking of hulled wheats taken from storage. While the absence of weed seeds might in part be due to the poor preservation conditions, it seems probable that such crops were stored in a relatively clean state.

The sample from pit 6011 was less rich in hulled wheat. However, it can be noted that while both corn-cockle and stinking mayweed might potentially be present in Late Iron Age contexts, they are generally more common in Romano-British contexts and indeed are regarded by Godwin (1984) as species that were only introduced in the Romano-British period. The general high numbers of weed seeds in this sample probably indicates again processing waste from the processing predominately of barley. The presence also of rye in this pit, the crop-dryer and related feature 6147, all in relatively close proximity, suggest that they all are of similar date.

The crop-dryer samples were similar in composition, although they had fewer hulled wheat remains and, more unusually for the Romano-British period, remains of free-threshing wheat. It might be noted that both rye and free-threshing wheat have been recorded within Romano-British contexts from south-east England. Rye is recorded to the west from Romano-British features at Harlington in south-west London (Stevens forthcoming), while free-threshing wheat despite being uncommon was recorded within an oven at Springhead (Stevens 2011). Ovens have been associated with parching (see van der Veen 1989), but in this case the general absence of hulled wheat remains, might rather suggest that if an agricultural function were ascribed to the feature then crop-drying prior to storage might be more probable.

Along with free-threshing wheat several of the samples produced remains of flax (*Linum usitatissimum*). Flax has also been recovered from Late Iron Age features in north Kent, in particular large numbers of flax capsules (Stevens 2009c), and its presence may signify the use of flax for linen fibre or the processing of capsules for oil.

Crop-dryer 6110 and associated pit 6147 were the only features to produce remains of stinking mayweed, a species characteristic of the cultivation of heavier clay soils and often recovered from more Romanised settlements (see Stevens 2006b). Given the site's general location on Chalk, this species may be more indicative of the farming of local fields situated on clay-with-flint deposits. The presence of a few species of wetlands, including spikerush, whose seeds are commonly recovered from Iron Age and Romano-British deposits (Jones 1988a; 1988b), might further suggest the cultivation of local lower-lying seasonally flooded soils.

Charcoal from crop-dryer 6110

by Catherine Barnett

The two samples from crop-dryer 6110, from charcoal-rich layer 6062 in the north-western quadrant, and charcoal-rich layer 6077 in the south-eastern quadrant, proved to contain quite differing assemblages (Table 16). That from 6064, which was of moderate size but contained large pieces, was the most varied in terms of species, comprising hazel (*Corylus avellana*), dogwood (*Cornus* sp.) and birch (*Betula pendula/ pubescens*), with lesser alder (*Alnus glutinosa*) and Pomoideae fruit wood, most of the pieces being of mature wood. In contrast, the smaller fragmentary assemblage from 6077 contained only ash (some of which may have been roundwood but was too fragmented to tell) and oak.

The substantial use of ash during the Romano-British period reflects the presence of base-rich soils locally on such Chalk downland sites, where it seems to have formed the dominant type; these soils are also indicated by the presence of dogwood (Stace 1997). The assemblage from the crop-dryer indicates the presence of open secondary woodland or hedging in the Romano-British period, with birch, dogwood, Pomoideae and hazel, and perhaps some exploitation of wetland fringes, as indicated by the presence of alder (and possibly the birch).

Table 16 New Ash Green: charcoal from crop-dryer 6110

Cut	6064	6078
Context	6062	6077
Sample	6007	6013
Size (l)s	5	7
Flot size (ml)	200	60
Charcoal 4/2 mm	90/50 ml	8/150 ml
<i>Alnus glutinosa</i>	1	-
<i>Betula</i> sp.	10	-
<i>Cornus</i> sp.	47	-
<i>Corylus avellana</i>	39	-
<i>Fraxinus excelsior</i>	-	*53
<i>Quercus</i> sp.	-	9
Pomoideae	3	-
Unidentified	-	3
Total no. frags used	100	65

Key: * Unclear if includes roundwood

Discussion

The limited areas of excavation make it hard to determine the character and status of this site, although the surrounding landscape appears to have been densely occupied and exploited during the Romano-British period. The North Ash Roman villa, with a bathhouse, pottery kiln and cremation cemetery, lies 0.6 km to the east-north-east of the site, while further Romano-British finds were made in a gas pipeline further east (Walsh 1970; 1971). No buildings were identified on the site, and only a relatively small quantity of Roman-British ceramic building material (7827 g) was recovered, along with two pieces of possibly architectural stone, both of a fine-grained white sandy limestone (from pits 6084 and 6175).

It is possible, therefore, that the features exposed lay on the margins of any settlement, and such a location at a distance from domestic dwellings may have been appropriate both for iron working, towards the eastern end of the site, and for the crop-dryer towards the west. It should be noted, however, that while the only datable finds from the crop-dryer were of Romano-British date, it is at least possible that this feature belongs to the period of Saxon activity on this site (see below), with the finds being residual. Possible support for this might be provided by the presence in the plant remains of free-threshing wheat and rye.

Of the various ditches on the site, including the parallel ditches which may mark the line of a trackway, only that apparently defining the rectangular plot extending to the north is securely dated to the Romano-British period. Similarly, although the presence of a small quantity of Late Iron Age pottery suggests pre-Conquest period occupation of the general area, none of the features can be securely dated to that period. The weight of the evidence, however, suggests that the features on the site represent part of a possibly substantial rural farmstead, of a type widely found within the Kent landscape, undertaking not only mixed farming, but also associated craft/industrial activity as indicated by the iron working debris. Although this site occupies a relatively elevated position of the Chalk, it is possible that lower-lying soils were also cultivated. In addition to barley and wheat, and a small amount of rye, flax may also have been grown. The animal bone assemblage is too small to draw firm conclusions, but cattle, sheep/goat and pig, as well as horse, were all represented.

The large pond is of uncertain function. It could have been used as a water-hole for livestock, but the collection of particularly metal finds from it, including coins, suggests that it may have been used for the making of votive offerings, perhaps over an extended period, in which case its proximity to the trackway may be significant.

Fairlawne Park, Plaxtol (Plots 16/01 and 17/02)

Site description (Plot 16/01)

This watching brief site at Plaxtol comprised an approximately rectangular area (90 m by 25 m, centred on NGR 560080 153430), aligned north-west to south-east, with a narrow extension extending 90 m to the south-south-east; the total area exposed was 2420 m² (Fig. 12). The site, within Fairlawne Park, lies on ground sloping slightly to the south-east, at 100–105 m aOD, although the post-medieval parkland has been subject to landscaping. It lies on the side of the Lower Greensand Ridge between the Downs and the Weald, the underlying geology comprising Hythe Beds (BGS sheet 287, Sevenoaks), consisting of alternating layers of Kentish Rag limestone and ‘hassock’, a loamy sand.

The use of a metal detector during the stripping of the site resulted in a significant number of metal finds being recovered from the topsoil (8000/8003/9190), including seven coins (ONs 350 and 367–72), and 21 fragments of lead (ONs 354–66 and 378–81). Many of the pieces of lead were waste material, but they included a stack of eight octagonal washers on an iron rod (ON 364), a number of pot-mends (ONs 365, 379 and possibly 381), and a hemispherical weight (ON 366).

Villa building

The initial stripping of the topsoil revealed a stone wall aligned NE–SW. Further investigation revealed it to be part of a substantial building (Fig. 13), associated with which were a number of ditches, pits, post-holes and a well (Fig. 12). Pottery of largely later 1st–early 2nd century AD date, but including some middle and late Romano-British sherds, was recovered from the site, while the coins date largely from late 2nd to the mid-4th century AD. In order to preserve the building *in situ*, the new gas pipe was bored below ground for a short length in this location. The walls and interior of the building were cleaned of demolition rubble, in order to establish its layout, but not further excavated.

The rectangular building was orientated south-west to north-east. Although part of its south-western end could not be exposed, both corners of that end wall were exposed; the building’s eastern corner also lay just within the excavation area. This showed that the building measured 26.5 m long by 11 m wide.

Much of wall 8055 along the south-eastern side, and the south-eastern end of abutting internal wall 8043, had been robbed, with little *in situ* masonry surviving within the robber cut. Elsewhere up to four course of foundation and wall survived. The general structure of the foundations comprised alternating courses of Ragstone blocks, along each face, either stacked on edge but leaning over by up to 45°, or laid horizontal, both with a central rubble core. The course of angled blocks at the base does not appear to have been mortared, but mortar, if patchy in places, survived in the overlying courses. The lowest course was 1.05 m wide with each overlying course being 0.15 m narrower, and the wall atop the foundations courses being 0.6 m wide.

The building appeared to have had a largely symmetrical internal layout probably comprising seven rooms (Rooms A–G, from north-east to south-west), although the unexcavated area at the south could hide an additional internal division. A large central room (Room D), 5.7 m wide, spanned the building's full 9.1 m internal width, flanked by three smaller rooms on either side (a narrow linear feature running through Room D post-dates the demolition of the building). To the north-east these rooms comprised a single room along the south-east side (Room C), measuring 8.1 m by 4.1 m, with two smaller rooms on the north-west side, both 3.8 m deep, that on the outside (Room A) an estimated 2.8 m wide, and that on the inside (Room B) 4.2 m wide. Despite the limited exposure of the opposite end of the building, the arrangement of the rooms appears to be similar. If so, the single room on the south-east side (Room G) measured 8.7 m by 5.1 m, with the two on the north-west side measuring 3.1 m deep, and with widths of 5.2 m (inner – Room E) and 2.6 m (outer – Room F), respectively. There was no evidence for more than a single phase of construction.

No entrances, doorways between rooms, or floor surfaces were exposed, and while these may have been removed by ploughing and/or landscaping, the absence of *tesserae* suggests that none of the rooms had tessellated floors. The material from the cleaning of each room was recorded as a separate context (8028–35), with two contexts (8032 and 8034) assigned to the two exposed parts of Room G). Together, this material produced 14 coins – 13 copper alloy (ONs 255–6, 258, 269–74, 276–9) and one silver (ON 268) – of predominantly late 3rd–early 4th century AD date, a fragment of copper alloy ring (ON 267), a copper alloy possible box fitting (ON 261), 16 iron objects (all of the identifiable pieces being nails), 330 sherds (4875 g) of early to late Romano-British pottery, 7.5 kg of Romano-British CBM, fired clay (1480 g), animal bone (1087 g), a fragment of glass, slag (402 g), and stone, including

part of a rotary quern of coarse pink sandstone, possibly Millstone Grit (ON 291), and part of an upper millstone (ON 292), 760 mm in diameter, in coarse white sandstone (both from Room C).

There was some variation in the quantities of these materials between rooms – for example Rooms C and D accounted for 60% of the pottery (by weight), and Room C accounted for 85% of the stone and 74% of the CBM – but this may have no bearing on the uses to which these rooms were put during the building's occupation (a sherd of intrusive late Anglo-Saxon pottery was recovered from Room E). Material from the cleaning of the walls (contexts 8038, 8041, 8043, 8045, 8047, 8049, 8051, 8053, 8055, 8057, 8059, and 8187) was dominated, not surprisingly, by CBM (over 25 kg) and mortar (2 kg).

Subsequent minor investigations of the site in October 2011, involving the hand excavation of eight 1 m² test pits within and immediately outside the building, revealed no surviving floor levels or evidence of hypocausts (Wessex Archaeology 2011b); a further three test pits were excavated to the south-west.

Approximately 6 m north-west, and slightly upslope of the building was a ditch (8179), 1 m wide and 0.6 m deep, aligned roughly parallel to it. It ran for over 3.3 m from a terminal 4 m from the line of the building's south-western end wall, and appeared to continue to the north-east. It may have been a drainage ditch to divert rainwater away from the building. Its three fills contained 235 sherds (2907 g) of early Romano-British pottery, numerous pieces of stone (4593 g), as well as small quantities of Romano-British CBM, fired clay, animal bone, worked flint, and two pieces of unidentified iron. After silting up, its upper fill was cut by a small gully (8178), 0.4 m wide and 0.1 m deep, which continued the line of the ditch for at least a further 5 m; the gully contained no finds. A number of finds were also recovered from the subsoil (8036) north-west of the building, including three coins (ONs 280, 289 and 290), an oval copper alloy intaglio setting, 13 sherds of late Romano-British pottery, and a fragment of shale from a plain armlet of Romano-British type.

Trackways and ditches

Approximately 30 m south-east of the building was a possible 6 m wide trackway defined by a pair of parallel ditches (8195 and 8196), although no metalled, compacted or rutted surface was recorded between them. The ditches were each 0.6–1.2 m wide, orientated north-east to south-west, albeit on a slightly different orientation to the building. Ditch 8195 cut pit 8149,

and was cut by pit 8143. Together the ditches produced two abraded sherds (6 g) of Late Iron Age/early Romano-British pottery, 17 sherds identifiable only as Romano-British, and 353 early Romano-British sherds (11,742 g) – the bulk of which came from a single Patchgrove ware storage jar deposited in the top of the ditch 8196 at its southern extent. Other finds included Romano-British CBM (683 g), three iron objects (two of them – ON 247, ON 248 – nails), along with small quantities of fired clay, animal bone, worked flint and stone.

A more definite, although undated trackway (8086), 2.3 m wide, was recorded in the narrow extension of the excavation area to the south-east. It was aligned north-west to south-east, and consisted of a shallow depression, 0.05 m deep in the centre but with distinct ruts up to 0.1 m deep on either side, approximately 1.5 m apart. It was filled with a compact stony layer (8085), probably representing material laid down after a period of the track's use to consolidate its surface. The trackway lies 50 m north-east of the extant tree-lined trackway (Peckham Walk Avenue) in Fairlawne Park, shown on the 1769 Andrews and Drury map of Kent, that provides access to the estate from the east, so that an earlier date for trackway 8086 is possible.

The possibility of a Romano-British date for the trackway is given some support by the fact that a Romano-British ditch (8067) ran parallel to it, 2 m to its south-west, before turning at a right angle away from it. The ditch, which was 1.2 m wide and 0.6 m deep with an almost V-shaped profile, had two fills – its lower fill containing nine middle Romano-British sherds (120 g), and its upper fill containing 20 late Romano-British sherds (264 g) along with a silvered copper alloy pin (ON 265), an iron nail and Romano-British CBM.

Ovens

A shallow oval feature (8126) immediately south-east of the building, appears to have been a small oven. It was 1.1 m long by 0.7 m wide and 0.2 m deep with moderately steep concave sides and a flat base, largely filled with sterile but slightly heat-affected silty clay (8127). On the top there was layer of fired clay up to 0.07 m thick in the surface of which were embedded numerous flat-laid sherds (3.3 kg) of late Romano-British (early–mid-3rd century) pottery. On the edge of the cut, to its north, there were a number of large pieces of sandstone (one also lay on fill 8127). The sandstone lay on a 0.15 m thick subsoil horizon (8125) into which the oven was cut, the lateral extent of which was not established. This layer, from around the oven,

produced 1.3 kg of middle Romano-British pottery, CBM, a fragment of glass (ON 288) and two nails (ONs 286–7).

A small keyhole-shaped kiln/oven (8109) lay closer to the trackway. It was 1.1 m long, 0.8 m wide and up to 0.43 m deep. There was a shallow stoke-hole at its northern end which contained a black silty fill (8112); the base then dropped almost vertically into a circular bowl with steep concave sides and a flat base. There was evidence from the fill, which produced no datable finds, of the oven's collapsed dome (8110).

A third oven (8160), of different form, lay 8 m to the north-east. It was rectangular in shape, measuring 1.8 m long, 0.6 m wide and 0.2 m deep, and its edges were reddened and baked hard from burning. Its three fills contained 109 sherds (937 g) of early Romano-British pottery, along with small quantities of fired clay and stone. A dump of charcoal, along with burnt flint and burnt stone (Table 17, below), in adjacent pit 8119 may derive from this feature.

Well

At the south-east of the main excavation area, 55 m from the building, there was a large circular feature (8092), possibly a well. It was 3.7–4.2 m wide with steep convex sides, and it was excavated by hand to a depth of 1.2 m (Fig. 14), although observation during the excavation of the pipe trench showed it to be at least 3.5 m deep. Nine fills were recorded in the top 1.2 m, some deriving from the erosion of the sides. Above these were a charcoal-rich layer (8098), and then two thick layers (8099 and 8100) consistent with the abandoned feature being used for the dumping of waste; these two dump layers contained all the finds recovered from this feature, which included two late Roman coins (ONs 283 and 285), 25 sherds of Romano-British and late Romano-British pottery, a piece of a copper alloy finger ring, an iron nail, Romano-British CBM (836 g), fragments of Mayen lava quernstone (264 g), and small quantities of fired clay, slag and animal bone. At a depth of 1 m there was a rough arrangement of stones around the edge of the feature, but they appear too irregular to have formed any kind of structure within the well.

A shallow, 2 m wide linear feature (8102/8113) aligned north-east to south-west, ran past the well on its south-east side (with its northern edge just cut by it). It may be the remains of a pathway, formed by trample, providing access to the well. Four sherds (40 g) of abraded Romano-British pottery were recovered from it.

Other features

A short length of an irregular linear feature (8151/8191), possibly the southern end of a ditch running to the north, ended at a terminus between trackway ditches 8195 and 8196. It was 1.5 m wide and 0.3 m deep with a variable profile, and its single fill contained seven sherds (21 g) of Late Iron Age/early Romano-British pottery. Its stratigraphic relationship, at its northern end, with a large shallow pit (8149, cut by trackway ditch 8195) was not established, but this feature probably also pre-dates the trackway.

There were two adjacent large features (8198 and 8199) midway between the building and the ditched possible trackway. They were irregular in shape and profile, and the recognition of distinct hollows in their bases suggests that each comprised a number of intercutting pits. If so, however, this was not visible in the drawn sections both of which show single fills sequences. Feature 8198 measured 3 m by 4 m and was up to 0.8 m deep; it had a largely stone-free primary fill, overlain by a dump of Ragstone blocks which also contained 12 sherds (81 g) of early Romano-British pottery and small quantities of CBM, fired clay and animal bone. Feature 8199 also measured 3 m by 4 m and was 0.6 m deep, and contained a single fill, again including a large quantity of Ragstone, along with a further early Romano-British sherd (and one of Late Iron Age/early Romano-British date). Given the early date of the pottery it is possible that these features, and the stone within them, date from the construction of the building rather than its demolition.

There were a number of discrete features of generally small size, distributed largely randomly across the site, the majority of them undated. Some are probably small pits and others post-holes, but for many their function is uncertain and they are summarised together in Table 17. Although there were two very loose groupings of quite evenly spaced, V-shaped arrangements of probable post-holes at the south-east end of the site, neither formed any recognisable structure.

Table 17 Plaxtol: summary of pits and post-holes

Feature	Width (m)	Depth (m)	No. of fills	Pottery	Other finds
8018	0.6 x 0.7	0.2	1	RB (1/7 g)	Fired clay (7 g)
8020	0.8 x 1.2	0.1	1	ERB (25/419 g)	Fired clay (73 g)
8025	0.6	0.3	2	RB (1/11 g) LRB (6/1 g)	-
8068	0.4	0.1	1	-	-
8070	0.3	0.1	1	-	-
8081	0.4	0.2	1	-	-
8083	0.4	0.1	2	-	-
8104	0.7		2	ERB (12/99 g)	-
8107	0.4 x 0.6	0.2	1	-	-
8115	0.4 x 1.1	0.2	2	RB (12/ 109 g)	Fired clay (7 g); animal bone (1 g)
8117	0.4	0.2	1	-	Stone (415 g)
8119	0.7 x 1.0	0.2	4	-	Burnt stone (293 g); burnt flint (171 g)
8131	0.3 x 0.4	0.2	1	RB (4/34 g)	-
8133	0.3 x 0.4	0.2	1	-	-
8135	0.3	0.2	1	-	-
8137	0.4 x 0.6	0.1	1	-	-
8143	1.5 x 1.7	0.3	2	RB (17/72 g)	RB CBM (467 g)
8149	1.9 x 3.3	0.2	1	ERB (9/149 g)	RB CBM (26 g)
8156	0.3	0.1	1	-	-
8158	0.4 x 0.5	0.1	1	-	-
8164	0.2 x 0.3	0.1	1	-	-
8166	0.5	0.3	1	-	-
8168	0.3	0.2	1	ERB (1/8 g)	-

Finds

The finds assemblage comprises material recovered both from the cleaning of the demolition layers above the walls and room interiors of the villa building, which was not otherwise excavated due to it being preserved *in situ*, and from the excavated features and contexts outside the building (Table 18). This is reflected in some classes of material, such as ceramic building material and mortar, which are weighted towards the building, while others, such as pottery, appear to be weighted towards the other features (although this is heavily influenced by the single deposit of almost 10 kg of early Romano-British pottery from trackway ditch 8196).

Table 18 Plaxtol: finds totals by material type, from all contexts

Material type	Building		Other features		Total	
	No.	Wt. (g)	No.	Wt. (g)	No.	Wt. (g)
Metal	54	-	48	-	102	-
<i>Coins</i>	14	-	13	-	27	-
<i>Copper alloy</i>	1	-	15	-	16	-
<i>Lead</i>	21	-	-	-	21	-
<i>Iron</i>	18	-	20	-	38	-
Pottery	368	5454	1229	23,875	1597	29,329
<i>Late prehistoric</i>	-	-	1	21	1	21
<i>Late Iron Age</i>	-	-	5	179	5	179
<i>Romano-British</i>	367	5435	1222	23,671	1589	29,106
<i>Medieval</i>	1	19	-	-	1	19
<i>Post-medieval</i>	-	-	1	4	1	4
CBM	362	33,809	64	6197	426	40,006
<i>Romano-British</i>	344	32,650	64	6197	408	38,847
<i>Medieval/post-medieval</i>	18	1159	-	-	18	1159
Mortar	180	1988	-	-	180	1998
Fired clay	16	2580	149	2381	215	4961
Stone	19	5336	186	7152	205	12,488
Worked flint	7	-	-	-	7	-
Burnt flint	4	171	-	-	4	171
Glass	4	7	-	-	4	7
Slag	11	867	22	464	31	1331
Shale	-	-	1	-	1	-
Worked bone	-	-	1	-	1	-
Animal bone	174	1380	130	692	304	2072

Coins

by Nicholas Cooke

Twenty-seven Roman coins were recovered, of which 23 range in date from the late 2nd to mid-4th centuries AD (Fig. 15); the other four (ONs 256, 283, 367 and 372) could not be dated closely, although their size and shape suggests a date in the 3rd or 4th century AD (Table 19).

Table 19 Plaxtol: coins

ON	Context	Type	Issuer/type	Issue date	Reference
<i>AD 138–161</i>					
272	8035	Cu alloy <i>Sestertius</i>	Antoninus Pius/female fig uncertain	AD 138–161	-
<i>AD 260–275</i>					
268	8031	Cu alloy <i>Antoninianus</i>	Postumus/Moneta Aug	AD 259–268	As RIC V, Part I, Postumus, 315
278	8031	Cu alloy <i>Antoninianus</i>	Radiate copy of Claudius II/?Pax reverse	AD 268–296	-
279	8033	Cu alloy <i>Antoninianus</i>	Claudius II/uncertain reverse	AD 268–270	-
280	8036	Cu alloy <i>Antoninianus</i>	Claudius II/PMTRPIICOSP reverse	AD 268–270	RIC V, Part II, 10
290	8036	Cu alloy <i>Antoninianus</i>	Gallienus/Uberitas Aug reverse	AD 260–268	RIC V, Part I, Gallienus 287 var
369	8003	Cu alloy <i>Antoninianus</i>	Gallienus/uncertain reverse	AD 260–268	-
370	8003	Cu alloy <i>Antoninianus</i>	Radiate copy of Claudius II/Consecratio altar reverse	AD 268–296	-
<i>AD 275–296</i>					
258	8030	Cu alloy <i>Antoninianus</i>	Radiate copy/uncertain reverse	AD 270–296	-
269	8030	Cu alloy <i>Antoninianus</i>	Radiate copy/?Pax Aug	AD 270–296	-
270	8030	Cu alloy <i>Antoninianus</i>	Allectus/reverse uncertain	AD 293–296	-
275	8039	Cu alloy <i>Antoninianus</i>	Carausius/Pax Aug	AD 286–293	As RIC v, Part II, Carausius 101
276	8030	Cu alloy <i>Antoninianus</i>	Radiate copy/uncertain reverse	AD 270–296	-
277	8031	Cu alloy <i>Antoninianus</i>	Radiate copy/? Salus reverse	AD 270–296	-
350	8003	Cu alloy <i>Antoninianus</i>	Radiate copy/uncertain reverse	AD 270–296	-
368	8003	Cu alloy <i>Antoninianus</i>	Radiate copy/uncertain reverse	AD 270–296	-
<i>AD 296–317</i>					
255	8030	Cu alloy AE 3 <i>Nummus</i>	Constantine I/Soli Invicto Comiti. London mint	AD 313–314	RIC VII, London, 10
271	8035	Cu alloy AE 3 <i>Nummus</i>	Maximian I/Sacra Mon Urb Augg et Caes NN. Rome mint	AD 302–303	RIC VI, Rome, 103b
371	8030	Cu alloy AE 3 <i>Nummus</i>	Constantine I/Soli Invicto Comiti. Trier mint	AD 310	As RIC VI, Trier, 866a
<i>AD 317–330</i>					
273	8029	Cu alloy AE 3 <i>Nummus</i>	Constantine I/Victoria Laetae Princ Perp. Trier Mint	AD 319	RIC VII, Trier, 222
274	8029	Cu alloy AE 3 <i>Nummus</i>	Constantine I/2 captives with Standard. Virtus Exercit.	AD 318–324	-
289	8036	Cu alloy AE 3 <i>Nummus</i>	Crispus/Beata Tranquillitas. London Mint	AD 321	RIC VII, London, 210
<i>AD 330–348</i>					
285	8099	Cu alloy AE 3 <i>Nummus</i>	Urbs Roman/Wolf and Twins	AD 330–345	?Copy as LRBC I, 51
<i>3rd–4th century AD</i>					
256	8030	Cu alloy AE 3 <i>Nummus</i>	Illegible	3rd–4th century	-
283	8099	Cu alloy AE 4 <i>Nummus</i>	Illegible	3rd–4th century	-
367	8003	Cu alloy AE 3 <i>Nummus</i>	Illegible	3rd–4th century	-
372	8003	Cu alloy AE 3 <i>Nummus</i>	Illegible	3rd–4th century	-

The earliest coin was an extremely worn *sestertius* of Antoninus Pius (ON 272, context 8035). Despite the high level of wear, it is unlikely to have remained in circulation beyond the mid- to late 3rd century AD.

The main peaks of coin loss (Fig. 15) were in Periods 13 and 14 – comprising the radiate *antoniniani* of the late 3rd century AD; 15 coins date to these periods, of which 11 were either copies or probable copies. Two of the ‘official’ issues from period 13 (ONs 268 and 290) still bear traces of having been silvered.

Smaller quantities of 4th-century coins were recovered. However, these do not correspond to the normal pattern of coin loss in the 4th century, in which coins of Periods 17 and 19 tend to dominate, but instead comprise small quantities of coins from Periods 15–17. The three Period 15 coins were issues of Maximian (ON 271, minted in AD 302–3) and Constantine I (struck in AD 310 and 313–4). Three Period 16 coins were found – two struck by Constantine I (ONs 273 and 274, both from context 8029) and a third by Crispus (ON 289 from layer 8036). The single period 17 coin (ON 285 from context 8099) is probably a copy of an ‘Urbs Roma’ issue of the House of Constantine minted between AD 330 and 345.

A number of contexts contain more than one coin (demolition layers 8029, 8030, 8031, 8033, 8035, subsoil 8036 and context 8039). Context 8029 contained two coins – ONs 273 and 274. Both were *nummi* struck by Constantine I in AD 319 and 318 – 324 respectively. The close similarity between the dates of these coins strongly suggests that the context in which they were found was contemporaneous. The five coins recovered from context 8030 (ONs 256, 258, 269, 270 and 276) are also likely to be contemporary. These include three probable radiate copies, a corroded coin of 3rd to 4th century date and an *antoninianus* of Allectus (AD 293 – 296), the latter suggesting a date late in the 3rd century or very early in the 4th. Two radiate copies (ONs 277 and 278) and an *antoninianus* of Postumus (ON 268, AD 259 – 268) were recovered from context 8031, and suggest a late third century date for this context.

The two coins from context 8035, however, do not provide a similar date – here, the context is dated by ON 271, the follis of Maximian minted in AD 302 – 3, not by the *sestertius* of Antoninus Pius (ON 272), which is residual. Likewise the two radiate *antoniniani* (ONs 280 and 290) are also likely to be residual in context 8036, which is dated by a *nummus* of Crispus minted in AD 319 (ON 289). Only one of the coins in context 8099 could be closely dated – ON 285, a copy of an ‘Urbs Roma’ issue of the House of Constantine

minted between AD 330 and 345. The second, ON 283, can only be dated to the 3rd or 4th centuries on the basis of its size.

The pattern of coin loss is unusual. The single early coin hints at coin use on the site as early as the 2nd century AD, whilst the majority of the remaining coins point to activity in the late 3rd and early 4th century AD. The pattern of 4th century coin loss is particularly unusual, with only a single period 17 coin and no period 19 coins recovered. This could indicate that coin use on the site had largely ceased by this time or that the majority of the coins on the site are derived from a dispersed hoard originally deposited in the AD 330s.

Metal objects

by Lorraine Mephram

Thirty-nine objects were found in Romano-British contexts at Fairlawne Park, to which can be added four more objects from topsoil which are probably Romano-British on typological grounds (35 iron, 4 copper alloy, 4 lead). Of these, 25 are iron nails, and nine unidentifiable iron objects; these are not discussed further here.

Representing personal items are a finger-ring (ON 284) from well 8092, and a possible intaglio setting (ON 266) from subsoil 8036, both objects of copper alloy. No detail is visible on either object. There is also one copper alloy hairpin (ON 265), a complete example with a spherical head and bead and reel motifs below; Crummy dates this type of pin to the 2nd and 3rd centuries AD at Colchester (Crummy 1983, 28–9, type 2).

Evidence for the repair of pottery vessels comes in the form of three lead pot-mends (ONs 365, 379, 381), all topsoil finds. Two of these are reel-shaped and one cramp-like (Schuster 2011, 247–9, types 1 and 2, respectively). While the reel-shaped pot-mends are commonly found on coarsewares, the cramp-like pot-mends of Schuster's type 2 were found at Springhead only on samian vessels, although occasionally found on coarsewares elsewhere.

A small hemispherical lead weight with a central perforation (weight 26 g) (ON 366), also from the topsoil, is not particularly chronologically distinctive but could be Romano-British. It may be noted that the Roman *uncia* weight class was equivalent to 27.288 g (see Schuster 2011, table 50).

A copper alloy fitting (ON 261), from a demolition layer within the villa (Room A), could be a decorative hasp, perhaps from a box (see Crummy 1983, no. 2223); it features two rivet holes and a rear loop.

A partial copper alloy ring (original diameter 40 mm), with circular cross-section (ON 267), is of unknown function (compare examples from Colchester: Crummy 1983, fig. 197). This object came from a demolition layer within the villa (Room C).

Pottery

by Kayt Marter Brown

The assemblage from this site totals 1594 sherds (29,285g) of pottery, mainly Romano-British, although a small Late Iron Age element (5 sherds) was also recognised, all occurring as residual finds (Table 18). There is an early Romano-British bias to the assemblage (over 80% by weight), with little definitive later material present, despite the predominantly late 3rd–early 4th century AD range of the coins (above). The assemblage is in a relatively good condition, with an average sherd weight of 18 g. This figure is surprisingly high given that a significant proportion of material derives from destruction layers within the building, it is, however, inflated somewhat by the pottery in the trackway ditches (8195 and 8196) and ditch 8179 which comprise large grog-tempered fragments, with an average sherd weight of 24 g.

Fine and specialist wares, namely amphorae, imported and British colour-coat wares, whitewares, mortaria and white-slipped wares comprise just over 2% (by sherd count) of the assemblage (Table 20), somewhat lower than would usually be expected from a villa building in the region. In comparison, just under 9% of the assemblage from the villa at Northfleet consisted of fine and specialist wares, and 12% of the Thurnham villa assemblage (Biddulph 2011, table 21; Booth 2009, 18). At least three amphorae were identified, comprising Dressel 1b and Dressel 20 (both early and late examples), and associated with the transportation of wine and olive oil respectively. The Dressel type 1b sherds are one of the earliest amphora types recovered in British contexts, being of mid-1st century BC date (Fitzpatrick 2003, 12) and, although an uncommon occurrence in Kent (Pollard 1988, 33), this form has recently been identified at Thurnham Villa (Barclay *et al.* 2006, 165). Imported fine wares are restricted to seven sherds of Central Gaulish samian, including a Dr. 35 cup or 36 bowl rim sherd and four body sherds from a single Dr. 45 mortaria. Three Oxfordshire whiteware sherds, including a rim (Young 1977, type M18) dated to *c.* AD 240–300, from Room E, are the only other mortaria present. Six Oxfordshire colour-coat sherds from a single vessel within pit 8025 comprise one of the latest vessels within the assemblage, dating from the mid-

3rd century, whilst Nene Valley colour-coated wares include at least one sherd from a hunt cup (oven 8126), probably of mid-/late 2nd to early 3rd century AD date.

Table 20 Plaxtol: quantification of pottery assemblage by period/fabric

Period	Fabric type	No. sherds	Weight (g)
Late Iron Age	Amphora	3	150
	Glauconitic	1	20
	Shell	1	9
	<i>sub-total</i>	5	179
Romano-British	Greyware (Fine)	35	173
	Amphora	7	346
	Flint	7	21
	Greyware	25	528
	Grog	80	1461
	Misc. colour-coated ware	6	9
	Nene Valley colour-coated ware	1	16
	North Kent/south Essex shell	63	3118
	Oxidised	36	349
	Oxfordshire colour-coated ware	6	11
	Oxfordshire whiteware mortaria	3	153
	Patchgrove	922	18,977
	Samian	7	53
	Sand	7	88
	South-east Dorset Black Burnished ware	8	78
	Thameside greyware	372	3687
	White slipped red wares	4	38
	<i>sub-total</i>	1589	29,106
Total		1594	29,285

Coarsewares are dominated by Patchgrove ware (Pollard 1988), predominantly storage jars, plain everted-rim necked and bead-rimmed jars (Thompson 1982, types C6-1, B1-1, B1-4, C1-4 respectively; Fig. 16, 1–2). A similar range of forms occurs in other, unsourced grog-tempered wares, with the addition of bead-and-flange bowl/dish rims, of the distinctive hard grog-tempered fabric characteristic of the period after the mid-4th century AD in west Kent (Pollard 1988, 149; Fig. 16, 3–4, 7–10; Fig. 17, 12–13, 16–17). Greyware vessels form the second largest coarseware group, with products from the prolific local

Thameside industry, comprising a range of bead-rim, lid-seated and everted-rim jars, cordoned bowls and flanged dishes (Monaghan 1987 types 3E, 3H, 3J, 3L, 4J, 5A, 5C, 5F; Fig. 17, 14–15). Other, less well represented coarsewares include bead-rimmed and lid-seated jars in North Kent/South Essex shelly wares (Fig. 16, 5–6), and a small quantity of south-east Dorset Black Burnished ware plain and drop-flanged dishes.

Late Iron Age/early Romano-British sherds dominate the assemblage; good groups were recovered from the sequence of ditches and pits to the south-east of the ‘villa’ building. However, a considerable proportion of this material also occurred as residual finds within the demolition layers contained inside the villa. Ditches 8195 and 8196 contained a range of fragmentary vessels (Fig. 16, 1–4; Fig. 17, 12–13), likely to be of later 1st to early 2nd century AD date, although included within this material are the three sherds of Dressel 1b amphora which hint at potentially earlier activity in the vicinity. One slightly unusual characteristic of the assemblage is the high proportion of Patchgrove ware (58% by sherd count) in relation to the Thameside/Upchurch greywares (23%), which may again indicate activity during the early/mid-1st century AD, prior to the expansion of the Thameside/Upchurch industries during the third quarter of the 1st century AD (Monaghan 1987; Breen 1987). Patchgrove ware production also increased around this time, although it is only the necked jars and storage jars that continue into the 3rd century, when production declined sharply for both industries.

Two of the grog-tempered jars from ditch 8179 (Fig. 16, 9–10) display black resinous residue on the neck; analysis of similar deposits within the Springhead assemblage were shown to be primarily composed of birch bark tar (Seager Smith *et al.* 2011, 124–5).

Second to 3rd century AD material is restricted, with the most convincing evidence recovered from within oven 8126. Contained within the fill of this feature were fragments from a central Gaulish samian mortarium, a Nene Valley hunt cup of mid-2nd–3rd century date, late Dressel 20 fragments, and a Thameside everted rim jar and dog-dish (Monaghan 1987 types 3J and 5E1, dated 110/120AD and 130/160AD respectively).

Definitive late Romano-British material comprises drop-flanged bowls in greyware and Black Burnished ware (and a jar sherd in the latter ware with ‘late’ surface treatment), a late Romano-British grog-tempered fabric characteristic of the period after the mid-4th century AD in west Kent (Pollard 1988, 149), and an Oxfordshire white ware mortarium (Young 1977, type M18). All these later types occurred within the destruction layers

identified within rooms A, C, D and E or associated with walls 8038 and 8044 alongside residual earlier material. Other distinctive chronological indicators for the late Romano-British period are scarce or absent, such as Portchester D ware and Oxfordshire colour-coated wares. Oxfordshire colour-coated wares are unlikely to have arrived in Kent before the mid-3rd century (Booth 2009, 12; Pollard 1988, 202); the only example here being a later 3rd century vessel from pit 8025.

A rim sherd from a shell-tempered jar of probable Anglo-Saxon date (Fig. 17, 18), recovered from Room E (8031), is the only evidence post-Romano-British activity on the site.

Illustrated vessels (Figs 16–17):

Fig. 16

1. Wide-mouthed jar, Patchgrove ware; context 8016, cut 8015, ditch 8195.
2. Everted rim jar, Patchgrove ware; context 8016, cut 8015, ditch 8195.
3. Cordoned jar (Thompson C6-1), grog-tempered ware; context 8017, cut 8015, ditch 8195.
4. Bead-rim jar, grog-tempered ware; context 8017, cut 8015, ditch 8195.
5. Lid-seated jar, shell-tempered ware; context 8139, cut 8142, ditch 8179.
6. Lid-seated jar, shell-tempered ware; context 8139, cut 8142, ditch 8179.
7. Bead-rim jar, grog-tempered ware; context 8139, cut 8142, ditch 8179.
8. Bead-rim jar, grog-tempered ware; context 8139, cut 8142, ditch 8179.
9. Necked jar, grog-tempered ware; pitch residue externally around neck; context 8139, cut 8142, ditch 8179.
10. Necked jar, grog-tempered ware; pitch residue around neck; context 8139, cut 8142, ditch 8179.
11. Carinated dish (Thompson type G1-1), grog-tempered ware; context 8139, cut 8142, ditch 8179.

Fig. 17

12. Large storage jar, grog-tempered ware; context 8155, cut 8153, ditch 8196.
13. Necked jar (Thompson type B1-4), grog-tempered ware; context 8155, cut 8153, ditch 8196.
14. Drop-flanged bowl (Monaghan type 5A2), Thameside greyware; context 8031, Room E.
15. Drop-flanged bowl (Monaghan type 5A2), Thameside greyware; context 8031, Room E.
16. Drop-flanged bowl, grog-tempered ware; context 8031, Room E.
17. Drop-flanged bowl, grog-tempered ware; context 8031, Room E.
18. Shell-tempered jar rim, probably Anglo-Saxon; context 8031, Room E.

Romano-British ceramic building material

by Kayt Mater Brown

A small assemblage of 340 fragments (36,662 g) of Romano-British ceramic building materials was recovered from the pipeline, the majority of it (27,947 g) from Fairlawne Park,

Plaxtol, and a smaller quantity from New Ash Green (7867 g). A range of Romano-British brick and tile types was identified, and this included five fragments with roller-stamped marking.

The basic records compiled during assessment have been enhanced by further fabric identification of the roller-stamped pieces, and the complete assemblage re-scanned to determine the range of other brick and tile types in this fabric. The five examples with roller-stamping occurred in two fabrics:

- F1 (four fragments from three tiles) orange fabric with cream silty streaks, fine iron oxide inclusions, common poorly sorted ferruginous dark red clay pellets, occasional quartz;
- F2 (one fragment) very fine red-brown fabric with very few (usually quartz) or no inclusions present.

Neither of these two fabrics was positively identified outside the Fairlawne Park, Plaxtol site, although two possible examples of fabric F1 came from New Ash Green. Fabric F1 was also used for other brick and tile types at Fairlawne Park; it accounts for 54% (by count, 64% by weight) of the material recovered. Although no exact parallels for the fabric have been identified, it does share similarities with fabric group 6 as defined by Betts *et al.* (1997, 22) with a possible (unidentified) kiln source in North Kent. The fabric also shares similarities with the Museum of London fabric type 3018 (Pringle 2002, 158), the probable source of this fabric being the southern Weald area. At Northfleet villa the group E fabrics were also likened to fabric 3018, although here they accounted for just 3.7% of the assemblage (Poole 2011, 327). Fabric 1 was used for a range of tile types, with single examples of *tegula* and *imbrex* roof tiles, and brick, together with an undiagnostic flat fragment and 21 featureless fragments.

Fabric F2 is not too dissimilar to London fabric group 2815 and Northfleet fabric group D (Poole 2011, 327), both utilising the London Clay deposits in the vicinity. Apart from one roller-stamped voussoir, the only other piece identified in fabric F2 at Fairlawne Park was an *imbrex* roof tile.

Roofing materials were surprisingly scarce (14 examples from Fairlawne Park, 10 from New Ash Green). Most *tegula* fragments were small, but complete widths were obtainable from two pieces, both from wall 8038 in the Fairlawne Park villa building. A single large fragment with a Warry type C cut away (Warry 2006) and a two-finger concentric

semi-circle signature measured 380 mm wide and 18 mm thick, with a flange height of 48 mm. The second *tegula* had a single peg-hole and measured 305 mm wide. Fragments from a further 23 *tegulae* were recorded, primarily from Fairlawne Park (14 examples), and include a single upper cut-away and lower cut-aways of Warry type B. The cut-away types B and C are dated by Warry to *c.* AD 100–180 and *c.* AD 160–260 respectively. *Imbrices* were poorly represented, with just eight examples (three from Fairlawne Park, five from New Ash Green), although one piece, from wall 8038 in the villa building, was the only other fragment, apart from the roller-stamped piece, to occur in Fabric 2. Relatively large pieces of two *tegulae* were recorded within wall 8187, and it is likely that much of the roofing material was used (or re-used) in a similar manner, as the small quantity of roofing tile recovered is unlikely to indicate the presence of buildings with tiled roofs in the vicinity.

Bricks were most commonly used as lacing and bonding courses in walls and also in the construction of hypocausts. Identifiable brick types came only from Fairlawne Park. These included a complete *lydion* from wall 8187. Further fragments from the same wall, which could be reconstructed to a minimum length of 383mm, and with a thickness of 58 mm, may derive from either a *sesquipedalis* (which could be used for flooring) or the larger and more versatile *bipedalis* (Brodribb 1987, 40-2). The fabric of this latter brick is a very poorly wedged example of fabric 1. It is possible that the smaller brick forms, *pedalis* and *bessalis*, are also represented within the fragments which range in thickness from 36–58 mm, present at both Fairlawne Park and at New Ash Green. These bricks were often used in hypocaust construction, the larger *pedalis* acting as base or capping for *pilae* (pillars) constructed of *bessales* (*ibid.*, 34–7).

Firmer evidence to support the presence of a hypocaust at Fairlawne Park is present in the form of 13 box flue (*tubulus*) fragments. None survives sufficiently well to be assigned to specific box flue types (see Brodribb 1987, 70–83; Betts *et al.* 1997, 8–12). Both plain and combed faces were present, the combing occurring primarily as straight or diagonal lines with only one example of curved combing (from Room C).

Five fragments from four tiles displayed roller-stamped design (Fig. 18) indicating their manufacture by a tiler named *Cabriabanus* (Betts *et al.* 1997, 102, die 31). Three of these tiles occur in fabric F1, the fourth example in fabric F2. The fragment in F2 has a roller-stamped design on two adjacent faces and may therefore derive from a *voussoir* tile, as combing on all four faces is far more common on this tile type than on box flue. None of the

other roller-stamped pieces can be definitively assigned to tile type, although they are likely to represent box flue tiles. The *Cabriabanus* die has also been recognised at the nearby Sedgebrook villa, and at the Darenth villa, in both cases found only on voussoirs (*ibid.*, 102).

The varied range of brick and tile types identified at Fairlawne Park could represent the remains of a tiled building with a hypocaust. There are, however, a number of factors which counter this interpretation. Despite the well-known practice of salvage and re-use of Romano-British building materials, the quantity recovered from the site is still low, and some *tegula* roof tiles appear to have been incorporated into walls (for example wall 8187).

Environmental

Charred plant remains

by Chris J. Stevens

While a number of samples were assessed from the site, relatively few had significant numbers of charred plant remains, with just occasional grains, glume bases and weed seeds of oats or vetch/wild pea recorded. The two samples analysed were both associated with kiln/oven 8109 (Table 21). The sample from demolition layer (8110) had only a few unidentifiable cereals within it. A broad scan of the sample from the fill of the stoke-hole (8112) indicated that it was extremely rich in charred cereal remains – mainly grains and glumes of hulled wheat; estimates were produced from 10% sub-samples of the 1 mm and 0.5 mm fractions. While relatively few of the glume bases were identifiable, the more intact examples could be clearly seen to be spelt wheat.

Discussion

These samples indicate the cultivation of hulled wheat, most probably spelt wheat, with little evidence for barley. This dominance of spelt wheat is generally in common with villas in Kent (see Stevens 2006b; Smith and Davies 2006; Robinson 1999). Two of the samples from the Mount villa, Maidstone could be seen to be of burnt spikelets and the ratio of grain to glume bases was between around 5.6:1 and 7.7:1 grains to each glume (Robinson 1999, table 9). The assemblage from the kiln/oven here is more glume rich and it is possible that it is a mixture of glume waste and burnt spikelets. The presence of a reasonable number of clearly germinated grains also indicates that the oven was potentially used, at least some of the time, for the malting of grain. Such evidence for beer making, in particular malting, from Roman

sites in Kent is relatively widespread (see Stevens *et al.* 2011) and was also seen in limited quantities at Bower Road, Smeeth (Stevens 2006b), the Mount villa (Robinson 1999) and the Northfleet villa (Smith 2011). Kiln/oven 8109 would therefore appear to have had a possible agricultural function, perhaps for the drying of sprouted grain within the spikelet to arrest germination in the production of malt and/or parching prior to pounding.

Unfortunately there are too few weed seeds to ascertain any more about cultivation practises, and it might be noted that the assemblages at the Mount villa, Maidstone, were also dominated by grain and chaff with very few weed seeds (Robinson 1999).

Table 21 Plaxtol: Charred plant remains from oven/kiln 8109

		8109	8109
Feature			
Context		8110	8112
Sample		8003	8004
Size (l)		8	10
Cereals			
<i>Hordeum vulgare</i> sl (grain)	barley	-	2
<i>Triticum spelta</i> (spikelet fork)	spelt wheat	-	est. 10
<i>Triticum spelta</i> (glume bases)	spelt wheat	-	est. 10
<i>T. dicoccum/spelta</i> (grain)	emmer/spelt wheat	-	1170
<i>T. dicoccum/spelta</i> (germinated grain)	emmer/spelt wheat	-	180
<i>T. dicoccum/spelta</i> (spikelet fork)	emmer/spelt wheat	-	est. 40
<i>T. dicoccum/spelta</i> (glume bases)	emmer/spelt wheat	-	2120
Cereal indet. (grains)	cereal	6	200
Cereal indet. (est. whole grains from frags.)	cereal	10	est. 1700
Other species			
<i>Rumex</i> sp	docks	-	est. 2
<i>Avena</i> sp. (grain)	oat grain	-	est. 8

Charcoal

by Catherine Barnett

Charcoal from two features was analysed. The sample from the stoke-hole of kiln/oven 8109 (context 8112) contained a very small quantity of identifiable charcoal which proved to be of ash, ash twigwood and oak. Pit 8119 (context 8122), on the other hand, yielded a large assemblage solely comprising ash roundwood and large twigwood (88–240 mm diameter, cut at 4–12 years). Despite the difference in volume, the presence of juvenile ash corresponds

with the material from the kiln/oven, and although the relationship between the two features is unclear, it may be that the spent fuel from kiln 8109 was cleared out into the nearby pits.

Analysis of domestic and food production features at Springhead (Barnett 2011) indicate the availability and exploitation of a far wider range of woody types in Kent during the Romano-British period, with a minimum of 22 types identified, with birch, dogwood and ash, the latter a major part of the assemblages at Fairlawne Park, relatively unimportant. This suggests that the assemblage examined here represents particularly localised conditions and availability, and that previously cleared, then regenerated secondary woodland with ash dominated.

Plot 17/02

Approximately 700 m south-east of the villa building, there was a loose group of four otherwise isolated features (Fig. 1). A small gully (20046) contained a piece of box-flue tile and sherds of early and middle Romano-British pottery, while ditch 20048 contained early Romano-British pottery and CBM. There were also two pits, one (20044) undated, the other (20039), measuring 1 m by 1.6 m and 0.3 m deep, containing early Romano-British pottery and part of a Hertfordshire Puddingstone beehive quern, probably of 1st to 2nd century AD date.

Discussion

by Andrew B. Powell and Phil Andrews

While the discovery of a substantial stone building, almost certainly part of an early Romano-British villa, represents one of the major discoveries along the pipeline route, its preservation *in situ* has imposed limits on its interpretation. Fortuitously, it lay almost centrally within the pipeline easement, so that most of its floor plan was exposed. It had a simple, rectangular, ‘cottage villa’ form, with no wings or evidence for a corridor, which is consistent with the development of the building type in Britain as observed by Perring (2002, 72, fig. 24a). The 0.8 m breadths of both the external and internal walls suggests that the building may have had a second floor, probably of timber and wattle-and-daub construction.

The pottery indicates a construction date during the late 1st or very early 2nd century AD. The material from the whole site is dominated by early Romano-British pottery (over 80% by weight), although it comprises less than 50% if the single Patchgrove ware storage jar

from the trackway ditch is excluded. Similarly, within the building alone, the early pottery comprises less than 50% by weight, although in the absence of excavation within the building, this cannot be assumed to be representative of the unrecovered assemblage. Nonetheless, at face value, the assemblage suggests that the main period of the building's occupation extended up to the middle of the 2nd century, followed by a possible decline.

Such early villa buildings, of which there are surprisingly few in Kent (Millett 2007, 152), often lacked the later important reception feature of a portico, and formal dining rooms (*triclinia*) are also uncommon (Black 1987, 53, 73). Instead, this function is likely to have been served by the central room (Room D). According to Perring (*ibid.*, 73), this preference for a central reception room is common in south-east England in the early Romano-British period.

The building was of comparable size to the winged-corridor villa at Sedgebrook, 1.5 km to the east of the site, on the eastern side of the Bourne Brook. The Sedgebrook villa measured 25 m by 11.5 m, with a central room measuring internally 16 m by 5.5 m, and produced pottery similarly dating from the early 1st century AD, but continuing through the Romano-British period (de la Bédoyère 1991, 125–7). A further villa was recorded 600 m to the south of Sedgebrook, south of Allen's Farm, and it was also of winged-corridor type (Luard 1859; Scott 1993, 107).

The Fairlawne Park villa is also of comparable size to the first phase of the villa at Darenth, in the Darent valley on the north side of the Downs, which dates from the early 2nd century but which had evolved by the 4th century into a much larger villa within a complex of buildings (Philp 1984, 72–131); other Kent villas show similar developments. The relatively modest size of the three villas in and around Plaxtol may reflect their location on the southern edge of the distribution of villas in Kent, which are concentrated around the margins of the North Downs, but absent from the Weald to the south (Millett 2007, fig. 5.9).

The south-east facing aspect of the building at Fairlawne Park (Pl. 7), which was constructed on gently sloping ground, would have provided it with wide-ranging views to the south and east (Pl. 7), towards and beyond the broadly contemporary villas east of the Bourne Brook. Given the relatively small number of features recorded beyond the building – three small ovens, a well, assorted small pits and post-holes and probable trackways – it is possible that any associated structures lay outside the easement. A subsequent geophysical survey of the site undertaken in 2010 identified numerous anomalies of probable archaeological origin

extending both north and south of the building, although none could be attributed a character or date (Wessex Archaeology 2010), so it has not been possible to establish whether there were ancillary buildings such as barns in the immediate vicinity.

Nevertheless, the apparent absence of any hypocaust and bath-suite or bath-house, and the lack of (surviving) evidence for tessellated floors, does raise some questions as to the building's status (see Collingwood and Richmond 1969, 133–40; Scott 1994), although this may be explained by its early date when such features were not always present, even in some of the larger buildings (Boyce 2007, 261). The lack of wall plaster is less surprising as this does not generally survive well, particularly as this building had only a shallow covering of topsoil. Winged corridor villas, such as that at Sedgebrook, were generally a mid-2nd century development, with some earlier buildings extended to create this plan form (Perring 2002, 74). The fact that this did not happen here may indicate that the building did not stay in use as a villa much beyond the middle of the 2nd century AD.

Perhaps while the nearby villas remained in use, this building was relegated to use as an agricultural building, for example a barn, from the later 2nd century AD onwards. This was around the time that there were significant social and economic changes in Britain, the reasons for which are not certain, and the landscape came to be dominated by a few increasingly luxurious villas controlling, perhaps, greatly extended estates (Boyce 2007, 264). It may have been these changes around 200 AD that resulted in this villa's decline, along with many smaller (perhaps tenanted) farms that may also have developed in the late 1st century AD as part of the process that led to land being brought into agricultural production.

This leaves still to be explained the date range provided by the coin assemblage which is noticeably later than the main period of the building's occupation as suggested by the pottery. In addition to its late date, however, the coin assemblage is also unusual in that it contained no coins from the second half of the 4th century AD. Despite that fact that the coins, recovered mainly by metal detecting, were found throughout the building, it is possible that they represent a dispersed hoard of the 330s/340s AD concealed in a by then abandoned building.

Anglo-Saxon

Anglo-Saxon cemetery, Pilgrim's Way (MT02, Plot 8/03)

The excavation of part of an Anglo-Saxon inhumation cemetery of late 6th–mid-7th century date, 1 km north-west of Wrotham, is only described here in brief, as the results of the excavation are presented in detail in a separate paper (Stoodley forthcoming).

Table 22 Pilgrim's Way Anglo-Saxon cemetery: grave summary (graves in mortuary monuments shown in bold)

Grave	Orientation: burial (grave)	Grave size	Sex	Age range	Evidence for chamber	Grave goods
<i>With human bone</i>						
7003	S–N	■	Male	Adult	-	W - P -
7006	S–N	■	Male	Adult	-	W K P -
7009	W–E	■	?Female	Adult	✓	- - - -
7010	S–N	■	Male	Adult	-	W K P -
7020	S–N	■	?Male	Adult	-	W K P -
7023	W–E	■	Female	Adult	-	- - - -
7040	S–N	■	?Female	Juvenile	-	- - P -
7049	S–N	■	Male	Adult	✓	W K P -
7067	S–N	■	Male	Adult	✓	W K P V
7077	S–N	■	Male	Adult	-	- K P -
7095	W–E	■	?	Juvenile	-	- K P V
<i>Without human bone</i>						
7033	(W–E)	■	-	-	-	- - - -
7047	(SE–NW)	■	-	-	-	- - - -
7053	(W–E)	■	-	-	-	- - - -
7059	(W–E)	■	-	-	-	- - - -
7115	(W–E)	■	-	-	-	- - P -

Key: ■ = over 1.8 m long; ■ = under 1.5 m long; W = weapon; K = knife; P = personal adornment/jewellery; V = vessel

The site, centred on NGR 559470 159580, was revealed at 150 m aOD at the southern end of a 1.1 ha mitigation area (Fig. 19). It lies immediately adjacent to an ancient trackway, now known as *Pilgrims Way*, which at this location runs along the base of the prominent south-facing escarpment that marks the boundary between the North Downs and the Weald.

The underlying geology of the site is Middle Chalk, with Upper Chalk capped by clay-with-flints to the north, and Lower Chalk, then Gault, to the south (BGS sheet 287, Sevenoaks).

Eleven inhumation graves were excavated within an area measuring 23 m by 19 m (summarised in Table 22). The possible focus of some of the burials was a large, well-furnished burial in a chambered grave encircled by a ring-ditch with an internal setting of post-holes. Adjacent to the ring ditch were two smaller penannular ditches also surrounding graves. The condition of the bone in the graves was generally poor, and a further five grave-like features contained no human bones, although one contained a fragment of glass bead, possibly a grave good. Four of these ‘empty’ graves were small, probably for infants, and it is possible that all the bone had decayed. The fourth, full-sized, ‘empty’ grave had an anomalous NW–SE orientation. Of the other graves eight were orientated approximately north–south and seven approximately east–west.

Other sites

New Ash Green (MT01, Plots 4/01–3)

A number of Anglo-Saxon finds were recovered from this site, although only one feature (pit 6122) was clearly dated to this period (although, as discussed above, it is possible that the crop-dryer is also of this date). Subcircular pit 6122, towards the eastern end of the site, was 2.1 m wide and 0.8 m deep with steep sides and a slightly concave base (Fig. 20). It appears to have silted up naturally to around half its depth (6127), the only finds from this layer consisting of worked and burnt flint, both possibly residual. This was overlain by an almost black, charcoal-rich fill which contained not only Anglo-Saxon pottery (and further worked and burnt flint) but a fragmentary worked bone comb with ring and dot decoration (ON 51; Fig. 22), and fragments of unworked animal bone (219 g). This was sealed by a backfilled layer of sterile brickearth, then two further fills (containing further worked and burnt flint and animal bone), the uppermost of which (6123) contained five fragments of thin copper alloy sheet (ON 52).

Anglo-Saxon finds

by Lorraine Mephram

A late Saxon copper alloy strap-end (ON 385), recovered from topsoil, can be paralleled within Thomas’s typology of strap-ends from the period 750–1100, belonging to his class A,

with a split end, convex-sided plate, and a zoomorphic terminal, which is considered to be a type-fossil of the 9th century, although having its origins in the 8th century and continuing in use, in the north of the country at least, into the 10th century (Thomas 2003, 2). This example has a simple curvilinear design on one face (whether incised or engraved is uncertain); the detail on the terminal is obscure, but could be a stylised animal-head. Overall, the decorative detail is sufficient to assign this strap-end, within the general class, to the type 2 (patterned) strap-ends, a diverse type covering a range of non-representational, curvilinear and geometric patterns (*ibid.*, 2, fig. 1, 5–7). The functional associations of the strap-end may be several, including use on a textile girdle or garter, or on a fastening strap.

Ten sherds of early–mid-Anglo-Saxon (*c.* AD 575–800) organic-tempered ware (similar to Canterbury [CAT] fabric EMS4: Macpherson-Grant and Mainman 1995) were recovered from pit 6122 (fill 6126) towards the eastern (Figs 9, and 21, 3). In addition, four sandy sherds, probably of similar date, were recovered from the uppermost fill (6423) in Romano-British feature 6452 (cut 6414), alongside two jar rims (three sherds) in a late Anglo-Saxon/early medieval shell-tempered fabric (Fig. 21, 1–2).

The fragmentary remains of a bone comb (ON 51; Fig. 22) were found in pit 6122, alongside sherds of organic-tempered pottery. The comb, which is made of antler, is of single-sided, composite form, comprising a series of tooth-plates (10–14 mm wide) held together by two sets of side-plates, both of plano-convex cross-section, one set running horizontally across the comb, and the second following the curving outline of the comb back. The teeth are relatively wide-spaced (six per 10 mm). The upper parts of the tooth-plates are decorated with incised ring-and-dot motifs, as are the end plates, which are sub-rectangular, with rounded corners, and with cut-out decoration, possibly anthropomorphic (a rudimentary ‘head’ formed by cutting out a narrow curving band). The end plates would have projected beyond the ends of the side-plates. Both sets of side-plates are decorated with rows of ring-and-dot motifs, framed within incised chevron bands. Full reconstruction of the comb has not been possible, but the overall original length is estimated to have been approximately 200 mm, and the maximum width about 70 mm.

An example from New Wintles Farm, Eynsham, Oxfordshire, provides a general parallel for this type of composite comb with double side-plates (MacGregor 1985, 86–7, fig. 49b), although no direct parallel for the decorated end plates has been found. Finds of this

type of comb on the continent suggest a Frisian origin, and they have a date range from the 5th or 6th centuries through to the 8th century.

Illustrated Anglo-Saxon vessels (Fig. 21)

1. Jar, sandy ware; New Ash Green, context 6423, pit 6414.
2. Sandy ware jar rim, New Ash Green, context 6423, pit 6414.
3. Organic-tempered rim, New Ash Green, context 6126, pit 6122.

Charred plant remains

by Chris J. Stevens

A sample from the uppermost fill (6123) of pit 6122 contained relatively few cereal grains, but did have a number of wheat rachis fragments, of *Triticum aestivum* type, as well as several free-threshing wheat grains (Table 23). While the presence of free-threshing wheat was seen in several of the Romano-British samples from this site, the presence of rachis fragments, which are often largely removed during threshing prior to storage, might suggest the processing of ears. The pit also produced several seeds of fat-hen, and oats and/or brome grass (*Bromus sp.*), a seed of flax (*Linum usitatissimum*) and several fragments of hazelnut shell, and hawthorn and sloe stones, along with a single thorn.

Table 23 New Ash Green: charred plant remains from Anglo-Saxon pit 6122

	Feature	6122
	Context	6123
	Sample	6024
	Size (l)	10
Cereals		
<i>H. vulgare sl</i> (hulled grain)	hulled barley	1
<i>Triticum sp.</i> (grains)	wheat	4
<i>T. dicoccum/spelta</i> (glume bases)	emmer/spelt wheat	cf.1
<i>T. aestivum/turgidum</i> (grain)	bread wheat	5
<i>T. cf. aestivum sl</i> (rachis frag.)	bread wheat	20
Other species		
<i>Corylus avellana</i> (fragments)	hazel	3
<i>Chenopodium album</i>	fat-hen	16
<i>Atriplex sp.</i>	oraches	4
<i>Rumex sp</i>	docks	3
<i>Prunus spinosa</i>	sloe	2f.

	Feature	6122
	Context	6123
	Sample	6024
	Size (l)	10
<i>Crataegus/Prunus</i> (thorns indet.)	hawthorn/sloe	1
<i>Crataegus monogyna</i>	hawthorn	3f.
<i>Linum usitatissimum</i> (seed)	flax	1
<i>Galium aparine</i>	cleavers	1
<i>Cyperaceae</i> indet.	sedges	1
<i>Poaceae</i> (culm node)	grass culm node	1
<i>Lolium perenne</i>	rye grass	3
<i>Poa/Phleum</i> sp.	meadow grass/cats'-tails	2
<i>Avena</i> sp. (grain)	oat grain	4
<i>Avena/Bromus</i> sp.	oat/brome	11
<i>Bromus</i> sp.	brome	1

Plot 11/01

A pit (20022) (Fig. 3), close to Middle Bronze Age cremation grave 20027 but otherwise isolated, contained two fills, the lower of which (20023) contained six sherds of organic-tempered early Anglo-Saxon pottery (23 g) and fragments of animal bone and charcoal. It measured 1.1 m by 1.6 m and was 0.6 m deep.

East of Ightham Court (Plot 12/08)

A substantial feature (5010), aligned approximately east–west, was recorded 80 m south-west of the Late Iron Age/early Romano-British enclosure (Fig. 7). It was up to 4.7 m wide and 0.6 m deep with a very shallow concave profile. Its middle of three fills (5012) produced four sherds of early Anglo-Saxon pottery (two organic-tempered and two sandy sherds), along with fragments of fired clay and animal bone, while its upper fill (5011) contained a large, roughly rectilinear block of sarsen (13.2 kg) perhaps used as a building stone.

Fairlawne Park, Plaxtol

A rim sherd from a jar in a shell-tempered fabric, probably Anglo-Saxon in date, was recovered from the cleaning of Room E (8031) in the Roman villa building; it is probably intrusive.

Conclusion

The staged programme of archaeological fieldwork undertaken along the Farningham to Hadlow pipeline has added substantially to the archaeology of West Kent, with regionally and nationally significant finds of Mesolithic, Middle–Late Bronze Age, Late Iron Age to Romano-British, and Anglo-Saxon dates. The north–south line of the route provided a transect over major geological and topographical divisions with the landscape.

It crossed the Chalk plateau of the North Downs revealing unexpected evidence of downland exploitation during the Mesolithic, as well as land division, settlement and industry in the early Romano-British period. Below the prominent escarpment that bounds the southern edge of the Upper Chalk, it crossed the line of a trackway, already ancient in date when a burial ground was established there in the early Anglo-Saxon period; another cemetery lies further along the trackway to the east, at Wrotham.

Further south, the emerging spring-line, where Middle and Lower Chalk gives way to Gault Clay, appears to have attracted later prehistoric communities for both burial and settlement from the Middle Bronze Age into the Middle Iron Age. Initially dispersed, and possibly thinly spread, in the Late Iron Age a substantial enclosure was established within site of the large hillfort at Oldbury built on a prominent outlier of the Greensand ridge.

Both the enclosure and the hillfort continued in occupation into the early Romano-British period, although by then new forms of high status settlement and agricultural organisation of the landscape were taking hold, of which the villa building in Fairlawne Park, Plaxtol, was an example. However, this building's small size, simple form and possible early decline may reflect its location on the southern margin of this form of settlement which was absent from the Weald to the south. Even the nearby winged-corridor villas at Sedgebrook and south of Allen's Farm were of similarly modest size, unlike some of the villas on the northern side of North Downs which were considerably enlarged and elaborated during the Romano-British period.

It is notable that many of the most significant finds had neither been anticipated nor indicated either by the desk-based assessment of the route, or by the early fieldwork stages – fieldwalking, geophysical survey and trench evaluation – and were only revealed during the stripping of the pipeline easement.



Figure 1: The course of the pipeline, with the excavation and watching brief sites mentioned in text

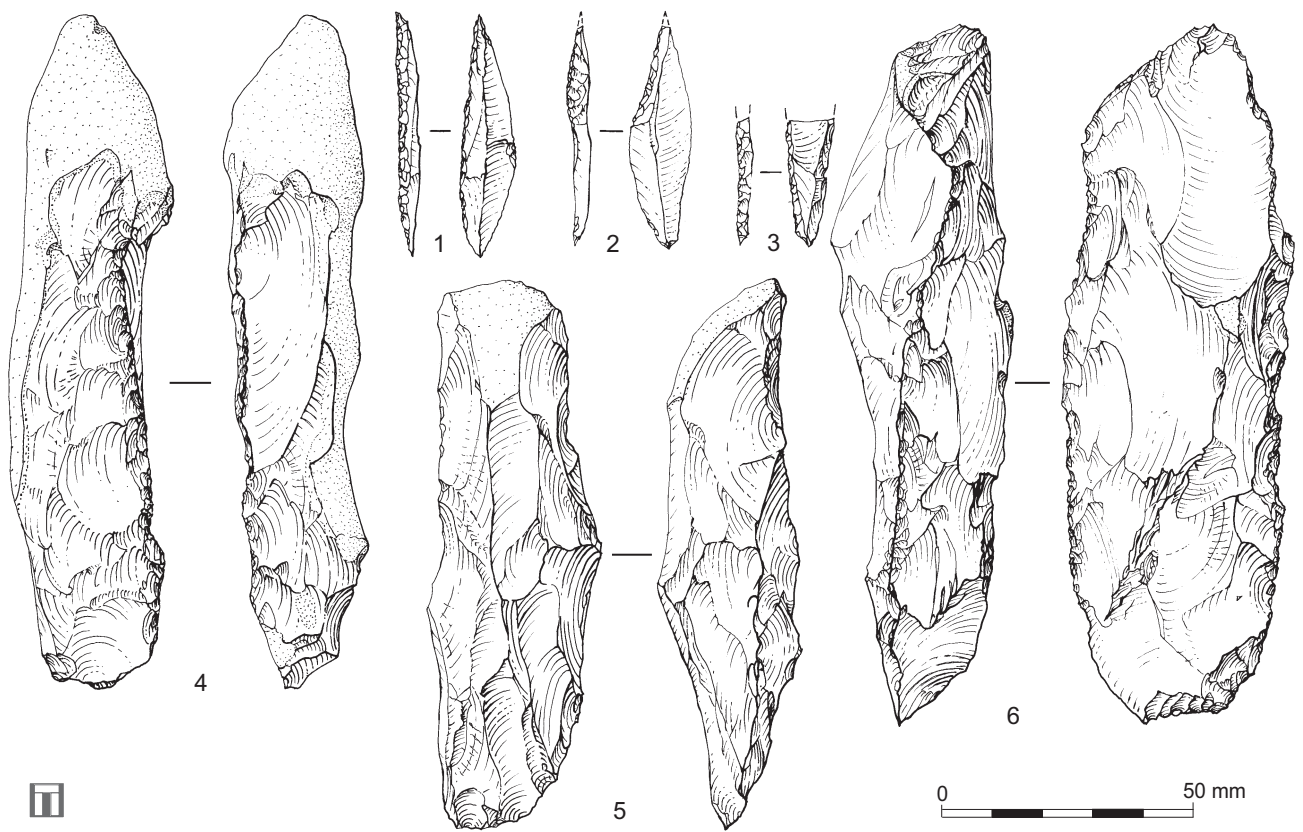


Figure 2: Mesolithic worked flints

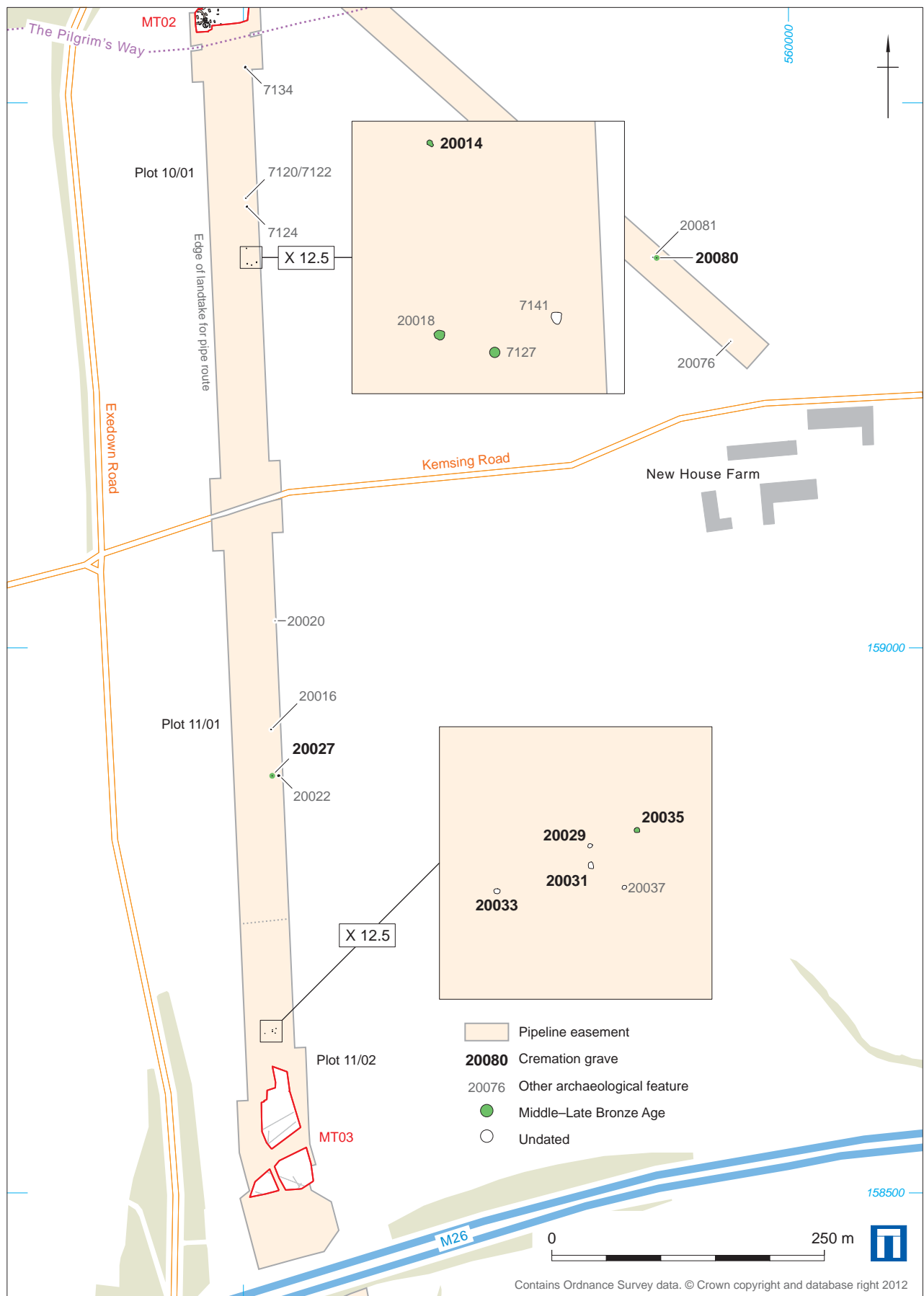


Figure 3: Locations of Middle Bronze Age cremation burials, and other prehistoric features

OxCal v4.1.7 Bronk Ramsey (2010); r:5 Atmospheric data from Reimer et al (2009);

Grave 20035
Cremated bone 20036
(SUERC-34553, 2930±30 BP)

Grave 20072
Cremated bone 20073
(SUERC-34554, 2945±30 BP)

Grave 20080
Cremated bone 20079
(SUERC-34555, 2975±30 BP)

Grave 20027
Cremated bone 20028
(SUERC-34549, 3010±30 BP)

Grave 20014
Cremated bone 20015
(SUERC-34548, 3085±30 BP)

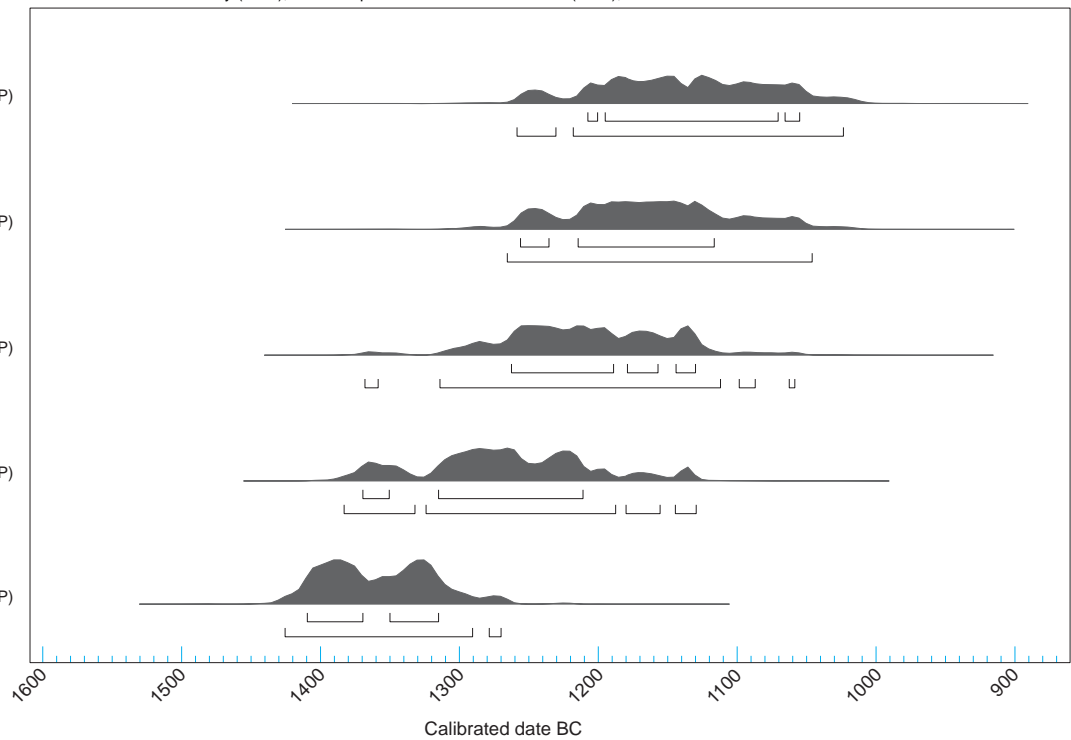


Figure 4: Radiocarbon dating probability distribution for cremation burials

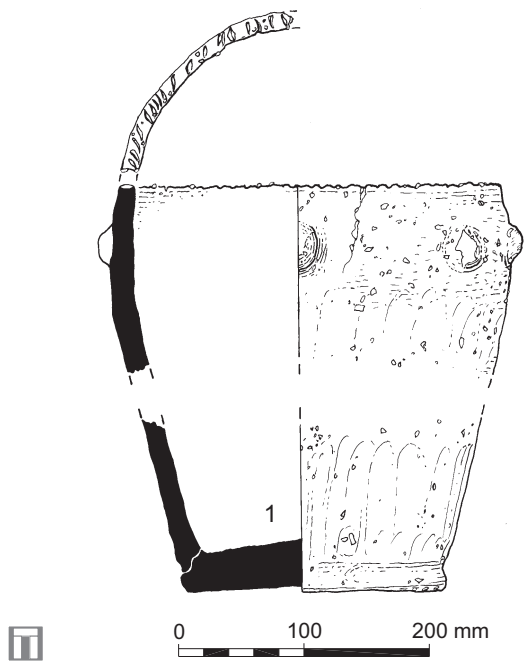


Figure 5: Late prehistoric vessel from Plot 10/01

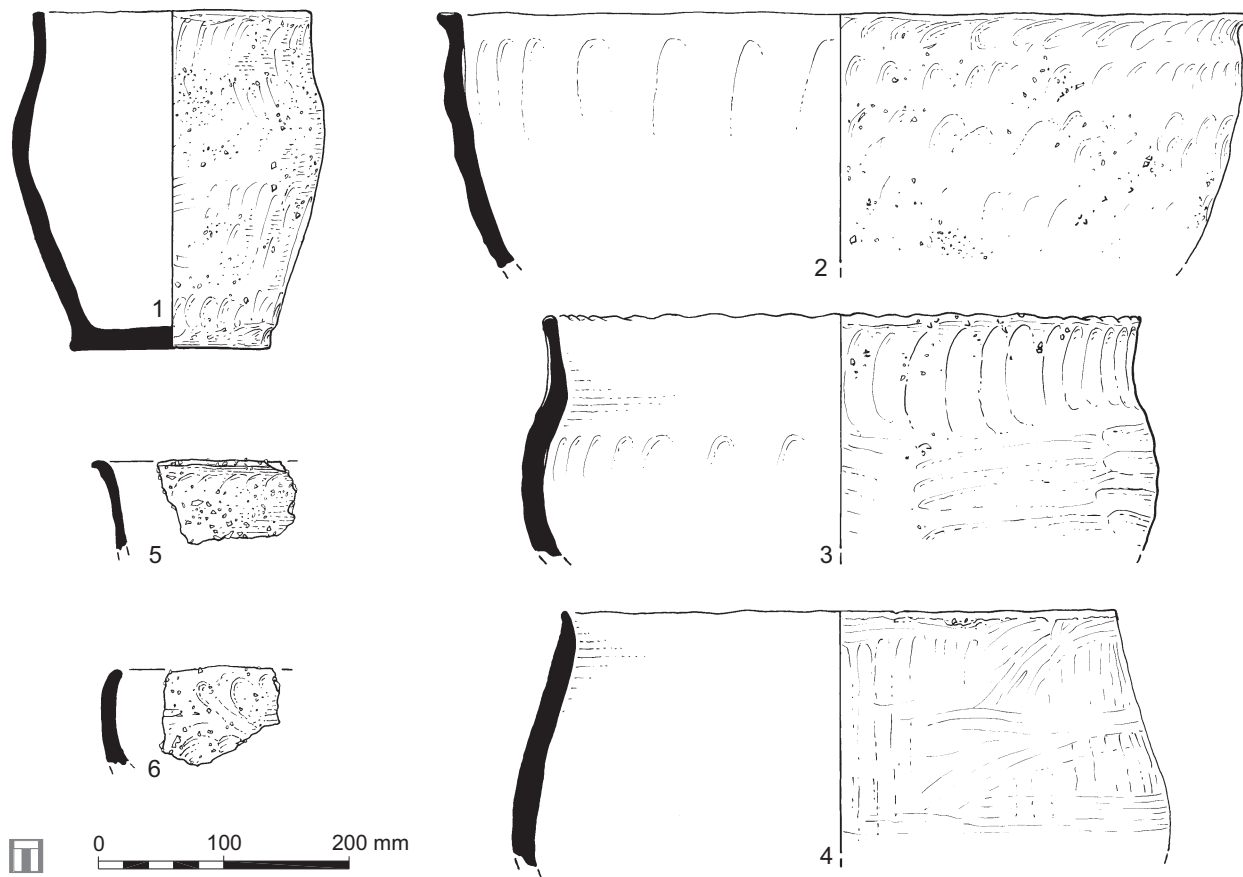


Figure 6: Late prehistoric pottery from enclosure east of Ightham Court

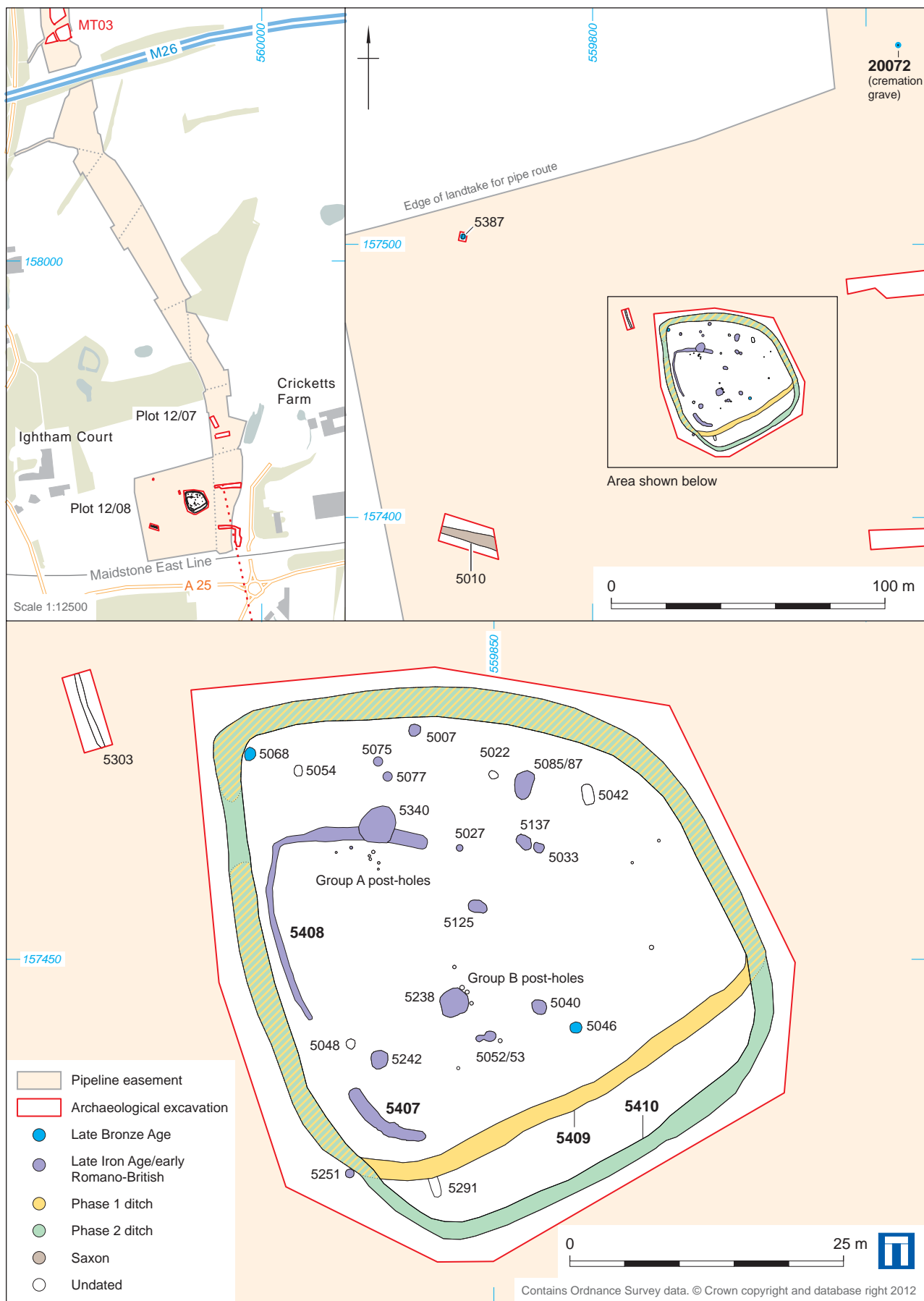


Figure 7: Late Iron Age/early Romano-British enclosure east of Ightham Court

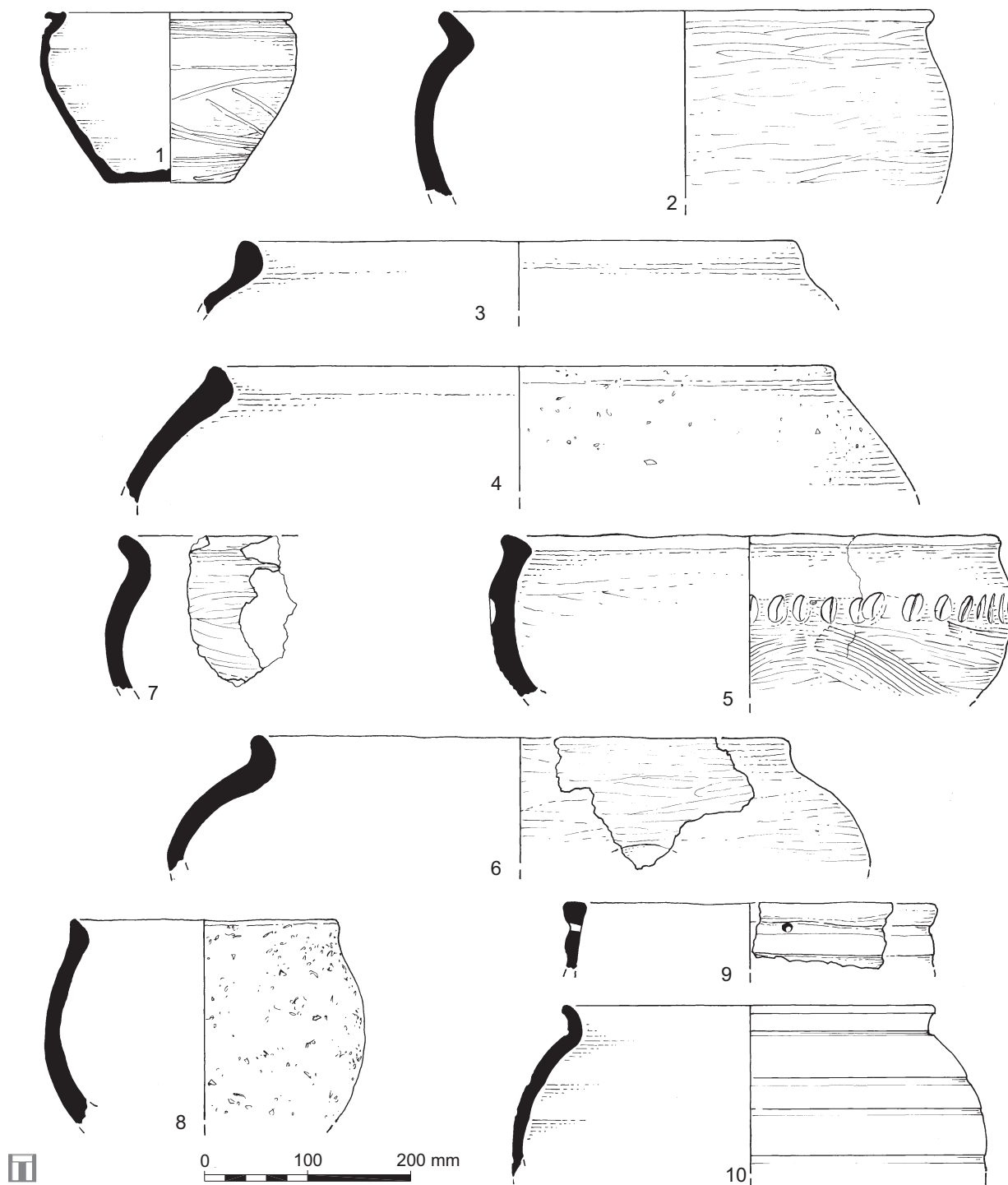


Figure 8: East of Ightham Court: Late Iron Age/early Romano-British pottery

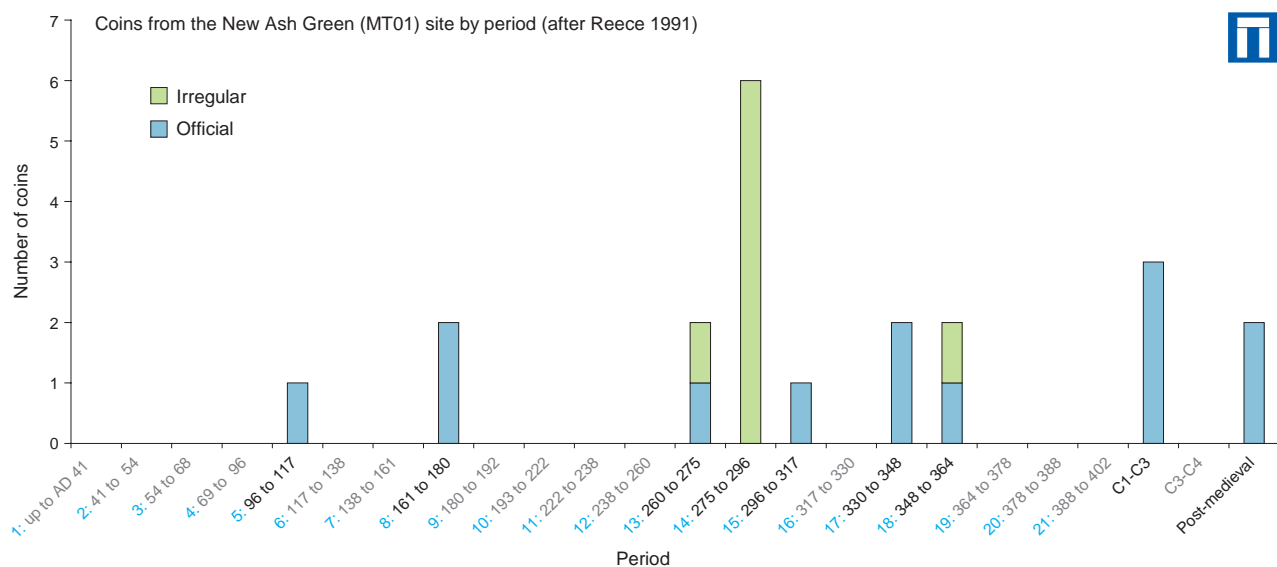


Figure 10: Coins from New Ash Green by period

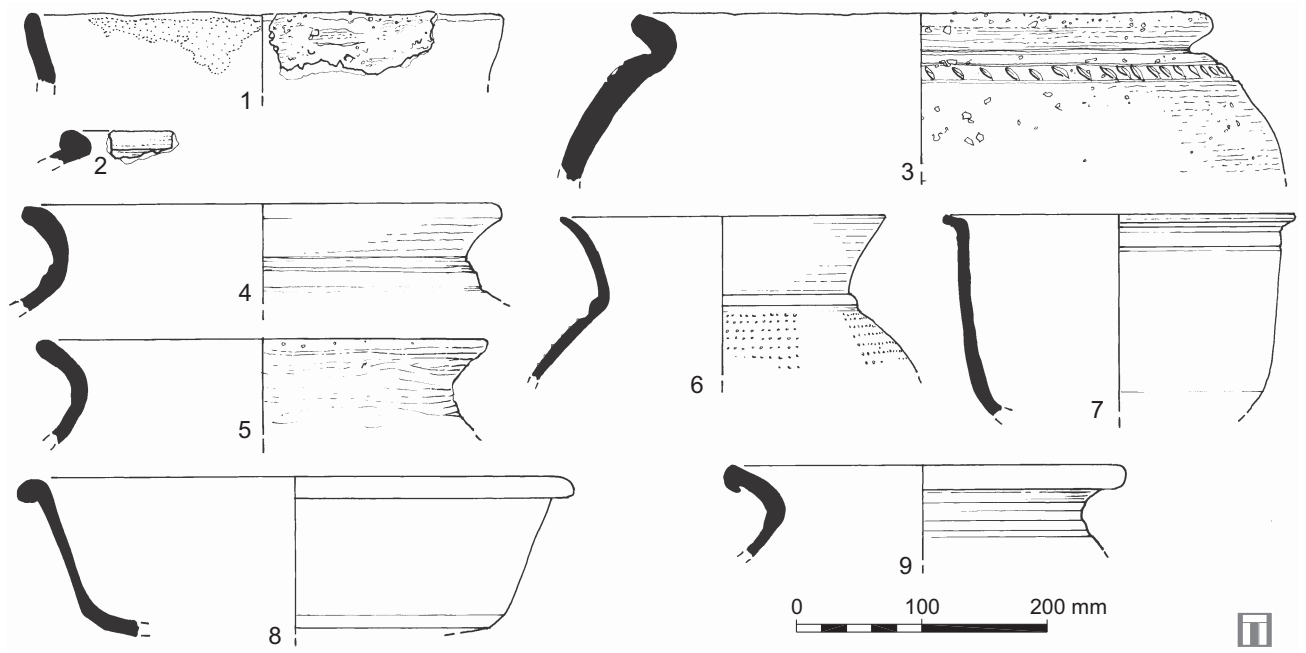


Figure 11: Late Iron Age and Romano-British pottery from New Ash Green

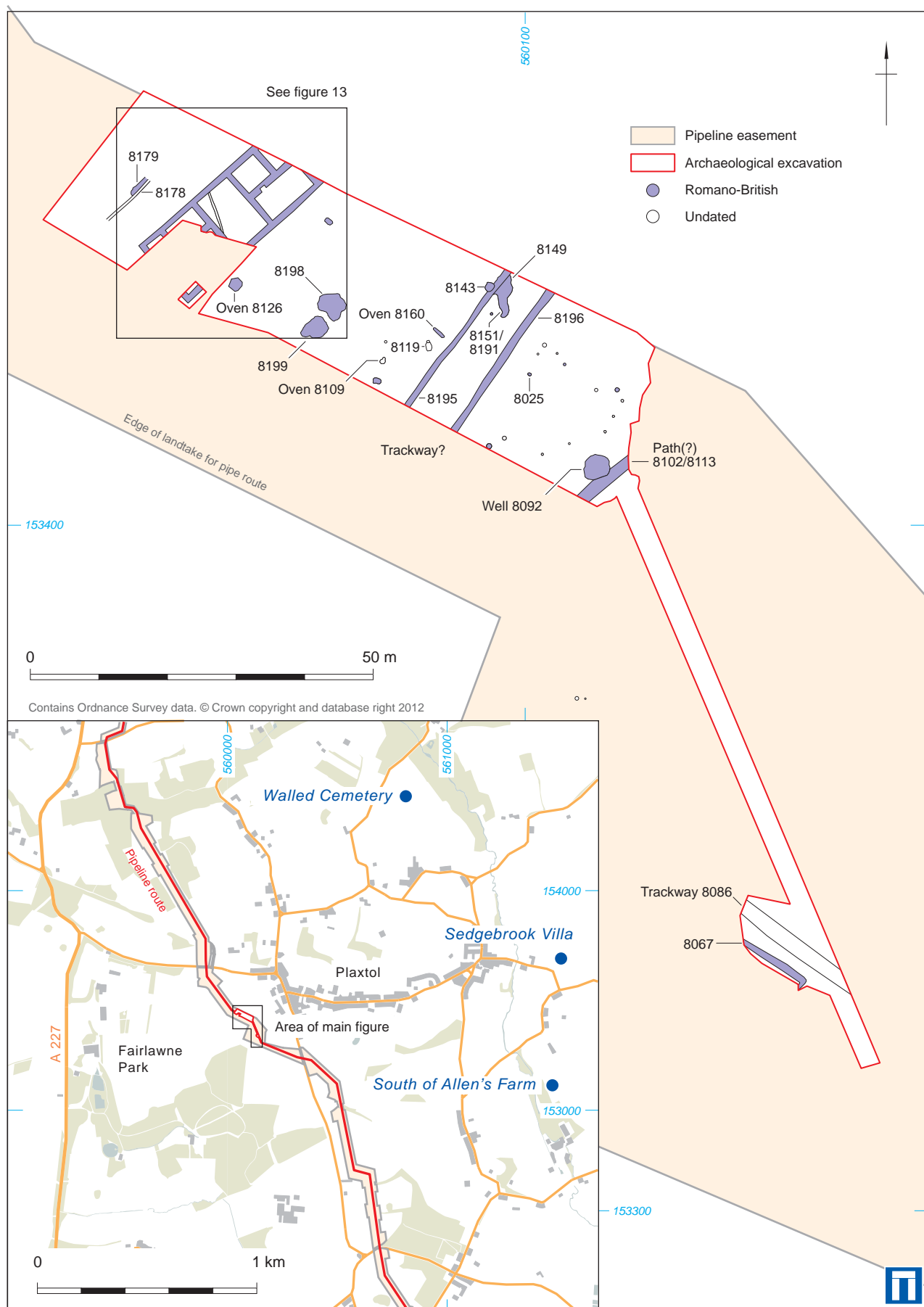


Figure 12: Fairlawne Park, Plaxtol, Roman villa

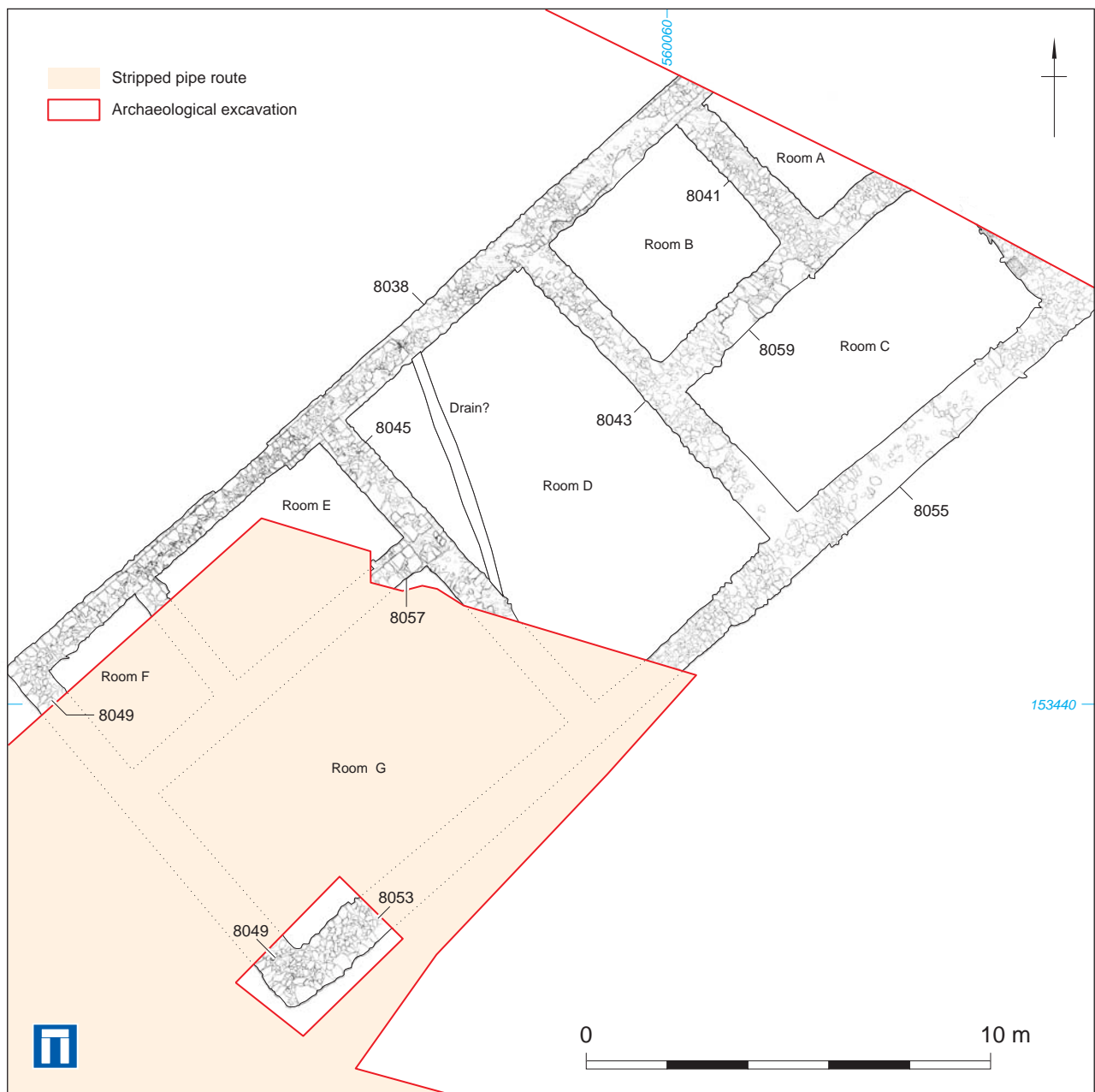


Figure 13: Plan of Roman building

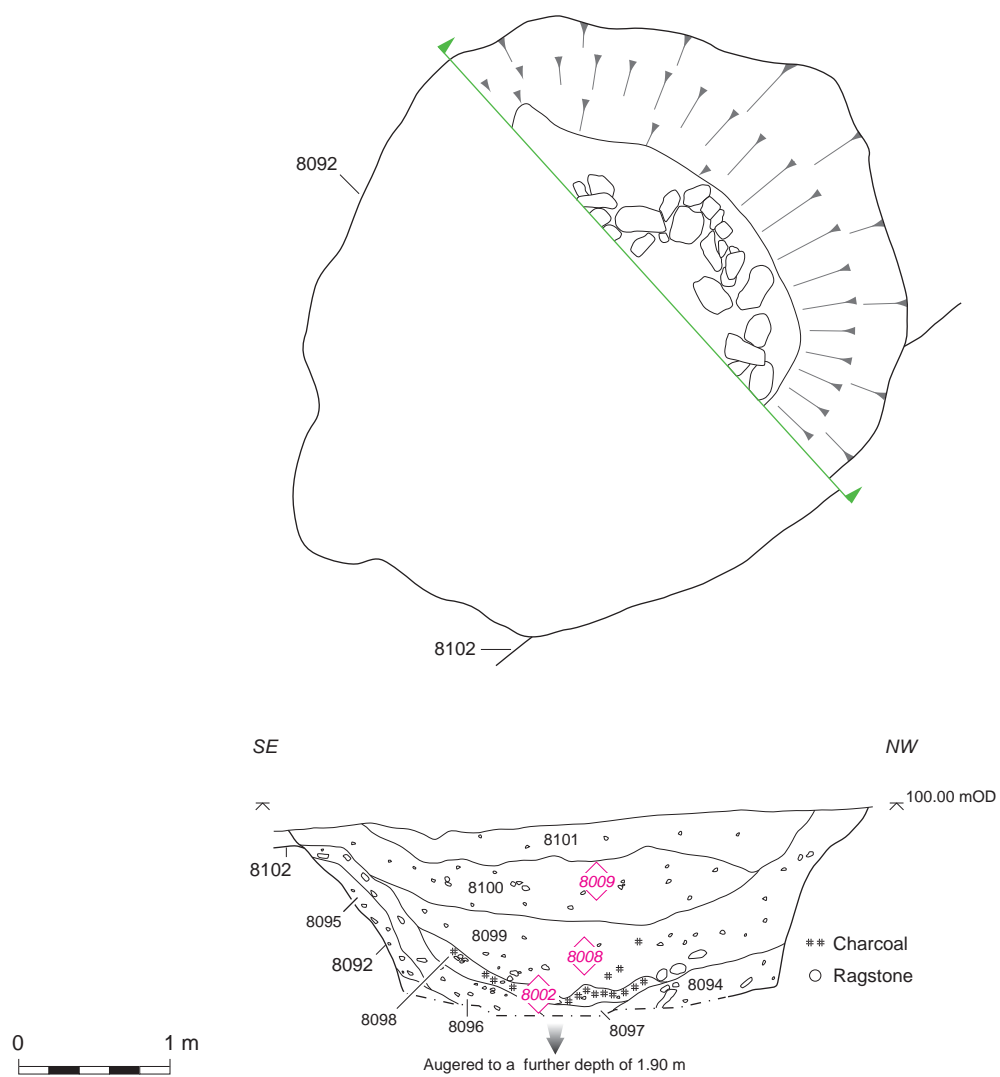


Figure 14: Plan and section of Romano-British well 8092

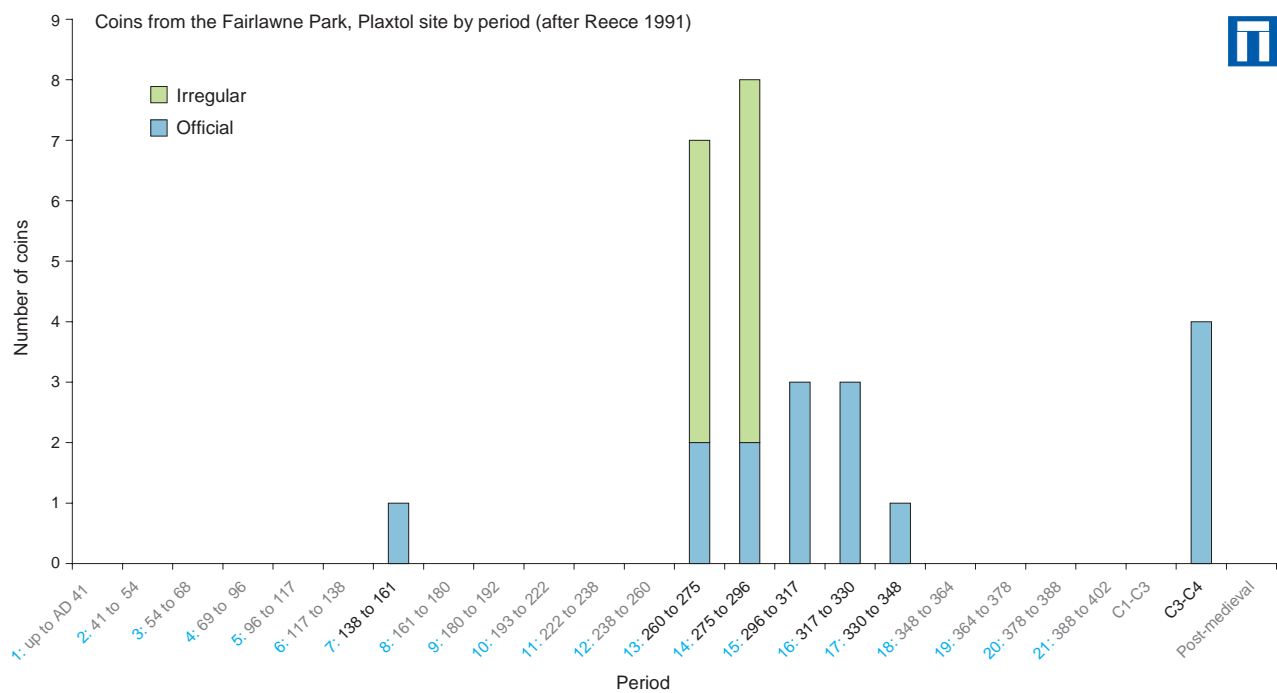


Figure 15: Coins from Fairlawne Park, Plaxtol

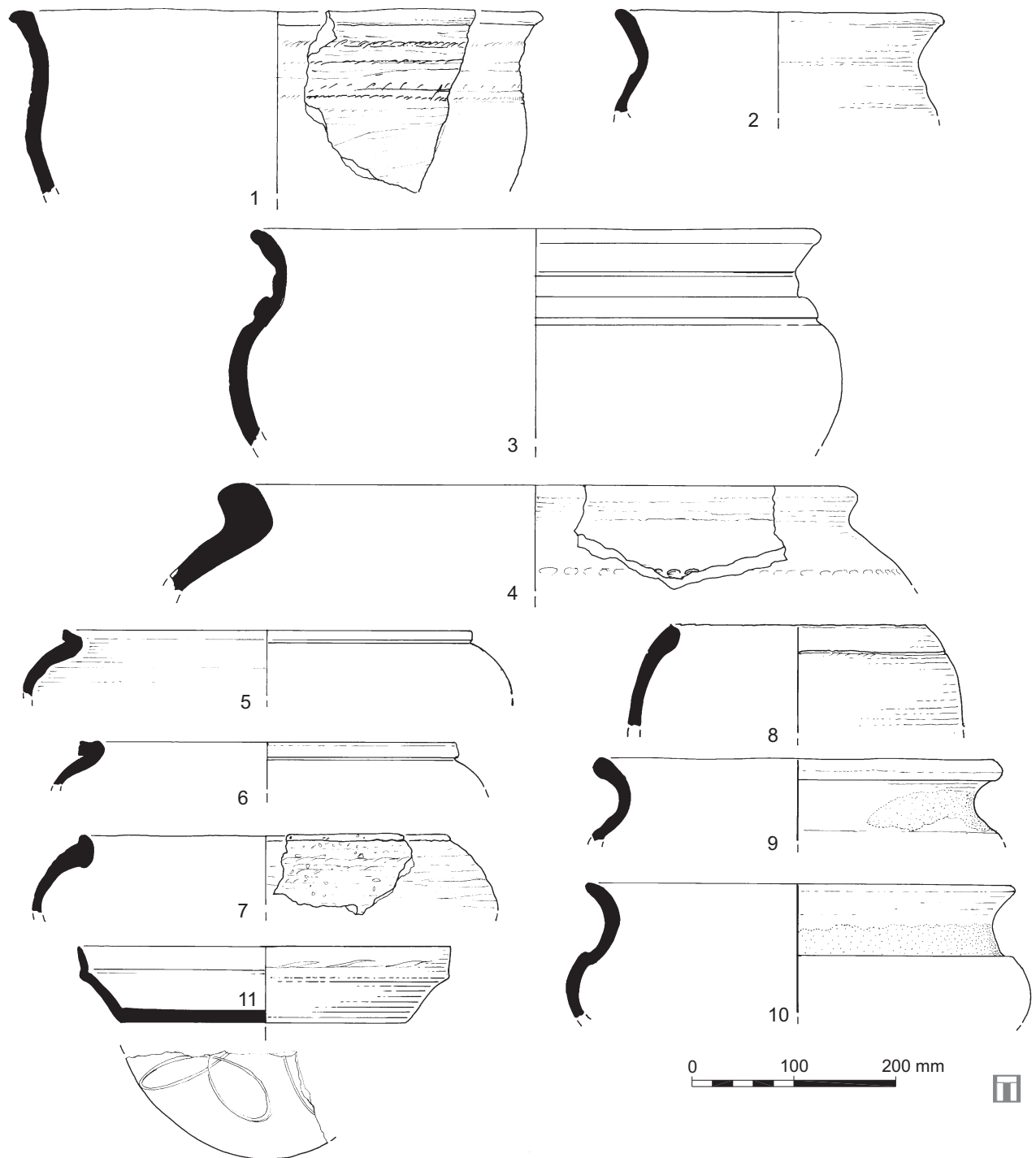


Figure 16: Romano-British pottery from Fairlawne Park, Plaxtol

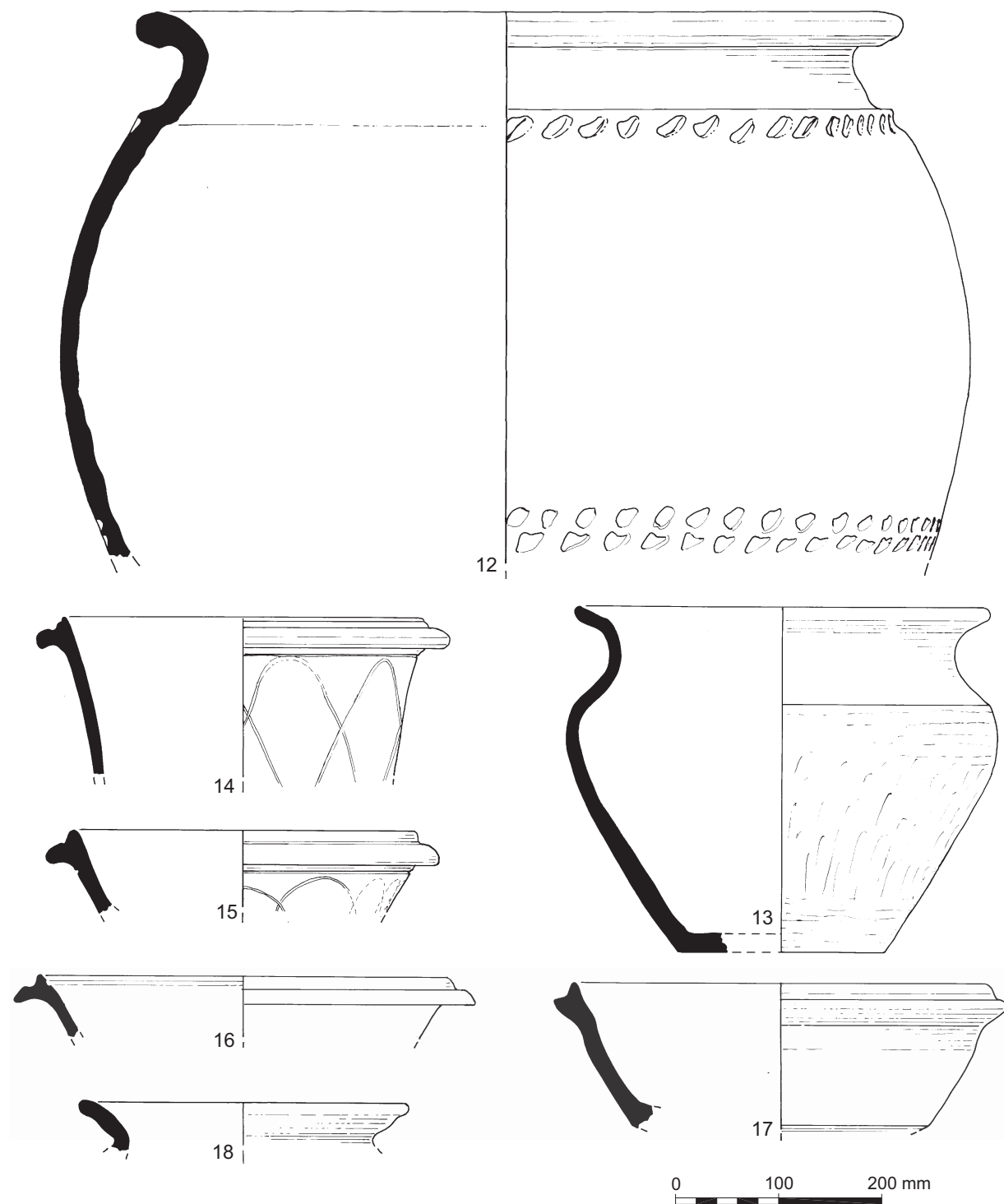


Figure 17: Romano-British and Anglo-Saxon pottery from Fairlawne Park, Plaxtol

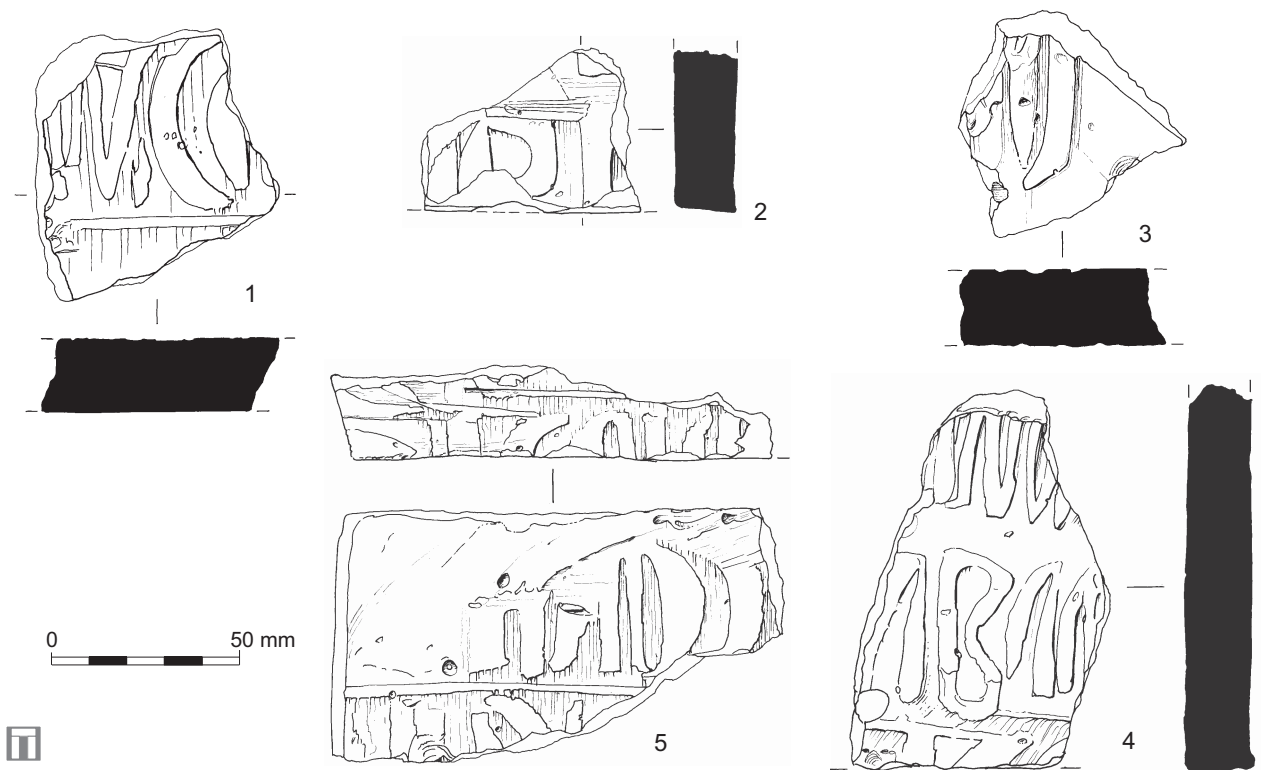


Figure 18: Tiles with roller-stamped design from Fairlawne Park, Plaxtol

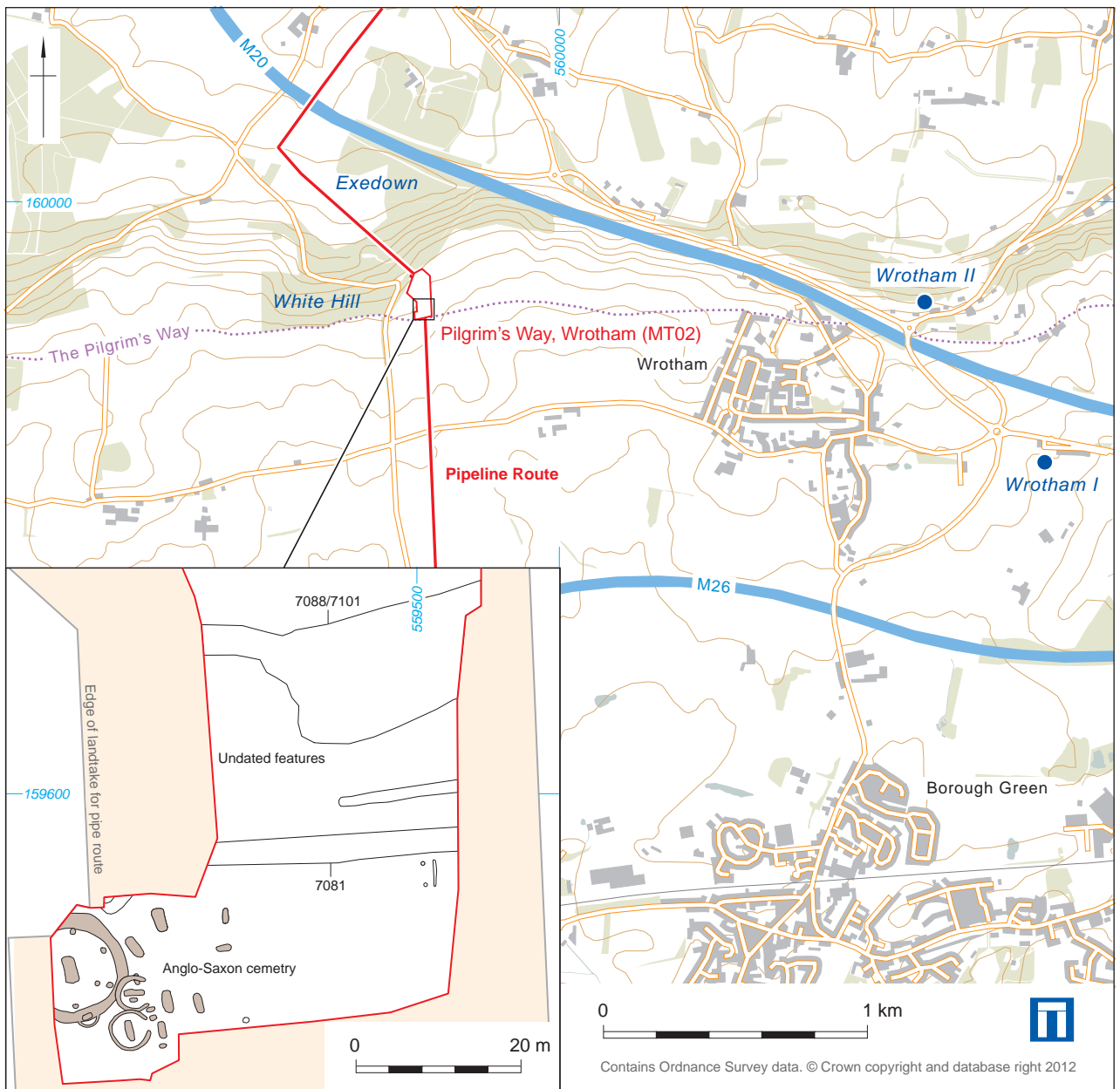


Figure 19: Anglo-Saxon cemetery, Pilgrim's Way

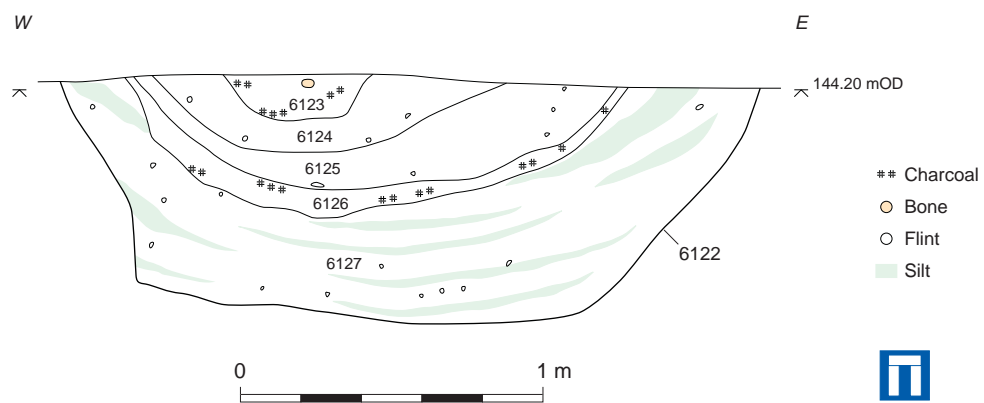


Figure 20: New Ash Green Anglo-Saxon pit 6122 section

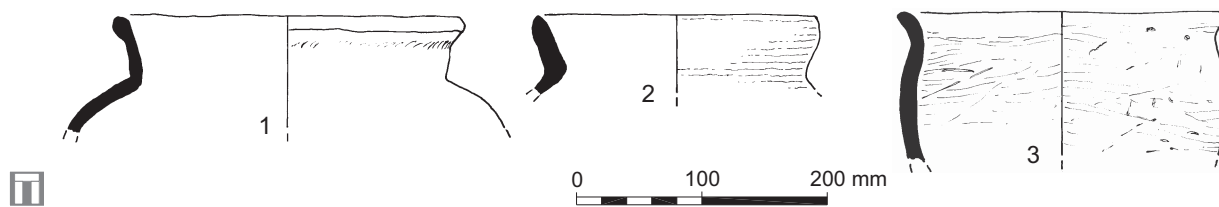


Figure 21: Saxon pottery

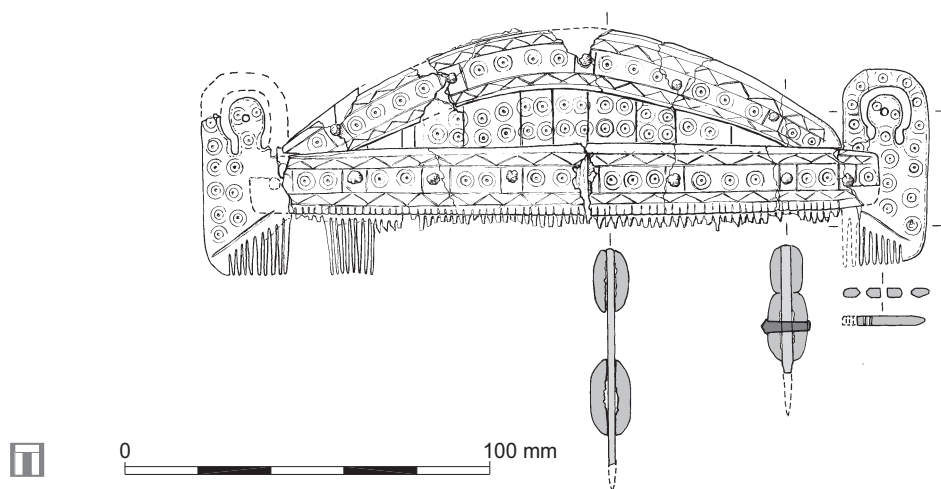


Figure 22: Saxon comb from pit 6122



Plate 1: New Ash Green, soil layer 6342 containing Mesolithic flints; box section against northern baulk to lower right (view from south-east)



Plate 2: East of Ightham Court: northern terminal of first phase enclosure ditch 5409, and second phase recut 5410 crossing the enclosure entrance (view from south-west)



Plate 3: East of Ightham Court: east-facing section of pit 5340



Plate 4: East of Ightham Court: south-facing section of pit 5242



Plate 5: New Ash Green: machine slot through pond 6451 (view from east)



Plate 6: New Ash Green: crop-dryer 6110 (view from south-east)



Plate 7: Fairlawne Park Roman villa, with view towards the south-east

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The archive and finds are currently stored under project code 70300–4 at the offices of Wessex Archaeology, Old Sarum, Salisbury, until accepted by a Kent museum.

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