

**EXCAVATIONS OF BRONZE AGE, ROMAN AND MEDIEVAL SETTLEMENT ON LAND
AT WINGFIELD BANK, NORTHFLEET, KENT 2008**
By Kate Wheaton, Alan Hardy, and Andrew Norton

Summary

In April and May 2008 Oxford Archaeology (OA) undertook a programme of fieldwork at Wingfield Bank, Northfleet, Kent, in advance of development by, and on behalf of Chinacorp Seven Plc. Five phases of activity were identified. Flint scatters denoted a Mesolithic/Neolithic presence, but the first indications of settlement were identified in a late Bronze Age ditch. No significant Iron Age occupation was found, although a gold stater was recovered from the silting of a natural hollow on the site and a hearth or oven base was dated to the late Iron Age. Early Roman settlement was represented by field ditches and two possible grain stores. The settlement will have been associated with the closely adjacent religious complex at Springhead. It was abandoned by the early fourth century, and there was no further occupation until the twelfth century. Field boundaries, waterholes and fences relating to the documented settlement of Wenifalle were found, and correlated with the settlement layout found in the 1999 excavation to the south. The site was abandoned by the late fourteenth century, and apart from a single sixteenth-century field ditch, remained deserted until the twentieth century.

Introduction

Project background

In April and May 2008 Oxford Archaeology (OA) carried out programme of strip, map and sample excavation on land at Wingfield Bank, Northfleet, Gravesend, Kent (NGR TQ 6222 7257) in advance of development, on behalf of Chinacorp Seven Plc and in respect of a brief prepared by Archaeologist Ben Found, of Kent County Council.

Location, topography and geology (*Fig 1*)

The development site lies c. 2km south of the core of Northfleet, just north of the A2, on the south-west edge of a headland overlooking the Ebbsfleet Valley to the west and with other lower ground to the south. The elevation is c. 32m above Ordnance Datum. The drift geology comprises Pleistocene Head Deposits (sand, chalky clay and flinty gravel), over Cretaceous Upper Chalk.

Archaeological and historical background

Prehistoric, Roman and Saxon

Early prehistoric material is rare in the immediate vicinity of the site, although the Ebbsfleet valley has long been known for its nationally important evidence. Recent work (Wenban-Smith and Bates in prep) has shown that in the Northfleet area deposits spanning at least three interglacials are present. The CTRL excavations at Springhead just to the west revealed limited evidence of Neolithic deposits and a more varied range of middle to late Bronze Age features, the latter including pits, field system ditches and burnt mounds and two ring-ditches. These were mainly concentrated in an area some 700 m north-west of the present site (Andrews *et al.* 2011), while subsequent work on the east side of the valley outside the CTRL land-take has revealed further elements of a middle-late Bronze Age field system. More Bronze Age features have been examined east of the present site along the ridge on the line of the A2 (Allen *et al.* 2012). Both the top and the sloping sides of the ridge were therefore attractive locations for activity in this period.

Early and middle Iron Age activity is scarce in the area, although some features of these periods were encountered in the A2 work to the east (*ibid.*) and on the stretch of CTRL Section 1 route in the same general area. By the late Iron Age, however, Springhead was becoming established as a significant focus of activity. This developed into the major cult centre and

associated settlement of *Vagniacis* (Rivet and Smith 1979, 485) in the early Roman period, with early and middle Roman settlement spreading along the line of Watling Street, the main land route to London, and an important cemetery to the south at Pepper Hill (Biddulph 2006). Already well-known as a result of excavation from the 1950s onwards (for summaries see eg Burnham and Wachter (1990, 192-8) and Detsicas (1983, 60-76)), understanding of the Springhead complex has been transformed by recent work associated with Section 2 of CTRL (Andrews *et al.* 2011). Some elements of the complex examined in that work lie on the sloping side of the plateau barely 250m due west of the present site. Late Iron Age and early Roman rural settlement is known from work on CTRL Section 1 and the A2 to the east. Late Roman activity appears to be less common both at Springhead and in the rural settlements to the east, although it is present in one of the CTRL sites at Hazells Road (Askew 2006). Some 1.5km to the north, however, the villa at Northfleet, established in the second century, was intensively occupied into the late Roman period (Andrews *et al.* 2011).

Sporadic early and middle Saxon settlement has been identified in the vicinity (*ibid.*), but while the fixed points of large cemeteries are known, such as Springhead (*ibid.*) and Northfleet (Smith 1848), settlement itself seems to have been more dispersed. More permanent settlement reappears in the late Saxon period, alongside the still-functioning route of Watling Street, the main link from London to Canterbury, in the form of a scatter of farmsteads, which later in the medieval period appear to be rationalised in terms of their layout, possibly a reflection of their control by the see of Rochester. Among the lands acquired by the monks is the settlement of *Wenifalle*, thought to be the medieval predecessor of Wingfield Bank.

Medieval

The manor of Northfleet, first mentioned in Domesday Book, was owned by the Archbishop of Canterbury as part of the Toltingtrough Hundred. The primary settlement of the manor was almost certainly located at Northfleet, close to the Thames foreshore, with the higher land to the south probably serving as outlying pasture and woodland (Everitt 1986, 87).

The 1869 OS map shows a large farm ‘Winfield Bank’ situated just to the north of the study area, comprising at least four buildings at the side of the road leading from Watling Street northwards towards Northfleet. The farm’s name is derived from *Wenifalle* meaning ‘a leap or tract of fallen trees blown by wind’ or simply ‘windy field’ (Wallenberg 1934, 107).

Wenifalle is first mentioned in documentary sources dating to the first year of the reign of King John (1199) when the Archbishop of Canterbury and his clerk ‘freely and without any dispute gave up to the use of the monks [of Rochester Priory] the tithes [amongst other landholdings in Northfleet] of Wenifalle’ (Hasted 1797, 316). The settlement is mentioned in documentary sources throughout the thirteenth and fourteenth centuries, with slight variations of spelling (Wallenberg 1934, 107).

Early maps of the area show that apart from Northfleet itself the remainder of the parish was thinly populated, with a few secondary settlements. At least some of this depopulation may be a consequence of changes in transport links through the region. From the mid thirteenth century onward, the importance of Watling Street, which ran just south of the study area, along the line of the present A2, declined in the face of growth at Gravesend. From at least 1293 Gravesend served as a port or ‘Long Ferry’ from London to the continent (Hiscock 1968, 229). In addition the town sat astride the new road from Dartford to the Medway, and the stretch of Watling Street past the present site was effectively by-passed.

Post-medieval and modern

The post-medieval period saw growing exploitation of the area, although not necessarily any significant increase in settlement density until the twentieth century, with expansion southwards

from the core of Gravesend. To the west at Springhead the first watercress industry flourished in the nineteenth century (Eve 1998). This continued until the 1930s when the springs dried up as a result of pumping operations further downstream. The Tithe Map locates the post-medieval settlement of Wingfield Bank just to the north of the area of the present excavation. The remains of the Chatham & Dover Railway Line (Gravesend Railway branch), which opened in 1886, lie along the western boundary of the site.

Recent archaeological work

In 1999 OA undertook an excavation on the immediately adjacent site of the electricity sub-station at Pepper Hill Lane (Hardy and Bell 2001), revealing medieval features dating from the late eleventh to the late twelfth century, that were probably part of the medieval settlement of *Wenifalle*. The remains included evidence for timber framed buildings and two probable quarry pits. Key aspects of the CTRL Section 2 work, located close by to the west, have been summarised above.

Methodology

The presence of significant archaeological remains was first established by evaluation trenches (OA 2007). Somewhat surprisingly, considering the results of the 1999 electricity sub-station excavation immediately to the south of the site (see above), the evaluation revealed evidence for a first- or second-century AD enclosure system, in addition to further early medieval ditches.

The area designated for strip, map and sample excavation was stripped of overburden by machine under archaeological supervision. All features were planned and mostly sample-excavated. Features considered particularly significant were fully excavated. All recording followed standard OA practice (Wilkinson (ed.) 1991).

Acknowledgements

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Archive

The archive is currently held by OA, and will be deposited with a suitable receiving museum in Kent, when such a facility becomes available.

Archaeological description

General

There was a generally even depth (c.0.20m) of modern topsoil over the sandy gravel/brickearth natural, although the interface was notably indistinct over the natural hollow in the northern part of the site. Cut features were generally well-defined. Some flooding was experienced during the excavation, although generally the site was well-drained. The stratigraphic evidence is described below, by phase (Fig. 2 and 3)

Phase 1: Mid to late Bronze Age

The earliest phase of activity on site was represented by a ditch and a pit in Area B. The natural hollow (459) in Area A would also have been a landscape feature at this time, and probably seasonally flooded. However, no features or finds were directly associated with it at this time.

The focus of activity in Area B, located in the western part of the site comprised a NE-SW

aligned ditch (619) and a small pit (622). Ditch 619 measured 1.8 m wide by 0.5 m deep, and extended 28 m under the northern baulk of the site. It was truncated to the south-west by a large area of modern disturbance, and on its north-western side by a high voltage electricity cable trench. Sections excavated through it showed a consistent profile throughout with shallow sloping sides and rounded base. A lower fill (611) of greyish brown sandy silt was overlaid by a very similar deposit (612) of greyish brown silt clay with inclusions of well-rounded river gravels (see Fig. 5 Section 248). A small assemblage of mid to late Bronze Age pottery was recovered (including a large portion of a single vessel - see Stansbie below), together with animal bone and burnt flint. Pit 622 lay directly to the north west of ditch 620 and measured 0.7m in diameter by 0.1m deep. It had a single fill (623) consisting of a black, charcoal rich silt that contained a moderate amount of burnt flint inclusions.

The exposed part of natural hollow 459 measured 27m by 6m and was between 0.20m and 0.37m deep. Two phases of silting were identified, the initial fill (460) consisting of a mottled grey brown sandy clay. This deposit, which yielded no dating evidence, was assigned tentatively to the Bronze Age phase, but could have been of later date.

Phase 2: Late Iron Age

Only one feature, a hearth, could be assigned to this period, although some activity was noted on and around the natural silting deposits in hollow 459. Its upper fill (425) comprised a dark greyish brown silty sand, and contained a gold stater of the mid-first century BC (see Plate 1). In addition an LIA/first-century AD pottery sherd was recovered from the fill on the western edge of the hollow.

A large hearth or oven base (651), was located in the south-east corner of the site (see Figure 4), isolated from Roman features. Its stratigraphy shows at least two episodes of rebuilding; the earlier, cut 205, measured approximately 3m by 1.4m and 0.56m deep. The lowest fill of redeposited natural (440) was overlaid by two layers of compacted clay and gravel (264 and 289), the surface of which retained a rudimentary surface of flint nodules and a very charcoal-rich layer (221), the original extent of which is shown in Figure 4.

The second phase of the oven was indicated by cut 285. Again the base was composed of dumped layers of compacted clay and gravel (441 and 267), overlaid by successive charcoal-rich layers 383, 250 and finally 225. The three charcoal accumulations were separated by two thin ashy layers (306 and 384). That there was at least a low wall surrounding these hearths is suggested by the remnants of clay-filled gullies, 225, 288, and 260. Given the feature's isolation from Roman features on the site, and its proximity to the nearby medieval settlement, a sample of ashy layer 384 was submitted for radiocarbon dating, and produced a calibrated date (using OxCal v3.10) of 160-130 BC (5.1% probability) and 120 BC-AD 60 (90.3% probability; uncalibrated 157-133 BC and 114 BC to 55 AD; NZA 33918). A late Iron Age date is strongly indicated. Environmental samples recovered from deposits within this feature highlighted a significant aspect of its use. Indeterminate wheat was being processed, and spelt chaff was used as fuel, a characteristic which has been noted on a number of Roman sites in the region (see Smith below).

Phase 3: Roman first-third century AD

This phase of activity was represented by ditches, pits, beam slots and postholes. Three ditches crossed the site on a broad west-east alignment and were probably paddock or field boundaries. In the north-west corner of the site ditch 644 was revealed for a distance of approximately 23m. Averaging 1.5m wide x 0.6m deep, it had a steep-sided and flat bottomed profile (see Fig. 5 Section 123), and contained three fills. The lower fills (167, 168) were characteristic of erosion deposits and contained little pottery and animal bone. The upper fill (169 - dark brown silty clay) contained an iron knife (SF 5), two nails and a small assemblage of pottery and animal bone.

Ditch 641 was situated approximately 27m south of ditch 644, and similar average dimensions and a similar profile, although the area had suffered from uneven truncation by modern activity. The ditch extended under the south-western site boundary, while its north-eastern terminus respected hollow 459. It contained two fills. The lower primary fill (293) appeared orange mottled greyish-brown silty clay; upper fill 294 was a greyish-brown sandy clay. Both fills produced primarily second-century pottery. A line of five postholes (323, 329, 352, 354 and 356) was located close to the northern side of the ditch. They all contained a greyish brown silty clay, and posthole 352 contained eight pottery sherds dating to the first-third century.

Located south-east of ditch 641 and south of hollow 459 was ditch 643, extending to 51m in length by 1.2m wide and 0.4m deep. It had straight, sloping sides and a concave base and contained a single fill of a greyish brown clayey silt (181). The boundary represented by this ditch appeared to have been redefined in part by a shallow gully (174) that cut obliquely across its line. The dating of this feature is slightly ambiguous. The upper part of fill 181 of ditch 643 yielded two later fourth-century coins (found by metal detector), but no pottery. As the pottery evidence from the rest of the site suggests that the site was abandoned by the end of the third century it is likely that these coins are chance losses in a long-abandoned and partly silted-up ditch.

Structures

Two structures were identified between ditches 644 and 641. Structure 328 comprised two parallel and slightly curving beamslots and a scatter of ten possibly-associated pits and postholes. The two beamslots (326 to the west and 239 to the east) were aligned roughly north-south and measured approximately 7m in length by 0.5m wide and 0.2m deep, with flat, undulating bases and shallow, near vertical sides. Each contained a single fill of brownish-grey silty clay. Both beamslots appeared to have silted up naturally over a period of time. The fills contained a small pottery assemblage, and, in the case of the fill (256) of the western slot, ten fragments of lava quern. The western beam appeared to have been partly re-cut (280) on its eastern edge, the re-cut measuring 5m in length, 0.4m wide and 0.18m deep, and had a posthole cut in the base. The fill of the re-cut was a greyish brown silty clay and contained several fragments of pottery and the remains of a shoe, its sole defined by 112 *in situ* hobnails (see Plate 2). The location of these finds in the upper part of the fill may mean they were unrelated to the original activity associated with the structure.

Three intercutting pits were located directly to the east of the beamslot structure, the two smaller pits (215 and 234) measuring between 0.5-0.6m in diameter by 0.33m deep and with near vertical sides. The largest of the three (217) measured 1.25m in diameter and 0.38m deep with a similar profile, and cut the two smaller pits. Pit 217 contained three fills; the earliest (218) represents primary erosion from side and base slumping; secondary fill 219 was very mixed and contained a large assemblage of pottery and an iron sickle fragment (SF 7). The final fill (220) also appeared very mixed and contained a large assemblage of pottery, some animal bone and a high proportion of charcoal. Four other pits located in close proximity to the beamslots were similar in shape and fill to pits 215 and 234. Together these features suggest a focus of rubbish disposal, presumably at least fairly close to a dwelling, although Structure 328 seems too small to be considered as such. Its function is considered further in the discussion below.

Another possible structure (246) was partly revealed against the southern baulk of the site. It was rectilinear in shape, measuring 6m long by at least 3.4m wide, and defined by a gully 0.6m wide by approximately 0.2m deep. Six substantial postholes, measuring between 0.45m and 1.2m in diameter and with an average depth of 0.4m, were cut into the base of the gully at intervals along its length. None of the fills from the features in this structure contained any finds, although its constructional style suggests a Roman date (see discussion). It is also notable that a similarly aligned (and similarly undated) rectangular feature defined by beamslots was identified on the northern edge of the Pepper Hill Lane site immediately adjacent to the south.

Phase 4 – eleventh-twelfth century

This phase was represented by five ditches (346, 636, 646, 647 and 655), located in the south-eastern part of the site. Very little dating evidence was retrieved, and such as there was suggests a date range from the late tenth to the eleventh century. The ditches appear to correspond spatially and stratigraphically with the early medieval features found on the Pepper Hill Lane site immediately to the south (see below and Figure 3). North of the south-western baulk of the site were ditches 636 and 346, running broadly parallel, and representing the definition and redefinition of a boundary. Ditch 636 measured 37m by 1.1m wide and 0.32m deep, and its profile had a concave base and sloping sides. Its upper fill (398) comprised a homogeneous mid-brown sandy silt and contained twelfth-century pottery and animal bone. Ditch 346, exposed for a length of 19.3m and measuring 0.82m wide by 0.24m deep, had a V-shaped profile and a mid-brown sandy silt fill which yielded only a small quantity of burnt flint. Ditch 655 - possibly a small paddock perimeter of irregular plan - was located to the west of these. It had an extant length of 20.5m, was 0.8m wide and 0.22m deep and had a concave base with shallow, straight sides. To the west of ditch group 655 and running under the southern baulk of the site were ditches 646 and 647. The former was exposed for a total length of 42.3m and measured 1.7m wide by 0.5m deep. Its two fills (332 and 333), of compacted mid-greyish-brown stony silt clay, contained a modest worked and burnt flint assemblage. Ditch 647 cut ditch 646 on a rough ESE-WNW alignment before turning slightly west into the southern baulk. Exposed for a distance of 21.6m, it was 1.25m wide and approximately 0.6m deep. It contained two fills (421 and 422 in cut 420) with the latter, upper fill comprising compacted brown stony silt sand, which yielded a small assemblage of animal bone.

Phase 5 – twelfth-thirteenth century

The later medieval phase saw a redefinition and apparent expansion of the extent of land division in the form of ditch 637, with further ditches (640 and 642) extending north and continuing to respect the natural hollow 459. Two gullies (648 and 649) and a large waterhole (492) were also identified in the layout of features. Again some of the linear features corresponded with later medieval linear features revealed in the Pepper Hill Lane excavation.

Ditch 637 - the most substantial ditch in this phase - was aligned roughly west-east and then ESE-WNW (further west), and maintained a steep V-shaped profile over 77m across the site (see Fig. 5 Section 151). Cut 251 (within 637) contained four fills. The primary erosion fill (254) was 0.04m deep and was overlain by fill 253, a light brown silty sand 0.24 m deep, which contained worked and burnt flint, pottery and a few fragments of roof tile. Middle fill 232 consisted of a mid-to dark-brown gravelly silt, with small assemblages of pottery and flint. The upper fill (252) comprised a dark brown silty clay and was 0.65m deep.

Ditch 640 was aligned almost north-south and had a very similar profile to ditch 637. It contained three fills. The primary fill (158) was a yellowish-brown silty clay, 0.08m deep. Fill 157 was a dark yellowish-brown silty clay, while the final fill, 156, a greyish-brown well-sorted silty clay, was the only one to produced finds, comprising animal bone and fragments of tile.

Ditch 642 had a similar alignment to ditch 640, and ran north from ditch 637 to the hollow 459, turning roughly eastwards to extend along the southern edge of the hollow. The ditch had a similar profile to that of ditch 637 and averaged 1.7 m wide by 0.68 m deep. Two fills of silty clay produced no finds, suggesting that this area was not near any focus of activity or occupation. Where the line of ditch 642 turned, just to the south of the hollow 459, another substantial ditch was identified (650), extending north across the hollow and into the baulk. The profile was similar to that of ditch 637 with steep sides and a flat base. Possible evidence of an associated fence line

immediately to the east of part of ditch 642 was represented by five shallow postholes in two groups (see Fig. 2), suggesting the possibility that this was a field devoted to stock.

Gullies 648 and 649 also lay east of the western arm of ditch 642 and north of ditch 637, forming a WNW-ESE aligned division of the field or paddock defined on the south, west and north sides by those ditches. Both gullies had similar profiles, with concave bases with straight, near-vertical edges. They contained three fills; a primary fill (133) that consisted of an orangey-brown gravelly clay with no finds, a secondary fill (130) of a mottled orange greyish-brown silty clay, with a small assemblage of pottery and animal bone. A final fill (131) consisted of a dark greyish-brown silty clay.

Waterhole 492 (see Fig. 2) was situated north-west of gullies 648 and 649 in the angle formed by the two parts of ditch 642. It was sub-circular in plan measuring 3.9m across by 1.18m deep, with concave, near vertical sides and an undulating, concave base. It contained one re-cut (515) and a total of six fills, the lower three of erosion deposits from the pit sides, and the middle deposits of yellowish-brown sandy clay with charcoal flecks. Upper fills 513 and 518, both grey-brown silty clays, produced a small quantity of twelfth- and thirteenth-century pottery. Four other smaller features (537, 539, 604, and 633) also possibly waterholes, were identified to the east of feature 492. Although no dating material was recovered from them, it is likely, on the basis of their location, that they were also of medieval date.

To the west of ditch 642 were three shallow irregular features (365, 531 and 541). The first, at the end of the stream channel, was perhaps a shallow waterhole, but it may have originated as a large tree hole, and it is significant that an assemblage of flint flakes was recovered from its upper fill (see Mullin below). The other two features were most probably tree holes. A further scatter of irregular natural depressions and tree holes were identified across the southern half of the site, although these were not dated.

Phase 5 – Post-medieval

This phase was represented by single NNE-SSW aligned ditch (639) that extended across the site. It had a flattish base and straight, steep sides (see Fig. 5, section 103), and was filled with two greyish-brown silty clay deposits (109 and 110) that yielded small quantities of mid sixteenth-century pottery and fragments of medieval tile.

The material evidence

Lithics

by David Mullin

Quantities and methodology

A total of 92 worked flints was recovered from 29 contexts with burnt unworked flint from a further 19 contexts. The flint was catalogued according to a broad debitage, core or tool type. Information about burning and breaks was recorded and where identifiable raw material type was also noted. Dating was attempted where possible.

Cores were classified according to the number and position of their platforms, following Clark (1960) and core maintenance pieces were classified to the following criteria. Core rejuvenation flakes are pieces representing the removal of the top or bottom of a core in order to improve the flaking angle of the platform. Core trimming flakes are flakes which remove a substantial part of a core in order to aid working by removing an imperfection in the core, a miss-hit or other impediment to flaking. The nature of any remnant flake scars on the dorsal surface of core trimming flakes was noted.

Flakes were classified following Saville (1990, 155), which allows an identification of the stage in the core reduction process to which the flake belongs. Terminations such as hinge fractures were noted. Chips are defined as pieces measuring less than 10mm by 10mm. Flakes having a proportions length to breadth ratio of greater than 2:1 were classified as blade-like, those with a greater length to breadth ratio being classified as blades. Mid-sections of blades with no bulb of percussion were classified as blade shatter (Andrefsky 1998, 81-3). Retouched pieces were classified according to standard morphological descriptions (Bamford 1985; Healy 1988; Bradley 1999; Butler 2005).

Unworked and burnt flint

Most of the flint was recovered from residual contexts across the site, with flaked lumps and burnt flint recovered from ditch 620. A total of 159 burnt flints weighing 8197g were recovered from a further 18 contexts, including 48 burnt angular cobbles weighing 3055g from context 221 and 8 burnt angular cobbles weighing 1018g from context 223.

Worked flint

Ninety-two worked flints were recovered from 29 contexts. The material was dominated by waste flakes from late in the reduction sequence, although a relatively high proportion of core maintenance pieces were also present.

Context 366 produced the largest amount of worked flint from a single context (a total of 20 pieces) which included core maintenance pieces from narrow blade cores and narrow blades. The raw materials varied from a light grey flint to an orange/brown gravel flint and no refits could be made between any of the pieces in this context, which is the upper fill of an Iron Age waterhole. Another narrow blade was recovered from context 616. These narrow blades are likely to be late Mesolithic/early Neolithic in date and appear to be residual.

Illustrated flint (Fig. 6)

Neolithic material is present in the assemblage and includes a large end scraper from context 482, (Fig. 6.1) an end scraper from context 302 (Fig. 6.2), an end and side scraper from context 374 (Fig. 6.3), a side scraper from context 355 (Fig. 6.4) and a piercer from context 189. Other formal tools were rare, with the exception of the (probably late-) Neolithic retouched flake from context 458 (Fig. 6.5) which is probably part of a flint knife.

Discussion

The flint from the site consists predominantly of waste flakes from residual contexts, with few formal tools present. The material from context 366 has tentatively been identified as late Mesolithic/early Neolithic in date, based on morphological traits. Mesolithic material has recently been found on the line of the Channel Tunnel Rail Link at Springhead and Ebbsfleet (Harding 2006), although, like the material from Wingfield Bank, these assemblages were dominated by waste material and did not contain diagnostic microliths. Refitting sequences were, however, present at the Springhead site, which may have had a specialist function for the production of blade-blanks. Mesolithic material was also found during excavations along the line of the A2 improvement scheme, but again this was from residual contexts (Donnelly and Anderson-Wymark 2012).

The identifiable tools from the site are all of Neolithic date and predominantly scrapers. Similar material was found at Site B on the A2 improvement scheme and was again largely residual (Donnelly and Anderson-Wymark 2012). Neolithic material has also been recovered from Springhead (Leivers n.d), where large flakes, irregular debitage, flakes, scrapers and cores were recovered.

Whilst the assemblage from Wingfield Bank adds to an emerging picture of Mesolithic and Neolithic occupation of this part of Kent, the small assemblage size and the residual nature of all of the finds make it extremely difficult to be certain of the nature of the activities which took place on the site. The lack of any other finds of this date may, however, suggest that the material represents a background scatter of discarded stone tools.

Prehistoric pottery (Fig 7)

by Dan Stansbie

Introduction and methodology

In total 128 sherds of late Bronze Age pottery, weighing 1058 g were recovered from a single feature, ditch 619. The material appears to derive from a single vessel and includes some large well-preserved sherds (average sherd weight 8g), so was perhaps deliberately placed in the ditch (Hill 1995, 39). The assemblage was rapidly scanned macroscopically to confirm that it belongs to a single vessel and a binocular microscope was employed at x 20 magnification to confirm the fabric identification. The pottery was recorded according to standard OA procedures (Booth 2007) and in line with PCRG (1997) recommendations.

Fabric

The fabric (F3) has dark brown surfaces, with a light brown core and a sandy texture. There is a common frequency of moderate to coarse flint temper, average size c.0.5-3mm, which is clearly visible on the surface of the sherds. The fabric is likely to be of local origin.

Vessel form

Rim sherds from an ovoid vessel of jar/bowl type (Fig. 7) are present, but there are insufficient joining sherds to allow reconstruction of a profile. A few base sherds are also present. Overall, while it is likely that the sherds derive from a single vessel this is certainly not complete. Vessels of this general form are typical of late Bronze Age pottery in the region. The late Bronze Age (post-Deverel-Rimbury plain ware) phase in the Kent region is dominated by flint-gritted fabrics, with forms including ovoid jars (Champion 2007, 99). The vessel from Wingfield Bank appears to fit comfortably within this tradition.

Iron Age and Roman pottery (Figs 8 and 9)

by Edward Biddulph

Assemblage composition

Almost 1000 sherds of Roman pottery were collected from the excavation. These were recorded in terms of fabric and form by context group using standard methodologies, with quantification by sherd count, weight and EVEs. The material consisted of 26 fabrics, which are described and quantified in Table 1. The largest ware group, reduced wares, overwhelmingly comprised Thameside sandy grey ware (R73.3), which accounted for 63% of the entire assemblage by sherd count. Inevitably, most of the forms recorded in the fabric were jars. Cooking pots with everted rims (Monaghan 1987, type 3J), dating to the second century onwards, were best represented, taking a share of 25% by EVE within the R73.3 group, but early Roman bead-rimmed jars (type 3E) and mid to late Roman necked oval-bodied jars (type 3H) were also available. Bowls were relatively common in the Thameside fabric (25% by EVE), but these were mainly confined to large, high-shouldered necked bowls (type 4A) that were probably used in the same ways as jars. Dishes, introduced in the mid second century, accounted for a further 25% of vessels in R73.3. Grooved dishes (type 5F) were the commonest form, followed by bead-rimmed and plain rimmed dishes – types 5C and 5E respectively (the former also being produced in black-burnished ware (R14)). Dropped-flanged dishes, typically dating to the late third and fourth centuries, made a minor

contribution. Beakers were relatively rare in fabric R73.3, generally being reserved for the fine Thameside fabric (R73) and North Kent (Upchurch) grey ware (R16); even then, few vessels – almost exclusively later first and second-century poppy-headed beakers (type 2A) – were recorded. The Thameside fabrics replaced grog-tempered wares (B1, B2 and B5) of late Iron Age tradition during the second half of the first century AD, although the potters retained some of the existing vessel shapes. Shelly ware (R69), introduced before the conquest, was more successful than grog-tempered wares, continuing into the second century, although by this point, potters ceased production of bead-rimmed jars to concentrate on storage jars (type 3D).

Other ware groups made minor contributions to the assemblage. Of these, oxidised wares were the best represented. The North Kent fine fabric (R17) appeared to be more important than its grey ware equivalent in terms of sherd count. That said, only one vessel was recognised, a carinated beaker (type 2G), which is more typically seen in the reduced fabric. West Kent or Surrey potters producing Patch Grove ware (R68) supplied storage jars during the first and second century. The remaining fabrics (R71 and R74) were probably locally-produced and effectively oxidised versions of the Thameside grey wares. A bead-rimmed dish and a ring-necked flagon (Monaghan 1987, type 1E2) were recorded. North Kent potters were also responsible for a fine white-slipped oxidised fabric (R18.1). No rims were encountered, but body and base sherds indicate that flagons were supplied.

Continental imports account for 2% of the assemblage by sherd count. A Lower Rhineland beaker (R25) was dated to the mid second century. A small amount of samian ware arrived during the later first century from La Graufesenque in south Gaul (R42). No forms were recorded. Cups (Drag. 27 and 33) and a dish (Drag. 31) in Central Gaulish samian ware (R43) reached the site from Lezoux during the second century. Two more Drag. 33 cups were identified as coming from East Gaulish workshops; one has been tentatively dated to the second half of the second century and attributed to Chémery Faulquemont on the ground of fabric. Amphorae were limited to a Gauloise amphora (R56) and a Verulamium-region coarse white-slipped ware amphora that was recovered from the evaluation. The form, represented by part of the handle and neck, resembles Dressel 20 – previously not attested in the fabric – though could be a variant of Gauloise 4, which is known in Verulamium-region white ware (Symonds 2003, 52). The white-slipped fabric shared the later first and second-century dating of the white ware, but Davies *et al.* (1994, 55) note that it became more important in the Antonine period.

Another unusual vessel was recovered from context 169. An oxidised bead-and-flanged mortarium resembled certain late Roman forms manufactured in the Oxford or Much Hadham industries (for example Young 1977, type C100). However, the fabric was consistent with the R17 fabric produced in north Kent. If the piece is indeed a North Kent product, then this introduces a form that has not been previously attested in that industry. It is possible that the vessel represents a very limited attempt to compete with the burgeoning Hadham and Oxford industries in the final phase of the North Kent industry in the later third or early fourth century (Pollard 1988, 138-9).

Chronology

The pottery assemblage spanned the period from the first to the end of the third century. This phase of activity may well have begun before AD 43, as the pottery of late Iron Age tradition was generally not found with post-conquest pottery. However, quantities are small, suggesting that pre-conquest or earliest Roman activity was at a low level. Pottery from context groups assigned to the early Roman period accounted for 16% of the assemblage by EVE. The paucity of late Iron Age pottery in these groups suggests that such pottery was replaced rapidly by sandy Thameside fabrics, although, as has been noted, the range of forms in use changed little. The amount of pottery being deposited increased significantly after AD 130, pointing to an increased level of activity (Table 2). No context group assigned to the mid Roman period dated with certainty to the first half of the third

century, and it is likely that much of the deposition in this phase was confined to the second century. The assemblage was dominated by local sources, as it had been in the early Roman period, but it now admitted a greater range of traded wares, most notably samian ware, and generally groups escaped the grey and black hues dominant in the early Roman assemblage. Forms were more diverse too. A decline in the proportion of jars was met by a rise in the proportion of dishes and flagons, probably relating to changing patterns of food preparation and consumption in the region (Table 3). Just one context group – context 169 – dated to the late Roman period, pointing to limited deposition and a decline in the level of occupation. Group 169 can be dated to the final quarter of the third century on the basis of the North Kent bead-and-flanged mortarium, dishes with dropped flanges, and a small storage jar that is highly reminiscent of late Roman products manufactured in Essex, for example at Moulsham Street, Chelmsford (Going 1987, type G42); indeed, the example here is likely to be an Essex product, the type being unrecognised in Kent. Pottery of certain fourth-century date is entirely absent.

The chronology outlined here contrasts slightly with the dating of assemblages from neighbouring sites. The pottery from Springhead overwhelmingly belonged to the early Roman period and indicated a decline in the level of activity from the second century (Seager Smith *et al.* 2011), which was also reflected in the town's cemetery at Pepper Hill (Biddulph 2006). A similar early Roman emphasis was also noted at other sites along Watling Street, for example Hillside, Gravesend (Philp and Chenery 1998, 29), Northumberland Bottom and the A2 Widening Scheme site (Every 2006; Biddulph, in prep.). The Wingfield Bank assemblage had greater affinity with that from Northfleet villa, which saw intensive occupation in the second century (Biddulph 2011). However, a second peak of occupation in the late Roman period at the villa was not shared to the same extent at Wingfield Bank, and in that respect, the site is more typical of the settlement pattern in the region in apparently showing abandonment during the third century.

Site status

Pottery is a useful means of placing sites within an order that reasonably reflects their status. J Evans (2001, 26-9) has noted that assemblages from basic rural sites tend to be dominated by jars, while urban and villa sites have higher proportions of dishes or bowls and drinking vessels. Despite the wealth of excavated sites in the region, there is a marked poverty of comparable data. However, relevant data from sites along the Channel Tunnel Rail Link – Springhead, Northfleet villa, Tollgate and Northumberland Bottom – are available (cf Booth 2009), and these provide a reference point for the status enjoyed by the users of the deposited pottery at Wingfield Bank. Confining the selection to second-century material, which includes a large part of the Wingfield Bank assemblage, we can see that the proportions of dishes and jars at Wingfield Bank are similar to those at Northfleet villa and Springhead town, suggesting that the users of the pottery had access to the same range of material and were as conversant with the culinary and dining use of dishes as the inhabitants of the town and villa (Fig. 8). This is unsurprising, given the short distance between the site and the town. However, it is notable that the jar values for Northumberland Bottom and Tollgate are much higher, which identify lower-status rural sites and suggest that there was differentiation in the supply and use of pottery even among sites in close proximity.

Samian ware gives another indication that the people of Wingfield Bank enjoyed a similar level of access to pottery as Springhead and Northfleet villa. S Willis (1998, 105–11) has demonstrated that the proportion of decorated vessels in a given samian ware group varies with site status, with the highest proportions recorded at military sites and major civil centres and lowest at rural settlements. The samian assemblage at Wingfield Bank was small – just 17 sherds – but four, possibly five, of these were decorated, representing almost 25%. This compares with 18% at the villa by sherd count, 14% at Springhead by vessel count, 11% at Northumberland Bottom by sherd count and no decorated samian at Tollgate at all.

Pottery condition and use

The overall mean sherd weight of 11g reflects a mixed assemblage in terms of condition. Many sherds were small and fragmentary. Some 75% of context groups had a mean weight that was less than the overall mean. The range of values, however, extended to 53g, denoting reasonably large pieces. In particular, context group 219 contained whole profiles of a number of dishes and an almost complete everted-rim cooking pot (Monaghan 1987, type 3J3) and S-profiled bowl (type 4A). It is likely that the assemblage includes pottery deposited close to areas of use and initial discard (possibly focussed around the putative structures 328 and 651) and also redeposited material arriving from further away.

Little of the pottery showed signs of use. The lower part of a flagon in fabric R17 from group 425 had been trimmed, presumably for re-use after the top of the vessel had been broken, and a possible x-graffito, now very faint, was scored on the external surface of the base.

Catalogue of illustrated pottery (Fig. 9)

The illustrated vessels, arranged in chronological order, gives a snap-shot of the range of pottery deposited at the site. Vessels of intrinsic interest are also noted.

Context 220. Group date: AD 180-200

1. Poppy-headed beaker (Monaghan 2A), fabric R16
2. Bag-beaker (Monaghan 2E0), fabric R16
3. Storage jar (Pollard 1988, fig.13.20), fabric R68
4. S-profiled necked bowl (Monaghan 4A), fabric R73.3
5. S-profiled necked bowl (Monaghan 4A), fabric R73.3
6. Bead-rimmed dish (Monaghan 5C), fabric R73.3
7. Plain-rimmed dish (Monaghan 5E1), fabric R73.3

Context 169. Group date: AD 280-300

8. Necked jar with bifid rim (Monaghan 3H5), fabric R73.3
9. Storage jar (Going 1987, type G42), fabric R100. Probably an Essex product.
10. Bowl, fabric R73.3
11. Dish with dropped flange (Monaghan 5A), fabric R73.3
12. Dish with grooved rim (Monaghan 5F1), fabric R73.3
13. Dish with grooved rim (Monaghan 5F3), fabric R73.3
14. Bead-rimmed dish (Drag. 31), fabric R43
15. Conical cup (Drag. 33), fabric R46
16. Bead-and-flanged mortarium. Oxidised fabric R99, probably North Kent

Medieval pottery

by Paul Blinkhorn

The pottery assemblage comprised 46 sherds with a total weight of 833g. The estimated vessel equivalent (EVE), by summation of surviving rim sherd circumference was 0.69. The post-Roman material was largely twelfth to thirteenth century in date, although one sherd could conceivably be pre-Conquest. It would appear, however, that activity at the site generally covered the twelfth-late thirteenth centuries.

Fabrics

The post-Roman wares are mainly types well-known in both Kent and the City of London. Where possible, the codes and chronologies of the Canterbury Archaeological Trust Fabric series for the county of Kent have been used, although in the case of fabric 3, this does not have an obvious

parallel in the Kent type-series, but is known in London, so the code from the London type-series (eg Vince 1985) has been used. In all cases, the alphanumeric code given to each fabric type is that used in the database. Full details of the pottery occurrence by number and weight of sherds per context by fabric can be found in the archive.

F1: EM4: West Kent sandy ware, mid twelfth-mid thirteenth century. 2 sherds, 153g, EVE = 0.22.
F2: EM36: NW Kent sandy and shell-tempered ware, 1100 – 1250. 17 sherds, 233g, EVE = 0.25.
F3: EMFL: Early Medieval Flinty ware, early eleventh-early twelfth century. 1 sherd, 30g, EVE = 0.
F4: M7: Kingston ware, mid thirteenth-late fourteenth century. 2 sherds, 29g, EVE = 0.
F5: M38B: NW Kent fine sandy ware (reduced) AD 1175-1400. 11 sherds, 185g, EVE = 0.11.
F6: M5: London ware. Late twelfth-mid fourteenth century. 7 sherds, 107g, EVE = 0.11.
F425: PM1: Post-medieval Red Earthenware, 1550 – 1700. 1 sherd, 6 g.

The range of fabric types is fairly typical of sites in the region, and is similar to that from Pepper Hill Lane, Northfleet (Blinkhorn 2001, 23-4). The presence of a sherd of Kingston Ware is worthy of comment. This is one of the most easterly finds of such material, although it has been noted in nearby Dartford (Pearce and Vince 1988, fig. 2), and there have been finds of Surrey Whitewares in recent sites in Kent at places such as Faversham (Wessex Archaeology unpublished), and along the A2 Widening Scheme (Allen *et al.* 2012).

Chronology

Each context-specific assemblage was given a ceramic phase date (CP) based on the range of ware-types present. The scheme is shown in (Table 4).

In some cases, the dating has been adjusted with reference to the stratigraphic matrix. The pottery occurrence indicates that there was activity at the site from the twelfth to the late thirteenth or early fourteenth centuries. The single sherd of EMFL may represent earlier activity, although it is entirely possible that it dates to the start of the main period of activity. In the case of CP5, the date is from the typology of decorated London Ware jugs, specifically two small sherds, from the same vessel with red slip on the body and narrow, thick applied strips of white clay, the ‘Highly Decorated Style’ typical of the thirteenth century (Pearce *et al.* 1985, 29-30).

Mill Green Ware, which is a very common find at sites in London and North Kent from the mid/late thirteenth-mid fourteenth century onwards (Pearce and Vince 1988, fig. 9), is entirely absent, suggesting very strongly that activity at the site had ended before the close of the thirteenth century.

The assemblage

The assemblage is fairly typical of sites in the region in the medieval period, comprising a mixture of unglazed jars, bowls and jugs and glazed jugs from a number of relatively local sources, such as London and Kingston-upon-Thames. The assemblage was generally in reasonably good condition, and some of the sherds quite large, such as that from the rim and handle of a large EM4 jug (Fig. 10.1). The jug is unglazed, in a local sandy fabric, with extensive stabbed decoration on the handles. Unglazed jugs in a similar fabric with stabbed handles have been noted at nearby Eynsford Castle and also at Dartford (Rigold and Fleming 1973, fig. 16; Mynard 1973, fig. 3), where a similar range of fabrics to that at this site has been found. The bowl rim from context 477 in fabric EM36 is very typical of the tradition (Fig. 10.2) and a very similar vessel in the same fabric occurred at Pepper Hill Lane, in a context dated to the late eleventh-mid twelfth century.

Generally, the pottery from this site suggests that activity lasted longer than at Pepper Hill Lane. There, the bulk of the assemblage comprised unglazed wares along with just two sherds of glazed London ware, suggesting very strongly that activity there started about the same time as at this site, but had ended before the close of the twelfth century.

This assemblage appears entirely domestic in nature, with the range of vessel and fabric types typical of such settlements in the earlier medieval period. Although small, it is nevertheless a useful addition to the corpus of medieval pottery from this area.

Illustrated vessels (Fig. 10)

1. Context 573, fabric EM4. Rim and handle from a large jug. Grey fabric with orange-brown surfaces.
- 2: Context 477, fabric EM36. Bowl rim. Grey fabric with black surfaces.

Ceramic building material and fired clay

by Cynthia Poole

Ceramic building material

The assemblage of ceramic building material, amounting to 214 fragments weighing 13011g, was recovered from 33 contexts. It comprises predominantly Roman tile and a small amount of medieval and post-medieval brick and tile. No complete tiles were found; the mean fragment weight of 61g is low and reflects the fragmentary character of the tile. Typology of particular features (flanges, signatures etc) follows those devised for the Northfleet Villa assemblage (Poole 2011a).

Roman tile

The Roman tile fabrics all appeared to be similar to types found at Northfleet Roman Villa (Poole 2011a), in particular fabric groups B and D and fabric E (4/Z). All material identified as brick retained no corners for definite identification and measured 30-40mm thick. Technically this means that much of it overlaps in thickness with other forms, but the general finish and character was more typical of brick.

Tegulae accounted for more than a third of the assemblage. A range of flange types (A, D, D2, E and ?F) and upper and lower cutaways (types A2, A3, A3a and C1) were noted. The tegula cutaway forms fall into groups C and D as defined by Warry (2006), who suggests that these have a broadly third-fourth century date for production, though possibly earlier in London starting in the second century AD. There were several examples of signature marks (type 1, 4 and ?6) on the tegulae. In contrast, imbrex fragments formed only a small proportion of the assemblage, mostly deriving from imbrices with a more angular profile.

In addition, two pieces of flue tile were identified, one having coarse diagonal combing across the face. The plain tile ranged in thickness from 12 to 35 mm thick and general characteristics suggested that it included tegula, imbrex and possibly medieval roof tile. One fragment had been roughly shaped to a sub-circular disc 58mm in diameter and 18mm thick.

Medieval and post-medieval tile

An unremarkable assemblage of medieval (or possibly post-medieval) roof tile was recovered. Only one piece retained part of a circular peg hole and one fragment had some splatters of glaze, though it was difficult to determine whether this was deliberate or an accidental ash glaze. A single brick measuring 62 x >105 x >180mm was recovered. It was overfired, distorted and vitrified on one end, suggesting it had been built into the wall of a kiln. Both roofing and brick are medieval or early post-medieval in date.

Discussion

The Roman building material is typical of tile found on rural farming settlements, where there is a preference for brick or flat tile, which can be used in ovens, hearths or corn driers for floors, spanning flues or as a baffle for controlling air flow through vents. There was some evidence of

burning on some of the tile. It is likely that the tile was recycled material, obtained from a local higher status settlement, probably a nearby villa or the town of Springhead, when buildings were being refurbished. The fabrics are broadly similar to some of those found at Northfleet villa and Springhead, which might have been produced locally. The source of the medieval/early post-medieval roof tile is uncertain as the chronology of this material is not consistent with that of the adjacent electricity sub-station site.

Fired clay

Fired clay amounting to 658 fragments weighing 4600g was recovered from the excavation. The assemblage was assigned to categories in the North Kent regional fabric series established by OA. A total of 42 fragments (mean weight 71g) was recovered by hand. All the fragments, whether sieved or hand-excavated were very uniform in character and all made in the same fabric identified as A in the OA North Kent regional fabric series, or - where the pieces were sufficiently large - as A2, a variant containing organic temper of chaff or chopped straw. Functionally the assemblage was dominated by oven structure and oven furniture, although very few clearly diagnostic features were present. A small number of pieces were identified as possible pedestals or props. One of these was associated with the corner of a massive triangular brick found within context 285, a burnt clay layer within the Roman hearth 651. Such shaped bricks are usually interpreted as loomweights, although this interpretation is being increasingly disputed (Poole 1995), with the suggestion that they represent some form of oven furniture. Such an interpretation would better suit this object on the basis of its location, its size, and the lack of any suspension perforation.

Roman coins

by Paul Booth

The earliest coin is a gold stater (Plate 1) of the Gallo-Belgic E class (Mack (1975) No. 27), assigned to the Ambiani of northern Gaul. These are dated approximately 65-50 BC and are relatively commonly found in Kent. The present example measures 18mm in diameter and is in excellent condition. It appears to be very slightly worn.

Two other coins, neither closely identifiable, were found; an early fourth-century Soli Invicto Comiti issue of Constantine I and a small later fourth-century piece. The reverse figure suggests that the latter may be a Victoria Augggg or, perhaps less likely, Salus Reipublicae type of the end of the fourth century, but the condition of the coin is very poor and precludes certainty on this point.

Metalwork

by Ian Scott

Composition of the assemblage

The metalwork comprises 136 objects, excluding coins, of which 133 are iron, and 3 copper alloy. The copper alloy objects comprise a cast bell, a plain furniture or harness stud, and a small fragment of wire (context 620). The bell (context 124) is a Romano-British type. The stud (context 192) is not closely dateable.

The ironwork is dominated by hobnails (n = 112; fragments = 115) and nails (n = 17; fragments = 26). The remaining four objects comprise two knives (contexts 169 and 466), both of which could be Romano-British, and a sickle or reaping hook (context 219), which again could be Romano-British in date, and a wing from a hipposandal (context 466) which is definitely Romano-British.

Provenance

The finds come from a limited number of contexts, most of which produced only a small number of objects. The bulk of the finds (n = 126) are from contexts of Romano-British date. A single nail comes from a context possibly of medieval date, and nine finds are from undated contexts. The latter included a bell fragment of Romano-British type (context 124), a copper alloy stud or tack (context 192), a hobnail (context 465) and 2 nails (contexts 245 and 184). The stud and nails are not closely dateable, but the hobnail is probably Roman.

The material from Roman contexts is limited in range - a sickle blade fragment (context 219 SF 7), 2 knives (context 169 SF 5 and context 466 SF 11), a wing from a hipposandal (context 466 SF 12), and over 100 hobnails, almost all from a single context (280) and found *in situ* (Plate 2). In addition there are 9 nails or nail fragments, and 12 small unidentifiable fragments.

Illustrated objects (Fig. 11)

1. Reaping hook or sickle with small strongly curved blade of asymmetrical section, flat on one face, and with edge on interior curve. Incomplete, no tang or socket. Fe. L: 93mm; W: 82mm. Context 219, SF 7.
2. Hipposandal wing. Fe. L: 68mm; W: 40mm. Context 466, SF 12.
3. Knife with triangular blade of triangular section and a solid handle. The handle or tang is attached at the mid point. Fe. L: 173mm; W: 55mm. Context 169, SF 5.
4. Knife, possibly socketed. Two non-joining fragments. The blade has slightly curved back and edge and tapers to the point. The blade has a square choil, and there are slight remains of the socket. Overall the blade was possibly originally 90mm long. Fe. Blade tip fragment: L: 54mm; W: 22mm; Blade base fragment L: 37mm; W: 27mm. Context 486, SF 11.
5. Possible harness bell. Cast bell, with heavy loop and curved body now incomplete. The body of the bell was decorated with pairs of horizontal inscribed lines. Leaded copper alloy. H extant: 45mm. Context 124, SF 1.

Vessel glass

by Ian Scott

Two pieces of vessel glass were recovered. One sherd was part of a tubular base ring of small diameter in pale blue green glass (context 220 SF 6). Nothing of the body of the vessel survives. The sherd is Romano-British but not closely dateable, because the form of the vessel is unknown. The second piece was a body sherd from a modern wine bottle (context 141).

Charred plant remains

by Wendy Smith

In total 29 bulk samples of sediment were collected for charred plant remains (CPR), ranging in volume from 2L to 40L. Nine of these were sufficiently rich to merit further analysis. Samples 6, 7, 22, 24 and 25 are all associated with oven 651 dated to the late Iron Age, two samples are of middle Roman (second-third century) date and associated with a pit (sample 12, context 314) and a beam slot (sample 19, context 256), both part of structure 328, and two samples were not securely phased but are likely to be of early medieval (eleventh-twelfth century) date.

Methodology

Samples were processed using a modified Siraf flotation tank. The flot was sieved to 0.25mm and the heavy residue (the material which does not float) was retained in a 0.5mm nylon mesh. The heavy residue was passed over a series of graduated sieving trays lined with wire or nylon mesh at >10mm, 10-4mm, 4-2mm and 2-0.5mm fractions. Flots, heavy residues and wet-sieved residues were air-dried at 30°C. Heavy residues were scanned by eye to establish if any environmental

remains (including plant macrofossils/charcoal) or artefacts were present. Charred plant remains were only recovered from the 10-4mm fraction of sample 7.

Samples were sorted under a low-power Meiji EMZ binocular microscope by the author at magnifications between x12.5 and x20 and identifications were made at magnifications between x12.5 and x45. Identifications were made in comparison with Oxford Archaeology's reference collection and illustrations or photographs in Floras or standard keys (eg Cappers, Bekker and Jans 2006; Stace 1997). Nomenclature for the plant remains follows Stace (1997) for indigenous species and Zohary and Hopf (2000) for cultivated species. The traditional binomial system for the cereals is maintained here, following Zohary and Hopf (2000, 28, table 3; 65, table 5).

Sample 24 was clearly exceedingly rich, producing thousands of identifiable charred plant remains. It has been established that approximately 250 CPR identifications will be representative of an infinite population of plant remains to an accuracy of $\pm 5\%$ at 95% confidence, where 20% of that population could be made up of one species (van der Veen and Fieller 1982, 296). As a result, this richer sample was sub-sampled using the riffling method as outlined by van der Veen and Fieller (1982; see also van der Veen 1984) in order to avoid spending inordinate amounts of time on particularly rich samples. The quantifications presented in the tables for sample 24 are only for that portion of the sample sorted and are not factored back up to 100%.

All charred plant remain samples were fully quantified (with the proviso that highly fragmentary remains such as awns and glumes were semi quantified on the scale of + = <5 items, ++ = 5-25 items, +++ = 25 – 100 items and ++++ = >100 items). Highly fragmented indeterminate wheat (*Triticum* spp.) rachis nodes were recovered from all five samples associated with oven 651. It was not possible to easily quantify this material so 40 relatively intact wheat rachis nodes, broken low with no glumes present were weighed to establish a conversion factor (40 indeterminate wheat rachis nodes = 0.01g) which would allow estimated quantification of this material by weight. Quantifications were based on whole seeds or plant parts. Quantification of cereal grain and grass caryopses was based on the embryo. Estimate counts (where fragmentary material was quantified in terms of whole seeds or plant parts) are indicated in the tables by an 'E' after the score tables. In a few cases, especially where seeds are black when modern, the antiquity of CPR is in question and this has been indicated by a '‡' after the score in the tables.

Quantification of cereal grain sprouts (coleoptiles) was made on those coleoptiles that have the trefoil-shaped base (two rootlet bases and the base of the acrospire) preserved. This most likely under-represents the quantity of coleoptiles present, but avoids quantification of highly fragmentary sprouts (coleoptiles) as if they were the same as the largely intact sprouts. The length of the coleoptiles has not been measured.

Results and discussion

Table 6 presents the archaeobotanical results for all nine samples studied from Roman and medieval deposits at Wingfield Bank. The results by plant category and their relative proportions are presented in Table 7. The late Iron Age samples were strongly dominated by cereal chaff remains and this is likely to be a direct reflection of the type of deposit sampled; in this case contexts associated with hearth or oven 651. Two samples of middle Roman date have produced slightly different results, which again most likely reflects the nature of the deposits sampled. Finally, two samples have strong evidence for free-threshing wheat (bread wheat/rivet wheat – *Triticum aestivum* L./*turgidum* L.) which is more consistent with medieval assemblages and is internally consistent with other archaeological remains from these features.

Late Iron Age samples associated with oven 651 (samples 6,7, 22, 24 and 25)

All five samples associated with oven 651 contained abundant, highly fragmented indeterminate

wheat (*Triticum* spp.) rachis nodes. Small quantities of securely identifiable spelt (*Triticum spelta* L.) glume bases were recovered from all five samples (Plate 3a and 3b), as well as more substantial quantities of indeterminate emmer/spelt (*Triticum dicoccum* Schübl./*spelta* L.) glume bases. It was clear that these remains dominated the assemblage and opting not to sort them from the samples because of the highly fragmented state would skew results. A strategy was devised to use the weight of 40 indeterminate wheat rachis nodes from sample 6 as a conversion factor for this highly fragmented material (see above). This resulted in quantifications of several hundred indeterminate wheat rachis nodes, clearly establishing that cereal chaff was strongly dominant in features associated with oven 651 (see Table 7). Indeterminate emmer/spelt (*Triticum dicoccum* Schübl./*spelta* L.) was frequently identified, but only a few securely identified spelt (*Triticum spelta* L.) glume bases were identified from these samples (see Table 6). Nevertheless, the likelihood is that spelt (*Triticum spelta* L.) is the main cereal cultivated. This is consistent with data from recent work in the region on slightly later material from the Roman town at Springhead (Campbell 1998; Stevens 2011) and the Roman villa at Northfleet (Smith 2011).

This result suggests that cereal chaff (most likely spelt chaff) was intentionally used as fuel in oven 651. Small-sized charcoal (usually 2mm or less) was noted in all of these samples, so it is likely that cereal chaff was used in combination with wood fuel. The relatively small size of the charred plant remains and charcoal could be explained in several ways:

- ancient raking/cleaning out of the oven could have broken up charred remains.
- the abundance of modern roots in four of the five samples studied (none noted for sample 24 in assessment) suggests that the position of these deposits may have meant that they are vulnerable to bioturbation (re-working by worm, insect or rodent damage) or plough damage.
- it is also possible that the preservation of these remains was such that mechanical damage during excavation, sampling and/or processing may have further broken up these remains.

The relative lack of glumes in these samples, however, makes the third scenario less likely, as these would still be present in the samples, just broken away from the glume bases. The likelihood is that this material was damaged in this way at some point in its past. Certainly given the proximity of these samples to oven 651, the likelihood is that this material has not been moved far from the original place of charring, which most likely was within the oven.

A number of Roman sites in the region have produced large quantities of charred spelt glumes and glume bases in primary deposits associated with their direct use as fuel, for example at the villas sites of Northfleet (Smith 2011) and Thurnham (Smith and Davis 2006), as well as in secondary deposits such as ditches. Use of cereal processing waste as fuel is well attested (e.g. Hillman 1981, 1984, 1985; G. Jones 1984; Smith 2001; van der Veen 1989, 1996, 1999; van der Veen and Hamilton-Dyer 1998) and these Wingfield Bank deposits again suggest the intentional use of glume wheat chaff (most likely spelt chaff), a by-product of crop processing, for fuel. The small size of weed/wild taxa recovered from these samples (most are <2mm) and the highly fragmented wheat glume/rachis nodes all suggest that this may be debris from one of the later stages of crop processing of glume wheats; possibly coarse or fine sieving stages of the crop processing sequence (e.g. Hillman 1981, 1984, 1985; Jones 1984).

The importance of the present material is in the indication that the regular use of glume wheat chaff as fuel in the Roman period (albeit in combination with wood fuel) was a practice that extended back at least into the late Iron Age. This suggests the ready availability of an abundance of glume wheat (most likely spelt) and its resulting processing by-products in the region, as can be seen in the early Roman period in east Kent (Helm and Carruthers 2011).

Roman pit (sample 12) and beamslot (sample 19)

Two Roman (second-third centuries AD) samples were analysed. Unlike the late Iron Age deposits associated with oven 651, these samples are more mixed, with a much more significant proportion of cereal grain (21.8% in sample 12 and 22.8% in sample 19, Table 7) and weed/ wild taxa (25.23% in sample 12 and 12.70% in sample 19, Table 7) recovered. Beamslot sample 19 (context 256) was dominated by wheat chaff (55%, most likely all glume wheat – see Table 7), but cereal chaff only accounted for 34.3% of identifications in pit sample 12 (context 314). With only two samples from this period, and both from secondary deposits, however, this data pattern may not be fully representative of the range of charred remains for this phase at Wingfield Bank. Nevertheless, points of similarity with some of the material associated with late Iron Age oven 651 suggest the influence of deposits of that type on the composition of the assemblage and, therefore, the middle Roman deposits are likely, even though secondary and possibly mixed, to reflect other crop processing/food preparation activities which are preserved through charring and disposal of domestic waste.

Early medieval enclosure ditch (sample 8) and pit 417 (sample 13)

Two samples were most likely of early medieval (eleventh-twelfth centuries) date. Sample 8 (context 232) was strongly dominated by cereal grain (61%), most of which was clearly free-threshing type wheat. Preservation in sample 13 (context 418) was not as good, and most of the grain was fragmented, warped and ‘clinkered’. This may perhaps be partly explained by the large quantity (24.6%) of detached sprouts and embryos recovered in this sample, which suggests that this material may be the charred remains of spoiled or malted grain. Unfortunately sprouted grain can result from either cause (spoilage or malting) and, since this is a secondary deposit, and the only one of its kind on the site, it is not possible to establish which is the case in this instance.

In addition to free-threshing wheat grain, both samples produced free-threshing wheat (*Triticum aestivum* L./*turgidum* L) rachis nodes (10 from sample 8 and 60 from sample 13). Sample 13 produced 22 rye (*Secale cereale* L.) rachis nodes and 13 rye grains. Sample 8 also had rye grain (n = 5), but no rachis nodes were identified. Sample 8 also produced 27 hulled barley (*Hordeum* spp.) grains, but barley was also recovered in low densities from late Iron Age samples (see Table 6).

Weed/wild taxa from the medieval samples, many of which are typical weeds of crop, are of interest. Possible pearlwort (cf. *Sagina* spp.) was recovered from sample 13, as were possible internal structures of corncockle (*Agrostemma githago* L.). Corncockle was also securely identified in sample 8. There was also a marked increase in the number of vetch/vetchling (*Vicia* spp./*Lathyrus* spp.) seeds recovered in sample 8. In the Roman period these tend to be relatively small-sized (<2mm) with 15 or less recovered; whereas medieval sample 8 has 42 vetch/vetchling seeds identified and these are larger-sized (2-4mm). Stinking chamomile (*Anthemis cotula* L.) was not recovered from Iron Age or Roman deposits at all, but was recovered in sample 8 (n = 10). In general there does appear to be a change in the weed flora between the late Iron Age-Roman and medieval periods, but since only two medieval samples were analysed it is only possible to suggest this is the trend. Certainly, it does appear that possible changes in methods of tillage or areas cultivated is influencing the weed flora of these medieval deposits, but further data are needed in order to ascertain if this is a general trend or specific to certain areas in Kent.

Conclusions

Approximately one third of the samples collected during limited excavations at Wingfield Bank have produced rich and interpretable assemblages. Late Iron Age evidence is skewed to results associated with oven 651 and evidence from the middle Roman and early medieval phases is limited to two samples each; therefore, these results can only be considered in light of other, similar data in the region and are presented here to further archaeobotanical research in future. The late Iron Age remains are strongly dominated by cereal chaff (especially from glume wheats – most likely

spelt). This evidence corresponds with similar data from some early Roman sites in Kent such as Northfleet Roman villa (Smith 2011) and Thurnham Roman villa (Smith and Davis 2006), and suggests that patterns seen there were already established well before the start of the Roman period. The possibility that large scale cultivation of spelt generated an abundance of spelt chaff debris from crop/food processing which was readily available for use as fuel (often in combination with wood fuel) seems plausible, at least for this limited area of Kent. Middle Roman archaeobotanical remains from two secondary deposits were not as strongly dominated by glume wheat chaff and produced more even mixtures of weed/wild taxa, cereal grain and cereal chaff. Whether this simply reflects a mixture of charred debris from a number of sources or is in fact detecting debris which was more related to crop processing/food preparation than fuel use, however, is not clear. Nevertheless, it is clear that these middle Roman deposits have a distinctly different composition from the late Iron Age assemblages associated with oven 651. Finally, the early medieval samples clearly show a marked change in the types of cultivated and weed/wild taxa from the Roman period. Free-threshing wheat (*Triticum aestivum* L./*turgidum* L.) and rye (*Secale cereale* L.) are now recovered. *Triticum aestivum* and smaller quantities of rye were present in the adjacent Electricity Substation samples, but *T. turgidum* was not present there (Pelling 2001, 34). There are also changes in the range of weed/wild taxa recovered in the medieval deposits as compared to the Iron Age and Roman ones. Medieval samples tend to have larger sized vetch/vetchling (*Vicia* spp./*Lathyrus* spp. – 2-4mm). In addition, possible pearlwort (cf. *Sagina* spp.), definite corncockle (*Agrostemma githago* L.) and stinking chamomile (*Anthemis cotula* L.) are now recovered. These are minor changes in the composition of the weed flora, but suggest the possibility that changes in tillage methods or areas cultivated in the medieval period may have generated changes in the accompanying weeds of crop. This supposition is based on only two samples from the present site, but is supported by the evidence in medieval samples from the immediately adjacent area where all the weed/wild taxa mentioned above, except *Sagina* spp., were found, and it can also be noted that seeds included cultivated vetch (*Vicia sativa* subsp. *sativa*) (Pelling 2001, 34-5). Nevertheless, further archaeobotanical data of the medieval period are needed from Kent to fully understand whether there is a definite change in the weed flora between the Roman and medieval periods in this region.

Animal bone

by Lena Strid

The animal bone assemblage consisted of 350 re-fitted fragments. All was hand collected; the sieved residues produced no bone fragments. The analytical methodology followed standard OA procedures, full details of which can be found in the archive.

The assemblage

Only 72 (20.9%) of the re-fitted fragments could be determined to species. The species present included cattle, sheep/goat, pig, horse and dog. On average, the assemblage was rather poorly preserved, containing a large number of small indeterminate fragments. These consequently severely reduced the numbers of identifiable bones in most phase groups. Traces of animal gnawing were found on three bones. No bones were burnt. Pathological conditions were identified in the medieval and post-medieval assemblages. Unusually, even for an assemblage of this modest size, butchering marks were absent.

The Bronze Age faunal remains comprise poorly preserved cattle tooth fragments. The Roman assemblage contains the largest number of species. All common domestic species are present. The identified bones derive from adult or sub-adult individuals. One pig canine tooth belonged to a sow. The absence of wild species is normal for the time period. Horse is unusually well represented in the assemblage. The horse remains are disarticulated, and spread over several features. Most of the remains are teeth and the Minimum Number of Individuals is only one. In

contrast, the dog remains comprise a semi-articulated skeleton in a ditch (tertiary fill 199, of ditch 640). The bones derive from the skull, spine and front limbs. Roman deposits of articulated and semi-articulated dogs have been interpreted as being ritual in nature (cf Fulford 2001), although the placement of the dog in the upper tertiary fill of the ditch makes a ritual interpretation less likely.

The medieval assemblage includes cattle and sheep bones, as well as a femur from a medium/small unidentified bird. With the exception of the juvenile bird bone, all remains derive from adult or sub-adult individuals. A cattle tibia displayed thin layers of pathological bone growth on the shaft, indicating an infection that was active at the time of death. The post-medieval assemblage comprised one horse scapula and an adult semi-articulated sheep/goat skeleton. The sheep/goat bones display morphological traits which indicate sheep as well as goat. It is therefore not possible to make a species identification. No butchering marks were observed, suggesting that the animal may have died of disease or of birthing difficulties. Flesh from animals dying of natural causes is usually not considered suitable for human consumption. A small enthesophyte (ossified muscle attachment) was observed on the medial/posterior edge of the proximal metacarpal.

Discussion

In addition to artefactual indications of an earlier prehistoric presence, the archaeological evidence represents an interrupted sequence of agrarian use and settlement of the landscape stretching from the Bronze Age to the sixteenth century,. The location and topography of the site were undoubtedly always central to its attractiveness for human activity and this is to some extent reflected in similarities of landscape exploitation in different periods. The site topography offered a well-drained north-facing slope, the natural hollow at the northern edge of the site influencing the division of the landscape. The southern end of the site sits on top of part of the Kent ridgeway overlooking Springhead to the north-west, dropping onto flatter land to the north towards the salt marshes of the Ebbsfleet.

Prehistoric

Although no associated features were identified, an assemblage of flint was recovered, some from the several natural hollows or tree holes across the site. There is no reason to doubt that the ridgeway and its bordering slopes would have been routinely traversed from the Mesolithic period onwards. However, while the flint debitage adds to the already emerging picture of a presence, it still only provides a generalised characterisation - a 'background scatter' rather than serving to identify any sort of definitive focus of activity.

Bronze Age

The evidence for prehistoric activity consists of a single NE-SW aligned boundary ditch located in the far north-west of the site. The ditch contained a large portion of a flint tempered bucket-shaped jar dating to the middle-late Bronze Age typical of sites from this area such as Coldharbour Road, Gravesend (Mudd 1994). Any associated settlement must lie to the west, and may form part of the settlement spread identified in the 2008 CTRL excavations in the area to the east of Springhead. These produced a varied range of middle to late Bronze Age features, reflecting settlement, field systems and burials on the flank of the Ebbsfleet Valley (Wenban-Smith *et al.* forthcoming). Enclosures were also found during the excavations of the A2 Pepperhill to Cobham widening scheme to the east of the site, in conjunction with late Bronze age pits and flintwork (Allen *et al.* 2012). Thus the 'empty' space largely occupied by the Wingfield Bank site seems to indicate that Bronze Age settlement along this ridge was intermittent and may reflect different use of this area in relation to Bronze Age settlements, for example as undivided pasture.

Late Iron Age – early Roman - first-second century AD

Champion (2007, 102) has shown that Bronze Age occupation sites in Kent often show very little

sign of continuity into the early and middle Iron Age. Evidence of the middle Iron Age, in particular, is typically quite scarce, suggesting that this genuinely reflects a relatively low level of settlement at this time (e.g. Hill 2007, 24). Significant intensification of rural settlement in the late Iron Age seems to be indicated (ibid.) and is certainly borne out by the evidence from CTRL Section 1, where the number of sites of this period greatly exceeded those of middle Iron Age date and there were even fewer instances of continuity of occupation from the middle to the late Iron Age (Booth 2011). The present site is entirely consistent with this pattern, producing no trace of early and middle Iron Age activity, although features relating to significant settlement of this date have been found in the recent excavations along the A2 only 2km east of the present site (Allen *et al.* 2012). The late Iron Age phase at Wingfield Bank still lacks clear evidence of landscape division and occupation, being indicated by isolated finds and features. The gold stater, a Gallo-Belgic E class, was a relatively common issue, minted to finance Caesar's invasions (Williams 2007, 128), and is likely to be an accidental deposit, although its possible deposition as some sort of ritual offering cannot be ruled out. A single substantial late Iron Age pottery sherd was also found. The most interesting aspect of activity at this time is the well-used and periodically rebuilt hearth or oven base located on the high ground in the south-east corner of the site, originally thought to be of early Roman date but clearly assigned to the late Iron Age on the basis of radiocarbon determination. The preponderance of spelt chaff in this structure indicates that it was used as fuel (see Smith above). The purpose of the oven itself remains uncertain, but it is likely to have been domestic and therefore to indicate the presence of settlement-related features in the near vicinity - probably closer than the contemporary features at Springhead a few hundred metres away. The remoteness of this feature from the Roman features further north and the lack of others contemporary with it suggests that related settlement lay further south-east beyond the excavated site.

Roman

The mid-first century AD sees the first evidence of organisation of the landscape at Wingfield Bank, in the form of ditches and two structures. Within the most northerly ditch (644) two knives and part of a hipposandal wing (SF 12) were recovered as well as a large quantity of relatively low status pottery, all consistent with an early first-second century AD date. The density of finds here suggests that the focus of occupation (and implied dwellings) must lie to the north of the site. Such a focus might have been little more than c.300m from the nearest known approximately contemporary activity at Springhead (see Fig. 13), but the difference in topographical setting (ridge top rather than valley side) would have made the connection less obvious. Nevertheless, linear features and a possible enclosure located in the CTRL works (Andrews *et al.* 2011) on the upper valley side barely 250m north-west of ditch 644 were on a very similar (though not absolutely identical) alignment to that of the Wingfield Bank features and suggest that the latter may have belonged to a more widespread scheme of land apportionment, even though no clear evidence of this was seen in Area B. Further evidence of early Roman field systems probably associated with Springhead has been recorded both south-west of the town (e.g. Bull 2006) and to the east. To the north-west, field boundaries and enclosure ditches were components of the so-called 'western Roman complex' examined at the Sportsground site west of the Northfleet villa (Andrews *et al.* 2011).

Although neither appear to represent dwellings, the two structures examined in Wingfield Bank Area A merit further comment. Structure 328 comprised two parallel but slightly curving beamslots and a set of parallel postholes which together formed an approximate rectangle in plan. Environmental evidence from this feature showed the presence of cereal grain and wheat chaff. Artefactual evidence from these fills include a reaping hook or sickle and a shoe represented by a quantity of hobnails *in situ* (see Plate 2). Another structure (246) was only partly revealed under the southern baulk, and was represented by a continuous beamslot forming three sides of a rectangle, with six postholes cut through the base at intervals. No artefactual or ecofactual evidence was recovered from the fills, although it is notable that it is close to a very similar structure (also

artefactually undated) partly revealed in the 1999 excavation immediately to the south. The uncertainty over dating is a serious problem, however, and it is possible that structure 246 was of medieval rather than Roman date.

Despite the differences in their plans, however, the forms of both structures have parallels amongst some early Roman buildings interpreted as granaries (for examples see e.g. Jarrett and Wrathmell 1981, 75-77). The absence of finds from structure 246 is potentially consistent with this interpretation. By contrast, the quantity of pottery and the charred plant remains evidence from structure 328 suggest the close proximity of a domestic focus, but do not preclude interpretation as a granary. Structures of this type are not common in Kent.

Apart from evidence of partial reconstruction of the possible grain store (structure 328), the Roman activity seems to have been of a single 'phase', although the pottery evidence suggests that this was of relatively extended duration from the first to the later third century, with its high point around the middle of the second century. The level of activity tailed off into the third century, with the upper fill of the north-western ditch 644 providing the only late Roman artefactual material, other than the late Roman coins, considered to be chance losses. The general lack of evidence for continued activity, for example in the form of recutting of ditches, suggests both that occupation was generally at a fairly low level and also supports the view (above) that the excavated features were relatively peripheral to a focus of settlement located further north.

In addition to chronology the pottery evidence provides some indication of site character. This is unremarkable. By the second century the range of pottery indicates that the users of the site had access to the same range of material and were as conversant with the culinary and dining use of vessels such as dishes as the inhabitants of the villa at Northfleet, 1km to the north, and those of Springhead town (see Fig. 8). In view of the proximity of the latter with its markets, however, such close integration would be expected and is not particularly informative about the status of the occupants or users of the site, some of whom might, indeed, have lived within Springhead itself. Equally, the ceramic building material assemblage from the site was probably entirely recycled from local high status settlements, with both Springhead and Northfleet as possible sources, and provides no direct indication of site character. Such reuse is typical of many rural settlements, however and despite proximity to Springhead the site can be seen as largely if not exclusively agricultural in emphasis, indicated unusually clearly by the small metalwork assemblage which as well as knives included a fragment of hipposandal, a reaping hook/sickle and a harness bell.

Anglo Saxon

The absence of any early and middle Anglo-Saxon occupation at Wingfield Bank is not surprising, but the adjacent CTRL works have produced evidence for typically dispersed settlement in the form of sunken featured buildings (SFBs) and occasional pits and other features (Andrews *et al.* 2011). The nearest of these was at Springhead only c.300m west of the site, with a further example some 500m distant to the south. Nine SFBs were found at Northfleet c.1km to the north, five in the vicinity of the villa and the others a little to the west (*ibid.*). At Springhead, two groups of early-middle Saxon inhumation burials were found within 30m of each other and may belong to a single cemetery comprising two (or more) spatially distinct grave groups, consisting of 10 and 26 excavated burials, though more recent work has shown that only about 15% of the cemetery population was excavated in the CTRL investigations (*ibid.*). These cemeteries lie only about 400m north-west of Wingfield Bank. It is clear that the valley slopes and lower ground were favoured for settlement and the upper valley margins for burial. Wingfield Bank, on the high ground beyond the eastern edge of the Ebbsfleet valley, lay outside this pattern of use. The area was presumably utilised for pasture at this time, leaving no archaeologically detectable trace.

Medieval

The medieval features on the site comprise two stratigraphically distinct, but congruent phases. The first phase was represented by an arrangement of field boundaries and a possible sub-rectangular paddock, largely confined to the southern half of the site. The second phase saw the pattern of field boundary ditches rationalised and expanded, while keeping to an approximate NW-SE alignment - perhaps still reflecting the line of Watling Street to the south.

The pottery suggests that the first phase of activity dates from about the late eleventh century to the mid twelfth, and the second phase continues until the early thirteenth. The proximity of this site to the Pepper Hill Lane Electricity Substation site immediately to the south means that several of the linear features can be linked, and the comparison of the chronology and character of both sites highlights some significant aspects. Excavation at the substation in 1999 revealed three phases of medieval settlement (Hardy and Bell 2001). The first was established in the late eleventh or early twelfth century and contained at least one structure with another possible one located under the extant pylon base. The pottery dating suggested that the buildings may not have been contemporary, the two-cell building in the east of the site being associated with eleventh-twelfth century activity, the inferred building under the pylon being possibly its replacement in the mid twelfth century.

Consideration of the site plans together (Fig. 3) enables the development of the settlement to be better understood. No structural evidence was associated with the late twelfth century ditches on the Pepper Hill Lane site, neither were there any signs of buildings on the present site in this phase. On the basis of the pottery, Blinkhorn suggests that while activity ceased on this site before the end of the thirteenth century, it lasted longer than at Pepper Hill Lane. In other words, although the field boundary layout displayed some continuity through the medieval period, the domestic focus appears to have shifted to the north, beyond the present site. One of the questions raised by the Pepper Hill Lane excavation was the relationship (if any) between the revealed settlement and the post-medieval site of Wingfield Bank, which, until its redevelopment, stood just to the north of the present site. Did it migrate there, or was Wingfield Bank the shrunken remnant of a much larger settlement?

The earliest mention of Wingfield Bank is as *Wenifalle* in 1199 - meaning 'windy field' (Wallenberg 1934, 107) - in respect of the tithes from this property being bestowed by the Archbishop of Canterbury on the monks of Rochester (*ibid.*). The combined evidence of the two excavations suggests that the settlement of *Wenifalle* did in fact migrate to the site of Wingfield Bank, possibly in the late twelfth century.

While the form of the later medieval settlement can only be inferred from the field boundary layout, some characteristics of the agrarian regime in operation can be suggested. The boundaries are arranged to incorporate the presence of the natural hollow at the north edge of the site, and a number of waterholes were evident around its perimeter. This plus the evidence of associated fence-lines, and the lack of even a background scatter of pottery and other domestic debris supports the view that at least some of the exposed area was utilised for pasture. The charred plant remains from both sites showed evidence of cereal processing, however, and a mixed agricultural regime is therefore likely, although the precise disposition of arable and pasture areas is unknown. There is no evidence for any kind of specialised craft or industry; the users of the excavated areas seem to be exclusively concerned with agriculture. The extent of domestic activity is uncertain, but it is suggested by structural remains in the Pepper Hill Lane site, although the small quantities of roof tile from both sites are probably later in date than the excavated structures and provide no direct evidence for the character of the buildings. The pottery assemblages are entirely domestic in character.

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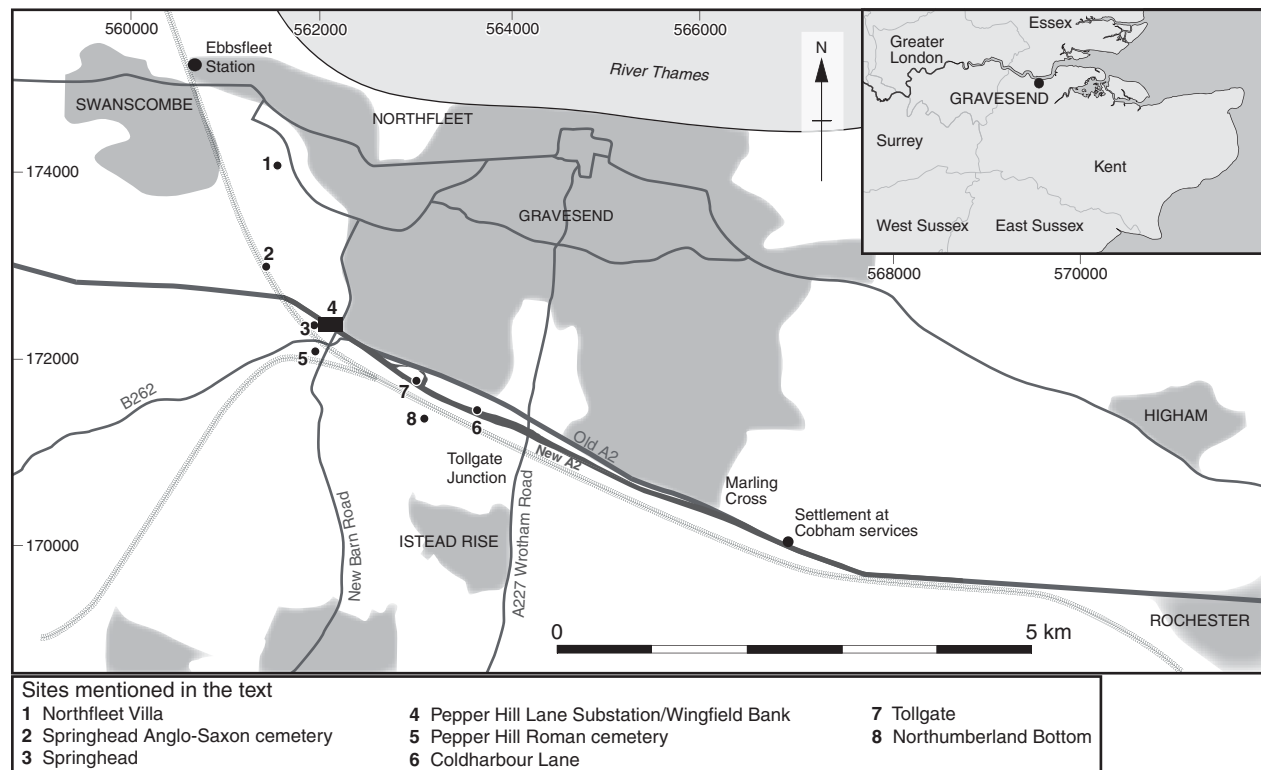


Fig 1: Site location

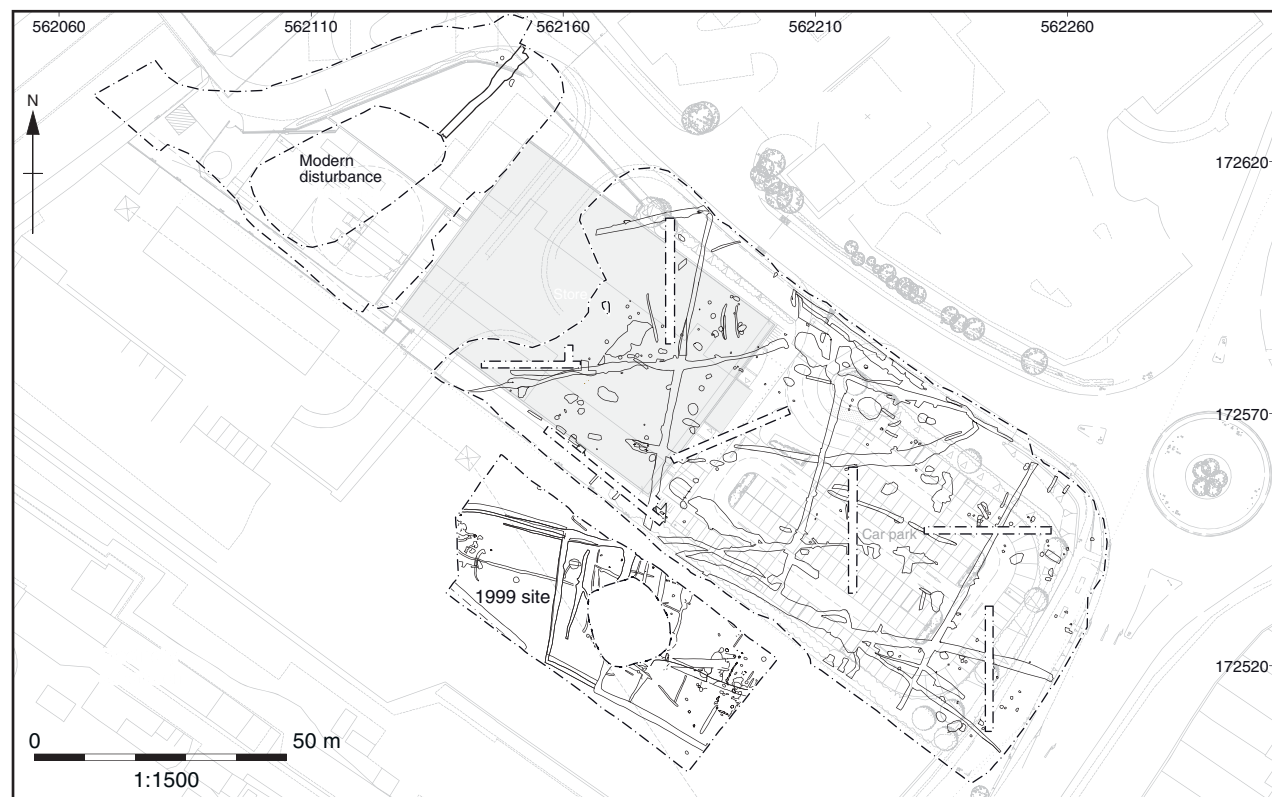


Fig 2: Overall plan of features

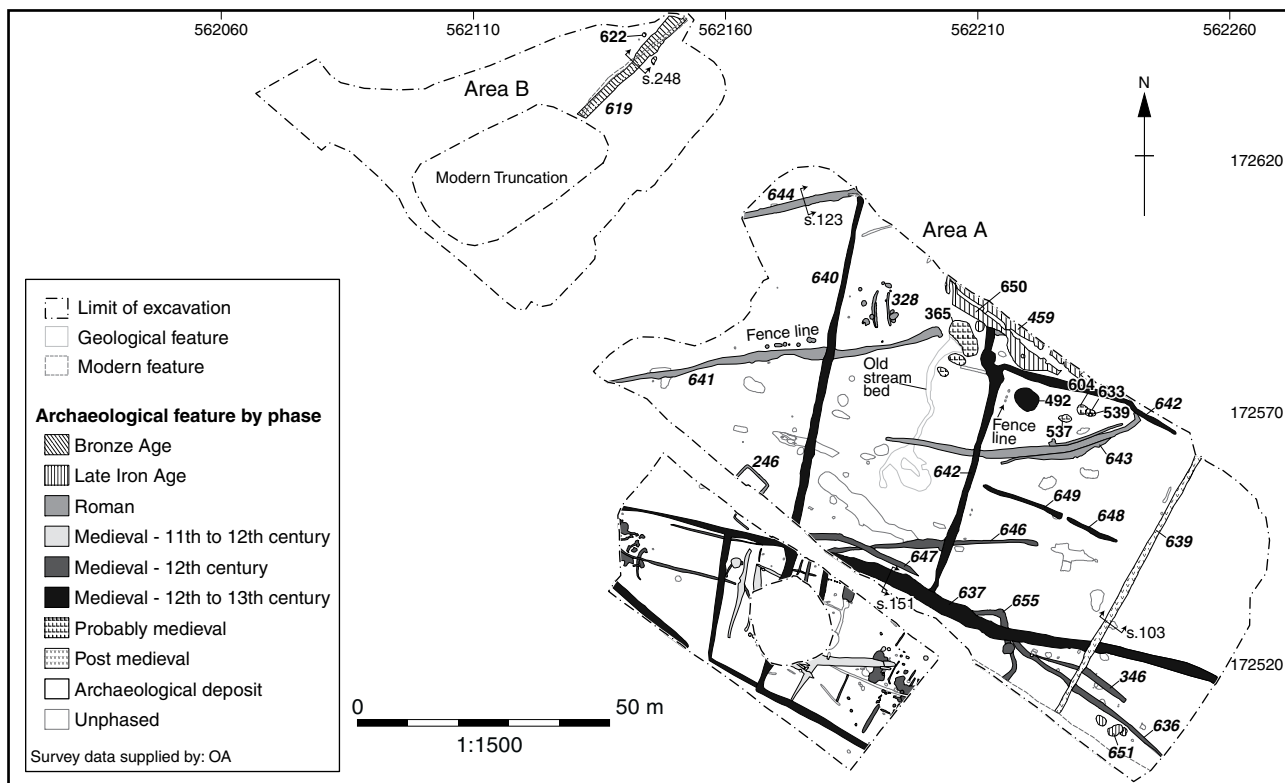


Fig 3: Overall plan of showing phasing of principal features

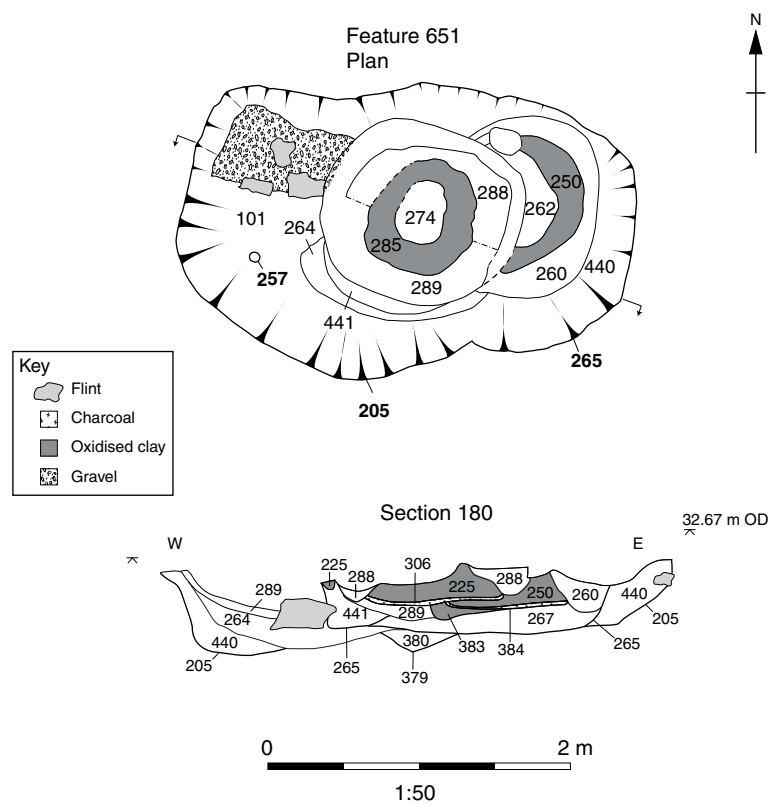


Figure 4: Plan and section of oven

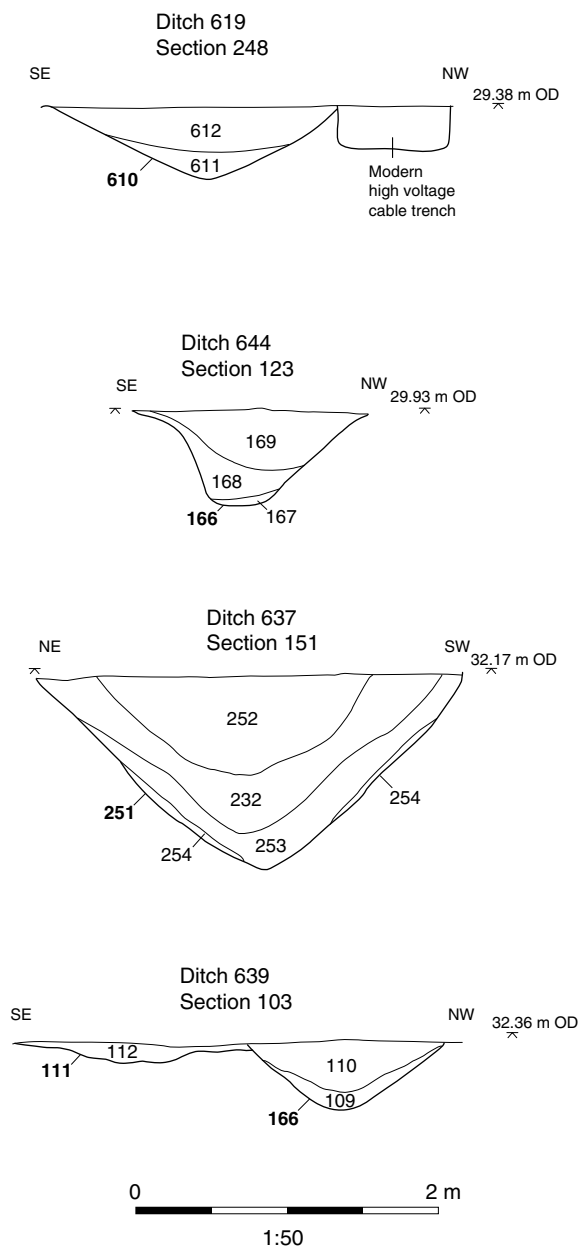


Figure 5: Ditch sections

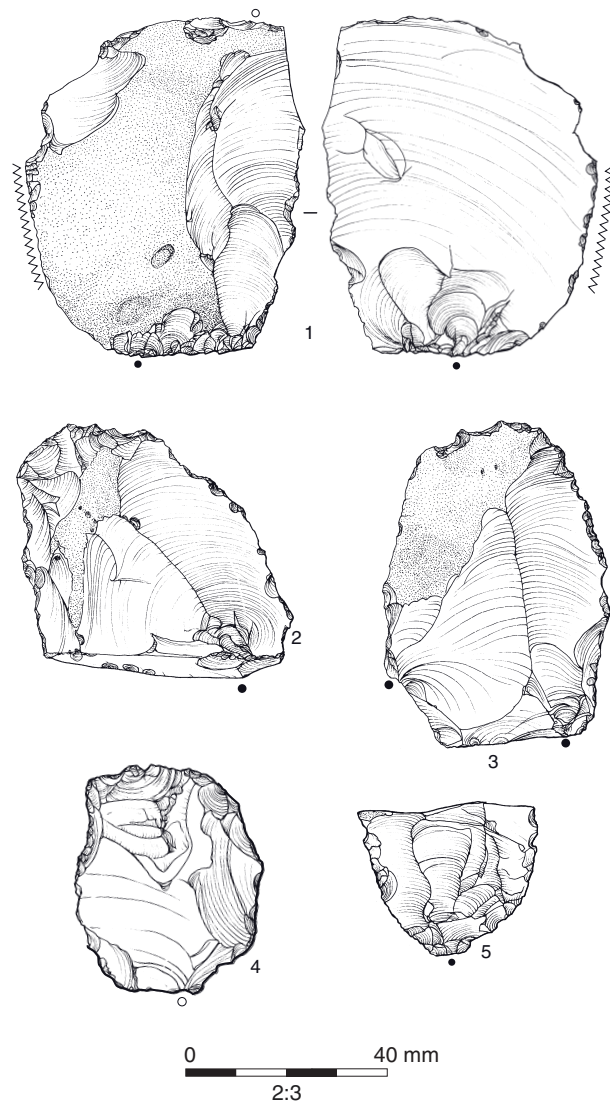


Figure 6: Struck flint

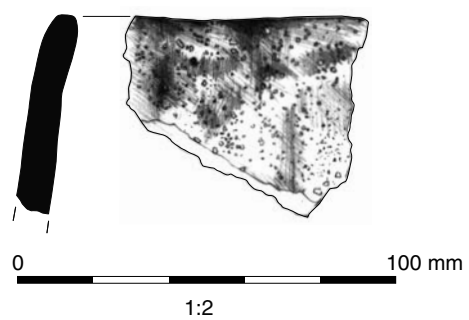


Figure 7 : Bronze Age pottery

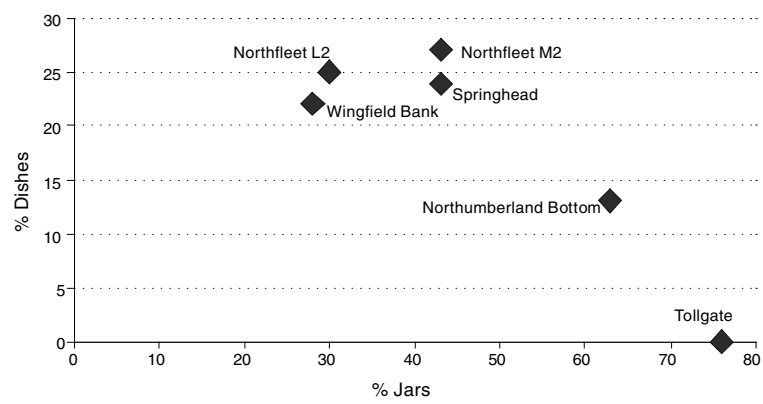


Figure 8 : Plot of proportion of jars:dishes in Wingfield Bank and other local Roman pottery assemblages

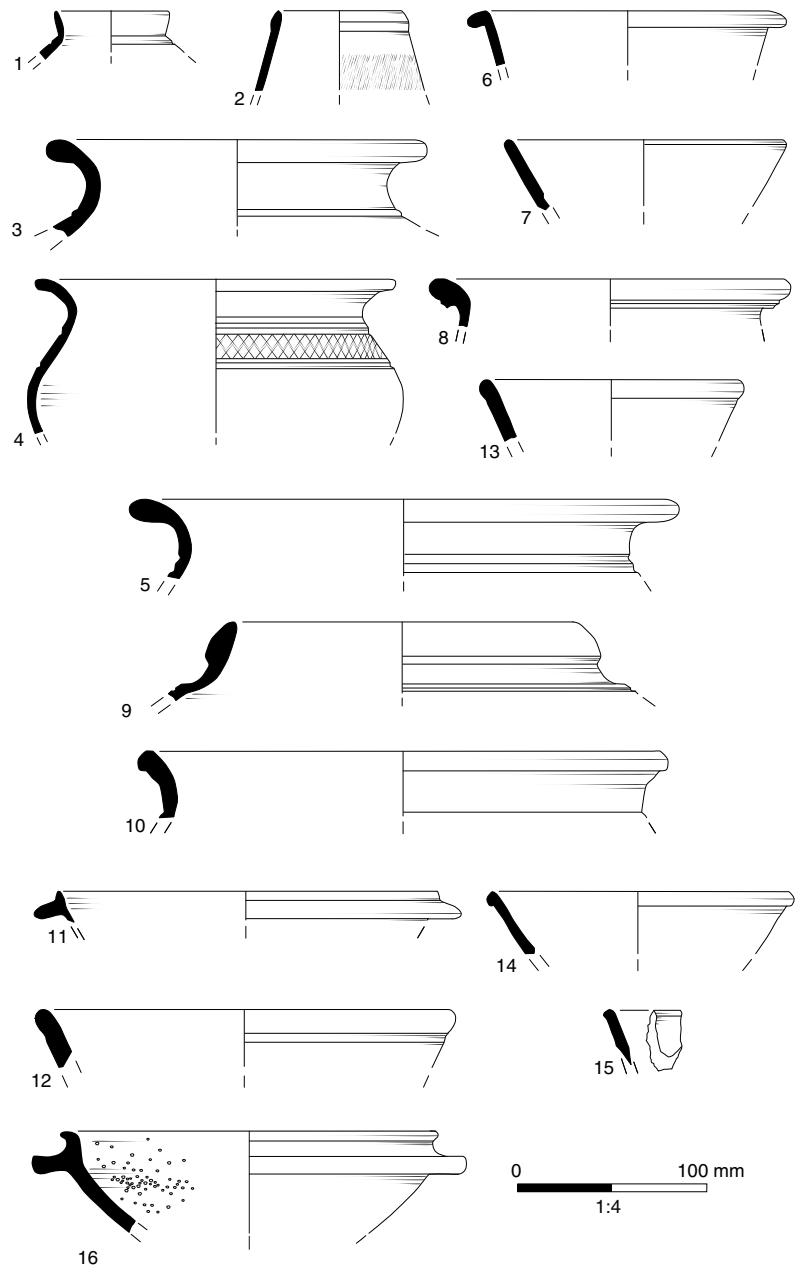


Figure 9 : Roman pottery

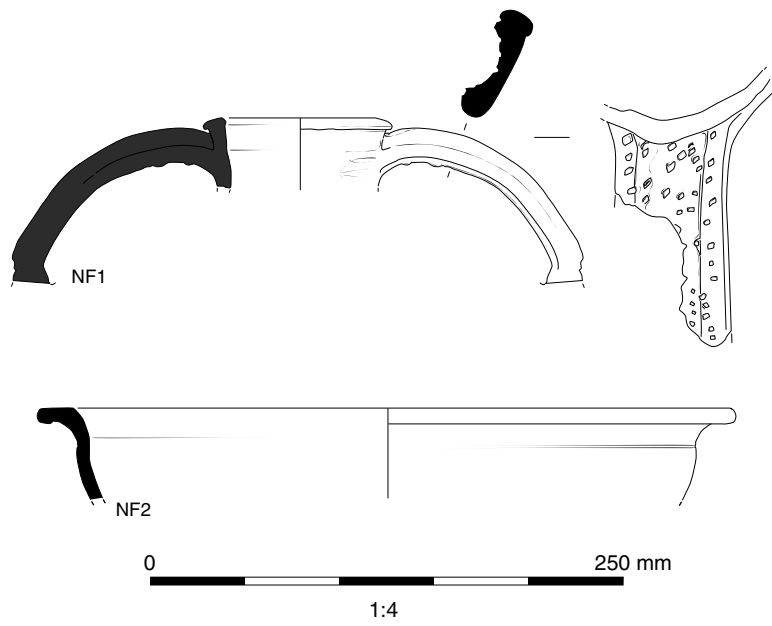


Figure 10 : Medieval pottery

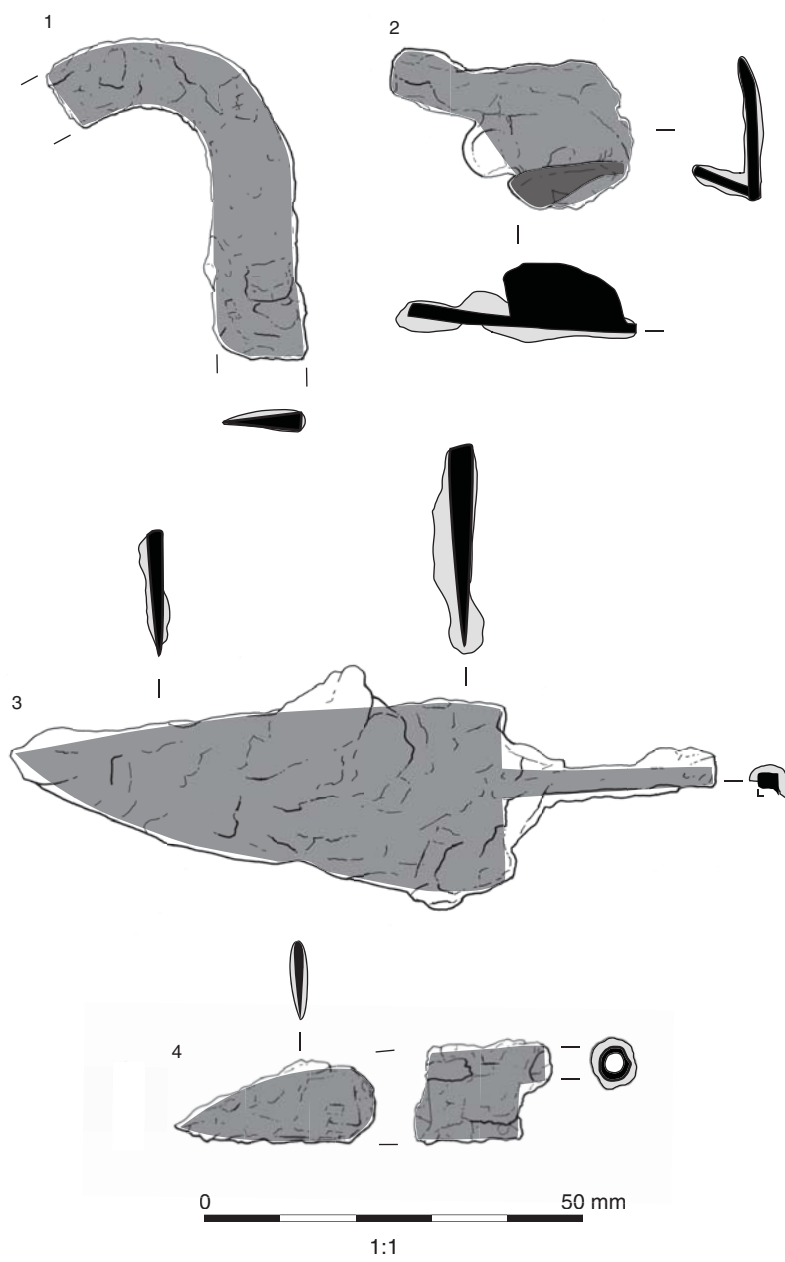


Figure 11: Iron objects

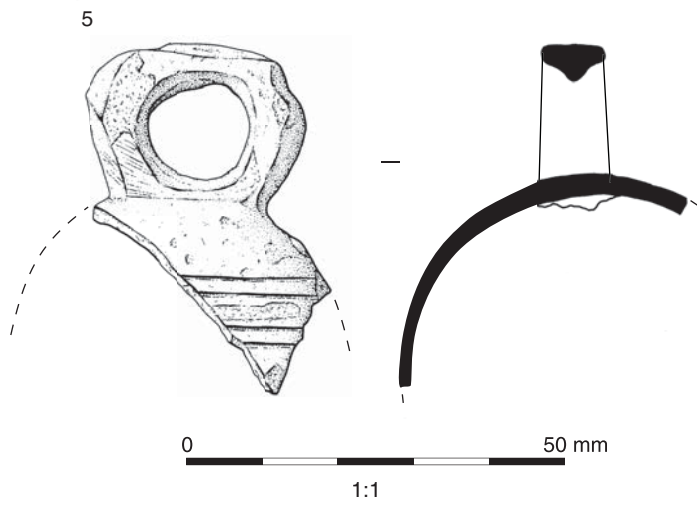


Fig 12: Copper alloy bell

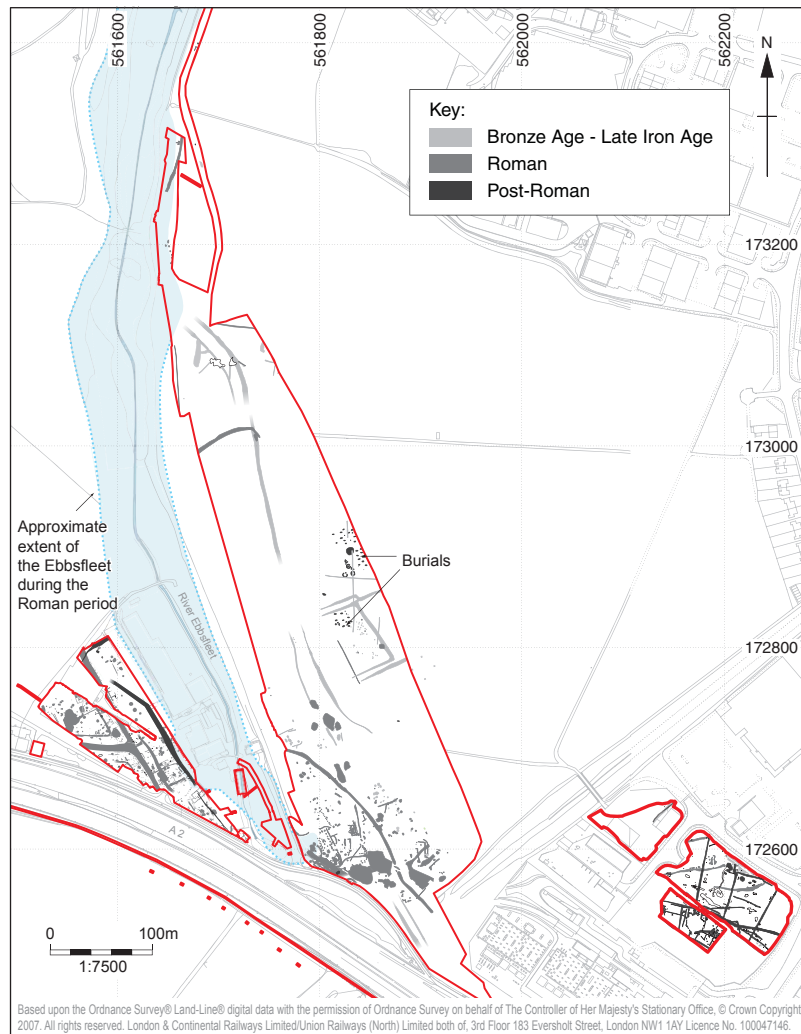


Fig 13: Wingfield Bank in relation to CTRL excavations at Springhead

Table 1: Roman pottery: quantification of fabrics. Fabric codes from CAT (nd). MV = minimum number of vessels; EVE = estimated vessel equivalents.

Ware	Sherds	Weight (g)	MV	EVE
<i>Amphorae</i>				
R56 – South Gaulish amphora fabric	5	72	1	0.12
R98 – Verulamium-region coarse white-slipped ware amphora	2	598		
<i>Black-burnished wares</i>				
R13 – Handmade black-burnished ware (BB1)	4	142		
R14 – Wheel-thrown black-burnished ware (BB2)	12	149	3	0.28
<i>Fine wares</i>				
R25 – Lower Rhineland colour-coated ware	1	3		
<i>Late Iron Age/early Roman wares</i>				
B1 – Fine grog-tempered ware	21	514	1	0.05
B2 – Coarse grog-tempered ware	6	184		
B5 – Grog-tempered ware with sand	13	39	1	0.07
B8 – Fine sandy wares	3	39		
<i>Mortaria</i>				
R99 – General mortarium fabric	1	100	1	0.18
<i>Oxidised wares</i>				
R17 – North Kent fine oxidised ware	30	149	1	0.15
R68 – Patch Grove grog-tempered ware	25	351	2	0.29
R71 – General oxidised wares	4	10		
R74.1 – Coarse orange sandy ware	7	25		
R74.2 – Coarse red sandy ware	12	47	1	0.03
R74.3 – Coarse buff sandy ware	2	16	1	0.9
<i>Reduced wares</i>				
R16 – North Kent fine grey ware	11	54	2	0.18
R73 – Fine Thameside grey ware	4	20	3	0.3
R73.3 – Thameside grey ware	627	6190	47	4.82
R100 – General grey/black sandy wares	2	153	1	0.34
<i>Samian wares</i>				
R42 – South Gaulish samian ware	2	5		
R43 – Central Gaulish samian ware	13	104	3	0.48
R46 – East Gaulish samian ware	2	12	2	0.13
<i>Shelly wares</i>				
R69 – North Kent/South Essex shelly ware	119	1640	5	0.96
<i>White-slipped wares</i>				
R105 – Coarse white-slipped oxidised sandy ware	1	5	1	0.03
R18.1 – North Kent fine white-slipped oxidised ware	61	494		
<i>White wares</i>				
R150 – White/buff fine fabric with black sand (?glaucanite)	1	17	1	0.2
TOTALS	991	11132	77	9.51

Table 2: Ceramic phasing: distribution of forms. ER = early Roman (AD 43-130); MR = mid Roman (AD 120/30-200); LR = late Roman (AD 270-300)

Vessel class	ER	%	MR	%	LR	%	Total EVE
Amphora			0.12	2%			0.12
Beaker	0.2	15%	0.5	9%	0.08	6%	0.78
Bowl	0.17	12%	0.62	11%	0.13	10%	0.92
Cup			0.45	8%	0.03	2%	0.48
Dish			1.25	22%	0.35	27%	1.6
Flagon			1.13	20%			1.13
Jar	1	73%	1.59	28%	0.55	42%	3.14
Lid			0.08	1%			0.08
Mortarium					0.18	13%	0.18
EVE	1.37		5.74		1.32		8.43
% EVE	16%		68%		16%		-

*Table 3: Ceramic phasing: distribution of fabrics. ER = early Roman (AD 43-130); MR = mid Roman (AD 120/30-200); LR = late Roman (AD 270-300). *= present, but with no rims surviving.*

Fabric	ER	%	MR	%	LR	%	Total EVE
B1	*						
B2	*						
R100					0.34	26%	0.34
R105			0.03	1%			0.03
R13			*				
R14			0.28	5%			0.28
R150			0.2	3%			0.2
R16	*		0.18	3%			0.18
R17	0.15	11%	*		*		0.15
R18.1			*				
R25			*				
R42	*						
R43			0.35	6%	0.13	10%	0.48
R46			0.1	2%	0.03	2%	0.13
R56	*		0.12	2%			0.12
R68	*		0.29	5%			0.29
R69	0.9	66%	0.03	1%	*		0.93
R71	*		*				
R73			0.3	5%			0.3
R73.3	0.32	23%	2.93	51%	0.64	48%	3.89
R74.2			0.03	1%			0.03
R74.3			0.9	16%			0.9
R99					0.18	14%	0.18
EVE	1.37		5.74		1.32		8.43
% EVE	16%		68%		16%		

Table 4: Medieval pottery: Ceramic Phase dating scheme and pottery occurrence per phase by number and weight of sherds

Ceramic Phase	Date Range	Defining Wares	No Sherds	Wt Sherds
CP1	E 11th – E 12th C	EMFL	1	30
CP2	E – M 12th C	EM36	10	155
CP3	M – L 12th C	EM4	1	144
CP4	L 12th – E 13th C	M5, M38B	21	305
CP5	E-M 13th C	M5*	5	19
CP6	M – L 13th C	M7	5	126
		Total	43	779

Table 5 Quantification of CBM

Form	Nos.	Wt (g)	% Wt	Date
<i>Tegula</i>	68	5013	38.5%	Roman
<i>Imbrex</i>	9	663	5%	Roman
<i>Plain tile</i>	34	2447	19%	Roman
<i>RB Brick</i>	8	1770	13.5%	Roman
<i>Flue</i>	2	207	1.6%	Roman
<i>Disc</i>	1	82	0.6%	Roman
<i>Roof: peg/flat tile</i>	52	1303	10%	Med/post-med
<i>Brick</i>	1	1069	8%	Med/post-med
<i>Unidentified</i>	39	290	2%	mostly Roman
Total	214	13011		

Table 6: Charred plant remains recovered from Roman and medieval samples

Sample	6	7	22	24	25	12	19	8	13
Context	221	223	306	384	467	314	256	232	418
Feature Type	charcoal layer (= context 223/ sample 7)	charcoal layer (= oven [225] context 221/layer below sample 6)	oven [225] - charcoal clay layer	oven [225] charcoal layer	clay layer associated with oven [225]	upper fill of pit	beamslot	middle fill enclosure ditch	charcoal fill of pit [417] Unphased – possibly also Early Med (11/12C AD)
Period	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Middle Roman 2/3C AD	Middle Roman 2/3C AD	Early Med 11/12C AD	
SAMPLE VOLUME (L)	36	27	14	15	9	39	40	40	5
FLOT VOLUME (ml)	150 ml	110 ml	90 ml	100 ml	50 ml	120 ml	75 ml	40 ml	80 ml
PROPORTION OF FLOT SORTED*	100%	100%	100%	25%	100%	100%	25%	100%	100%
PROPORTION OF HEAVY RESIDUE SORTED**		100%							
SEEDS PER LITRE	57.8	47.6	78.8	154.9	78.9	8.2	4.7	9.8	132.0

LATIN BINOMIAL	ENGLISH COMMON NAME									
FLOT										
CEREAL GRAIN										
<i>Hordeum</i> spp. - hulled	-	2	-	-	-	-	1	27	1	hulled barley
<i>Hordeum</i> spp. - indeterminate	-	-	-	1 ^E	1	-	-	-	-	indeterminate barley
cf. <i>Hordeum</i> spp. - hulled	-	-	-	-	-	-	-	-	2	possible barley
<i>Secale cereale</i> L.	-	-	-	-	-	-	-	13	5	rye
<i>Secale cereale</i> L. - germinated	-	-	-	-	-	-	-	-	1	germinated rye
cf. <i>Secale cereale</i> L.	-	-	-	-	-	-	-	1	7	possible rye
cf. <i>Secale cereale</i> L. - germinated	-	-	-	-	-	-	-	-	2	possible germinated rye
<i>Triticum dicoccum</i> Schübl./ <i>spelta</i> L.	2	1	-	-	-	-	-	-	-	emmer/ spelt
<i>Triticum aestivum</i> L./ <i>turgidum</i> L. - type	-	-	-	-	-	-	-	80	-	free-threshing wheat (bread/ rivet wheat)
<i>Triticum</i> spp. - indeterminate	2	-	5	4	1	11	8	-	81 ^A	indeterminate wheat
Cereal - indeterminate	15	13	8	10 ^E	5 ^E	44 ^E	9 ^E	92	113 ^E	indeterminate cereal
Cereal/ Large POACEAE - indeterminate	35 ^E	23 ^E	22 ^E	15 ^E	15 ^E	15 ^E	25 ^E	25 ^E	100 ^E	cereal/ large grass

Table 6: Charred plant remains recovered from Roman and medieval samples (cont.)

Sample	6	7	22	24	25	12	19	8	13	
Context	221	223	306	384	467	314	256	232	418	
Feature Type	charcoal layer (= context 223/ sample 7)	charcoal layer (= oven [225] context 221/layer below sample 6)	- charcoal oven [225] clay layer	oven [225] charcoal layer	clay layer associated with oven [225]	upper fill of pit	beamslot	middle fill enclosure ditch	charcoal fill of pit [417]	
Period	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Middle Roman 2/3C AD	Middle Roman 2/3C AD	Early Med 11/12C AD	Unphased – possibly also Early Med (11/12C AD)	
CEREAL CHAFF										
<i>Hordeum</i> spp. – indeterminate rachis node	-	-	-	-	-	1	1	-	-	barley
cf. <i>Hordeum</i> sp. – rachis node	-	-	-	1	-	-	-	-	-	possible barley
<i>Secale cereale</i> L. - rachis node	-	-	-	-	-	1	-	-	22	rye
<i>Triticum dicoccum</i> Schübl./ <i>spelta</i> L. – spikelet fork (= 2 gb)	1 (= 2 gb)	1 (= 2 gb)	-	-	9 (=16 gb)	-	3 (= 6 gb)	-	-	emmer/ spelt
<i>Triticum dicoccum</i> Schübl./ <i>spelta</i> L. – glume base	36	19	23	36	87 ^E	53	53 ^E	-	-	emmer/ spelt
<i>Triticum spelta</i> L. – glume base	4	3	3	13	7	14	18	-	-	spelt
<i>Triticum spelta</i> L. – glume/ lemma fragments	-	-	-	1	-	-	-	-	-	spelt
<i>Triticum aestivum</i> L./ <i>turgidum</i> L. – type rachis node	-	-	-	-	-	1	-	10 ^E	60 ^E	free-threshing wheat (bread/ rive wheat)
<i>Triticum</i> spp. – terminal spikelet fork	-	-	-	-	-	1	-	-	-	indeterminate wheat
<i>Triticum</i> spp. – rachis node	1880†	1080†	944†	460†	512†	35 ^E	25 ^E	-	-	indeterminate wheat
<i>Triticum</i> spp. – glume/ lemma fragments (unquantified)	-	+	-	-	+	+	+	-	-	indeterminate wheat
<i>Triticum</i> spp. – awn (unquantified fragments)	-	+	-	-	-	+	+	-	-	indeterminate wheat
Cereal - indeterminate rachis internode	-	-	-	-	1	2	-	2	-	cereal
Cereal/ Large POACEAE – rachis internode	-	-	-	-	-	-	-	-	22 ^E	cereal/ large grass
Cereal/ Large POACEAE – culm node	1	-	-	-	-	2	1	1	1 ^E	cereal/ large grass
COLEOPTILE/ DETACHED EMBRYO										
Cereal/ Large POACEAE – coleoptile (estimate m.n.i.)	-	-	2 ^E	1 ^E	2 ^E	1	-	2 ^E	94 ^E	cereal/ large grass
cf. Cereal/ Large POACEAE – coleoptile (estimate m.n.i.)	-	-	-	-	-	-	1	-	21	possible cereal/ large grass
Cereal/ Large POACEAE – detached embryo	-	-	1	5	2	5	-	4	47 ^E	cereal/ large grass
cf. Cereal/ Large POACEAE – detached embryo	-	-	-	-	-	1	2	-	-	possible cereal/ large grass

Table 6: Charred plant remains recovered from Roman and medieval samples (cont.)

Sample	6	7	22	24	25	12	19	8	13	
Context	221	223	306	384	467	314	256	232	418	
Feature Type	charcoal layer (= context 223/sample 7)	charcoal layer (= oven [225] - charcoal layer below sample 6)	oven [225] charcoal layer	clay layer associated with oven [225]		upper fill of pit	beamslot	middle fill enclosure ditch	charcoal fill of pit [417]	
Period	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Middle Roman 2/3C AD	Middle Roman 2/3C AD	Early Med 11/12C AD	Unphased – possibly also Early Med (11/12C AD)	
PULSES										
<i>Vicia sativa</i> L. ssp. <i>sativa</i> (hilum preserved)	-	-	-	-	-	-	-	3	-	common vetch
<i>Vicia</i> spp./ <i>Pisum sativum</i> L.	-	-	-	-	-	-	-	10	-	vetch/ garden pea
FABACEAE - large detached hilum (most likely cultivar)	-	-	-	-	-	-	-	1	-	Pea Family
TREE/ SHRUB										
<i>Corylus avellana</i> L. - nutshell fragments (est whole nut)	10 (1 nut)	1	-	2 (1 nut)	-	-	2 (1 nut)	-	-	hazel
<i>Crataegus monogyna</i> Jacq.	1	-	-	-	-	-	-	-	-	hawthorn
WEED/ WILD PLANTS										
<i>Urtica dioica</i> L. - suspected sub-fossil/ modern	7‡	4‡	-	-	-	-	1‡	-	2‡	common nettle
<i>Chenopodium</i> spp.	11‡	50‡	20‡	4‡	5‡	5‡	-	18‡	7‡	goosefoot
CHENOPODIACEAE/ CARYOPHYLLACEAE – indet int'l struct.	2	-	-	-	1	1	-	-	4	Goosefoot Family/ Pink Family
<i>Montia fontana</i> L.	-	1	3	-	-	1	-	-	-	blink
cf. <i>Montia fontana</i> L. - seed coat fragment	1	-	-	-	-	-	-	-	-	possible blink
<i>Stellaria media</i> (L.) Vill.	-	3 ^E	-	-	1	-	-	-	-	common chickweed
<i>Cerastium</i> spp.	2	-	-	-	-	-	-	-	-	mouse-ear
cf. <i>Sagina</i> spp.	-	-	-	-	-	-	-	-	3	possible pearlwort
<i>Spergula arvensis</i> L.	1	-	2	-	-	-	-	-	-	corn spurrey
<i>Agrostemma githago</i> L.	-	-	-	-	-	-	-	1	-	corncockle
cf. <i>Agrostemma githago</i> L. - calyx tip	5	1	1	1	-	-	-	1	-	possible corncockle
cf. <i>Agrostemma githago</i> L. - internal structure	-	-	-	-	-	-	-	-	6	possible corncockle
<i>Silene</i> spp.	1	-	-	-	-	-	-	1	-	campion

Table 6: Charred plant remains recovered from Roman and medieval samples (cont.)

Sample	6	7	22	24	25	12	19	8	13	
Context	221	223	306	384	467	314	256	232	418	
Feature Type	charcoal layer (= context 223/ sample 7)	charcoal layer (= oven [225] - charcoal layer below sample 6)	oven [225] charcoal layer	clay layer associated with oven [225]		upper fill of pit	beamslot	middle fill enclosure ditch	charcoal fill of pit [417]	
Period	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Middle Roman 2/3C AD	Middle Roman 2/3C AD	Early Med 11/12C AD	Unphased – possibly also Early Med (11/12C AD)	
WEED/ WILD PLANTS continued...										
<i>Persicaria</i> sp.	1 ^E	-	-	-	-	-	-	-	-	knotweed
<i>Polygonum</i> spp.	2	-	-	-	-	1‡	-	1	-	knotgrass
<i>Polygonum</i> spp./ <i>Rumex</i> spp./ <i>Carex</i> spp.- indet. internal structure	-	-	-	-	5	-	-	-	1	indeterminate knotgrass/ dock/ sedge
<i>Fallopia convolvulus</i> (L.) Á. Löve	-	-	1	-	-	-	-	-	-	black-bindweed
<i>Rumex</i> cf. <i>acetosella</i> L.	3	2	7	2	-	-	-	-	-	possible sheep's sorrel
<i>Rumex</i> spp.	2 ^E	2	3	1	-	4	-	2	5	dock
cf. <i>Brassica</i> sp. - small-seeded (ca. 2mm)	-	-	-	-	-	-	-	-	1	possible mustard/ cabbage
<i>Rubus</i> section <i>Rubus</i>	-	1	-	-	-	-	-	-	-	bramble/ blackberry
<i>Vicia</i> spp./ <i>Lathyrus</i> spp. (ca. 4-2mm)	-	-	5	-	-	6	-	42 ^E	3	vetch/ vetchling
<i>Vicia</i> spp./ <i>Lathyrus</i> spp. (< 2mm)	15 ^E	10 ^E	4 ^E	1	1	2	-	-	3	vetch/ vetchling
cf. <i>Vicia</i> spp./ <i>Lathyrus</i> spp.	1	-	-	-	-	-	-	-	-	possible vetch/ vetchling
<i>Melilotus</i> spp./ <i>Medicago</i> spp./ <i>Trifolium</i> spp.	1	-	-	1	2	3	6	-	-	melilot/ medick/ clover
<i>Euphrasia</i> sp./ <i>Odonites</i> sp.	-	2	2	4	4	1	-	1	-	eyebright/ bartsia
<i>Prunella vulgaris</i> L.	-	-	-	-	-	1	-	-	-	selfheal
LAMIACEAE - unidentified <i>Stachys</i> type	1	-	-	-	-	-	-	-	-	Mint Family - woundwort type
<i>Plantago media</i> L./ <i>lanceolata</i> L.	2	-	-	-	-	-	-	-	-	hoary/ ribwort plantain
<i>Sherardia arvensis</i> L.	-	1	2	1	-	-	-	-	-	field madder
<i>Galium</i> spp.	1	-	-	-	-	-	-	1	2	cleaver/ bedstraw
<i>Carduus</i> sp./ <i>Cirsium</i> sp. - large achene (>4mm)	-	-	-	-	-	1	-	-	-	thistle
<i>Carduus</i> spp./ <i>Cirsium</i> spp. - internal structure	-	-	-	-	-	-	-	-	3	thistle
<i>Centaurea</i> spp.	-	-	-	-	-	-	-	-	4 ^E	knapweed
<i>Anthemis cotula</i> L.	-	-	-	-	-	-	-	10	-	stinking chamomile
cf. <i>Anthemis cotula</i> L./ <i>Tripleurospermum inodorum</i> (L.) Sch. Bip.	-	-	2	2	-	-	-	1	-	poss. stinking chamomile/ scentless mayweed

Table 6: Charred plant remains recovered from Roman and medieval samples (cont.)

Sample	6	7	22	24	25	12	19	8	13
Context	221	223	306	384	467	314	256	232	418
Feature Type	charcoal layer (= context 223/221/sample 7)	charcoal layer (= oven [225] - charcoal layer below 6)	oven [225] charcoal layer	clay layer associated with oven [225]	upper fill of pit beam slot		middle fill enclosure ditch	charcoal fill of pit [417]	
Period	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Middle Roman 2/3C AD	Middle Roman 2/3C AD	Early Med 11/12C AD	Med (11/12C AD)
WEED/ WILD PLANTS continued...									
cf. <i>Chrysanthemum segetum</i> L.	-	-	-	-	-	-	-	-	3
<i>Tripleurospermum inodorum</i> (L.) Sch. Bip.	-	1	1	-	-	-	-	-	-
ASTERACEAE – indeterminate	1	-	1	-	-	-	-	-	-
<i>Juncus</i> spp.	-	-	-	-	1	-	2	-	-
cf. <i>Luzula</i> sp.	-	-	-	-	-	1	-	-	-
<i>Eleocharis palustris</i> (L.) Roem. & Schult./ <i>uniglumis</i> (Link) Schult.	-	-	-	-	-	1	-	-	-
<i>Lolium</i> sp. - caryopsis w/ floret base preserved	-	-	-	-	-	-	-	1	-
cf. <i>Lolium</i> spp. - caryopsis	-	-	-	-	-	7	-	3	-
<i>Avena</i> cf. <i>fatua</i> L. - floret base	-	1	-	-	-	-	-	-	-
<i>Avena</i> sp. – floret base	6	8 ^E	1	-	-	-	-	-	-
<i>Avena</i> sp. – awn fragments (< 5mm)	++++	++++	+++	++	++	-	1	-	-
cf. <i>Avena</i> sp.	-	1	-	-	-	-	-	-	-
<i>Avena</i> spp./ <i>Bromus</i> spp.	-	3	-	-	-	-	-	12 ^E	-
<i>Bromus</i> spp.	4	3 ^E	-	-	-	1	1	-	-
cf. <i>Bromus</i> sp.	-	-	-	-	-	1	-	-	-
POACEAE – indeterminate small caryopsis	1	4	2	6	1	16	4	1	-
POACEAE – indeterminate medium caryopsis	4	7 ^E	-	5 ^E	5	22	7	2	2
POACEAE – indeterminate large caryopsis	3 ^E	3 ^E	3	-	2	5	-	17 ^E	4
POACEAE – indeterminate culm node	1	3	1	-	-	1	1	-	-
POACEAE – indeterminate culm base	-	-	-	-	-	-	1	-	-

possible crown daisy
scentless mayweed
Daisy Family
rush
possible wood-rush
common/ slender spike-rush
rye-grass
possible rye-grass
possible wild oat
indeterminate cultivated/ wild oat
indeterminate cultivated/ wild oat
possible cultivated/ wild oat
cultivated/ wild oat/ brome grass
brome grass
possible brome grass
Grass Family
Grass Family
Grass Family
Grass Family
Grass Family

Table 6: Charred plant remains recovered from Roman and medieval samples (cont.)

Sample	6	7	22	24	25	12	19	8	13
Context	221	223	306	384	467	314	256	232	418
Feature Type	charcoal layer (= context 223/sample 7)	charcoal layer (= oven [225] context - charcoal layer below 221/sample 6)	oven [225] charcoal layer	oven [225] charcoal layer	clay layer associated with oven [225]	upper fill of pit	beamslot	middle fill enclosure ditch	charcoal fill of pit [417]
Period	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Middle Roman 2/3C AD	Middle Roman 2/3C AD	Early Med 11/12C AD	Unphased – possibly also Early Med (11/12C AD)
UNIDENTIFIED/ INDETERMINATE PLANT REMAINS									
Unidentified – bud	-	-	-	-	1	1	-	-	1
Unidentified – calyx	-	-	-	-	-	-	1 ^E	-	1
Unidentified – capsule fragment	-	-	-	-	-	1	-	-	2
Unidentified – highly vitreous object (fragments)	1	-	-	-	1	23	-	3	4
Unidentified – thorn	2	1	-	-	-	2	-	-	-
Unidentified – possible tuber (small-sized - <2mm, round)	1	-	-	-	-	-	-	-	-
Unidentified	-	27 ^E	2	4	30 ^E	26	3	1	-
Indeterminate	20 ^E	-	32 ^E	1	1	-	10 ^E	-	20 ^E
HEAVY RESIDUE									
CEREAL GRAIN									
Cereal/ POACEAE - indeterminate	-	1	-	-	-	-	-	-	-
TREE/ SHRUB									
<i>Corylus avellana</i> L. - nutshell fragment	-	1	-	-	-	-	-	-	-
TOTAL IDENTIFICATIONS	2082	1286	1103	581	710	321	189	390	660

Nomenclature for the plant remains follows Stace (1997) for indigenous species and Zohary and Hopf (2000) for cultivated species. The traditional binomial system for the cereals is maintained here, following Zohary and Hopf (2000, 28, table 3; 65, table 5). *Scores for the 25% sub-sample of sample 24 are only for that portion of flot sorted and are not factored back up to 100% of the flot. ** All heavy residues were sorted, but plant remains were only recovered from the heavy residue associated with sample 6/ context 221. KEY: E = count of fragmentary seed/ fruit/ etc...are estimated to nearest whole seed/ fruit/ etc... cf. = compares favourably, gb = glume base, indet. = indeterminate, int'l strct = internal structure, poss. = possible, sp. = only one species possible/ or only one seed of this genus identified and spp. = several species of this genus are possible. Most counts are based on the embryo, including counts of cereal grain. † Estimate count by weight, used for extremely rich, highly fragmented *Triticum* spp. rachis node (40 rachis nodes, broken low with no glume bases = 0.01g). ‡?modern/ ?sub-fossil seed with patches non-black colouring. A = *Triticum* spp. grain from sample 13 context 418 are poorly preserved (highly clinkered) and therefore it was not possible to determine if these were free-threshing or not. However, all wheat chaff recovered from this sample is free-threshing and therefore the likelihood is the indeterminate wheat grain is free-threshing as well. Semi-quantification scale: + = <5 items, ++ = 5-25 items, +++ = 25 - 100 items and ++++ = >100 items.

Table 7: Total counts and relative proportions of plant remains from Roman and Medieval deposits at Wingfield Bank, Northfleet, Kent

Sample	6	7	22	24	25	12	19	8	13
Context	221 charcoal layer (= context 223/ sample 7)	223 charcoal layer (= context 221/ sample 6)	306 oven [225] - charcoal layer below clay layer	384 oven [225] charcoal layer	467 clay layer associated with oven [225]	314 upper fill of pit	256 Beam slot	232 middle fill enclosure ditch	418 charcoal fill of pit [417] Unphased – possibly also Early Med (11/12C AD)
Feature Type									
Period	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Late Iron Age	Middle Roman 2/3C AD	Middle Roman 2/3C AD	Early Med 11/12C AD	
SAMPLE VOLUME (L)	36	27	14	15	9	39	40	40	5
FLOT VOLUME (ml)	150 ml	110 ml	90 ml	100 ml	50 ml	120 ml	75 ml	40 ml	80 ml
PROPORTION OF FLOT SORTED*	100%	100%	100%	25%	100%	100%	25%	100%	100%
PROPORTION OF HEAVY RESIDUE SORTED**		100%							
SEEDS PER LITRE	57.8	47.6	78.8	154.9	78.9	8.2	4.7	9.8	132.0
TOTAL COUNT									
Cereal Grain	54	40	35	30	22	70	43	238	312
Cereal Chaff	1923†	1104†	970†	511†	623†	110	104	13	105
Detached Embryo/ Sprout	0	0	3	6	4	7	3	6	162
Pulses	0	0	0	0	0	0	0	14	0
Tree/ Shrub	2	3	0	1	0	0	1	0	0
Weed/ Wild	79	111	61	28	28	81	24	115	53
Unidentified/ Indeterminate	24	28	34	5	33	53	14	4	28
Total Identifications	2082	1286	1103	581	710	321	189	390	660
RELATIVE PROPORTIONS*									
Cereal Grain	2.59%	3.11%	3.17%	5.16%	3.10%	21.81%	22.75%	61.03%	47.27%
Cereal Chaff	92.36%	85.85%	87.94%	87.95%	87.75%	34.27%	55.03%	3.33%	15.91%
Detached Embryo/ Sprout	0.00%	0.00%	0.27%	1.03%	0.56%	2.18%	1.59%	1.54%	24.55%
Pulses	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.59%	0.00%
Tree/ Shrub	0.10%	0.23%	0.00%	0.17%	0.00%	0.00%	0.53%	0.00%	0.00%
Weed/ Wild	3.79%	8.63%	5.53%	4.82%	3.94%	25.23%	12.70%	29.49%	8.03%
Unidentified/ Indeterminate	1.15%	2.18%	3.08%	0.86%	4.65%	16.51%	7.41%	1.03%	4.24%

†The chaff from this sample was highly fragmented. As a result, indeterminate wheat (*Triticum* spp.) rachis nodes were quantified by weight (based on 40 intact wheat rachis nodes, with no glume bases preserved = 0.01g). *Shading indicates the plant category that dominates the assemblage.

