



# Continuity and change in the mid-Chelmer valley – archaeological excavations at Old Hall and Generals Farms, Boreham, 2007

**Mark Germany**

with contributions by Joyce Compton, Damian Goodburn, Nick Lavender, Hazel Martingell, John Meadows, Elissa Menzel, Helen Saunders, Paul Sealey, Sue Tyler and Helen Walker

*Archaeological investigation preceded the construction of an agricultural reservoir and flood plain extension at Old Hall and Generals Farms, Boreham, with preliminary trial trenching leading to the excavation of three sites within the overall scheme area. Located on the north side of the Chelmer Valley, these investigations give insight into the past land use of its slope and valley floor adjacent to the river and navigation. The exploitation, development and changing significance of this landscape are demonstrated from the Late Mesolithic/Early Neolithic onwards, as evidenced by a palaeosol and tree-throws containing worked flint, a Late Neolithic/Early Bronze Age henge, Bronze Age and Iron Age barrows, Late Iron Age and Roman field systems, a Saxon waterfront structure and a medieval farmstead. The presence of a coal yard and wharf alongside the River Chelmer marks the continued evolution of the site into the post-medieval period.*

## INTRODUCTION

Site evaluation in 2006 and subsequent excavation of three sites (labelled A to C) in 2007 was undertaken in advance of and during the construction of an agricultural reservoir and flood plain extension on land at Old Hall and Generals Farms, Boreham (Fig. 1); hereafter more simply referred to as 'Old Hall'. The archaeological work was undertaken as a requirement of planning consent for the reservoir

development. The resultant site archive has been deposited with the Chelmsford and Essex Museum. The site code is BOOH 06.

## Location, topography and geology

The 15.43ha reservoir scheme site was situated alongside the River Chelmer within farmland to the north-east of Chelmsford (Fig. 2). It extended across two arable fields and

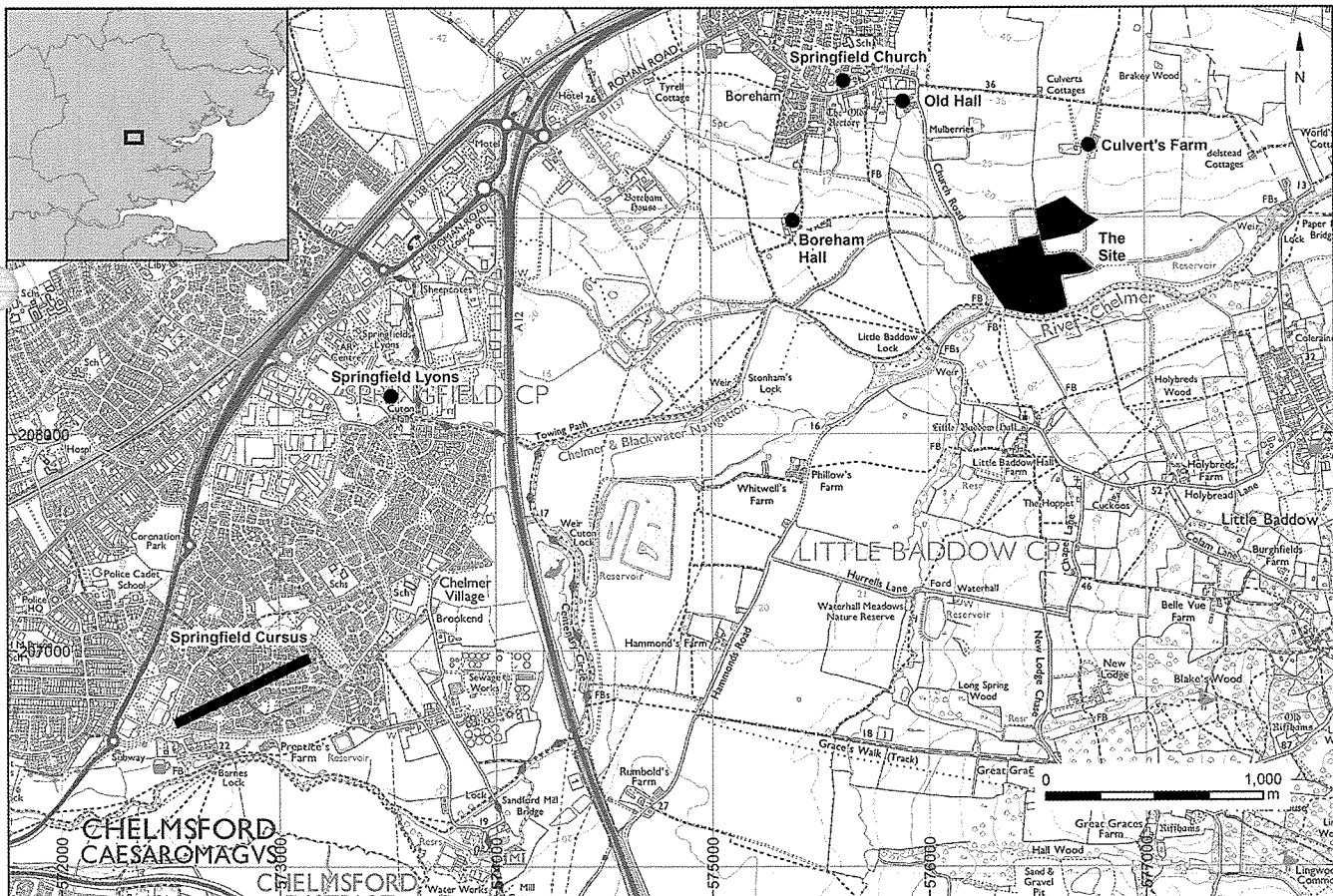


FIGURE 1: Old Hall, Boreham. Location of site and local places mentioned in text  
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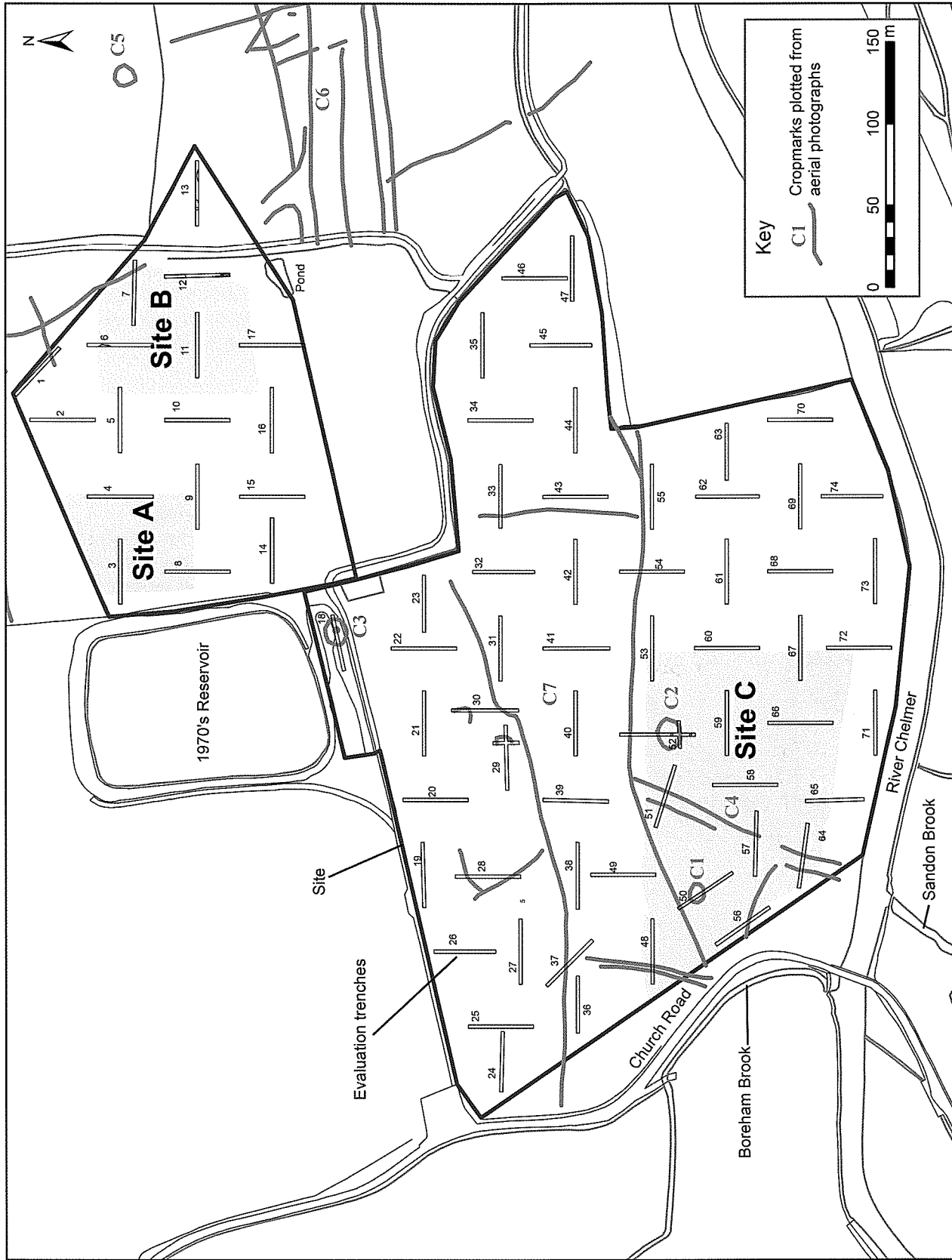


FIGURE 2: Cropmarks, evaluation trenches and Sites A to C, in relation to Church Road, the River Chelmer and the Boreham and Sandon Brooks

bordered a small agricultural reservoir constructed in the 1970s. Most pertinently, the scheme area extended down the moderately-sloping north valley side falling from c.18m OD, down across the floodplain, to the Chelmer navigation at c.14m OD. Church Road, which runs across the valley between Boreham and Little Baddow defined the western extent of the development. A modern bridge and the confluence of the River Chelmer and the Boreham and Sandon Brooks are located at its south-western corner, while Old Hall Farm and the village of Boreham occupy a spur of high ground to the north. The Danbury/Little Baddow ridge lies immediately south of the river and is one of the most prominent and easily distinguishable pieces of high ground in central Essex. Springfield Lyons to the west is another locally occurring piece of high ground, and provides a far ranging view of the mid-Chelmer Valley to the east of Chelmsford.

The surface geology of the mid-Chelmer Valley consists of river terrace sands and gravels above London Clay, surrounded by an irregular patchwork of glacial Head, brickearth, lowestoft formation and glaciofluvial and glaciolacustrine deposits. The bedrock is London Clay above chalk. Alluvial deposits lie alongside the banks of the river and most of its tributaries. Within the reservoir scheme area, the surface geology of Sites A and B comprises a patchwork of sand and gravel and silt clay, and that of Site C of sand and gravel below palaeosol and alluvium. The latest deposit comprises a c.0.4m thick layer of ploughsoil. The local soil conditions are non-conducive for long-term survival of bones (unless cremated) and non-carbonised plant remains, unless permanently water-logged.

### Archaeological background and previous work

Known cropmarks comprise three ring-ditches (C1 to C3), trackway (C4) and post-medieval/modern field ditches (C7) within and near to Site C, and a ring-ditch (C5) and a cluster of undated linear features (C6) to the east and south-east of Site B (Fig. 2).

The evaluation consisted of seventy-four trenches, each measuring 40m × 2m (Fig. 2). Its purpose was to locate, record and date archaeological remains within the scheme area and to investigate cropmarks C1, C2 and C4. This work recorded the presence of a Late Neolithic pit in trench 3, Roman, Early Saxon and medieval pits and ditches in trenches 1, 6, 7, 12 and 13, and investigated the below-ground remains relating to cropmarks C1, C2 and C4 in trenches 50 and 52, and 51, 57 and 64 respectively. The features in the south field produced very few finds and proved very difficult to detect within the loose and dirty gravels. Cropmark C3 lay beneath a very large bund and was therefore not investigated; it is not known if it survived the construction of the adjacent 1970s reservoir.

Known prehistoric sites within the mid-Chelmer Valley include the Springfield Cursus and both a Neolithic causewayed enclosure and Late Bronze Age enclosed settlement at Springfield Lyons (Buckley *et al.* 2001; Brown and Medlycott 2013). Analysis of aerial photography shows that the mid-Chelmer Valley, including the area surrounding the Springfield Cursus, was seemingly a focus for the building of mortuary monuments as evidenced by numerous ring-ditch cropmark sites. The Late Bronze Age enclosure was also later the focus for an Early Saxon cemetery and then a Late Saxon manorial settlement (Tyler and Major 2005).

The present-day channel-like form of the River Chelmer is largely the product of dredging, land drainage, medieval and post-medieval alluviation, and the canalisation of the Chelmsford to Maldon stretch of the river in the late 18th century. The pre-medieval form of the river is not known, although lowland temperate-zone rivers in their natural unmanaged state tend to be shallow, wide, braided and punctuated by eyots of vegetation and gravel (Brown 1997). Investigations of silted-up former channels of the river have taken place to the south of Springfield Lyons and to the north-west of Chelmsford and have revealed indications of its previous form (Drury 1978, 146–8; Murphy 1996). The canalisation of the river in the 1790s, and its transformation into the Chelmer Navigation, significantly improved its navigability and enabled the transportation of such bulk commodities as coal via the North Sea to Chelmsford. Indeed, the 1838 tithe map depicts a coal wharf occupying the area of the south-west corner of the Site, alongside the bridge over the navigation (ERO D/CT 40B).

### THE EXCAVATIONS

The locations and extents of excavation Sites A, B and C (0.42ha, 0.69ha and 2.04ha respectively) were determined with reference to the cropmark evidence and the results of the evaluation (Fig. 2). Sites A and B lay within the area of the new floodplain extension, and were positioned in the vicinities of a Late Neolithic pit in trench 3, and multi-period remains in trenches 6, 7 and 12. Site C lay within the footprint of the new agricultural reservoir and explored an area surrounding cropmarks C1, C2 and C4.

The sites were stripped of their topsoil, under archaeological supervision, to expose any remains present within them. An extensive and relatively late alluvial layer was found across much of the southern part of Site C. Established to be sterile and to seal earlier archaeological remains, this deposit was recorded and then removed by machine.

Once exposed, archaeological remains in Sites A and C were manually excavated and recorded. Investigation across Site C focussed on the principal features such as enclosure ditches, ring-ditches and associated remains. Extensive layers, such as the palaeosol were sampled by hand-dug test pits and box-sections. A multitude of amorphous tree-throws, and burnt patches/spreads were selectively excavated, sufficient to provide a representative record of each feature type.

Within Site B, a significant density of largely medieval occupation remains was encountered and the reservoir developer decided to adjust their flood plain extension works in order to avoid further impact in this part of the scheme area. Consequently, the exposed remains were only recorded in plan prior to reinstatement, with no intrusive investigation taking place.

#### Site A

Stripping of Site A and monitoring of further construction groundworks to the immediate south of it revealed 141 pits and post-holes, three ditches and two post-built structures (Fig. 3), most of which were undatable as they contained no, or very few, closely-datable finds.

The few closely-dated features were Neolithic pit 27 at the west end of trench 3, and Early Saxon pits 93 and 420 within the site's south-western corner and the monitoring area to the

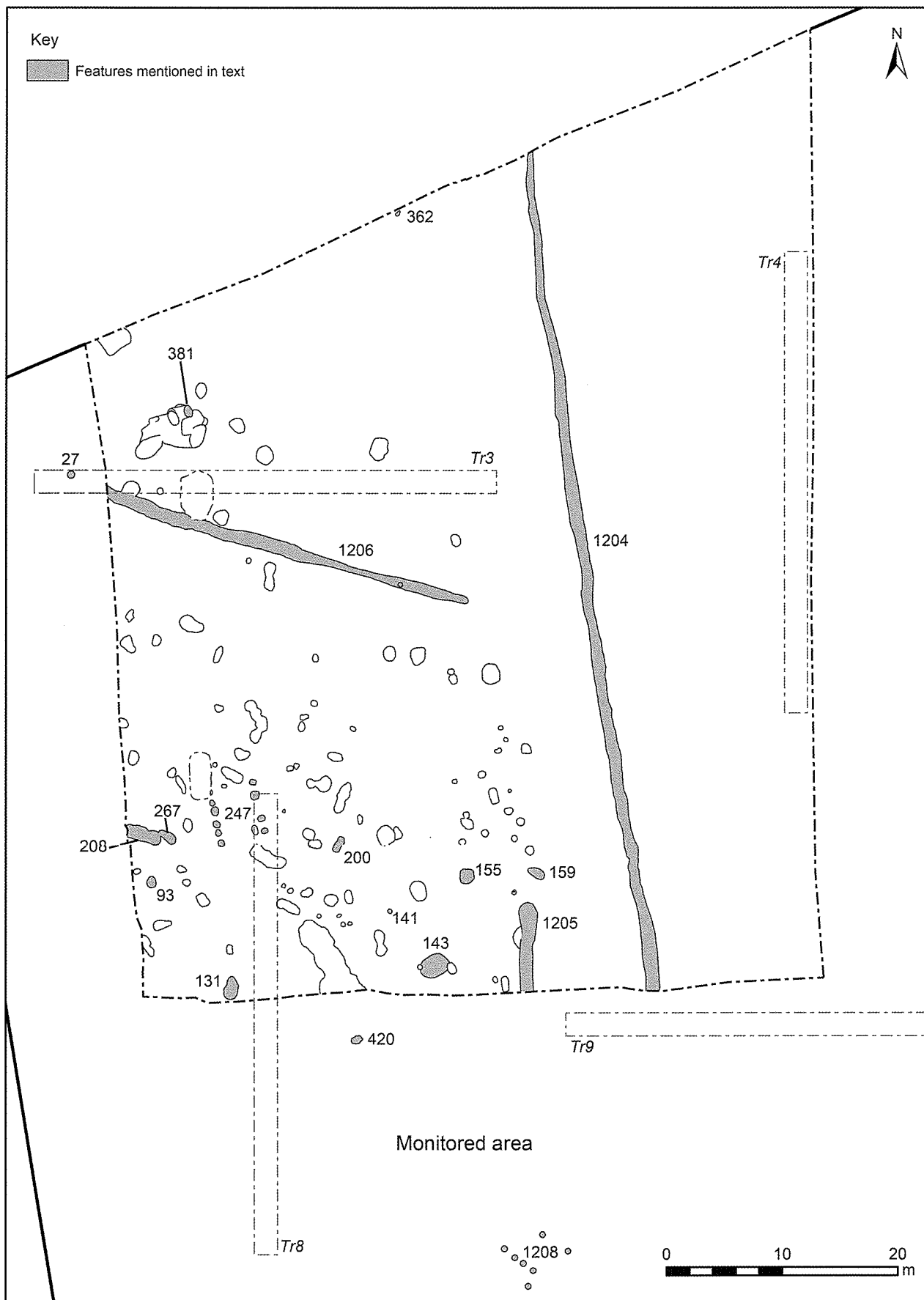


FIGURE 3: Site A and adjacent evaluation trenches

south. Pit 27 produced sherds of Neolithic pottery, and pits 93 and 420 pieces of late 5th/early 6th century pottery and residual Roman tile.

The more noteworthy of the undated features included two post-built structures (247 and 1208), and three ditches, possibly representing a north–south trackway (1204 and 1205) and an approximate east–west boundary (1206) between trackside enclosures to the immediate west. The structures lay near the site's south-western corner and in the monitoring area to the south and were probably the remains of small timber buildings. Structure 247 measured 3.5m wide and 5m long and was the more complete of the two. It and ditch 1204 to the east followed the same alignment, suggesting that they may have been contemporaneous with each other. Ditch 1204 followed a clear change in the surface geology and was therefore probably a significant boundary in terms of land-use.

Ten of the pits amongst the numerous undated discrete features were possibly in use during the Late Mesolithic/Early Neolithic (131, 141, 159, 208 and 267) or Late Neolithic/Early Bronze Age periods (143, 155, 200, 362 and 381), but produced too few finds to confirm it. The artefacts from these included Late Mesolithic/Early Neolithic flint blades and bladelets, a Neolithic flint scraper, and pieces of Late Neolithic/Early Bronze Age Grooved Ware pottery.

### Site B

Site B, and some of the trenches within and around it, contained a variety of multi-period remains, mostly of Early Saxon and medieval date (Figs 4 and 5). As previously outlined, Site B received minimal investigation and its recorded remains were left un-excavated, before being re-interred beneath topsoil. Site phasing therefore relies on datable surface finds and the results of the evaluation. The south and central parts of the site were under-stripped, affecting feature legibility. The recorded remains are conjectured to be part of an extensive area of Roman, Early Saxon and medieval enclosure systems and settlement, with further elements possibly represented by cropmark complex C6 to the south-east (Fig. 4). The medieval features and finds occupy the upper valley slope and are probably components of a 13th/14th-century tenement, belonging to one of the manors of Boreham.

This site produced very few Late Mesolithic/Early Neolithic worked flints, by contrast to Sites A and C, probably due to its minimal investigation. Residual artefacts included a Bronze Age flint piercer, a sherd of Late Bronze Age/Early Iron Age pottery, and fragments of Roman brick and tile. The earliest dated features were a heavily truncated 1st/early 2nd-century Roman cremation burial pit (29) in trench 1, and an Early Roman ditch (45) in trench 13 (Fig. 5), which hint at occupation of the upper slope at this time. Burial 29 contained the cremated remains of a human adult, inside a fragmented Early Roman greyware jar, with no associated grave goods.

Early Saxon pit 41 in trench 12 and an interrupted enclosure defined by ditches 25, 59, 1240 and 1241 in Site B were associated with sherds of late 5th/early 6th-century pottery (Fig. 4). The enclosure and its extent set the boundary and the general alignment for the medieval enclosures which followed and marked the beginning of concerted occupation within the area of Site B. Although undated, it is tempting to conjecture that parallel ditch 1232, c.60m to the north, is also an Early Saxon landscape component.

The medieval remains included two enclosures, and three ditches probably defining a third. The earliest enclosure was indicated by ditches 1229, 1235, 1242 and 1243 and was probably in use during the first half of the 13th century (Fig. 4). A small gap in its south side between ditches 1242 and 1243 is suggested to have served as an entranceway. A possible replacement enclosure sat within the footprint of the first and was possibly in use during the second half of the 13th century. Three ditches (1239, 1236 and 1237) represented it and enclosed a thin concentration of undated pits, post-holes and gullies. A large break on the west side of the enclosure suggested a main entranceway. The third of the three enclosures was also possibly the latest. It was indicated by ditches 1227 and 1231 in Site B, and by ditch 23 in trenches 14 and 15 to the west (Fig. 5). Three surface concentrations of medieval pottery lay on part of its projected course and perhaps implied that it went out of use during the mid-13th to 14th century. A medieval ditch (44) was also encountered in evaluation trench 13 to the east. It is possible that further medieval land boundaries lie within cropmark complex C6 to the south, although the alignment of these differs slightly from those of Site B.

The latest Site B features were ditch 1233, gully 1234 and brick-lined pit 1279 all within the north-east part of the site (Fig. 4). All likely post-medieval or later, they constitute a phase of land-use unrelated to that of the medieval farmstead. Indeed, ditch 1233 may have been infilled as late as the 20th century. Two undated post-holes (1245 and 1246) and an arrangement of four interconnected perpendicular lines of baked clay and charcoal (1244) in the southern part of the site, off the outside corner of ditch (1227/1231) are conjectured to be remnants of a burnt timber-framed building.

### Site C

Site C, substantially the largest of the three investigated, contained a widespread array of features and finds which included numerous tree-throws, ditches, pits, palaeosol, ring-ditches and timber posts that spanned the Late Mesolithic/Early Neolithic to post-medieval periods (Figs 6 and 7). A thick layer of medieval or later alluvium was found to cover remnants of a palaeosol and other features on parts of the valley floor. There were no upstanding remains, such as banks or mounds, presumably due to truncation and leveling by later cultivation.

Investigation of the site concentrated on the prehistoric monuments and the features within their immediate vicinities. Numerous discrete features lay beyond these, of which about a quarter were investigated to provide a representative record of what were mostly un-dated pits, burnt spreads, root holes and discrete patches of surviving alluvium and palaeosol deposits. The investigation of the alluvium and palaeosol consisted of the hand digging of box-sections 1092 to 1094 and test pits A to D (Fig. 8). Both feature presence and intercut relationships generally proved very difficult to detect because they had poorly defined edges and outlines in the loose and silty natural gravels, even after surface-cleaning and weathering. Dating and understanding of the features were further compromised by a dearth of closely-datable and diagnostic artefacts. The finds mainly comprised Late Mesolithic/Early Neolithic worked flints, mostly occurring residually in later contexts. As such, these are only mentioned where particularly pertinent.

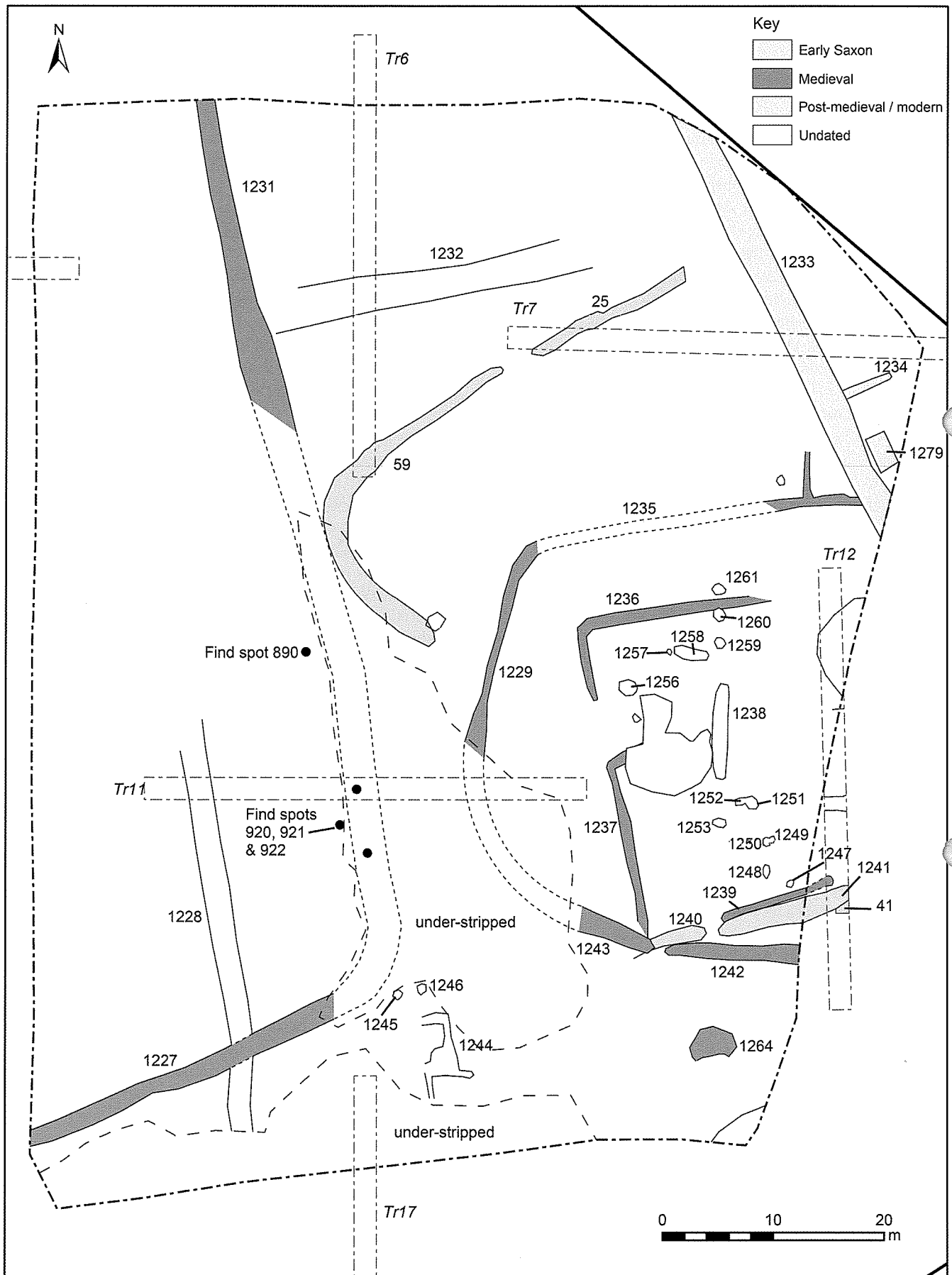


FIGURE 4: Site B and adjacent evaluation trenches

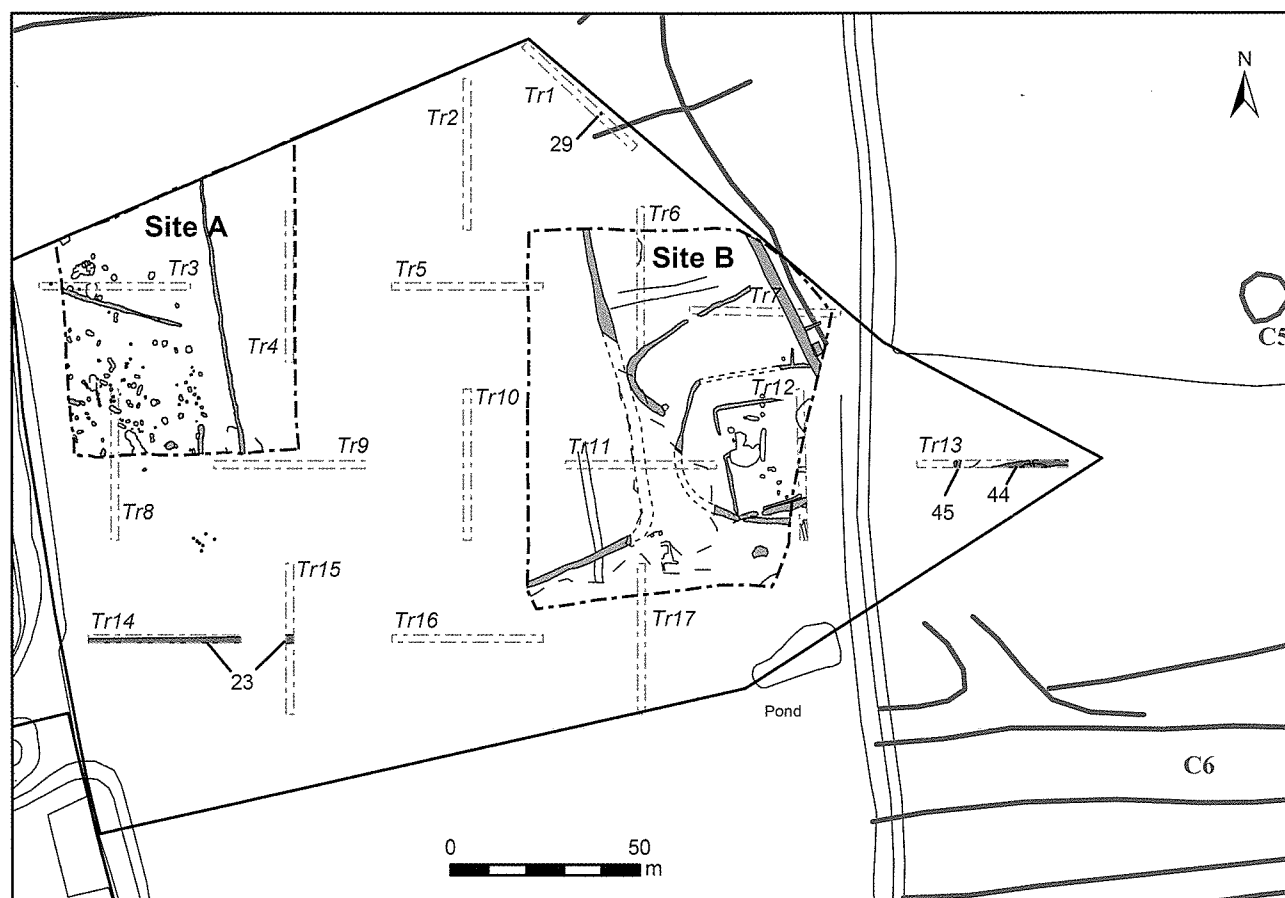


FIGURE 5: Sites A and B, adjacent evaluation trenches, and nearby cropmarks C5 and C6

#### *Palaeosol and tree-throws*

The palaeosol (1096) sat protected beneath alluvium and measured up to 0.13m thick. It contained numerous artefacts and was probably a remnant of previously extensive, humic, stone-free topsoil (McPhail 2008) (Fig. 6). It extended across the river floodplain and the southern-central part of the site and became more concentrated within natural undulations and around tree-throws. Where sampled within test pits A to D and box-sections 1092 and 1094 (Fig. 8), its finds assemblage comprised burnt and worked flints and a small quantity of undiagnostic prehistoric pot sherds. While most of the worked flint was not closely datable, a significant component was of Late Mesolithic/Early Neolithic date. Struck flints of Neolithic and Iron Age date were also present, but in much smaller numbers.

Forty-three features identified to be tree-throws, six of which were excavated (712, 738, 769, 1110, 1165 and northern outlier 1045) occupied much of the same area as the palaeosol (Figs 7 and 8). In plan view most of them consisted of ribbon- and crescent-shaped areas of dark silt to either side of a central core of disturbed/displaced natural gravel. Tree-throw 1165 (Fig. 8) was probably formed during the Late Mesolithic/Early Neolithic period as it contained numerous burnt and worked flints, mainly chippings, cores, flakes, blades and bladelets. Tree-throws 769 and 1110, by contrast, were more likely formed during later periods, as their finds included an Iron Age flint flake and a possible Early Saxon pot sherd respectively. Remaining tree-throws 712, 738 and 1045 produced no finds and were therefore undatable. Other natural features comprised undated animal burrows or root holes (1084, 1097, 1099, 1125, 1127, 1133 and 1143) (Fig. 8).

#### *Late Mesolithic/Early Neolithic*

Land-use during the Late Mesolithic/Early Neolithic period was indicated by a pair of shallow intercut pits (805 and 807) in the north-central part of the site (Fig. 16), aforementioned tree-throw 1165 (Fig. 7), and numerous residual pieces of Late Mesolithic/Early Neolithic worked flint in the palaeosol and some of the later features. The flints in pits 805, 807 and 1165 included blades, bladelets, flakes, cores and microburins. Sixteen other pits contained small quantities of Late Mesolithic/Early Neolithic worked flints and attest to depositional activities in this period, seemingly limited to the vicinity of the valley floor (Fig. 8, pits 1135, 1148, 1194 and 1197; Fig. 9, pits 622, 819, 841, 854, 858, 868 and 877; Fig. 11, pit 412; Fig. 11, pits 70 and 626; Fig. 17, pits 449 and 592).

#### *Late Neolithic to Middle Bronze Age*

Later prehistoric monuments, comprising a henge ditch (818) and four ring-ditches (374, 565, 760 and 1000), were positioned on or just above the flood plain within Site C (Fig. 6). Ring-ditches 565 and 1000 correspond with circular cropmarks C1 and C2 (Fig. 2). The attribution of these monuments to the Late Neolithic and Early/Middle Bronze Age periods is largely based on their form and appearance as their basal fills produced no, or very few, closely-datable finds. The henge and ring-ditches 374 and 565 subsequently became focal points for the digging of pits in which quantities of burnt flint were deposited. While the nature of activities involving this pit digging are unknown, this at least serves to indicate the continuing interest in and use of these monuments. Site C was perhaps wholly a mortuary/ritual landscape during the Late







FIGURE 7: Site C: tree-throws, uninvestigated deposits and features, and the surviving extents of the palaeosol and the alluvium

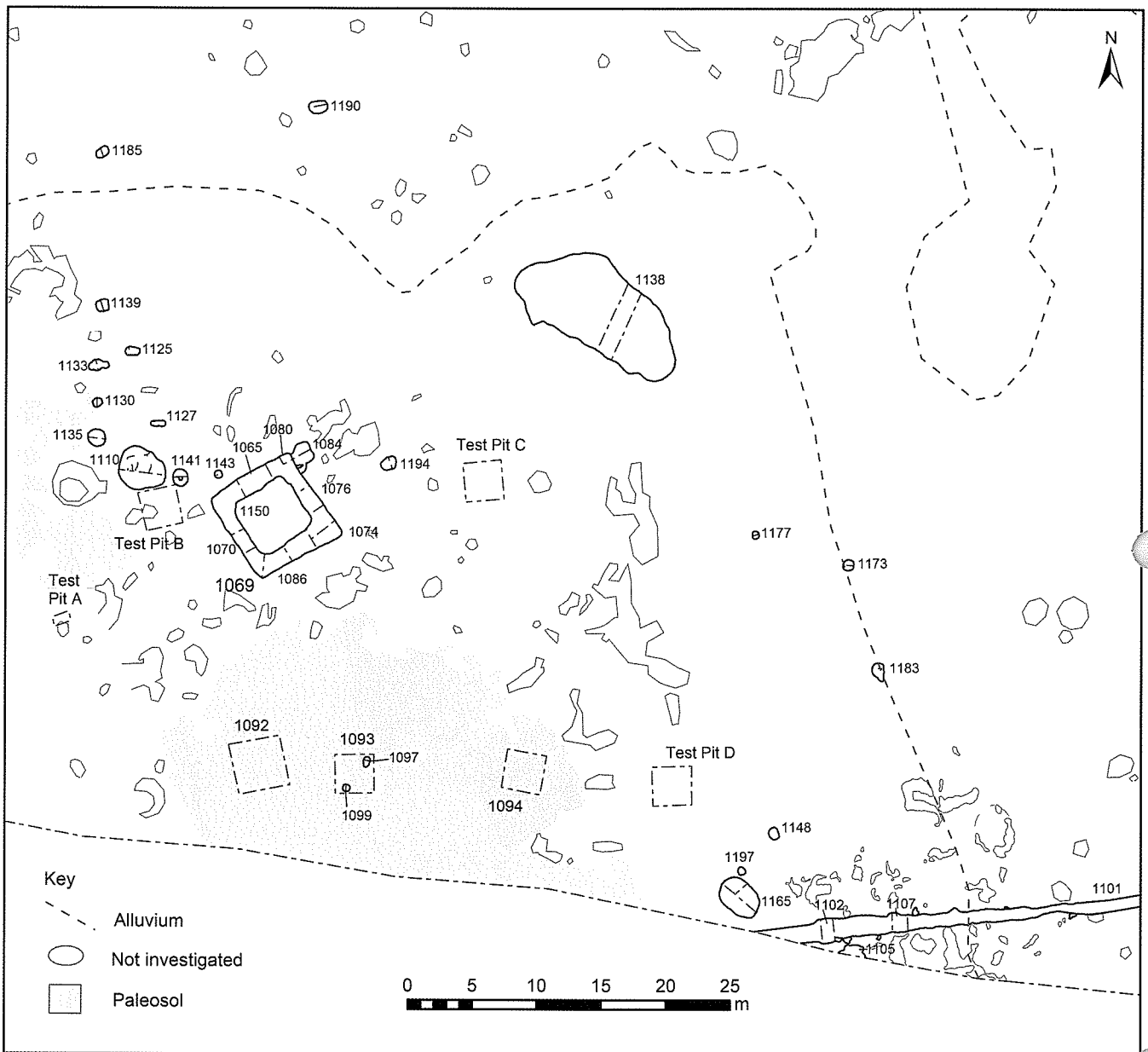


FIGURE 8: South-central part of Site C: locations of palaeosol and alluvial test pits A to D and box sections 1092, 1093 and 1094

Neolithic to Middle Bronze Age period as it produced very few Late Neolithic to Middle Bronze Age finds, and no clear direct indications for on-site occupation or farming.

Henge ditch 818, located in the south-west of Site C and c.45m from the present-day course of the Chelmer Navigation, took the form of a c.28m-diameter circular enclosure ditch with opposing north-south entranceways (Fig. 9). Where excavated in segments 701, 872, 885, 971, 974 and 980, the c.4m-wide ditch had a consistent c.0.75m-deep profile of moderately-sloping sides and a broad, flat base. No recuts were evident and all excavated segments contained relatively simple fill sequences of sand, silt sand and gravel (Fig. 10, S1 and S2). Typically of Late Neolithic construction, the only finds retrieved from its fills were a Late Mesolithic/Early Neolithic flint blade, and a fragment of burnt flint from segment 829. No remnant bank deposits surrounded the ditch and none of the fill sequences display tip lines particularly suggestive of slippage of bank material back into the ditch. However, upper fills were notably extensive and comprised deposits of silty gravel very similar to the surrounding natural. It is possible that these

derived from a bank. Despite its large size, the legibility of this enclosure ditch was consequently poor and its extents were not readily apparent in plan.

No contemporary features associated with the monument's use, either inside or in its immediate vicinity, were identified, all those present being either undated or significantly later. However, Middle Iron Age or earlier pit 798 in the north-west of the henge interior contained several crumbs of possible Grooved Ware pottery, while Neolithic worked flints were present in the nearby palaeosol, in various discrete features, and residually in some of the ring-ditches within the wider vicinity.

Numerous pits and post-holes lay within the interior of the henge and close to its ditch. Upon excavation, four of these were found to contain bases of large wooden posts (612, 649, 670 and 688) (Plate 1; Figs 8 and 16; Fig. 9, S3, S4 and S7). The posts' setting (a henge), form and wood-working evidence suggested them to be of prehistoric date, although this was later contested by radiocarbon dating, which instead suggested them to have been in use during the Mid to Late Saxon period.



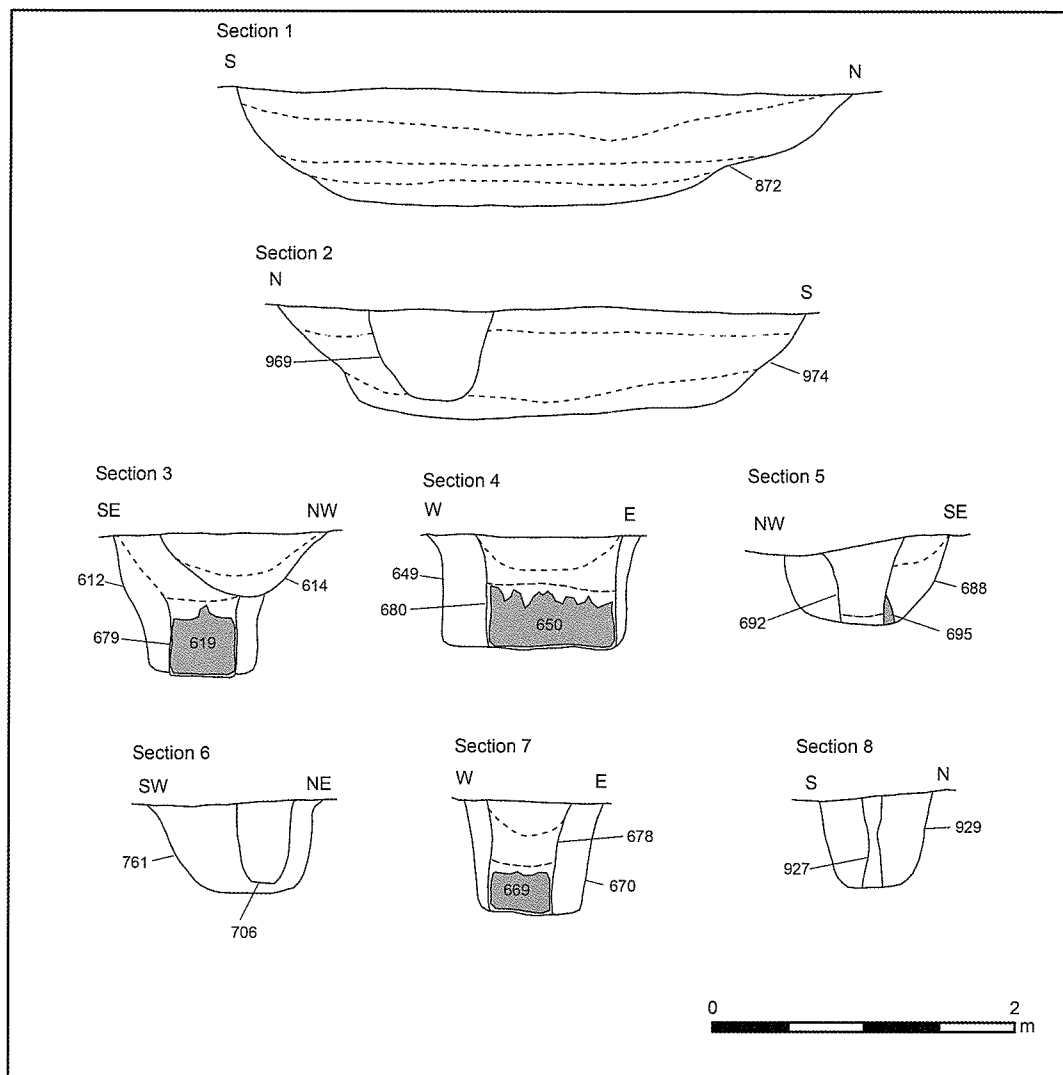


FIGURE 10: Site C: Sections 1 and 2 (Henge 818), and 3 to 8 (Saxon timber structure)

sides and a slightly concave base (Fig. 11, S9 and S10). The basal deposits in the fill sequences were sandy and gravelly, while those above them were dark and silty. The cant of some of the basal fills suggested the former presence of an outside perimeter bank. Most of the latest fills, and some of the basal ones, contained pieces of residual Late Mesolithic/Early Neolithic worked flint and burnt flint fragments. A small number of sherds of Roman pottery in some of the ring-ditch's latest fills imply its continuing survival as an earthwork into the Roman period. An undated deep post-hole (425) in the exact middle of the ring-ditch possibly indicated the presence of a central post. Other pits and post-holes were present within and close to the area of the monument, although all of these were either modern or not closely datable. The monument was perhaps very formal in its appearance, since the near-perfect circular form of its ring-ditch is conjectured to have been obtained by using its central post as a pivot, implying a concern for precision and neatness.

Ring-ditch 565 lay on the north-south axis of the henge and had a diameter of c.10m (Fig. 12). The northern part of it was narrow and shallow, probably due to truncation by later cultivation activity. Where investigated in segments 513, 551, 556, 561 and 577, the ditch had moderately-sloping sides and a broad, slightly concave base with a maximum

depth of 0.65m. Filling the ring-ditch were deposits of sand silt and gravel, which gave little indication of an upcast bank either inside or outside the enclosure (Fig. 11, S11 and S12). The intermediate and latest fills contained small quantities of undated and, presumably residual, Late Mesolithic/Early Neolithic worked and burnt flints. It is probable that the monument was still extant into the Roman period, as one of its later ditch fills contained a group of sherds from a 1st-century AD flagon. Occupying the monument interior, in an off-centre position, was small pit 446 containing a quantity of cremated human bone, probably that of an adult male. It contained no finds, but radiocarbon dating of a burnt bone sample produced a Middle Bronze Age date (1420-1130 cal BC, SUERC-25611). Pits 485 and 626 were also present inside and there were others close to the ring-ditch, but none were closely datable or readily associated with the monument.

Penannular ring-ditch 760 had an external diameter of c.9m and was positioned more-or-less immediately north-east of the henge. Its entranceway lay on the north side, faced upslope, and measured c.3m wide. Its terminals ended abruptly and were rounded in plan (Fig. 13). Excavation of segments 729, 743, 753, 757 and 776 revealed the ring-ditch to vary in depth and profile, presenting no clear trend or pattern (Fig. 13, S13 and S14). Its depth varied between 0.37m

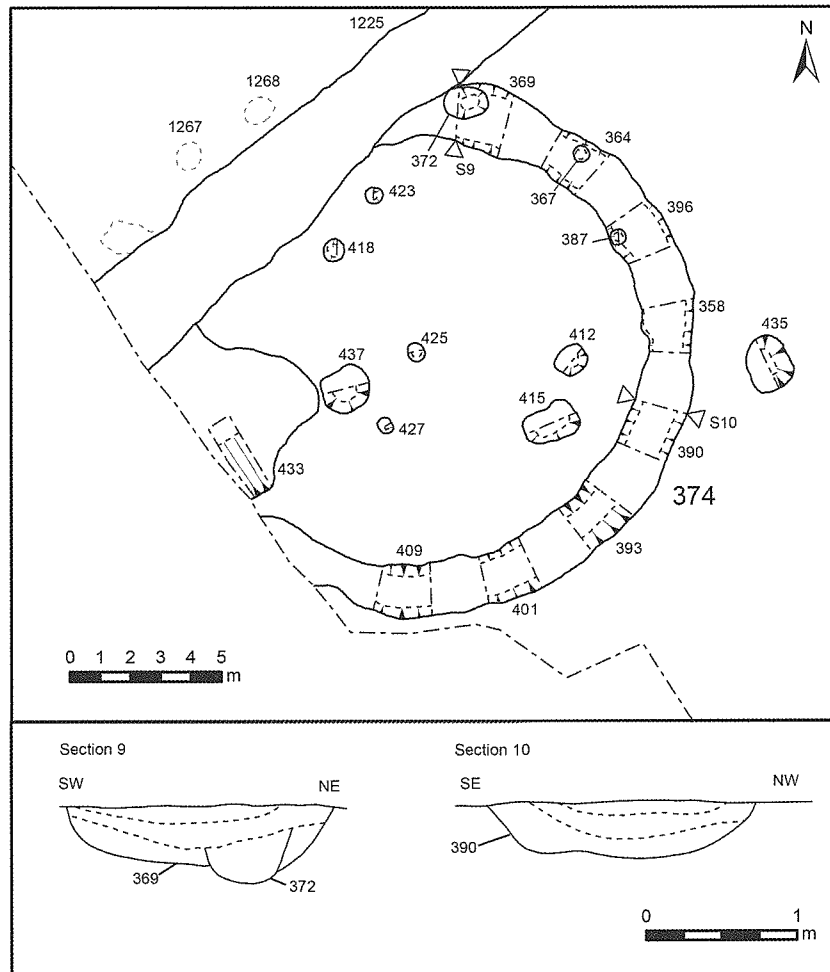


FIGURE 11: Site C: Ring-ditch 374 and sections 9 and 10

and 0.53m deep, with its shallowest and deepest parts being segments 370 and 530 respectively. Deposits of silt sand and gravel formed the two to three fills within each of its segments and included small amounts of undated and, presumably residual, Late Neolithic/Early Mesolithic worked flint. They lay either flat or slightly concave and presented no clear indirect evidence for the ring-ditch having been accompanied by an internal or external bank or a central mound. A pit (772) and a root-hole (774) occupied the monument's interior, although neither was closely datable. Pit 772 was sufficiently large to have accommodated a crouched inhumation, although there were no bones or grave goods to confirm it.

As previously outlined, ring-ditch 1000 was situated away from the group of mortuary monuments clustered around the henge, at c.80m to their east. Slightly oval in plan, it measured c.16m east–west by c.17m north–south (Fig. 14). Where excavated in segments 1001, 1011, 1020, 1029 and 1041 the c.1.0m-deep ditch cut had moderately-sloping sides, a concave base and basal and intermediate deposits of grey silt-sand overlain by final deposits of brown silt (Fig. 14, S15 and S16). There was no evidence for an associated mound or bank, although one is assumed to have been originally present. The monument's fill sequence perhaps represents accumulation of natural deposits eroded in from the ring-ditch's sides, mound or bank, succeeded by accumulation of topsoil and silt. A recut is suggested by the third fill in segment 1001, although this is not replicated in the other segments. Finds from the ring-ditch

comprised residual worked flint and small amounts of Late Iron Age and Roman pottery sherds (discussed below), all of which lay within the latest fill. Sub-square pits 1034 and 1061 within the ring-ditch interior are conjectured to represent associated graves, although no skeletal remains survived to confirm this. Other discrete features and a tree-throw were present within or close to the monument, but were either undated or demonstrably later.

#### *Late Bronze Age to Roman*

The earlier prehistoric monuments continued to exist in the valley landscape during the Late Bronze Age to Roman periods, and appear to have been appropriated on at least one occasion. No datable Late Bronze Age features were discovered, perhaps suggesting that this location on the valley side was minimally utilised in this period.

Of the four Late Neolithic to Middle Bronze Age barrows present, earthwork remains of at least three, i.e. 374, 565 and 1000, were evidently still extant during the Iron Age and Roman periods. As mentioned above, Iron Age and Roman pottery was deposited in the latest fills of their ring-ditches, demonstrating that they were still partially open. While this material could constitute discard by casual visitors to these mounds, the scatters of discrete features which lay within and alongside them perhaps demonstrate more purposeful forms of human activity. Two Iron Age pits (782 and 809) and an Iron Age or later tree-throw 769 lay within the henge interior

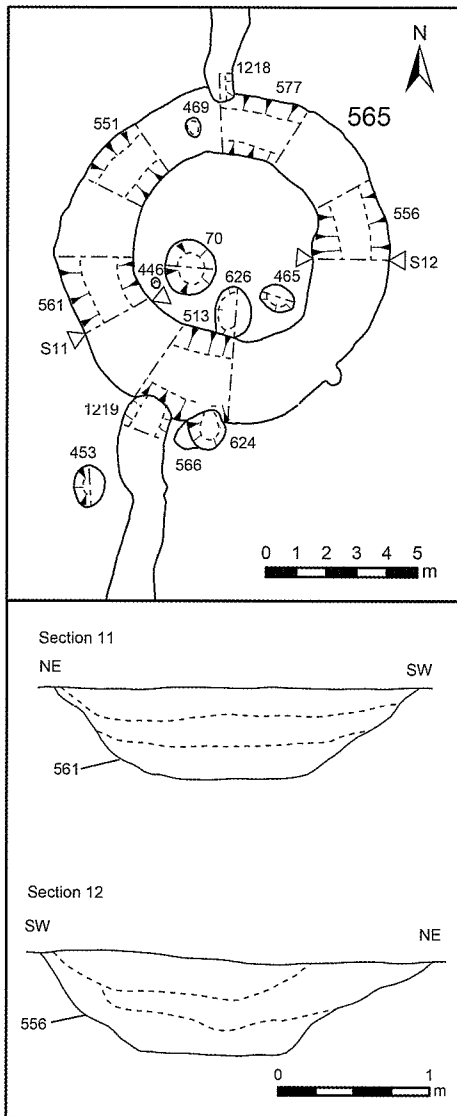


FIGURE 12: Site C: Ring-ditch 565 and sections 11 and 12

(Fig. 9). Pit 782 contained a large quantity of burnt flint and more than 200 worked flints, many of which were residual items of Late Mesolithic/Early Neolithic date. Pit 809 included seven sherds of Middle Iron Age pottery and a small quantity of worked and burnt flints, including an Early Bronze Age polished-edge knife/scraper (Fig. 22). Artefactual material in tree-throw 769 was less plentiful, but included an Iron Age flint flake. The collection, reuse and storage/deposition of lithic material from earlier periods is possibly represented by the wide range of material in pits 809 and 872. Lastly, Roman or later pit 1157 was sited just east of ring-ditch 1000 (Fig. 14).

The clearest indication of the enduring mortuary significance of the Site C location and its monuments into the Iron Age and beyond is Middle Iron Age ring-ditch 541, positioned a short distance north-east of earlier ring-ditch 374. It had a diameter of *c.*8m (Fig. 14) and was investigated by hand excavation of six segments (467, 474, 482, 493, 522 and 530). The profile of its *c.*0.56m deep and 1.5m to 2m wide cut consisted of a slightly concave base below moderate to steep sloping sides that stepped and splayed close to the surface (Fig. 15, S17 and S18). One to three deposits sat within each of its segments, but provided no consistency, other than they lay slightly concave and all composed deposits of yellowish/

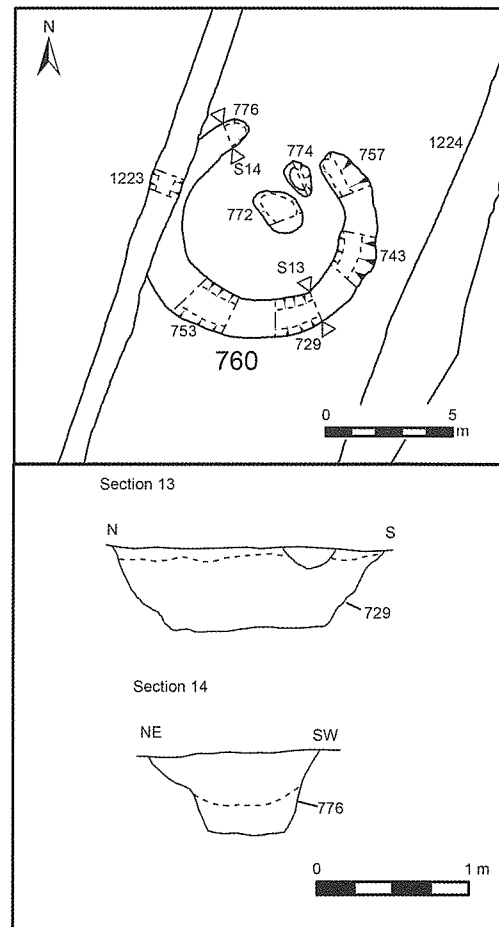


FIGURE 13: Site C: Ring-ditch 760 and sections 13 and 14

brownish grey silt sand and gravel. None of them provided clear evidence for recutting or accompaniment by an adjacent mound or a bank. The lower half of the ring-ditch's profile being better preserved than the upper is perhaps an indication that that rate of infilling decreased over time, giving the near-surface parts of the ring-ditch more time to erode. The artefacts from the ring ditch are not numerous, but nonetheless include three sherds of Middle Iron Age pottery and part of a Middle Iron Age copper-alloy brooch from the secondary fill of segment 467 (Fig. 23.1). Other recovered artefacts consisted of three sherds of residual prehistoric pottery and small amounts of worked and burnt flint.

Two pits lay within the interior space of the ring-ditch (499 and 502), one of which (499) had no finds or clear stratigraphic relationship and was therefore unable to be dated. Pit 502 occupied most of the space enclosed by the ring-ditch and is likely to have been a large grave. It had steep sides and a flat base and measured 3.2m long, 1.7m wide and 0.6m deep. No human remains survived within its acidic gravelly fill, although two 4th-century BC iron penannular brooches (SF06 and SF07; Fig. 23.2 and 23.3) sat on its base, towards its east end, probably indicating that the interred body had been buried east-west and fully-clothed. Indications of that occupant's high status are the two brooches, the provision of a barrow and its choice of location. The size of the grave cut is unusually large, and may imply that it held not one but two occupants or one occupant alongside a large amount of grave goods, nearly all of which have not survived. An additional grave good is perhaps represented by an



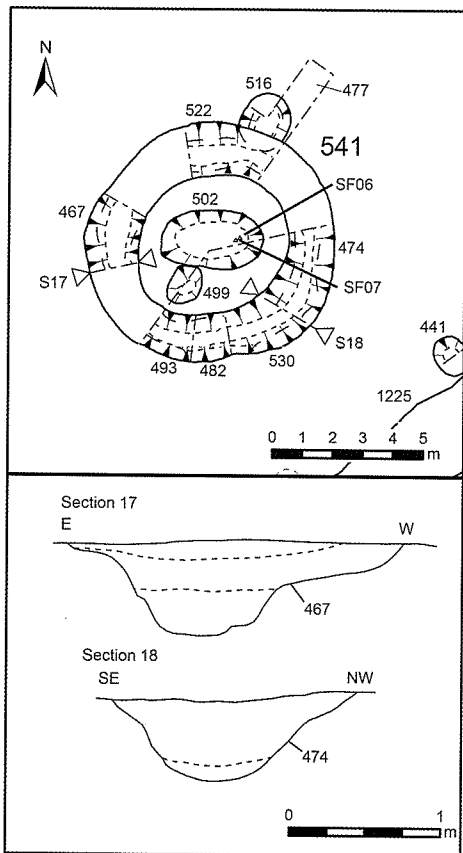


FIGURE 15: Site C: Ring-ditch 541 and sections 17 and 18

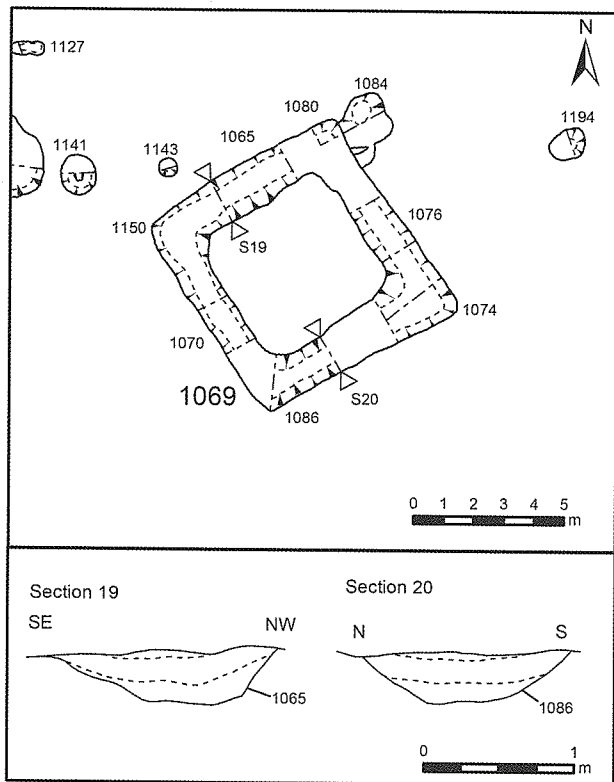


FIGURE 16: Site C: Square enclosure 1069 and sections 19 and 20

Roman periods. Ring-ditch 1000 is again a focus of activity, with a number of elongated, grave-like, pits (1007, 1017 and 1055) forming an evenly-spaced alignment that runs out in a radial line from the centre of the former barrow (Fig.

14). A fourth grave-like pit, 1022, is possibly an outlier. All four pits are artefactually undated as they produced no finds apart from an animal molar and a sherd of undiagnostic prehistoric pottery from the latest fill of 1055. Despite the lack of diagnostic artefacts and human remains, the pits appear to be analogous in their alignment, and their choice of location, to Early Saxon reuse of barrows as cemetery sites.

The last vestiges of the henge earthwork were probably used to incorporate a Middle to Later Saxon timber structure (Figs 9 and 17). Whether this was the result of its recognised ancient importance, or the consequences of more mundane practical opportunity is explored later. A total of sixteen post-pits, some with remnants of posts preserved *in situ*, define a construction clearly laid-out with direct reference to the henge remains. Post-pits 612, 649, 688, 761 and 763 formed an arc closely following the inside of the henge ditch, by now presumably largely in-filled, pit 612 being positioned at the former south entrance. Further post-pits (883, 823/825, 925, 929 and 670, 821, 827, 839, 843, 969) formed two parallel lines, some 4m apart, which extended southwards either side of the former south entrance of the henge. The pits themselves were seemingly irregularly-spaced within each line, though some may have been paired (i.e. 925 and 969; 821 and 883; 670 and 823). The northernmost pair, 925 and 969, had been cut into the infilled ditch terminals either side of the former entrance. All of the post-pits were steep-sided and fairly substantial, ranging from 0.65m to 1.9m wide and 0.4m to 0.9m deep (Fig. 10, S3 to S8). All were also very difficult to discern within the dirty gravels of the floodplain and, as suggested by the apparent isolation of southernmost pit 827, it is entirely likely that a number of further component pits of the two alignments went undetected. Indeed, the recorded 13m extent of the eastern line should properly be regarded as a minimum length, with the structure most likely continuing southwards and into the river.

Positioned in the river floodplain, the water table was high. Consequently, the lower parts of large wooden posts, consisting of oak boles (619, 650 and 669) and an oak branch (695), survived in four of the post-pits (612, 649, 670 and 688) (Plate 1; Figs 9 and 17; Fig. 10, S3, S4, S5 and S7). Preservation was such that a reasonable amount of information regarding their sourcing and preparation can be discerned (see wood technology report below); the trees from which they derived had been felled with metal axes and stripped of their bark. Most of the posts exhibited one side that was slightly flat and worn, suggesting that they may have dragged to the site by horses or oxen. Radiocarbon dating of the suitable timbers has produced calibrated dates of AD720–885 for post 669, AD775–965 for 650 and AD260–430 for 619. The anomalous 5th/6th century date of post 619 suggests that it was either a reused timber or not part of the structure. No posts survived in the other post-pits, although post-pipes were evident in two, 761 and 929 (Fig. 9, S6 and S8). Otherwise, the backfills of these pits contained only small quantities of residual burnt and worked flint.

The simplicity of this Saxon structure gives little clue as to its superstructure or to its function, although its position and alignment in relation to the river is surely pertinent. Identification of these structural remains as a possible bridge is tentatively offered, but it may be significant that its location was only c.80m east of the present-day bridge. However, a function as a jetty or even as a monumental structure in its





own right is not discounted. Consideration of its surviving posts, some of which appear disproportionately large for a structure of this apparent scale, is presented in the specialist wood report. The likely relationship with both the henge monument remains and the river is further considered in the concluding discussion, below.

#### *Medieval, post-medieval and modern*

Two phases of ditches in the west of Site C probably constitute the first imposition of formal agricultural land division that were probably introduced during the Middle to Late Saxon period, or later. The ditches of both phases contained pieces of burnt and worked flint, although these are likely to have been residual. A small sherd from segment 662 of ditch 1216 is probably Saxon.

Broadly parallel ditches 1216 and 852/1217, c.40m apart, from the first phase of ditches, ran down slope, presumably defining a series of linear fields which extended down to the river (Fig.17). The gap between 852 and 1217 may mark a point of entry between land units, as the curving north end of 852 seems to follow the enclosure ditch of the former henge. It is likely that the siting of this first phase of ditches was influenced by the surviving remains of at least one of the prehistoric monuments since ditch 1217 runs immediately west of ring-ditch 565. If a trackway or footpath lay immediately east of 1217 and ran down to a river crossing provided by the Saxon timber structure, then the earthwork of ring-ditch 565 was probably regarded as a waymarker, an obstruction or both.

Parallel ditches 1281/1282, 1218/1219/1220 and 1221 from the second phase perpetuated the land division, being direct replacements of the earlier boundaries (Fig. 16). They delivered a slight eastward shift from 1217 to 1218/1219 and incorporated the probably still upstanding remains of barrow 565 into one of their boundaries. It seems probable that the remains of the henge were no longer apparent or respected when this took place since parallel ditches 1220 and 1221 partly rotated the south end of the previous route south-eastwards, guiding it directly across the central and south-western parts of the henge. In addition, neither ditch respected the footprint of the Saxon timber structure, probably implying that it too was no longer standing by then. Ditch 1221 is a clear indication of this as it cuts and truncates Saxon post-pit 612. If the partial rotating of the south end of the route was related to introduction of a replacement timber structure, then no direct evidence for that replacement has been found.

The denudation of much of the palaeosol and the formation of an alluvial deposit across the valley floodplain probably took place during or after the medieval period, presumably as a consequence of erosion and flooding. The alluvium (574), consisting of light brown stone-free silt-clay, extended across the southern part of Site C and was up to 0.27m thick (Fig. 7). While only two small sherds of medieval pottery were retrieved from the hand-excavated portions of it, it clearly overlaid the palaeosol, the prehistoric remains, and the infilled Saxon ditches (1101, 1220 and 1221). Excavations in the centre of Chelmsford have encountered a similar alluvial deposit, where it has been dated to shortly after the mid-13th century (Wickenden 1992, 1, 10 and 141).

Given the presence of the farmstead higher up on the valley side in Area B, it is presumed that much of its surrounding area was under agriculture in the medieval

period, although no evidence for a related enclosure system of medieval date has been found in Site C. The date of the levelling of the surface remains of the monuments is not known, but is likely to have taken place during the medieval or early post-medieval periods, probably via erosion caused by flooding and/or ploughing.

Shallow, parallel, post-medieval ditches 1223 and 1224 extended across Site C and correlated with cropmark C4 (Fig. 18). They defined the sides of a broad trackway extending down the valley side, approximately 10m wide, which opened out into an enclosure in the south-west corner of the site. Metal detecting of its ditch fills retrieved iron horse shoes and large square-headed bolts. It is evident that the enclosure relates to a late 18th/early 19th century coal wharf and yard known to have been situated alongside the Navigation and Church Road (Burgess and Rance 1988, 13). Apparently short-lived, the 1796 yard and trackway are depicted on the c.1838 tithe map (ERO D/CT40B) but not on the Ordnance Survey maps from 1875 onwards. The cornering of the former henge site by ditch 1223 is perhaps incidental (Figs 6 and 9).

Boundaries defining the relatively late enclosure of the valley side were recorded within Site C as ditch 1225 across its north-west, but also across the wider scheme area in the evaluation trenches (Fig. 18). These generally closely correlated with cropmark boundaries and with the field system depicted on historic maps. Ditch 1225 is shown on the 1792 survey of the proposed route of the Chelmer and Blackwater Navigation (ERO D/DP P70 1/2), evidently being the removed part of a more extensive land drain still extant in the landscape. These ditches were largely east-west aligned, imposed not only to drain the land but to divide the valley side into zones presumably reflecting its variable soil qualities – ditch 1225 marking the upper extent of the floodplain and more poorly draining lower slope.

#### **Mid Chelmer Valley ring-ditch cropmarks**

by Mark Germany and Helen Saunders

The wider context of the prehistoric monuments found within the excavations, as represented by ring-ditch remains 374, 541, 565, 760 and 1000 in Area C, was explored with reference to rectified and digitised plots of archaeological cropmarks from aerial photographs held in the Essex County Council Historic Environment Record. This work identified ring-ditches of barrows elsewhere within the mid-Chelmer Valley and concentrated on their morphology and on associations between barrows, trackways, boundaries, and other types of prehistoric monuments. Consideration of distribution of the barrows in relation to soil type and topography was not undertaken as the distribution of the areas of cropmarks was tilted towards valley floor, where soil conditions are more favourable to the forming of archaeological cropmarks. Misidentification of roundhouse ring-ditches as those of barrows was minimised by looking for additional features more typically associated with the latter, such as central grave pits, broad ditches and a tendency to have no entranceways. Ring-ditches present within enclosures were discounted as probable round-houses within prehistoric farmsteads. Ring-ditches with diameters greater than 30m were likewise excluded in order to avoid misidentification with typically larger constructions such as henges, hengiform monuments, Springfield Lyons-type enclosures, and medieval windmills. Most of the ring-ditches had been previously

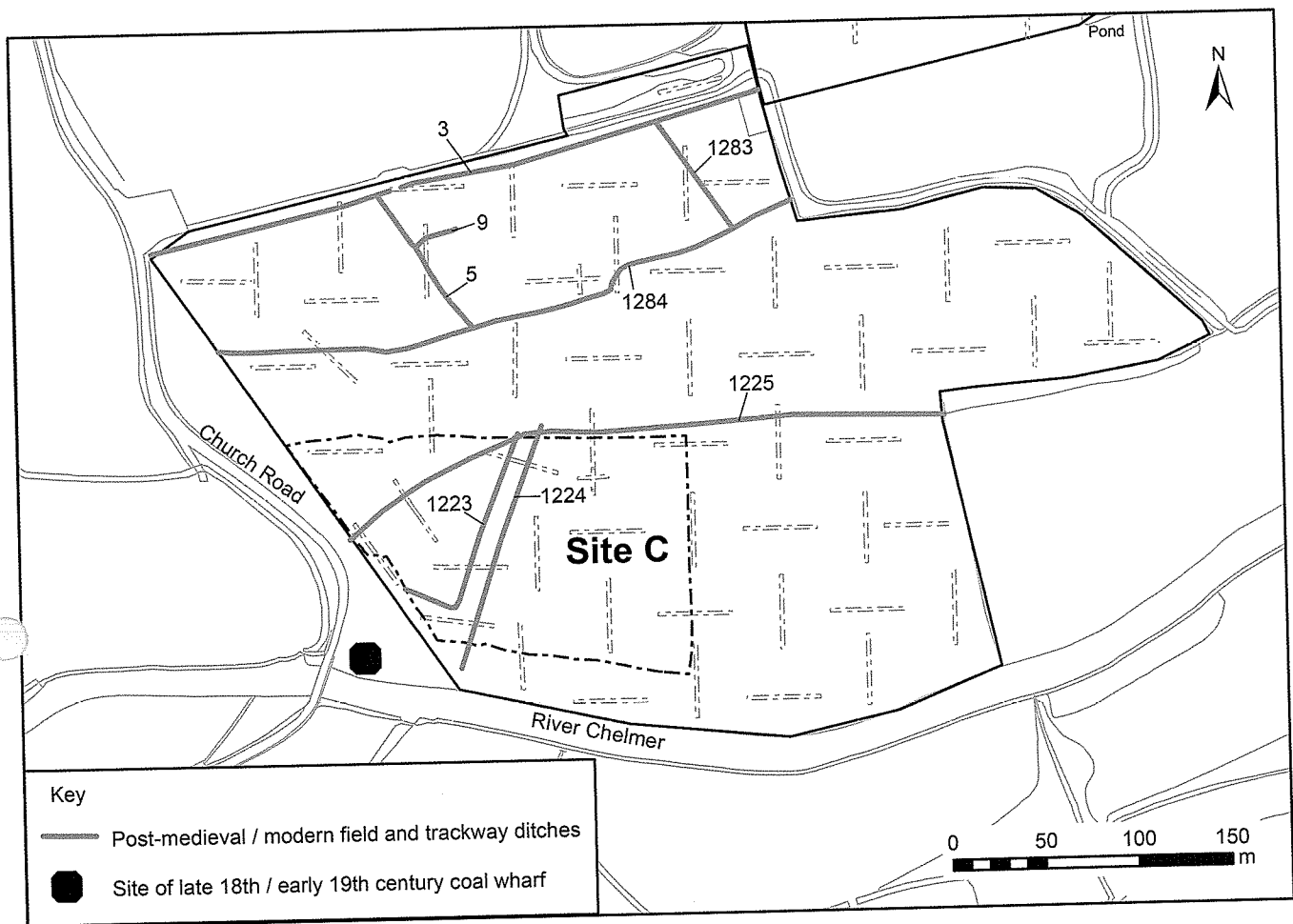


FIGURE 18: Site C: Post-medieval and modern ditches, and location of late 18th/early 19th century coal wharf

recorded as barrows by the National Mapping Program. The size of the area covered by the cropmark survey was 64km<sup>2</sup>.

The survey identified sixty-six probable barrows within the area of survey (Fig.19), two of them (30 and 31) corresponding with excavated ring-ditches 565 and 1000. A further two (3 and 5) were encountered during the investigation of the Springfield Cursus (Buckley *et al.* 2001, figs 9 and 17). The plotted plans of the cropmark sites are presented as Figure 20. Many of the barrow ring-ditch cropmarks were fragmentary. One was concentric (55), four were penannular (1, 9, 56 and 64) and fourteen associated with possible grave pits (3, 10, 13, 16, 17, 23, 24, 29, 32, 40, 41, 46, 60 and 64). The orientation of the entranceways of the penannular barrow ring-ditches were not consistent. The majority of the barrow ring-ditches were circular, with diameters measuring between 6m and 22m. The survey area is extrapolated to have originally contained c.200 barrows (roughly three per square kilometre), based on an assumption that only one in every three of them has been detected.

Many of the barrow ring-ditches were located within close proximity of other cropmark features and/or excavated sites. Those probably associated with earlier prehistoric monuments comprised seven near the cursus at Springfield (1 to 7), two near the henge at Boreham (30 and 31) and one (37) to the south-east of an ovate enclosure. Ring-ditch barrow 60 and a small square enclosure similar to 1069 in Site C occupied the same site. Six of the ring-ditches were possibly paired (20, 41 and 56). Ring-ditches seemingly being referred to by landscape

boundary cropmarks were more numerous and included one (25) next to a T-junction of ditched trackways, seven (5, 17, 20, 36, 41, 43 and 49) intersecting with linear boundaries and a further three (17, 34 and 55) clipped by passing boundaries. In several of these cases (17 and 34) the boundary features kink or change course where they intersect with the ring-ditches. Thirteen of the ring-ditches were situated within 20m of at least one linear ditch cropmark, although in these cases this could be incidental.

## FINDS

Finds recovered during the course of the investigations predominantly comprise worked and burnt flints, although other significant assemblages include pottery, worked timbers and a small quantity of metalwork. Burnt human remains were also retrieved from a single cremation burial and are reported upon here too. Animal bone was largely absent, as a consequence of poor survival in the harsh acidic gravel soils present at this location. Pertinent finds summary reports are presented below, with further details and quantifications available in the site archive.

### Worked and burnt flint by H. Martingell

A total of 2102 pieces of worked flint was recovered from a range of features and deposits (mostly from pits, tree-throws, palaeosol, ring-ditches and ditches) across the evaluation trenches and subsequent Sites A, B and C. The assemblage from each site area is described and discussed below, and

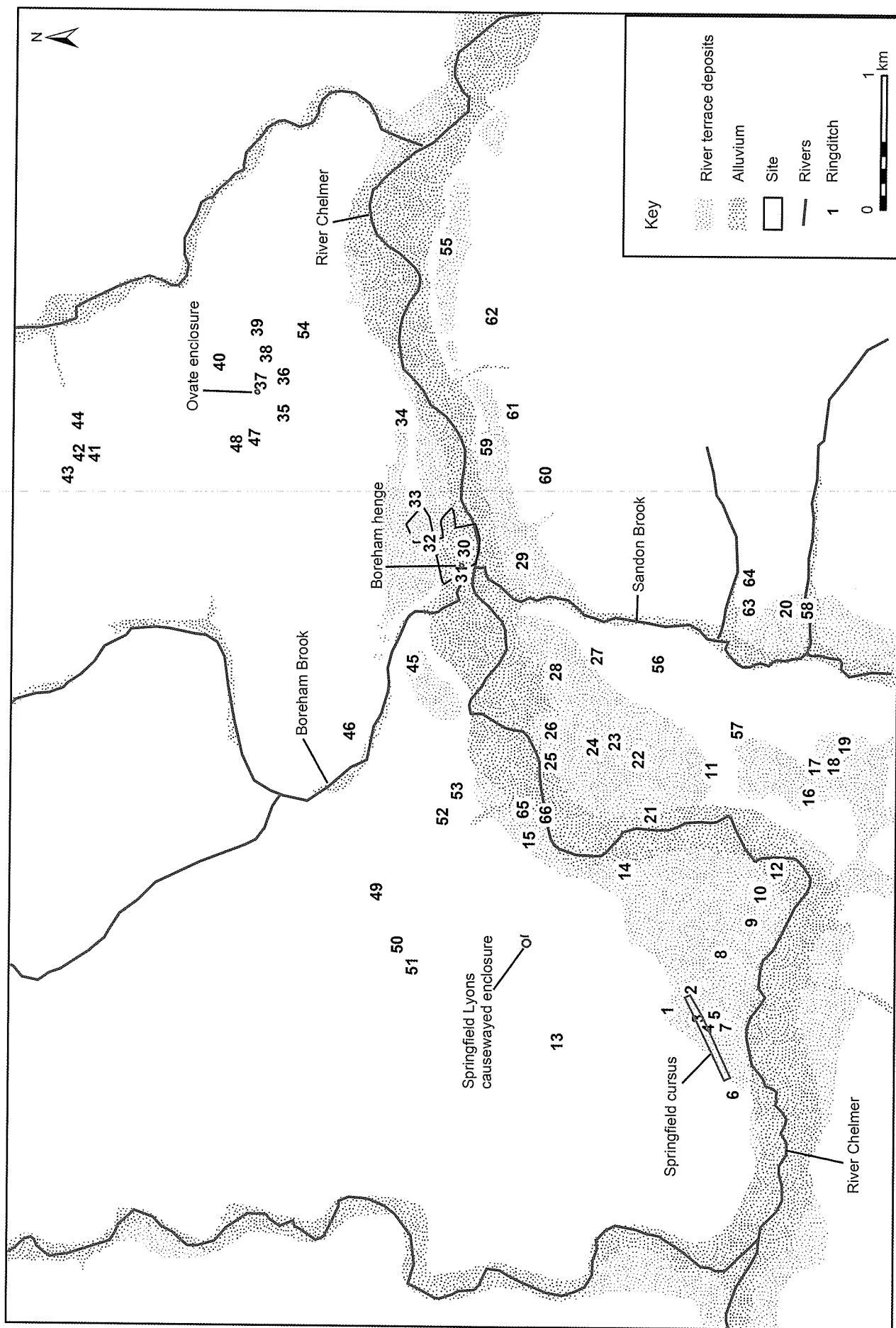


FIGURE 19: Mid-Chelmer Valley ring-ditch cropmark survey. Locations of identified ring-ditches

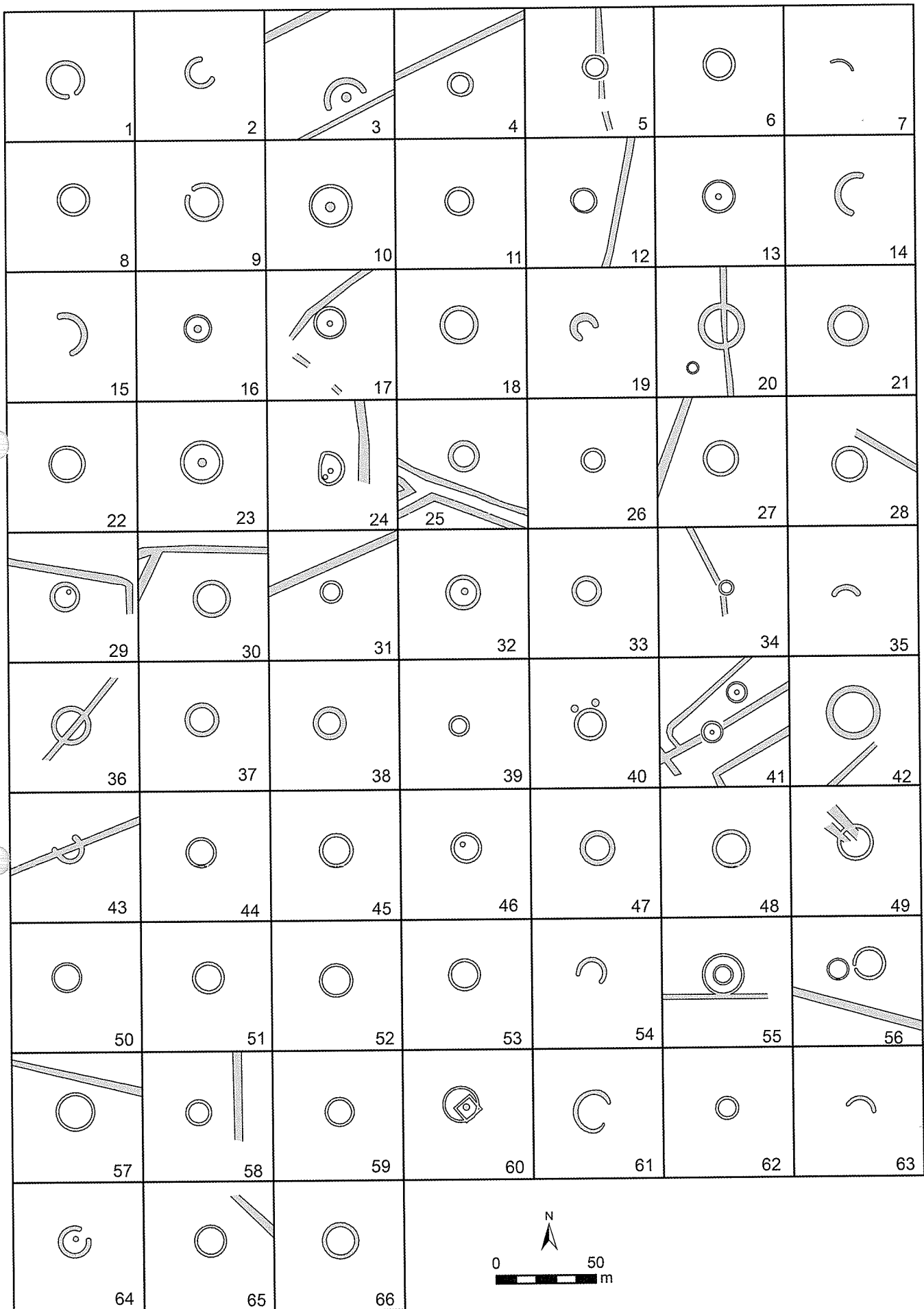


FIGURE 20: Mid-Chelmer Valley ring-ditch cropmark survey. Cropmark plans of ring-ditches 1 to 66

Type/Site	A	B	C	Total
Flake	65	2	1289	1356
Blade	13	3	420	436
Core	4		136	140
Core tablet			8	8
Scraper	6		10	16
Piercer		1	3	4
Knife			1	1
Hammerstone		1	1	1
Microdenticulate			4	4
Microlith	2		8	10
Burin			3	3
Microburin			9	9
Backed point			1	1
Arrowhead			1	1
Notched blade			5	5
Notched spall			5	5
Bifacial pebble tool			1	1
Retouched	2		21	23
Fragment/waste	2		47	49
Waste block			29	29
<b>Total:</b>	<b>94</b>	<b>7</b>	<b>1998</b>	<b>2102</b>

TABLE 1: Summary of worked flint by type, Sites A to C

summarised in Table 1. About 85% of the worked flint from all three sites and the evaluation trenches is undatable. Of the datable items 82% is of Late Mesolithic/Early Neolithic date, 9% of Neolithic date, 7% of Late Neolithic and Bronze Age date, and 2% of Iron Age date. Both Sites A and C produced items of all four periods.

Most of the worked flint appears to derive from local gravels, with little evidence for importation of larger flint nodules of good quality. About 25% of the pieces are patinated to varying degrees. Patination occurs most frequently on blades and blade cores. About 97% of the artefacts consist of waste from knapping, and 33% of this is made up of blades and blade cores. Many of the blades are of narrow blade type, suggesting a Late Mesolithic date. The remaining waste is undatable except for a few pieces that may be later prehistoric. Only sixty-two artefacts are retouched, about 3% of the total number of worked flint pieces. Eight of these are microliths of Late Mesolithic type (Fig. 21), one of which is patinated. There are also ten scrapers, two of which are patinated. One item of note is a complete polished-edge knife-and-scraper of probable Early Bronze Age date from Iron Age pit 809 inside the henge (Fig. 22). The remaining forty-three tools consist of piercers, denticulates, edge retouched and notched pieces.

*Sites A and B*

Various features within site A produced a total of eighty-one flints. There are eight blades, forty-two flakes, three cores (one blade), three scrapers, two microliths, one retouched fragment and one other fragment. Thirty-one of these artefacts, including one of the microliths, a scraper and the retouched fragment came from pit 381 in the site's north-west corner. The microlith is a complete Late Mesolithic geometric, an isosceles triangle (Jacobi 1978, type 2a; Clark 1934, type C11) (Fig. 21.6). The scraper and retouched fragment are both Neolithic.

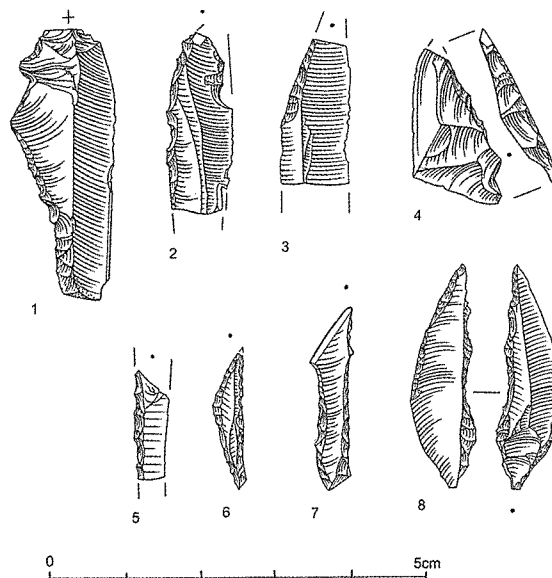


FIGURE 21: Late Mesolithic microliths

The other microlith came from pit 141 (Fig. 21.3). Pit 27 in evaluation trench 3 produced seventeen flakes, two blades and two scrapers.

The restricted nature of the investigation of Site B resulted in the recovery of a total of only seven worked flints. These comprised three blades, two flakes, one piercer on a flake and one hammerstone fragment, none of which are closely datable.

*Site C*

**Palaeosol 1095 and tree throw 1165**

A total of 146 worked flints were recovered from sample areas 1092 to 1094 excavated in the palaeosol, and a further ninety-five worked flints collected from the wider palaeosol surface 1095. In sample box 1092 there was a total of seventy-two worked flints. Two of these, a blade and a flake, had small areas of retouch, but are not datable. Amongst the waste was one crested blade; a type of core preparation practised during the Mesolithic and Early Neolithic periods. There were also thirty-nine flakes, twenty-four blades, six cores and waste blocks. Palaeosol box section 1093 produced seventeen blades, ten flakes, one core, one crested blade and one core tablet. All the waste material, the crested blade and core tablet are core preparation waste, found in Mesolithic and Early Neolithic contexts. Forty-four worked flints were recovered from palaeosol sample box 1094, comprising nineteen blades, twenty-three flakes, one core and one crested blade. All are waste material. The worked flints from the buried soil surface 1095 included forty-seven flakes, thirty-two blades, thirteen cores, three retouched artefacts, one scraper, one notched flake and an unusual arrowhead. These are all typical of Neolithic date with the exception of the notched flake which is of a later Neolithic/Early Bronze Age date.

While relatively modest Mesolithic assemblages were recovered from pits 805 and 807, a total of 251 worked flints were recovered from tree-hole 1165 (Table 2), in the south-eastern corner of Site C. There are nine cores, eight waste blocks, thirty-two blades, 197 flakes, one microburin (the waste part from making a microlith), five retouched artefacts, one retouched flake, one notched blade, one knife and one microlith. The microlith is a backed blade type of Mesolithic

Type/Feature no.	805	807	1165
Flake	6	20	196
Blade	14	8	32
Core	1	1	9
Core tablet	1	1	
Scraper	1		
Microolith			1
Microburin	1	2	1
Notched blade			2
Notched spall			1
Retouched	1	1	1
Fragment/waste		1	
Waste block			8
<b>Total</b>	<b>25</b>	<b>34</b>	<b>251</b>

TABLE 2: Worked flint from Late Mesolithic/Early Neolithic features 805, 807 and 1165

date (Fig. 21.2). Contained within pit 1148 to the north-east of the tree-throw were a microlith roughout and a microlith backed rod (Figs 21.1 and 21.5).

**Henge 818**

A total of 524 worked flints was recovered from the henge ditch (818) and the features within its immediate area. Of these, eighteen are retouched pieces, 314 are flakes, ninety-nine are blades, forty-one are cores and thirty-six are waste pieces. The earliest retouched artefacts are two microliths from post-pit 843 (Fig. 21.7) and pit 868, and three microburins in pits 782, 843 and 868. These microliths are all of a Late Mesolithic type, as is the burin on a blade. Of possible Mesolithic or Early Neolithic date are two microdenticulates from pits 809 and 841, two denticulates from pits 782 and henge ditch segment 829, a retouched flakelet from overlying ditch 1221 (segment 609) and a truncated blade from pit 854. There are also

three retouched blades and two retouched flakes. The most important find of all, from a worked flint perspective, is an Early Bronze Age polished-edge flint knife and scraper from Iron Age pit 809 (Fig. 22). These are rarely found and are considered to be a special type of artefact attributable to the Beaker period, the transition from the Late Neolithic to the Bronze Age. A core and piercer from ditch 1221 (segments 609 and 645), and two scrapers from pit 782, are rather roughly knapped and could be from the later prehistoric period.

**Ring-ditches 374, 565, 760 and 1000 and square enclosure 1069**

Ring-ditch 374 produced 247 worked flints. There is only one retouched artefact; a microlith from excavated segment 358 which is a Jacobi (1978) Type A of Late Mesolithic date. There are also 204 flakes, twenty blades, nine cores, one flaked pebble and thirteen fragments and waste pieces. Although there is only one fine blade core and a patinated blade that can be dated to the Late Mesolithic, it is not inconceivable that the other pieces are also from the same period.

A total of 207 worked flints were recovered from Bronze Age ring-ditch 565 and the discrete features within its immediate area. Seven of these are retouched artefacts. Pit 70 produced a microlith of Late Mesolithic type, as did pit 453 (Fig. 21.8), and ditch segment 513 produced a microdenticulate on a blade, and a burin. Worked flint from segment 561 included a scraper on the end of a blade and a small piercer. These six artefacts are Mesolithic or Early Neolithic in date. Unusual artefacts comprise a backed point from pit 70 (Fig. 21. 4) and a notched blade from segment 556; both could be of any date. Other finds comprise 153 flakes, twenty-five blades, fourteen cores and eight other waste pieces, including a microburin of Mesolithic date in pit 70.

In contrast, Bronze Age ring-ditches 760 and 1000 produced only twelve and twenty-seven worked flints respectively. Those from ring-ditch 760 comprised two flakes, seven blades, two

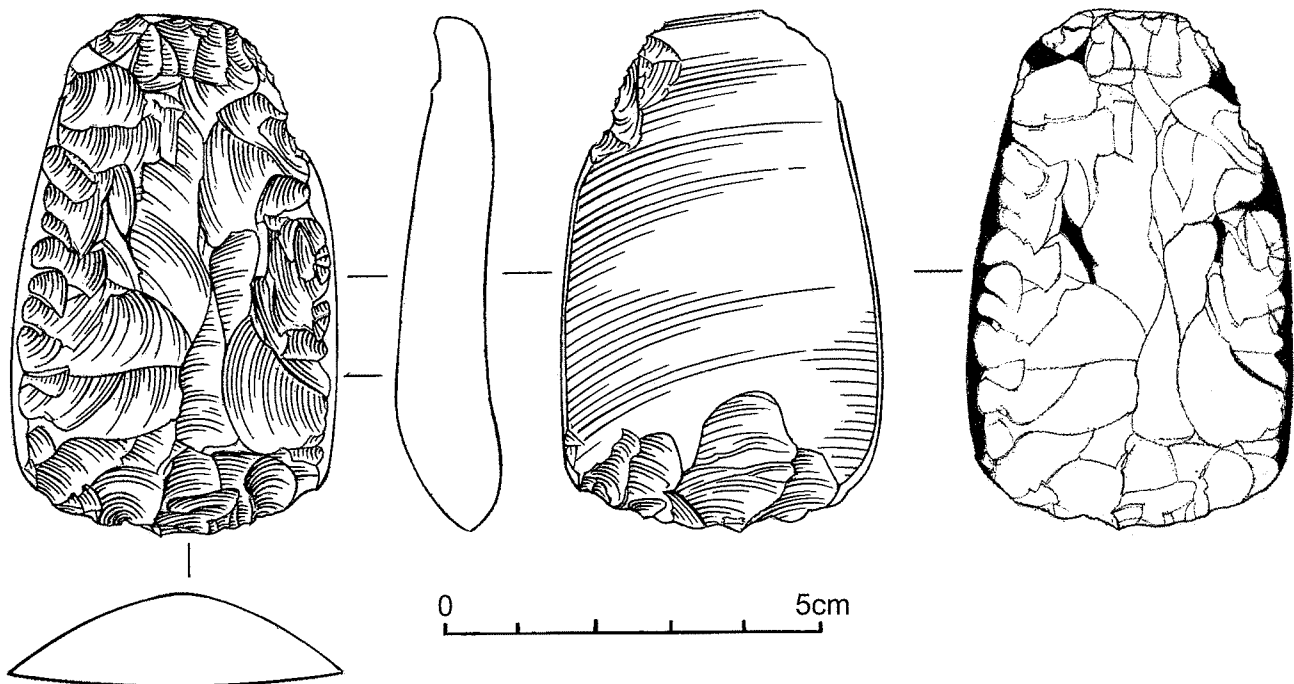


FIGURE 22: Early Bronze Age polished edge scraper-knife from Iron Age pit 809, Site C

waste fragments and one undatable retouched flake, and those from ring-ditch 1000 twenty-three flakes, one blade and three cores. None is diagnostic of any particular period.

A total of sixty-eight worked flints were recovered from Iron Age ring-ditch 541. There are two retouched pieces, a scraper of undatable type from segment 530, and one piercer. Forty flakes, seventeen blades, four cores and five waste blocks and fragments were also collected.

Square enclosure ditch 1069 produced twenty-two worked flints; of these, fifteen are flakes, six are blades and one a retouched artefact – a burin. Again, none is typical of any specific period.

#### Burnt Flint (all sites)

A relatively large amount of burnt flint was collected from twenty contexts. Prehistoric pits 435, 453, 469, 566, 719, 782 and the Early Neolithic tree-throw 1165 all contained over 1kg of burnt flint. Notably, over 10kg was retrieved from pit 978 on the west side of the henge, suggesting a continued and/or concentrated area of activity. The burnt fragments are light grey in colour, variable in size and irregular in shape. The flint appears to come from the local gravels. Large quantities of burnt flint have been found on other Mesolithic sites; it appears to be a significant component of Mesolithic occupation/activity (M. Bell, *pers. com.*). The reasons for this are still under discussion. However, it should be noted that burnt flint is often also a feature of Neolithic and Bronze Age sites.

#### Conclusions

This reservoir scheme area, and Site C in particular, have produced one of the largest Mesolithic/Early Neolithic assemblages discovered in Essex, since 85% of the closely-datable pieces can be assigned to that period. It is probable that the valley floor was being used to make flint tools, which were then taken away to be used elsewhere, as most of the assemblage consists of blade cores and other waste material. The number of items which may have been contemporary with the probable Late Neolithic/Bronze Age construction of the henge and the barrows is very small, although further pieces probably lie within the flint debitage. The marked disparity between the amounts of identified Late Mesolithic/Early Neolithic and Late Neolithic/Bronze Age worked flints no doubt reflects the different uses of the valley during those periods, as the site would have been used for flint sourcing and knapping and intermittent settlement during the former, and the carrying out of religious and mortuary activity during the latter.

#### Prehistoric pottery by N. Lavender

The trenching evaluation and excavation of Sites A to C produced 316 sherds (960g) of prehistoric pottery. The material has been recorded using a system developed for prehistoric pottery in Essex (Brown 1988; details in archive). The assemblage is dominated by flint-tempered fabrics (83% by sherd count, 72% by weight) and mainly comprises very small abraded sherds and crumbs, resulting in an average sherd weight of less than 3.1g. Most of this material consists of undiagnostic pieces and is therefore undatable within the prehistoric period. A small, but significant, proportion of the assemblage is made up of sand-tempered sherds (5.6% by sherd count, 9.2% by weight). There are also twenty-six

sherds of grog-tempered pottery, most of them quite large and comprising 15.2% of the assemblage by weight. Most of the assemblage is abraded, although only one tiny sherd, from Roman cremation burial 29, is obviously residual.

#### Earlier Neolithic

Two rim sherds are of Early Neolithic date; both are very small. The first is an externally-thickened rim recovered from test pit B (context 990) through the buried palaeosol horizon at the southern edge of Site C. The second is T-shaped and from the nearby square-ditched enclosure (fill 1075 in segment 1074). Fifteen fragments of abraded flint-tempered, but otherwise undiagnostic, pottery from the latter context may be contemporary. As the enclosure is judged to be of Iron Age date, the pottery is presumably residual and may be derived from the buried palaeosol into which it was cut. A small sherd in sand-tempered Fabric G was also recovered from this context and a Middle Iron Age date for the feature seems probable.

#### Later Neolithic

A small quantity of Grooved Ware (19 sherds, 145g), in grog-tempered and flint-tempered fabrics, was recovered from both the evaluation and excavation phases of work. Identifiable sherds comprise approximately 15% of the assemblage by weight. Most of the material (12 sherds, 118g) was retrieved from pit 27 (trench 3), including one large sherd bearing six deep horizontal grooves. This sherd, and three others from the same context, comes from a large, thick-walled vessel. The remaining material is from a thinner-walled pot. A small number of flint-tempered sherds from contexts 39, 47 and 80 in trenches 12, 13 and 52 are possibly Later Neolithic date. The handful of sherds recovered from the excavation phase is nearly all from Site A, with the single exceptions to these comprising two crumbs of possible Grooved Ware pottery from Middle Iron Age or earlier pit 798 inside the henge. Almost all of the Grooved Ware, therefore, has no obvious physical association with the henge monument some 400m to the south-west, and no Beaker pottery has been identified.

The presence of Grooved Ware, albeit in small quantities, suggests a focus of Late Neolithic activity on the higher ground (though still below the 20-metre contour) overlooking the River Chelmer and almost certainly related to the construction or use of the henge down on the flood-plain. The quantity of material suggests that it is unlikely to represent a permanent domestic settlement, but it may result from deposition at a seasonal occupation site – perhaps – by people working on the construction of the henge or visiting it afterwards.

Grooved Ware has been recovered quite frequently in the Chelmer Valley, sometimes seemingly the consequence of re-use or revisiting of earlier monuments. It has been found in the upper fills of the Springfield Cursus (Brown 2001a) and in isolated pits at Springfield Lyons, close to the causewayed enclosure (Brown 2013). A further isolated pit at Great Baddow (Brown and Lavender 1994) lay within the Late Bronze Age enclosure there, but no earlier features have yet been located there to suggest a reason for its presence (it may simply mark a vantage point). Finds of Beaker pottery at the Cursus and a Beaker burial near the former White Hart public house in Springfield also attest to Late Neolithic and Early Bronze Age activity in the general area of the mid Chelmer Valley.



*Middle Iron Age*

Middle Iron Age pottery was mainly recovered as a general light scatter in features across Site C; within ring-ditch 374 (segment 401), ring-ditch 451 (segment 467), square enclosure ditch 1069 (section 1074), pit 809 inside the henge, and pit 1160 near ring-ditch 1000. Two sherds of pottery from trench 12 (within subsequent Site B) were the exceptions to this pattern.

Much of the Site C pottery was made up of small and abraded flint-tempered sherds that offer little by way of dating evidence. Ring-ditch 541, which surrounded the grave pit containing the iron brooches, produced a surface find, consisting of a single sherd from a rounded and everted rim of Middle Iron Age date (context 608). A second, small, rounded rim sherd came from ring-ditch 374 to the south (fill 403). A Middle Iron Age sand-tempered sherd was also recovered from square enclosure ditch 1069, and it is this, rather than the Early Neolithic rim, which is considered to date the feature.

None of the Middle Iron Age pottery is decorated. Generally it seems to belong to Drury's (1978) Little Waltham style, but there is too little of it and most of the sherds are too small to assign to particular forms. The exceptions to this comprise two sherds of Little Waltham Form 8 from ring-ditch 541, and a single sherd of Little Waltham Form 6 from square enclosure ditch 1069.

*Discussion*

Given the location of this site and the quantity of prehistoric monuments within it, investigation has produced a rather disappointing assemblage of prehistoric pottery. This was in spite of the assiduous attempts to recover artefactual material and the large number of segments excavated through the ring-ditches. The large assemblage of struck flint strongly suggests that finds recovery was perfectly adequate and that nothing substantial has been missed. The condition of the pottery is often poor in that it is fragmentary and abraded, but there is no indication that a large proportion of the original assemblage has been destroyed by adverse soil conditions.

Absence of pottery in ring-ditches of mortuary monuments is, perhaps, to be expected. In this respect, the Middle Bronze Age barrow cemeteries of north-east Essex, *e.g.* Ardleigh (Brown 1999), St Osyth (Germany 2007) and Brightlingsea (Clarke and Lavender 2008), are analogous, with very little pottery recovered from their ring-ditches. Only at Chitts Hill (Crummy 1977), where the mounds had been deliberately levelled during the Iron Age, was there any quantity of pottery in the ditches. The Late Iron Age funerary enclosure at Maldon Hall Farm (Lavender 1991) similarly produced only a few scraps of abraded pottery, despite the quantity of pottery in the actual burials.

With regard to the henge, in 1971 Wainwright and Longworth remarked that "It is clear . . . that the users of Grooved Ware had a close association with henge monuments . . ." and went on to associate the deposition of pottery with ceremonial activities (although at that time only seven henges, most of them large, had produced Grooved Ware). At Boreham, there is no such close association. No pottery was recovered from the henge itself, and if the two small crumbs from pit 798 are excluded, then the closest Grooved Ware lay some 400m to the north-east. The pottery was found in contexts with no obvious connection to significant later Neolithic features, as with

other Grooved Ware finds in the valley (although all except Great Baddow had major features from the earlier Neolithic). Similarly, whilst there is some worked flint of later Neolithic and earlier Bronze Age date (Martingell above), there is not much and it is not directly associated with the henge. Most of the flint is late Mesolithic or early Neolithic and residual in later contexts. Evidently the henge was not used for the deliberate 'ritual' deposition of either pottery or flint, and neither does there appear to be any accidental loss or rubbish disposal associated with the monument.

As for the Middle Iron Age pottery, most of this comes from the various ring-ditches; the paucity remarked on above, both in terms of overall quantity and the number of diagnostic sherds, makes the assemblage quite unhelpful. However, the association of the pottery with the well-dated brooches (Sealey below) confirms the 4th-century BC date for the origin of Middle Iron Age pottery in Essex and possibly takes that date back as far as *c.*350BC rather than the previously accepted one of *c.*300BC. Any advance in the clarification of the (rather uncertain) dating of such pottery is welcome, as would be further instances of associations with well-dated artefacts and, hopefully, rather better pottery assemblages.

**Late Iron Age and Roman pottery** by J. Compton

Twenty contexts produced pottery of Late Iron Age and Roman date, amounting to 378 sherds, weighing 1391g. The pottery has been recorded by sherd count and weight, in grams, by fabric; full details can be found in the site archive. The fabrics were recorded using the Essex County Council fabric series and the few vessel forms present were identified using the typology devised for Chelmsford (Going 1987, 13–54). The assemblage is fragmentary (average sherd weight 3.7g) and generally abraded. Some sherds are encrusted, making fabric identification difficult. Most of the assemblage comprises body sherds in coarse fabrics which are not closely datable within the Late Iron Age or Roman periods. Together, the coarse wares form 80% by weight of the total assemblage. Imported samian occurred in two evaluation trench contexts; otherwise the pottery derives entirely from local sources. Few contexts contained more than three or four sherds; the exceptions are cremation burial 29 in trench 1 and excavated segments 513 and 1020 across ring-ditches 565 and 1000 respectively.

The lower part of a black-surfaced ware jar, which contained the cremated bone, was recovered from cremation burial 29. Unfortunately, the vessel had been truncated in antiquity so the exact form cannot be discerned. Some sherds had wavy-line decoration, however, and the jar may be a Going Type G23.4 (1987, fig.10). These are tentatively dated to the 3rd century at Chelmsford, but the Old Hall jar can be accorded an early Roman date on fabric grounds. Segment 513 of ring-ditch 565 produced many sherds from a J1 flagon (Going 1987, fig.16) in coarse buff ware, probably a Colchester product. Most of the vessel seems to be present, although there are many small sherds which do not conjoin. This type of flagon, known as a Hofheim flagon due to the numbers found there, is a mid-1st century type which does not continue beyond the Neronian period (*c.*AD65). Segment 1020 of ring-ditch 1000 contained a large number of abraded grog-tempered sherds dating to the Late Iron Age. More than one vessel is represented but most of the sherds appear to belong to a single jar.

**Early Saxon pottery** by S. Tyler

A small assemblage of fine and coarse wares (twenty-six sherds, weighing 246g) came from fourteen contexts, mostly representing Site B surface finds, the exceptions to this being pit 41 and ditch 57 in evaluation trench 12, and ditch segment 662 of Site C ditch 1216. Most of the large, sandy, body sherds (some deliberately roughened with 'schlickung') probably belong to storage jars or cooking-pots (some have carbonised residues on surfaces). However, there is also a decorated neck/rim sherd (find-spot 912, Site B) from a vessel which in its entirety could stand comparison to cremation vessels from cemeteries such as nearby Springfield Lyons (Tyler and Major 2005).

The predominance of sandy fabrics and the use of the 'schlickung' technique suggest a pre-AD650 date for the assemblage. It is likely that the pottery has derived from late 5th/early 6th century settlement/cemetery contexts somewhere in the vicinity.

**Medieval and later pottery** by H. Walker

A total of 234 sherds, weighing 2.5kg, was retrieved from fifteen contexts, almost all of which were surface find-spots within Site B or else deposits in trial trenches in its immediate vicinity. No fine wares are present apart from single sherds of Mill Green fine ware and Hedingham fine ware, both, unfortunately, unglazed and undecorated. Otherwise the pottery comprises early medieval ware, medieval coarse ware (including probable examples of Mill Green and Hedingham coarse wares) and a single sherd of shell-and-sand-tempered ware. Cooking-pots are the most common vessel form and there are examples with B4, cavetto and H2-type rims, all of which would have been current during the earlier 13th century. A thickened, everted bowl rim is also present. Most of this pottery was found in the area of the remains of a small sub-rectangular enclosure and possible building and is probably associated with this settlement. Find-spots 921 and 922 to the west of the enclosure produced later pottery including part of a cooking-pot with a developed E5 rim, dating to the late 13th/14th centuries, and a sherd of Mill Green ware, dating from the mid-13th/14th centuries. These may represent a second, slightly later phase of activity. The only medieval pottery from Site C comprises two sherds of early medieval ware, datable to c.1200, that were collected from alluvium layer 574 in test pit A. No medieval pottery was found within Site A.

The assemblage is typical of central Essex, although the lack of fine wares suggests the pottery is from service areas rather than from living areas. A few sherds of post-medieval pottery were excavated, but these could be the result of muck-spreading of midden material rather than evidence of settlement. They comprise sherds of black-glazed ware and post-medieval red earthenware, including a sherd that appears to be a kiln waster. A post-medieval sherd from gully 21, in trench 13, could be intrusive.

**Iron Age brooches** by P. Sealey

Three early La Tène brooches were recovered from ring-ditch 541 and its central pit 502 in Site C. In the ditch itself, there was a 4th-century BC copper alloy brooch associated with Middle Iron Age pottery. Two iron brooches were present in the central grave pit; one was penannular, and the other a possible penannular. The only other Iron Age grave from Britain with

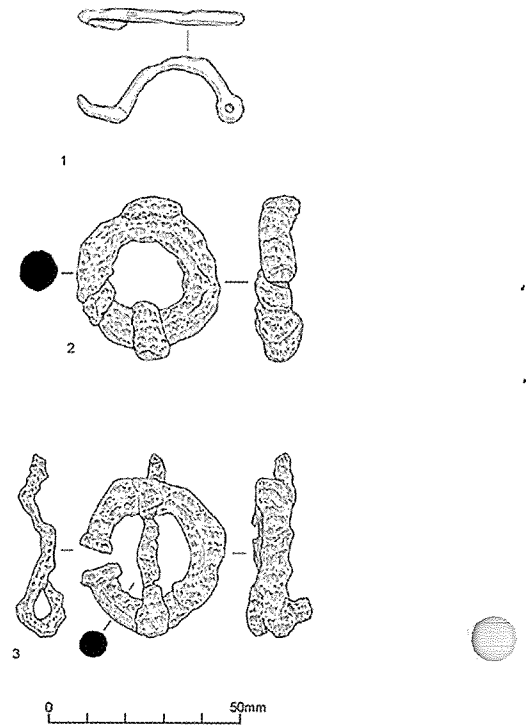


FIGURE 23: Middle Iron Age brooches from Middle Iron Age pit 541, Ring-ditch 541, Site C

a pair of penannular brooches is at Huntow (Yorkshire). The secure association of pottery and metalwork at Boreham allows the start date of Middle Iron Age pottery in Essex to be moved back into the 4th century, to c.350 BC.

*La Tène I Copper alloy Brooch (fill 468 in segment 467)*

Copper alloy brooch fragment with a curved bow terminating in a short straight length of metal with a cleft to provide a seating for the pin; beyond, the foot rises upwards and begins the curve that originally turned it to point backwards towards the head of the brooch (Fig. 23.1). In section the bow is sub-rectangular with a maximum thickness of 4.4mm. All that survives of the head is a flat circular feature with a diameter of 7.3mm. There is a tiny hollow aperture on each side of this flat terminal which would originally have housed a rivet or axis bar. Brooches like this exemplify the mock-spring arrangement described by Stead (1979, 68–9; 1991, 80). The condition of the brooch is poor: there is extensive and deep corrosion that has entirely removed nearly all the surface; the end of the foot and the pin are missing.

The brooch is La Tène I and belongs to the Hull Type 1 family. Its bow does not have the more or less semi-circular form of the well-arched 1a, but exemplifies instead the lower and shorter arc of the 1b. Not enough survives to allow allocation to one or other of the variants of 1b. Chronologically, a 1b brooch means a product centred on the 4th century BC (Hull and Hawkes 1987, 73, 95, 97, 107).

*Annular Iron Brooch (fill 503 in pit 502)*

The brooch consists of a continuous oval hoop with maximum and minimum external axes of 40.2 and 39.3mm; the hoop itself is 8.8 to 11.2mm thick and sub-circular in section (Fig. 23.2). An iron collar 9mm wide secured the (missing) pin to the hoop; all that survives of the pin itself is an amorphous

stump on the collar on the inside of the loop. Such is the extent of the corrosion and the accompanying distortion of the piece that the measurements given here should be regarded as only indicative of the original dimensions. The condition of the brooch is fragile. Radiographs suggest some metal survives within the core. They also reveal a straight line running through the hoop from the inner to the outer side suggesting the presence of two flat and unexpanded terminals that had been forced together in antiquity. If this was the case, the brooch would have been penannular. The classification and chronology of the brooch is discussed below.

#### *Penannular Iron Brooch (fill 503 in pit 502)*

What now survives is apparently all a corrosion product. Such is the extent of the corrosion and the accompanying distortion of the piece that the measurements given here should be regarded as only indicative of the original dimensions. The condition of the brooch is fragile. Radiographs of the brooch show the hoop with a thin white outline. This distinctive feature suggests the surface had once been coated with a veneer of some material other than iron; it may have been tinned. The penannular hoop of the brooch is an oval with maximum and minimum external axes of 41.2 and 39.6mm; the hoop itself ranges from 7.8 to 10.2mm thick and is sub-circular in section (Fig. 23.3). Both terminals have flat oval faces with expanded edges; they are 2mm apart on the inside and 9mm apart on the outside. A collar secures the pin to the hoop. It is 10.8mm wide towards the outside of the hoop, and it tapers towards the pin. The best preserved length of pin suggests it was rectangular in section at the collar end, changing to a tapered circular section at the end. In the middle of the hoop, a short length of the pin has a flexed (humped) profile. Together, the pin with its collar is 46.4mm long.

The brooch is a Fowler Type Aa penannular (Fowler 1960, 150). There is some reason to think that its companion brooch was also penannular (despite its present appearance), and is probably another Type Aa. Penannular brooches of this kind are now thought to represent an introduction from the mainland of Europe, rather than (as Fowler argued) an insular development. The starting point is an iron specimen from a grave dated c.400–380 at Trugny (Aisne); another La Tène Ia grave from Pernant (also Aisne) has a bronze example (Rowlett 1966, 133–4; Simpson 1979, 319). Penannular brooches of Types A and Aa are present in Arras Culture contexts in Yorkshire from the start (Stead 1991, 89–90); some of those from graves there are iron (Stead 1979, 71). They are rare in France and their popularity in Britain at this early date reflects a predilection here for hinged, rather than sprung brooches (Stead 1971, 38; 1979, 71). Type A and Aa brooches had a long history, lasting until Roman times (Olivier 1996, 258, 261). The Boreham brooches could be as early as any of the penannulars in Britain, bearing in mind the La Tène I brooch from the ring-ditch. An iron penannular brooch of Fowler Type Aa excavated at Wandlebury hill fort (Cambridgeshire) and stratified with pottery (Hartley 1957, fig.8 nos 69–71, fig.9 no.3, 23–4) shows the type was current in East Anglia in the Middle Iron Age. Most graves with penannulars from Yorkshire only had a single brooch but there was a pair of bronze Aa brooches from the Huntow barrow (Stead 1979, 36, 70–1, 102). The Huntow pair is an important consideration at Boreham where the context is considered to be funerary.

#### *Brooches and the implications for pottery chronology at Boreham*

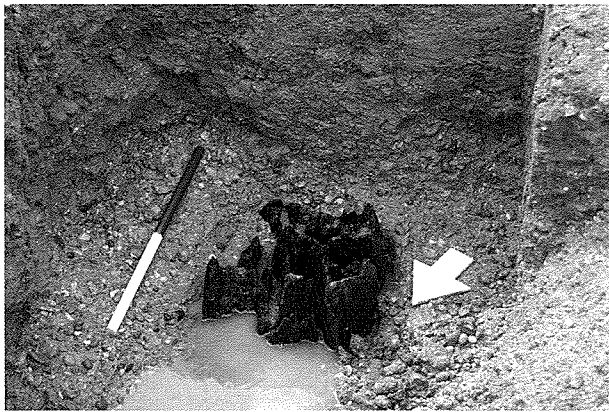
The three brooches reported here are a consistent suite of 4th-century BC jewels. Bearing in mind the difficulties of dating Early to Middle Iron Age pottery in Essex, it is worth considering what the Boreham brooches have to say about the chronology of the pottery from the site. The copper-alloy brooch was associated with the rim and shoulder of a vessel of Middle Iron Age type, Little Waltham Form 8. In the fill of nearby square enclosure ditch 1069 was the rim of another Middle Iron Age vessel, Little Waltham Form 6 (Drury 1978, 53–4). Assemblages of pottery from these contexts are dominated by flint and flint-with-sand tempered wares, suggesting a position early in the Iron Age sequence (Sealey 2007, 50–1). Mindful of the date of the copper alloy brooch, it is reasonable to place the start of this ceramic style in the 4th century, at c.350 BC rather than c.300 BC (Sealey 1996, 46, 50 *pace* Sealey 2007, 55).

#### **Wood** by D.M. Goodburn

The remains of four timber post-bases were recovered from the south-east corner of Site C, in the immediate vicinity of the posited henge enclosure 818. Initially presumed to be of Early Bronze Age date on the basis of both the henge-like form of their context and the metal axe marks discerned on the post-bases themselves, the surprising early medieval dates subsequently obtained by radiocarbon dating have necessitated a total revision of our initial understanding of its probable function, period and cultural affiliations. Although the pagan Saxon reuse of Bronze Age monumental ritual sites such as round barrow cemeteries is well known, this timber structure, seemingly set within the circular ditch and featuring an avenue-like post alignment, is currently unique. The total lack of parallels for this type of woodworking and arrangement of massive timber posts in the early medieval period in England is noted. While the scientific dating is cautiously accepted, it is further noted that this does not fit the general pattern of dating for these types of structures that has accumulated during the last hundred years of field archaeology in Britain, and this anachronism requires well-reasoned and thorough explanation.

#### *The in situ posts*

That part of Site C containing the henge enclosure and the remains of the four timber post-bases was relatively low, lying adjacent to the current course of the River Chelmer, and the groundwater clearly remained high enough to provide waterlogged conditions in the bases of some of the deeper post pits on the southern side of the structure (Figs 8 and 16). Three of the post-bases found were part of the partial oval arrangement of large posts inside the henge ditch (post-bases 619, 650 and 695). One further post, timber 669, survived in a shallow post-pit 670 to the south. The post-bases were waterlogged and also mineralised to some extent by water-born iron minerals. All were rather decayed except in places on the bottom faces of posts 619 and 650. The decay had fragmented all the timbers, passing down the radiating medullary rays and pores in a somewhat erratic manner; very little of the perishable outer sapwood survived except in small areas at the very base of post 619 and possibly 650. The bases of the posts had also been variably compressed with some gravel being forced into the end grain. Where this had occurred, the tool marks had been removed. The surviving heartwood was found



a. Timber post 619



b. Timber post 650



c. Timber post 669



d. Timber post 695

PLATE 1: Mid to Late Saxon timber post-bases 619, 650, 669 and 695

to be mostly solid surviving up to c.0.5m high in the tallest example. In two cases, patches of very fine tool mark details even survived when initially exposed during the excavation. These were fine striations left by small nicks in the axe blade used, known as ‘signature marks’, but by the time the detailed recording took place they were no longer clearly visible. It was clear that the post-bases had been cut to bevelled, or slightly rounded, flat bases with axes rather than sawn across.

*Off-site analysis*

The timber of all the post-bases seen in cleaner condition off site clearly had all the defining characteristics of oak, i.e. one of the two native species or their hybrids (*Quercus robur*, or *Q. petraea*). Radiocarbon dating samples were taken from the outside surfaces of each of the timbers where the wood was fairly near the outer limits of the parent tree. Tree-ring slice samples were also taken from all the timbers both for dendrochronological dating and to examine the possibility of ‘same-tree matching’. The tree-ring study proved unable to obtain dates for the timbers by dendrochronology, but was able to establish that none of the measured sequences matched each other, indicating that the timber used did not derive from the same large parent oak (Bridge 2009, 7).

*Parallel evidence for early medieval ‘treewrighting’ (felling, bucking, axe types, post sizes)*

The key features of treewrighting relevant to the analysis of the limited evidence for woodworking recorded in the Old Hall

timbers are those for felling and cross cutting (‘bucking’) techniques, the size and form of axe blades used, and size range of earth-fast post previously found. It must also be remembered that most Saxon buildings and structures such as timber river and dock walls were built with earth-fast posts of varied type.

Close examination of hundreds of earth-fast posts from buildings, timber river and dock walls and bridges has provided evidence of the felling techniques used and how larger timbers were bucked. In all well preserved examples seen by this author the felled ends of posts showed patterns of axe marks indicating felling cuts made from both sides of the base of the parent tree. The V-shaped cuts formed were used to control the direction of felling with the lower V made on the side of the intended fall (Goodburn 1992, 108; 1999, 29; and see drawing of post-base 619 below). Bucking cuts were made in a similar way with two V-shaped axe cuts from either side of the felled parent tree, probably after some side branches were lopped. Evidence of the use of large saws for cross-cutting or cutting along the grain has not been found after the 5th century AD in England until c.AD 1180–1200 (Goodburn 1992, 110).

There appear to have been four basic types of axe used for woodworking in early medieval England as shown mainly in evidence from London excavations and some generally less tightly provenanced earlier museum collections. The first archaeologist to catalogue the axe finds of the period found in the south-east was Mortimer Wheeler (Wheeler 1927). However, the clear stop marks of two distinct forms have been the most

commonly found, and are also the most common as tool finds in the Museum of London collections. These are marks of narrow-bladed general purpose tools with blades generally between c.65–75mm wide and fairly square ended (Goodburn 1992, 110; 1999, 29). These marks would fit with the general purpose 'woodsman's axe' sometimes called Mortimer Wheeler Type I. The location and quality of these marks shows that they were used for felling, lopping and bucking trees, as well as the first stages of hewing out beams planks and posts. The second most common form of woodworking axe in the early medieval south-east was clearly the very wide bladed T-form of broad axe with fine blades up to c.300mm wide (Goodburn 1992, 112; 1999, 51; Hardy, Watts and Goodburn 2011, 345). These tools were used for secondary trimming and finishing boards, beams and some other timbers but not cross-cutting so are not relevant to the post-base evidence considered here. Finally, in the 11th and 12th century, marks from axes with slightly more rounded blades up to c.120mm wide have been documented at London sites such as Bull Wharf in the City (Goodburn in prep). This latter form of early medieval axe seems to have been used for both cross-cutting and general hewing and may possibly have been of a bearded form. Some smaller fine-bladed hatchets are also known from the period but were not suitable to the heavy work of felling and bucking large oak posts. Some of the axe marks recorded on the Old Hall post-bases are fairly typical of documented early medieval forms of narrow-bladed 'woodman's axe' but the larger more curved examples are atypical. However, the limited evidence certainly cannot rule out an early medieval date bracket for the work.

Typical early medieval earth-fast posts recorded in the south-east of England were very much smaller than the examples found in the Old Hall structure. They varied greatly in cross sectional shape with many of the smaller examples having wedge-shaped, D-shaped, sub-rectangular, irregular or rounded shapes. Neatly squared post-bases are very rare indeed until the early 12th century. Rounded-section posts were sometimes minimally trimmed logs but have also been found to have been neatly trimmed whole or even half logs where the bark and most of the sapwood was hewn off (Goodburn 1997 and in prep). This writer is not aware of evidence for the early medieval use of earth-fast posts over c.0.4m in diameter in England for any previously known timber structure. In the Old Hall structure the largest surviving post-base, timber (650), must have been at least 0.9m in diameter originally, allowing for some decay. Small increases in diameter add exponentially to the volume and weight of timber so the largest Old Hall post would have been perhaps four times the volume and thus the weight of any otherwise documented Early Medieval structural earth-fast posts. Clearly any timbers of that size set upright would have resembled timber versions of megalithic stones or huge 'totem poles' rather than any other known early-medieval posts. Indeed, it seems to be the case that the largest posts of the Old Hall structure are the largest documented for any period on any site in Britain. This size implies very conspicuous consumption of labour and materials by those who organised the building of the structure. This said, it should be borne in mind that the above ground form of the earth-fast posts found at Old Hall may have been quite different from that below ground, i.e. the rounded sections under discussion here. Some early medieval, earth-fast uprights have been found hewn to sub-rectangular or lentoid cross-sections above ground

but retaining a rounded, more natural cross-section below ground, and others have been found with surprising sculptural appendages above ground (Goodburn 1997 and in prep). If this had applied to the Old Hall posts, wide fields for carved and/or painted decoration would have existed.

*Post-base timber 619 (Fig. 24)*

This post-base was found to be the best preserved from the site and was set in post-pit 612 in line with, and presumably blocking, the southern causeway of the henge (Figs 9 and 17). The oak post-base was markedly oval, nearly D-shaped in plan, and survived 0.39m high, 410mm wide and 340mm thick. The south side of the post was very decayed but the others were only slightly decayed with traces of sapwood surviving on the east side. No bark was found, which is durable and tough in oak so it must have been trimmed away. On the west side it was clear that

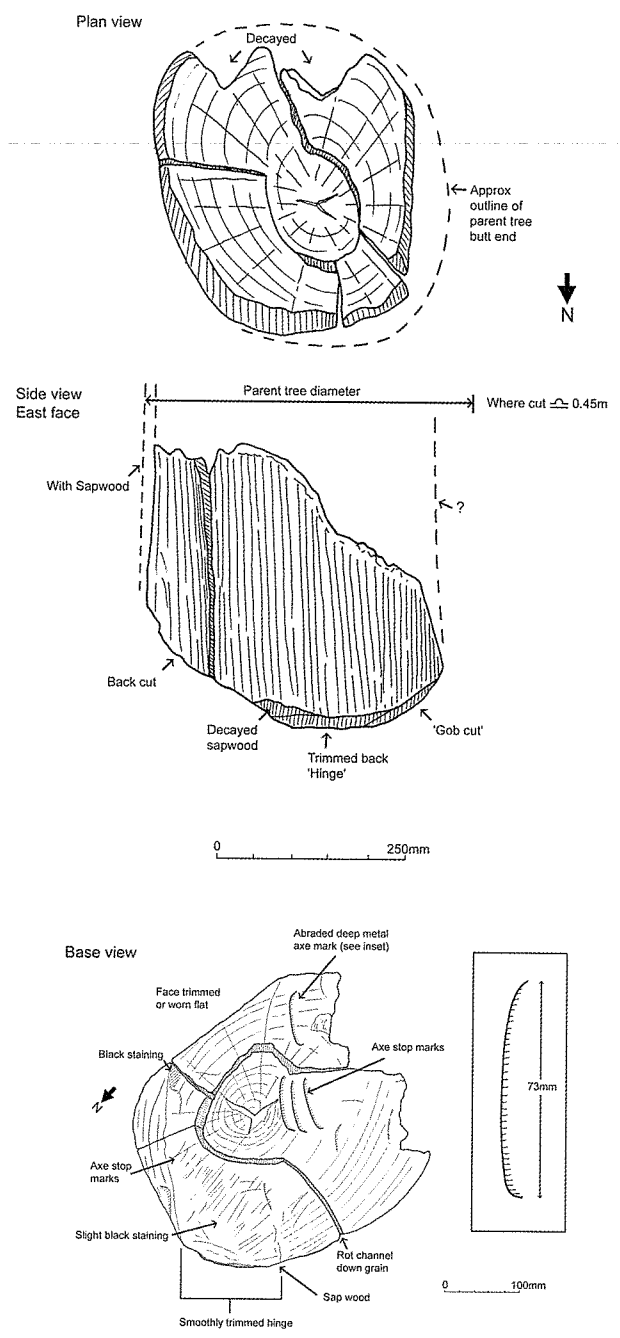


FIGURE 24: Mid to Late Saxon post-base 619

the curved face of the log had been flattened deliberately and worn, possibly by abrasion during dragging from the felling site. There had also been some trimming back of part of the north side, perhaps to remove a bulging buttress which would also have caused drag. No tool marks survived on the sides but many facets and several axe stop marks survived on the base.

Viewed from the side, the base of the post had been left in the form of a blunt wedge from the felling cuts made, showing that the post was made from a butt log of a deliberately felled tree set with the butt down (as it grew). The wedge-shaped felling cuts were mainly made from two sides with the first cut or 'gob' being made lower than the longer 'back cut'. This evidence shows that the felling of the tree was carefully controlled. The base of the post-pit must have been cut with a rounded concavity to mirror this shape to some extent. The 'hinge area' which is normally ragged after felling, had been smoothed over neatly with an axe, a tough job across the grain where, at the butt of the parent oak, the timber is normally toughest. In several places the slightly eroded remains of complete axe stop marks can be seen (Fig. 24, base view). These marks are c.73mm wide with only a modest curvature and rounded corners. Although clear signature marks survived on site they were not visible later when the detailed recording was carried out, despite the use of careful washing and raking light. The stop marks were often very deep indicating a very powerful cutting stroke similar to what can be achieved with a small modern steel axe in tough but freshly felled, oak heartwood. This implies strong hafting and a forceful swing. This size and form of axe stop mark would fit that left by a Mortimer Wheeler Type I Saxon woodsman's axe. Traces of slightly more curved, incomplete axe stop marks were found

where the hinge had been trimmed back. These must have come from the use of an axe with a more curved blade; thus at least two tools were used, one in the felling and another for trimming up the post-base. The complete axe stop marks are slightly different from those found on the base of post 650 indicating the use of at least four (probably many more) axes in working the posts for this structure. This may reflect the coming together of a whole community to build the structure; not surprising when the logistics of moving the large oak timbers is considered (see timber 650 discussion below). Slight traces of a black deposit, possibly superficial charring, were seen on the northern half of the base but not sides of the post.

With the loss of some heartwood, some sapwood and all the bark, a minimum butt diameter of c.450mm may be estimated for this post; at chest height this might have been c.350mm. The growth rate of the parent oak was very slow with rings less than 1.5mm wide and the whole log had c.180 annual rings surviving, which would equate with a slow growing parent oak c.190–200 years old when felled.

Tree-ring dating was unsuccessful and so a small sample was taken for radiocarbon dating from the outermost parts of the post-base and a felling date range of c.AD 260–430 AD obtained (Bridge 2009 and below). As this did not seem to include any of the noted trace of sapwood the interpreted date range would be c.50 to 100 years later.

*Post-base timber 650 (Fig. 25)*

This, the largest oak post-base from the main oval arrangement, was substantially decayed, in places surviving as no more than peaty voids, but the seven major fragments found were in contact with each other in their original locations in the

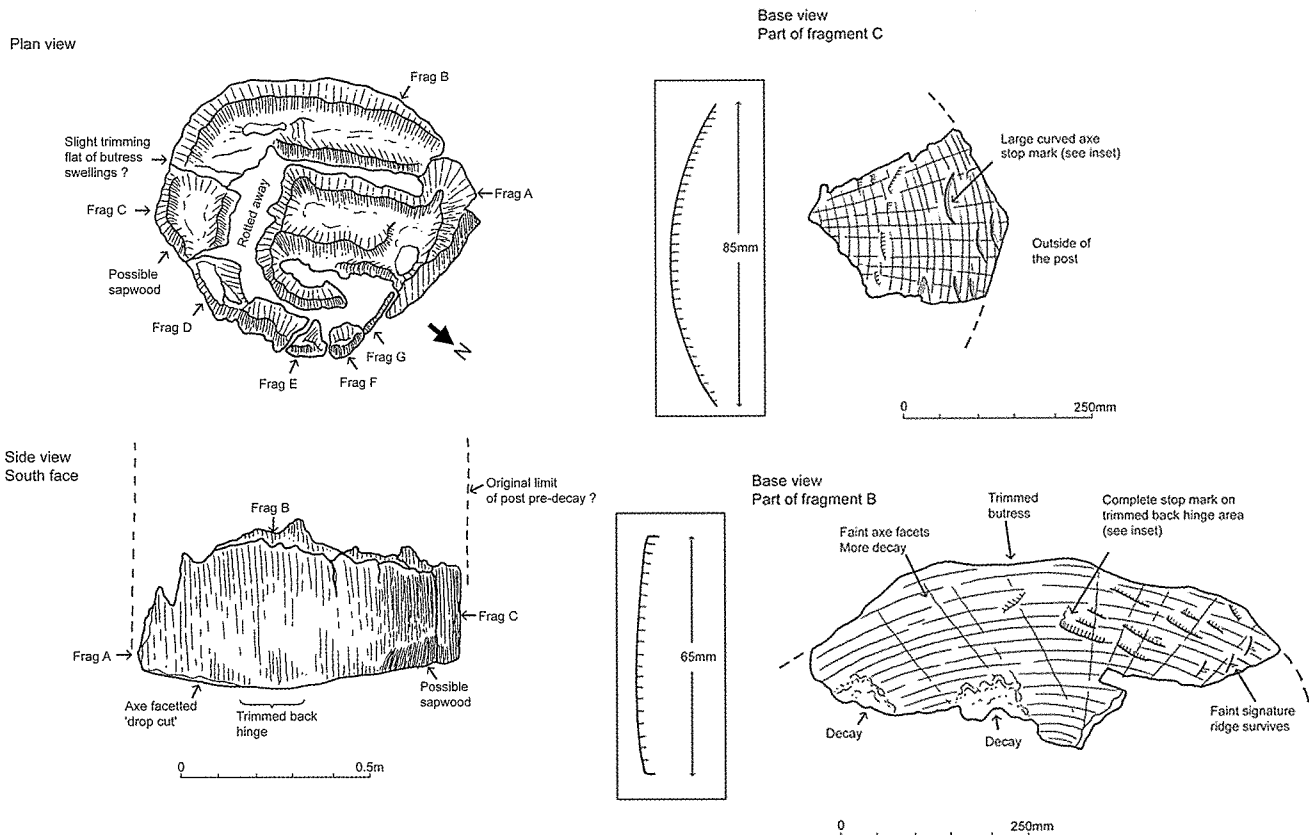


FIGURE 25: Mid to Late Saxon post-base 650

post-pit. Post-base timber 650 occupied the vast majority of post-pit 649 and had a surviving diameter of *c.*0.88m as found, with a height limited by ancient decay of 470mm. Despite the decay many features were still clear in the remaining oak heartwood which was for the most part solid. This timber post-base is the largest in cross-section that this writer has ever seen from a British excavation. Clearly the logistical implications of using timber of this size were considerable (see below).

It can be seen in the side view that the base is characterised by the remains of two flattened surfaces forming a very shallow V-shape that may be the remains of a felling cut or, possibly more likely, a bucking cut. There was also an area where the hinge was cut back as in post-base 619. The side view in Figure 24 shows this clearly. The apex or hinge was neatly trimmed back with an axe presumably to make the post sit more upright in the post-pit. Again one side of the rounded log surface had been cut back and it approached a D-shape in cross-section with the flattened area on the north side which was also worn. No tool marks survived on the sides of the post but in one place sapwood may have originally survived. All the bark had been removed.

On the base of the post, two areas were relatively well preserved (Fig. 25, fragments B and C). Again two distinct forms of axe stop marks survived. Around the edges, associated with the original felling or bucking cuts more worn, deep and strongly curved stop marks 85mm wide were found. Where the hinge area had been cut back, smaller, more straight-edged axe stop marks could be seen, only 65mm wide, with some very faint traces of signature striations surviving here and there. Clearly two axes of markedly different blade size and form had been used for this work. The comparative freshness of the hinge trimming suggests that this was done just before the post was reared whilst the other marks may have been slightly abraded in transit and perhaps by some limited weathering. The narrower, rather square ended, axe marks would again be moderately typical of the Saxon Mortimer Wheeler Type I woodsman's axe but the wider very curved axe stop marks are atypical for the early medieval period. Indeed, the closest parallels can be found in the larger examples of Early Bronze Age axes, which often had very curved blade edges of 80–100mm wide (Sands 1997, 78).

The parent tree for this post timber is difficult to characterise in terms of its growth rate as the rings are distorted by the presence of buttresses. However, it is apparent that the growth rate was also very slow in terms of the annual ring width. Tree-ring and radiocarbon dating samples were taken and although the tree-ring slice sample was from the largest section reaching to the outside of the log, only eighty-two rings could be measured and a mean annual ring width of 1.2mm recorded (Bridge 2009). With such an annual ring width the overall age of the parent tree would have been over 250 years old. The felling date range obtained from the last heartwood rings was *c.*AD 775–965 which including sapwood would have been *c.*10 to perhaps 50 years later.

#### *Post-base timber 669* (Fig. 26)

This oak post-base was set in post-pit 670 on the east side of the 'avenue' type alignments of post-pits running south from the oval arrangement of posts. The post-base survived *c.*0.26m high by 520mm in diameter in one main northern fragment and ten other smaller fragments. It was impossible to reassemble exactly during the detailed recording, but it

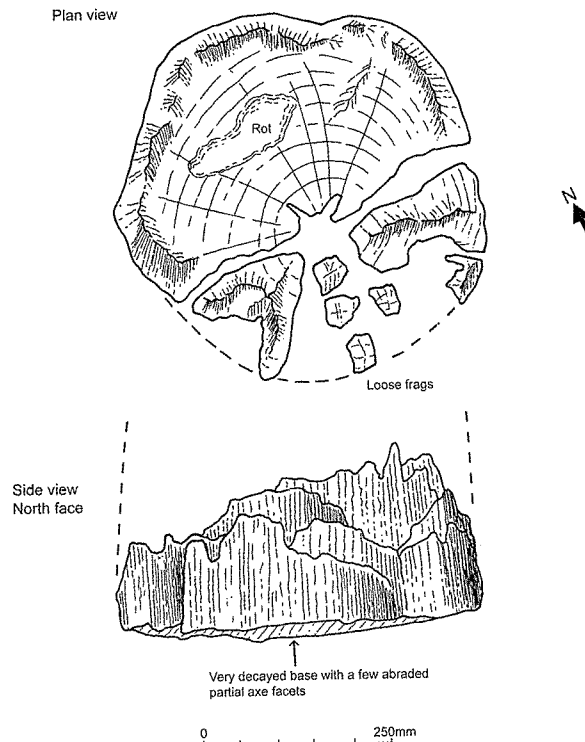


FIGURE 26: Mid to Late Saxon post-base 669

could be seen that there was a small flattened area on the north-west part of the post which may have corresponded to the more obvious flattened sides of the posts described above. When viewed from the best preserved side some indication of a convex bottom to the post can be seen. Very faint, incomplete axe facets survived on the bottom face which was much more decayed than those discussed above. The post was of medium to slow growth rate and had an estimated 150 annual rings which would have been *c.*180 with the degraded core and missing sapwood.

Tree-ring and radiocarbon dating samples were taken from this post and although the tree-ring sample could not be dated it is noted as having 'complete sapwood' of eighteen rings (Bridge 2009). The radiocarbon dating samples apparently derived from this timber were measured four times to confirm the surprising dating and because sapwood was found in the samples taken. The date range obtained was AD 720–885.

#### *Post-base timber 695* (Fig. 27)

This post-base, from the main oval alignment, proved to be the most decayed; only an ark of heartwood survived about 330mm across and 0.26m high. No tool marks survived. The post-base was set in post-pit 688. One interesting feature was the presence of a large decayed knot on the west side. The slope of the knot indicated that the post had been used the way up it grew, and that it had derived from a second or possibly third log up in a large oak. It is possible that some of the other posts derived from the same large parent tree.

#### *Source woodland*

All the four post-bases found were derived from parent oaks that had narrow or very narrow growth rings indicating slow lateral growth. At least one of the post-bases (650) was made

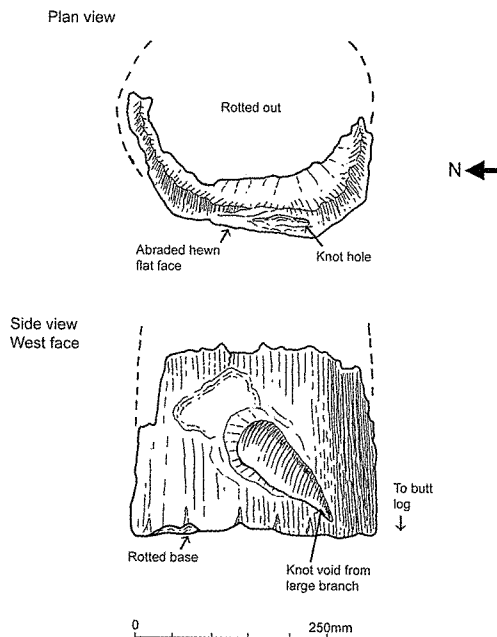


FIGURE 27: Mid to Late Saxon post-base 695

from a slow grown oak log that must have been cut from a parent tree around 250 years old and c.1m diameter at chest height. In sum, all the evidence points towards a clear origin for the parent oaks in a tall dark, wildwood-type setting. It is likely that this area of wildwood was located relatively close to the site due to the size of the timber and the difficulty of moving it. It should be remembered that such wildwood oaks could be very tall trees with boles clear of major branches for over 10m (Peterken 1996). This means that the uprights of the Old Hall structure could have been tall if braced together in some way, such as by linking lintel beams.

*Logistical considerations for the moving and erecting of the massive oak posts*

Should the largest post timber 650 have been c.4m long (perhaps 1m in the ground and 3m above) and have been log-shaped above ground, it would have weighed c.2.3–2.5 tonnes when freshly cut. This value is calculated using an average green oak heartwood weight of 1.073 tonnes/m<sup>3</sup> (Millett and McGrail 1987, 106). However, narrow-ringed oak is less dense than typical medium-growth rate modern British oak but a weight of c.2.0 tonnes would still be likely if it was of the size suggested. Clearly if reduced to a smaller hewn cross-section above ground, the overall weight would have been much reduced. Whatever the case, moving the bucked logs from the felling sites would have been a major task probably involving a skid road for the larger examples and at least twenty people, although it may also have employed horses or oxen. Erecting the post in the hole would also have been a labour intensive task probably involving the use of other timbers to guide the heel of the post into the desired place. The building of the Old Hall timber structure clearly represents a substantial communal effort whatever its purpose was in early medieval Essex.

**Other finds** by J. Compton

*Worked stone*

Lava quern fragments were found in an area of modern disturbance (433) in Site C, along with post-medieval

material. The pieces are very small but may have derived from a millstone, perhaps of medieval date. A small fragment of puddingstone, used during the Iron Age for beehive querns, was recovered from the fill in segment 609 of Middle to Late Saxon ditch 1221.

*Brick and tile*

Twenty-four contexts produced Roman and post-medieval brick and tile fragments, amounting to a total of eighty-six pieces, weighing 3826g.

More than 70% of the assemblage is Roman and was derived from features and find-spots on Sites A and B, especially from evaluation trenches 12 and 13. Both brick and tegula fragments were noted, but the assemblage is fragmentary and many pieces are undiagnostic. Layer 56 and the top fill of ditch 57 (both trench 12) contained appreciable amounts of brick and tile, but most contexts contained single pieces. The Roman brick and tile fragments are incidental in their contexts; nothing appeared to be *in situ*, for instance, no tile-lined hearths or furnace structures were recorded.

Most of the post-medieval fragments also came from Sites A and B, although pieces of this date were also found in two locations on Site C (modern intrusion 433 and segment 542 of trackway ditch 1224). Possible medieval pieces came from several contexts, mainly on Site B. Those from finds' spot 890 are in a brown sandy fabric reminiscent of Coggeshall Great Bricks. Unfortunately, although the fragments clearly derived from the same brick, its dimensions could not be established.

*Animal bone*

Animal bone was poorly represented, due to adverse soil conditions. The bone which has survived is either in poor condition, mainly comprising tooth enamel fragments, or is burnt. Five contexts, all on Site C, produced a total of thirty-four fragments, weighing 49g. Sheep/goat humerus fragments came from modern disturbance 433. A cattle molar, probably burnt, and an undiagnostic burnt fragment were found in the fills of Iron Age pit 782 inside the henge. A further burnt fragment was recovered from the fill of segment 1150 across square enclosure ditch 1069. The top fill of pit 1055 in the centre of ring-ditch 1000 produced a number of tooth enamel fragments. These are from a large mammal, probably cattle or horse, but are in too poor a condition for certain identification.

**Cremated human bone** by Elissa Menzel

A total of 856.9g of burnt bone was recovered from four contexts (30, 31, 89 and 447) originating from two cremation burials 29 and 446.

*Cremation 447*

A total of 530g of burnt bone was recovered from cremation deposit 447 (Table 3), a truncated, un-urned fill in pit 446 within ring-ditch 565 in Site C. Bone from the burial was subjected to radiocarbon dating which produced a calibrated date range of 1420 to 1130 BC (SUERC-25611).

No repeated elements or osteological inconsistencies were present and this burial is considered to contain a single individual. The fragments of bone appear to be from an adult individual but a more precise age range was unable to be estimated (Schuer and Black 2000). A single fragment of cranium displays male characteristics and two fragments



Context Number	Fragment size (mm)	Weight per skeletal element (grams)					% of whole assemblage	Total (grams)
		Skull	Axial	Upper Limb	Lower Limb	Unident		
447	>4	32	6.9	47.3	10.6	165.2	49.4	530.3
	>8	39.1		26.8	41.5	4.6	21.1	
	>20	37.7	12.8	28.8	36.2		21.8	
	>30	6.5		9.7	24.6		7.7	
% of identifiable material		32	5.5	31.2	31.3			

TABLE 3: Quantification of bone from burial 447

of vertebrae display possible evidence of osteoarthritic degeneration (Buikstra and Ubelaker 1994).

The majority of bone fragments were white in colour with the occasional bluish colour on the interior of the compact bone, indicating an efficient cremation process with pyre temperatures reaching a minimum of 600°C (Holden *et al.* 1995a and b.). The majority of bone (49.4%) came from the less than 4mm fraction with most of the fragments from this fraction unidentifiable due to abrasion. It is likely that the low weight and high fragmentation is due to disturbance of the burial feature. The skull, upper and lower limbs were represented almost equally with the less robust axial skeleton only representing 5.5% of identifiable areas. The largest single fragment was from a fibula and measured 44.6mm in length. Smaller elements of the skeleton, for example tooth roots, were also recovered suggesting en-masse collection, rather than hand selection (McKinley 2006, 29). Although the total weight only represents approximately 33% of the estimated bone for a modern adult cremation (McKinley 1993) the weight compares well to other un-urned Bronze Age assemblages in south east Britain; at Brightlingsea 63% of the burials weighed less than 100g (Garland 2008, 27) and at Westhampnett burials weighed between 450–978 grams (McKinley 2006, 35).

### Cremation 31

Cremation pit 29 was found in evaluation trench 1, north of Site B. Cremated deposit 31 was contained within ceramic vessel 32 which is dated to the Early Roman period. The vessel was found in situ but heavily truncated, with bone recovered from the surrounding pit backfill (30 and 89). The total weight of bone retrieved from this burial is 326.6 grams (Table 4).

This burial appears to contain the remains of a single individual, most likely of an adult age (Schuer and Black 2000). Sex estimation was not possible due to the fragmentary

nature of the remains and no pathological lesions were observed.

The bone from this cremation was white with minimal bluish colouring, indicative of an efficient cremation process (Holden *et al.* 1995a and b). The less than 4mm fraction contained the majority of bone (40.2%) with most of it unidentifiable due to fragmentation. However, 66% of the total fragments present were identifiable to skeletal area. The upper and lower limbs were the most represented areas with the less robust axial skeleton only representing 1.8% of identifiable areas. The skull typically has a high representation due to its distinctive nature; however, its low presence here may be due to the disturbed nature of the cremation. Although the burial was disturbed, the fact that it was contained within a vessel may explain why nearly 60% of the recovered bone is greater than 8mm in size. The largest single fragment was from a humerus and measured 72.45mm in length. Smaller elements of the skeleton, for example tooth roots and bones of the hands and feet, were not present. This, and the majority of large fragment sizes, may suggest hand selection rather en-masse collection (McKinley 2006, 29). The total weight of this burial only represents approximately 20% of the estimated bone for a modern adult cremation (McKinley 1993). This weight is low even compared to the average of 796g of bone present in other disturbed Roman cremation burials across Essex (McKinley 2007), further emphasising the extent of disturbance.

### Scientific dating by J. Meadows

Four samples were submitted for radiocarbon dating: a piece of cremated human long bone from cremation burial 447, and the latest surviving tree-rings of timber posts 619, 650 and 669 from post-pits 612, 649 and 670 respectively (Table 5). Attempts to cross-match and date the timber posts by dendrochronology proved unsuccessful, partly due to the posts

Context Number	Fragment size (mm)	Weight per skeletal element (grams)					% of whole assemblage	Total (grams)
		Skull	Axial	Upper Limb	Lower Limb	Unident		
30, 31, 89	>4	5.7	3.8	12.2	19.2	90.5	40.2	326.6
	>8	4.6		19.5	32.5	15.3	22.0	
	>20			30.7	21.9	6.7	18.2	
	>30			53.5	10.5		19.6	
% of identifiable material		4.8	1.8	54.1	39.3			

TABLE 4: Quantification of bone from burial 31

Laboratory code	Sample	Identification	$\delta^{13}\text{C}$ (‰)	Radiocarbon age (BP)	Calibrated date (95% confidence)
SUERC-25611	Cremation burial 447	Cremated human long bone	-21.7	3045 $\pm$ 40	1420–1130 cal BC
SUERC-25809	Post 669 years 83–92	Wood, oak sapwood	-26.5	1185 $\pm$ 40	cal AD 720–885
SUERC-26230			-26.5	1220 $\pm$ 30	
SUERC-26231			-26.8	1220 $\pm$ 30	
SUERC-26229			-27.2	1220 $\pm$ 30	
Weighted mean of post 669 results: T' = 0.6, T" (5%) = 7.8, v = 3				1215 $\pm$ 16	
OxA-22156	Post 619 years 93–102	Wood, oak heartwood	-26.7	1659 $\pm$ 27	cal AD 260–430
OxA-22157	Post 650 years 73–82	Wood, oak heartwood	-24.5	1166 $\pm$ 24	cal AD 775–965

TABLE 5: Radiocarbon dating

being in a poor state of preservation and having insufficient sapwood. The resulting dates (Table 5) proved to be somewhat surprising, since the setting and form of the posts suggested them to be considerably older.

All the samples were dated by Accelerator Mass Spectrometry (AMS) radiocarbon dating. Those measured at the Scottish Universities Environmental Research Centre in East Kilbride (SUERC) were processed according to Lanting *et al.* (2001), Vandeputte *et al.* (1996), Slota *et al.* (1987), and Xu *et al.* (2004). Samples measured at the Oxford Radiocarbon Accelerator Unit (OxA) were dated following Bronk Ramsey *et al.* (2002; 2004). Internal quality assurance procedures and international inter-comparisons (Scott 2003; Naysmith *et al.* 2007) indicate no laboratory offsets, and validate the measurement precision given.

The results reported are conventional radiocarbon ages (Stuiver and Polach 1977), quoted according to the format known as the Trondheim Convention (Stuiver and Kra 1986). The calibrated date ranges have been calculated by the maximum intercept method (Stuiver and Reimer 1986), using the program OxCal v4.1.0 (Bronk Ramsey 1995; 1998; 2001; 2009) and the IntCal09 data set (Reimer *et al.* 2009), and are quoted in the form recommended by Mook (1986), rounded outwards to decadal endpoints, or to five years if the radiocarbon age error is smaller than  $\pm 25$ .

The felling dates of posts 619 and 650 cannot be precisely determined from the radiocarbon measurements, although both must be more recent than indicated in the table by a *minimum* of c.10–55 years, which is the estimated number of sapwood rings lost. The *maximum* wood-age offset applicable to these samples is more difficult to estimate because whereas post 665 might be easily contemporary with post 669, post 619 must be significantly earlier, unless it has an intrinsic age of 400 to 600 years. A wood-age offset of that magnitude appears unrealistic, even for oak.

## DISCUSSION

The archaeological investigation of the reservoir scheme at Old Hall, Boreham, has revealed remains covering a period of some six thousand years. They date from the Late Mesolithic/Early Neolithic to the present and consequently offer many insights into the origins, development, exploitation, management and settlement of the mid Chelmer Valley, complementing and supplementing many of the insights previously presented by Brown (2001b). Collectively, the major features of Sites A to

C are a good example of a steadily evolving landscape and of how man-made and natural topographical features have been appropriated and re-used through time. Various topographical features were invested with meaning and used as reference points for human attachment (Tilley 1994, 17–26), making the recorded remains, those of the prehistoric monuments in particular, more thoroughly understood when seen in that context.

Significant factors in people being attracted to the lower valley slope and floor of the Site C section of the mid-Chelmer Valley during the past were probably initially its natural resources, the presence of a river crossing and its marginality. Another factor may have been a 'sense of place', brought about by fascination of its natural features, examples of which may have included the overlooking presence of the Danbury/Little Baddow ridge to the south, the babbling confluence of the River Chelmer and the Boreham and Sandon Brooks, and the distinctive, elongated, arena-like form of the central section of the mid-Chelmer Valley between Boreham and Springfield Lyons. The valley floor itself can be suggested to have been noted for its marginality, being positioned alongside a natural boundary formed by a river, an area susceptible to mistiness, boggy and occasional flooding; an unattractive place to live, but perhaps an appropriate place for the dead and the spirits?

In due course, it seems almost inevitable that partly because of such aforementioned reasons, the mid-Chelmer Valley would come to be used as a place for undertaking of religious activity and building of monuments, thereby perhaps partly explaining construction of Springfield Lyons causewayed enclosure and Springfield cursus to the west (Buckley *et al.* 2001; Brown and Medlycott 2013). If both of these monuments retained import after they went out of use, which seems probable, then they probably served as an added inducement to use the mid-Chelmer Valley as a site for a henge.

By contrast to the valley slopes and floor, the high ground away from and overlooking Site C appears to have been predominantly used for occupation and farming; the evidence for which includes the undated trackway and enclosures in Site A, and the Saxon and medieval phases of enclosures within Site B, with hints of an earlier period of land-use perhaps being represented by Roman cremation burial 29 in evaluation trench 1 and early Roman ditch 45 in trench 13. Clear indications of settlement use comprise undated structures 247 and 1208 in, and immediately south of, Site A, and possible

burnt timber-framed structure 1244 in Site B. The multi-period farming and occupation remains of Site B are suggested to have been fairly extensive and to have included elements of nearby cropmark complex C6. Land-use of the upper slopes for occupation and farming is probably due to better drainage and lighter soils, although positioning above a probable river crossing to the south-west, and close access to the major Roman thoroughfare of the London to Colchester Road to the north were no doubt influential as well. Two other important factors were probably close proximity to the riparian resources of the river and spring to autumn-time use of the valley floor as a place to graze livestock. The prehistoric pits and Late Mesolithic/Early Neolithic and Late Neolithic/Early Bronze Age artefacts of Site A and the small quantity of prehistoric struck flint from Site B can be suggested to represent sites of encampment, related to recurring but brief episodes of use of the adjacent valley floor, initially for its natural resources, but later on for its monuments.

### Late Mesolithic/Early Neolithic

The earliest indications of human activity in this part of the Chelmer Valley, as represented in the recorded remains of Sites A to C, is that of intermittent, probably seasonal, occupation by semi-nomadic hunter-gatherers and subsistence cultivators as implied by the Late Mesolithic/Early Neolithic tree-throw, pits and widespread scatter of worked flint debitage. Most of the Late Mesolithic/Early Neolithic remains lie within the valley floor in Site C, although some also occur higher in Sites A and B; probably indicating that much of this earliest activity took place close to the river.

A dense wildwood of mainly deciduous trees covered much of southern Britain during the Late Mesolithic/Early Neolithic period (Rackham 1986, 68–73). Such a landscape would have offered few open vistas, and its navigation was likely facilitated by a detailed knowledge of watercourses and paths and by referring to distinctive topographical features, such as upturned tree boles of large fallen trees (Evans *et al.* 1999, 242), a Late Mesolithic/Early Neolithic example of which is probably represented by tree-throw 1165. Accordingly, it is suggested that the adjacent confluence was used as an easily identifiable reference point in a network of watercourses and paths and that the natural resources (e.g. fish, wild fowl, reeds etc.) of the river and its valley were exploited by individuals and groups moving up and down it. No doubt regular and prolonged use of the confluence led to it becoming invested with meaning (beliefs, traditions, pathways and practices), some of which may have continued, in one form or another, into the Late Neolithic period and beyond.

One activity on the valley floor was apparently the sourcing of flint nodules and manufacture of flint tools for use elsewhere, as suggested by flakes, blades, chippings and core debitage within the palaeosol – a remnant of the original topsoil of the floodplain. The flints derive from river gravel, probably sourced from the bed of the Chelmer or from its banks or eyots. This tool-making, along with the digging of pits, suggests at least a degree of encampment amongst the trees on the valley floor and lower slope. While it is often posited that tree-throws were perhaps used as temporary shelters and working areas, the lithic material found in tree-throw 1165 was perhaps instead deliberately deposited as a ritual act of clearance, to symbolically return the site to its

previous unsullied state after a period of use (after Evans *et al.* 1999, 249). The Late Mesolithic/Early Neolithic finds in pits 805 and 807 may also have been deposited in a similar fashion. However, if symbolic cleansing of the valley floor landscape was taking place then it was either very infrequent or highly tokenistic, as most of the Late Mesolithic/Early Neolithic artefacts were evidently ending up as surface finds in the topsoil, with some of these subsequently finding their way into later features – perhaps sometimes the result of deliberate deposition as evidenced by the large number of Late Mesolithic/Early Neolithic worked flint in Iron Age pit 782, inside the henge.

Exploitation and occupation activity at Old Hall reflects the high probability that hunter-gatherers and subsistence-level early farmers were moving between various sites along the entirety of the river valley. Concentrations of Late Mesolithic/Early Neolithic worked flint have been found elsewhere at Great Baddow, at Chelmsford and on various sites within the Blackwater Estuary (Jacobi 1980, 14–25; Wilkinson and Murphy 1995, 67–9; Wickenden 1992, 16–17). The material at Chelmsford was located near the confluence of the rivers Can and Chelmer and is perhaps further evidence for hunter-gatherers and early farmers finding such places attractive. Wilkinson and Murphy have postulated that the Blackwater Estuary sites were used by hunter-gatherers moving between seasonally occupied home bases and temporary sites in specific resource areas, and by early farmers growing crops in small clearings (1995, 212–16). It is suggested that the Old Hall vicinity was used in a similar fashion, it being a recognised and valued resource area; a place to obtain riparian flora and fauna, and river gravels for flint tool making.

### Late Neolithic to Middle Bronze Age

The Late Neolithic to Middle Bronze Age period was a time of increasing sedentism, during which Neolithic monuments were outmoded by barrows, and people started to live all-year round in permanent settlements, probably beginning from the start of the Early to Middle Bronze Age period onwards (Bradley 1998, 147–8). By the time this began to take place, much of the Late Mesolithic/Early Neolithic wildwood, including perhaps the trees of Sites A to C, is likely to have been cleared and to have been replaced by wood pasture and small areas of settlement and cultivation. Accordingly, it is suggested that the occupants of the mid Chelmer Valley at the beginning of this transitional period were pastoralists shifting between areas of grassland for the grazing of livestock, but by the end of it were mixed-economy farmers living in all-year-round permanent farms and farmsteads. A significant feature of this process of change is likely to have comprised a shift from communal to private/personal holding of land, much of the evidence for which, in the corpus of archaeological work for Essex, is in the form of increasing amounts of land enclosure by ditches, probably from the Early/Middle Bronze Age period onwards. Related aspects of that process of change were probably the conspicuous displaying of wealth, power and their own sense of heritage and entitlement by landed local elites. This may have been partly expressed by appropriation of earlier monuments and building of barrows.

Developing use and occupation of the mid Chelmer Valley from the Late Mesolithic/Early Neolithic period onwards is likely to have led to increasing amounts of human attachment

to many of its more memorable man-made and natural features, causing those features over time to become replete with meaning and cultural significance. Development of a network of paths and trackways took place almost certainly alongside this, with the routes of that network being navigated through use of stories and visual and mental referencing of distinctive and meaningful landmarks, examples of which may have included the henge and the confluence.

The small amounts of Grooved Ware, Late Neolithic/Early Bronze Age pit 27, and discrete features 143, 155, 200, 362 and 381, which may have been in use during the Late Neolithic/Early Bronze Age period but contained too few finds to confirm it, in Site A, are small in number but are nevertheless interpreted to represent a place of Late Neolithic/Early Bronze Age domestic activity on the upper valley side; perhaps a site of short-term small scale settlement or repeated encampment that may have been used by people building and using the henge and/or barrows within the valley below. The form and full extent of the settlement are not known, although its positioning on the high ground of the valley is probably intentional, firstly to take advantage of that area's better drained soils, and secondly to enable it to be used as a vantage point. Additional reasons were perhaps simple aesthetics, overseeing of the henge and its use, and monitoring of the valley floor as a place to graze valuable livestock. Regular grazing of the henge and the valley floor were probably a necessity as it was the quickest and easiest way of preventing those areas reverting to scrub.

The siting of the henge monument within a former area of Late Mesolithic/Early Neolithic activity on the valley floor is perhaps an indication that the adjacent confluence had been maintained or re-claimed as a river crossing, and that people were still drawn to it because they found it attractive and useful.

Minimal information can be obtained from the henge concerning its form and function as it is poorly defined, missing its external bank, un-associated with datable Late Neolithic features and finds, and conspicuously devoid of any material likely to constitute a 'placed deposit'. Radiocarbon dates suggest that most 'classic' henges, as opposed to earlier transitional/formative types, were constructed between 2800 and 2100 BC (Harding 2003, 12–15). Archaeological excavations of other henges within Eastern England have taken place at Etton in Cambridgeshire, Arminghall in Norfolk and Lawford in Essex (French and Pryor 2005; Clark 1936; Shennan *et al.* 1985), although the number of identified examples continues to remain low. One of two possible reasons for this is that the cropmarks of the monuments are often difficult to distinguish from those of other types of prehistoric monument and medieval windmills (Harding and Lee 1987; Brown and Germany 2002; Ingle and Saunders 2011, 30). It is also worth mentioning that most of the region's henges have lost one of their main distinguishing features, their outside perimeter bank, due to having been intensively ploughed.

Henges are generally regarded to have been used as centres for religious and ritual activity because of their consistent design (a common feature of places of worship), the general absence of everyday domestic rubbish in their interiors and ditches, and a frequent close association with ritual deposits (Harding 2003, 23 and 36). Two of these defining characteristics are evident in the Boreham example,

as it displays the opposed entranceways of a 'classic' type II henge, and has no immediate association with contemporary domestic activity – the nearest known Late Neolithic/Bronze Age settlement site being over 400m distant up the valley side. Most prehistoric mortuary monuments are believed to have lain separate from settlement, as a means of emphasising their liminality, otherworldliness and specialness of associated rites, and of making the trip to get to them a meaningful part of their overall use (Barnatt 1998, 96; Loveday 1998). The Boreham henge appears to be un-associated with Late Neolithic ritual deposits, although it must be conceded that such material could have been present in the unexcavated parts of the henge ditch.

The River Chelmer probably played a significant role in the use of the henge as its close proximity to the monument is unlikely to be incidental. Henges are often sited close to water courses (Harding and Lee 1987, 34), although seldom so closely as the one at Boreham. It is possible that they were integrated with Late Neolithic lines of communication and movement, as rivers have long been regarded as potent metaphors for movement and journeys (Harding 2003, 97). Also, rivers and other sources of water were often associated with supernatural forces and/or used for depositing or sacrificing special items (Harding 2003, 56). In either case, the opposing openings of the Boreham henge would appear significant, as they possibly represent an entranceway and an exit, and therefore a prescribed direction of movement, perhaps even amounting to a processional route. It may be speculated that the users of the monument entered via the north opening, undertook ceremonies in the centre, and then used the south opening to depart and/or deposit special items in the river. That said, it must be pointed out that no recognised ritually deposited items have yet been found in the river.

It is very likely that the mid Chelmer Valley was a major focal point of human activity during the Late Neolithic because in addition to the henge monument it also contains Springfield Cursus, Springfield Lyons causewayed enclosure and a possible long barrow/mortuary enclosure (Buckley *et al.* 2001; Brown and Medlycott 2013). This importance is perhaps not unexpected as it contains the riparian environment of the River Chelmer, and facilitates access to the estuarine and coastal environment of the Blackwater Estuary and the terrestrial environment of the 'clay lands' of south and north-west Essex, making it centrally located and therefore within easy reach of a wide variety of different resources (Brown 2001b).

The construction of the Neolithic monuments of the mid Chelmer Valley, including the henge at Old Hall, probably occurred during a period of expanding local population and to have taken place alongside continuing development of the surrounding area for occupation and farming. The local people are likely to have been socially cohesive and communally minded as they presumably provided most, if not all, of the labour.

The duration of the use of the henge for its original intended purpose is not known, although subsequent structures and pits and their contents demonstrate it to have been reinterpreted and occasionally reused by later generations, although probably not for its original purpose. Barrow ring-ditches 374, 565 and 760, Iron Age pits 782 and 809 and burnt flint pits 719, 978 and 782 constitute the earlier indicators

for its reuse. In the case of the barrows, it may have been so that, in locating them within its proximity, their constructors were referencing the henge in order to claim and assert it to be a significant part of their heritage, an assertion of their perceived legitimate rights to the holding of land and power. Fascination with the henge may also have resulted in it being identified with supernatural properties, leading to it being reused during the Late Neolithic/Early Bronze Age to Iron Age periods as a focal point for acts of religious belief. Iron Age pits 782 and 809 and probably later prehistoric burnt flint pits 719, 978 and 782 likely relate to casual visitation and undertaking of small acts within and around the henge, not all of which may have been religiously significant. The large quantity of burnt and residual Late Mesolithic/Early Neolithic worked flints in Iron Age pit 782 perhaps imply collecting, recycling, and storing of found items for later reuse and/or cleansing of the henge surface in order to keep it unsullied and spiritually clean, an indication of it being venerated during that period. Evidence for subsequent use of the henge to make offerings is probably restricted to Iron Age pit 809 in the north-west corner of the monument, the contents of which included a probably covetable, if not necessarily still usable, Late Neolithic/Early Bronze Age polished-edge flint knife.

In the Early and Middle Bronze Age, monument construction takes the form of round barrows located on the lower valley slope, as represented by ring-ditches 374, 565, 760 and 1000. In contrast to the henge, which is suggested to be a place of worship and congregation for a widespread community, these are remnants of funerary monuments for local elites; by definition an exclusive sector of their society. The introduction of these monuments marks a change in the use of this part of the valley landscape, though still related to the preceding period of monument building, representing a transitional period during which 'communal' monuments like henges were outmoded by 'private' ones such as barrows, and open-landscape pastoralism was slowly superseded by sedentism and farming of enclosed landscapes. These changes in practice and in relationships with monuments make it likely that the henge was no longer in use when the barrows were built, although its earthworks were probably still extant and appreciated as a culturally significant feature of the landscape. The positioning of barrows 374, 565 and 760 clearly demonstrate referencing of, and perhaps deference towards, the relict remains of the henge as they form an arc around one of its sides, and ring-ditch 565 is clearly located on the extended line of the monument's axis. It is probable that the barrows constitute a dynastic burial ground, constructed by people who were appropriating and using the heritage of the henge to legitimise land ownership and to further aggrandise themselves and their house or clan. The reuse of the henge as a focal point for funerary monuments possibly implies that it was misinterpreted as an earlier barrow, although it might have been the case that the builders of the ring-ditches simply identified it as a special place, a site of obvious antiquity which, regardless of its original function, they invested with religious significance and appropriated it to meet their own needs.

The Old Hall ring-ditches, and those of the ring-ditch cropmark survey, complement an existing body of excavated examples from sites elsewhere within the mid Chelmer Valley/Blackwater Estuary (Buckley *et al.* 2001, figs 9 and 17; Germany 2003, figs 7 and 9; Archer and Clarke 2005, 189–90;

Atkinson and Preston 2001, fig. 7; Bennett and Gilman 1996, 268–9; Roy and Heppell 2015). The ring-ditches of this collected body of information vary in their diameter, circularity, form, width and depth of ditches, and presence or absence of grave pits. It seems probable that this variation was further increased by numerous different arrangements of associated mounds, banks and timber structures, such as the central post in ring-ditch 374. This variation may suggest that the form of barrows was not strongly controlled or dictated and that barrows were often subject to reuse and amendment and/or had complex histories of construction and use (Woodward 2000). Further illustration of how prehistoric barrows could vary in their details is presented by the results of the archaeological excavation of Langford Reservoir, further down the Chelmer Valley, towards Maldon and Heybridge (Roy and Heppell 2015).

Use of barrows was almost certainly restricted to local elites, as the estimated 200 barrows thought to have originally been present within the 64km<sup>2</sup> area of the cropmark ring-ditch survey is greatly insufficient to account for all of the people who lived and died in that area over the c.700 to 800 years of the Late Neolithic/Early Bronze Age to Middle Bronze Age period, even if it is assumed that each barrow, including satellite burials, represents the burial ground of as many as ten people. Few examples of Late Neolithic to Middle Bronze Age burials lying separate from barrows have been found in the region, and it may be the case that the bodies of the non-elite members of that period were scattered or thrown into rivers after being rested, de-fleshed or cremated. Barrows referencing earlier monuments as at Old Hall are further demonstrated by cropmark survey ring-ditches 1 to 7, all seven of which lie in close proximity to Springfield Cursus, highlighting the continuing importance of that monument as an apparent focus of cultural significance into the Late Neolithic/Early Bronze Age period.

### Late Bronze Age to Roman

The Late Neolithic to Middle Bronze Age monuments probably remained conspicuous in the landscape and continued to be culturally significant during the Late Bronze Age to Late Iron Age, and possibly Roman, periods. This is evidenced by the incidence of Middle Iron Age ring-ditch 541, possible square barrow or enclosure 1069, Iron Age and Roman pits 782, 809 and 1157, and general prehistoric burnt flint pits 435, 453, 469, 566, 719, 782 and 978, all lying within the vicinity of earlier monuments, suggesting a continuing relationship. Settlement activity again appears to be located higher on the valley slope, beyond the excavated areas, as suggested by the early Roman cremation burial 29 and ditch 45 in evaluation trenches 1 and 13 and residual Late Bronze Age pottery and Roman tile from the northerly Sites A and B. Farms, 'villages' and associated field systems probably dotted the landscape of the mid Chelmer Valley and adjacent areas during these periods, good examples of which include the Late Bronze Age Springfield enclosed settlement at Springfield Lyons, the Middle Iron Age 'village' at Little Waltham, and the Roman timber villa at Great Holts Farm, Boreham (Buckley and Hedges 1987; Drury 1978; Germany 2003). Environmental remains from a sediment sequence taken from the Sandon Brook during construction of the A12 Chelmsford Bypass suggest that the much of the landscape during the Late

Iron Age to Saxon periods included cereal cultivation and remained largely open (Murphy 1996).

Middle Iron Age barrow ring-ditch 541, occupied by grave pit 502 dating to the 4th century BC, constitutes the ongoing appropriation and reuse of the monumental landscape of the lower valley. Clear examples of Middle Iron Age barrows are very rare, possibly due to excarnation and/or disposal of corpses in rivers perhaps having been the predominant burial practices during the Late Bronze Age to Middle Iron Age periods (Woodward 2000, 54). By form, size and content, barrow ring-ditch 541 is closely paralleled by a Middle Iron Age barrow at Bromfield in Shropshire, which upon excavation was found to contain an iron brooch, an iron penannular bracelet and a bronze pendant (Hughes 1994). It is suggested that the construction of the Old Hall, Boreham example represents an act of individualism, the earthwork being a conscious imitation of the Late Neolithic to Middle Bronze Age barrows 374, 565, 760 and 1000, all three of which are very likely to have been still extant as earthworks during the Iron Age. As with the preceding Late Neolithic to Middle Bronze Age ring-ditches, it is suggested that its builders were appropriating the heritage of earlier monuments in order to aggrandise themselves and to construct or reinforce their claim to control of the surrounding area through expression of an association with 'ancestors'.

Square enclosure ditch 1069 is poorly dated, but is nevertheless conjectured to be another example of a funerary monument, this time inserted into the valley probably in the Early to Middle Iron Age. Archaeological excavations at St Osyth and Mucking in Essex (Germany 2007, 33–5; Clark 1993, sheet 14), Brandon in Suffolk (Gibson 2004, 23–5) and Maxey in Cambridgeshire (French and Pryor 1985, 73–7 and 260) have produced similar examples, although some of these have proven difficult to date, and all have proven difficult to interpret. The datable ones were found at Maxey and Mucking and were probably in use during the Early Iron Age period and the 1st century BC respectively. It is noted that a small square enclosure, similar to 1069, over or underlies mid Chelmer Valley cropmark ring-ditch site 60 (Fig. 19), and possibly implies that square enclosures or barrows were not so unusual occurrences within the area of the mid Chelmer Valley. Eastern Yorkshire contains numerous examples of square barrows, which look superficially similar to small square-ditched enclosures, although these occur in large cemeteries and are part of a tradition that was probably unique to that area (Woodward 2000, 45–7). Small, singly-occurring square enclosure ditches, like 1069, can be conjectured to be Early to Middle Iron Age mortuary enclosures, where bodies were left for defleshing. Post-holes occur in some of the quoted examples and it is possible that these indicate the presence of scaffolds or platforms, where bodies were held above ground level, in order to minimise the impact of animal scavenging (after Carr and Knüsel 1997; and Taylor 1997, 196).

### Saxon

The western edge of nearby Early Saxon settlement on or above the north side of the valley is possibly indicated by the incidence of late 5th/early 6th century features and finds on Sites A and B. The relationship between this settlement activity and the previous Roman activity is not known, though the same preference for location on the upper valley slope is

noteworthy. Within Site C, pits 1007, 1017 and 1055, associated with Bronze Age barrow 1000, are posited to be Early Saxon inhumation graves, but have produced no bones or grave goods to confirm this. Earlier sites, and particularly prehistoric monuments, were often reused as burial sites during the Early Saxon period (Williams 1998, 92–6; Taylor 2001, 158) and it is possible that the Early Saxons were engaging in a symbolic relationship with the ancient past (Williams 1998, 97). Reuse of prehistoric monuments, including barrows, as locations for human interment was not uncommon during the Early Saxon period and was probably carried out for a variety of reasons, including evocation and expression of local authority and identity, and creation of a 'sense of place' (Semple 2013, 7). A notable and nearby demonstration of this is the siting of the Early Saxon cemetery within the Late Bronze Age enclosure at Springfield Lyons (Tyler and Major 2005). Early Saxon graves often lie in radial or fan-shaped arrangements around prehistoric circular monuments (Williams 1998, 97), and the arrangement of possible grave pits 1007, 1017 and 1055 in relation to ring-ditch 1000 is perhaps a further example. An alternative explanation is that the posited grave pits are not Saxon but Roman, since their arrangement partly resembles a lineal array of Roman inhumations overlying one of the Bronze Age barrows at Arleigh (Brown 1999, 36–7).

The Middle to Late Saxon timbers and post-holes in the south-western part of Site C are tentatively suggested to be the landward end of a river-related structure, perhaps a bridge across the River Chelmer. The part of the structure that they represent probably stood on an area of sometimes dry ground as the surviving timbers are posts, not piles. If similar to the 11th and early 12th century bridges at Hemington Quarry in Leicestershire (Ripper and Cooper 2009) then the structure's central span to the south was either supported by a combination of large, stone-filled, lozenge-shaped timber boxes and mid-pier-support timber trestles, or a double row of irregularly-spaced oak piles with lateral bracing. The latter seems the more likely and it may be that the parallel lines of post-holes continued southwards as parallel lines of piles. If so constructed, then the structure's overall appearance may have been somewhat ramshackle perhaps implying that in that particular case cost, utility and expediency were of greater concern than overall form and appearance. A big increase in the number of bridges being built nationally took place during the 9th to 11th centuries (Harrison 2004, 32–6 and 102) and it is possible that the posited Boreham example was part of that process.

Alternative explanations for the timbers and the other related post-holes are that they are remnants of a quay, causeway, jetty or fish traps. Within Essex, archaeological investigations of Saxon, water-related, timber structures have taken place at Mersea Island, and at Collins Creek, Pewett Island and The Nass within the Blackwater Estuary. The timbers of Mersea Island consisted of parallel rows of numerous small piles with pointed basal ends and were probably part of a causeway, linking Mersea Island to the mainland (Crummy *et al.* 1982). The individual timbers of the Blackwater Estuary are similar in size and form to those of Mersea Island, but are nonetheless remnants of fish traps, originally consisting of very large, V-shaped arrangements of numerous, closely-spaced piles, supporting barriers consisting of hurdles (Heppell 2011).

Saxon structures with posts and post-holes more akin to those of the timber structure of Site C, Old Hall, Boreham,

include large timber halls, good examples of which form part of the 7th/8th century royal complex at Yeavinger in Northumberland, where some of the post-holes are up to 2m deep (Hope-Taylor 1977). If the Saxon post-holes of Old Hall represent one or more timber buildings then their related building or buildings must have been water-related, because of the site's proximity to the river, suggesting that they might have been part of mill.

Regardless of function, the building of the structure evidently included the obtaining, shifting, working and erection of very large timbers, making it likely that it also involved communal effort by a large group of organised people, probably assisted by horses or oxen. The timbers derive from slow grown oak trees from within an area of wildwood and are suggested to have been locally sourced due to the difficulty in transporting large timbers. Most of the surviving timbers each have a slightly worn side making it probable that the larger timbers were not brought to the site in wagons or carts but were dragged by teams of men, horses and oxen, the undertaking of which would likely have been facilitated by use of a purpose-built skid track. The appearance of the surviving timbers is crude, although the upper reaches of them above ground level may have had hewn cross-sections, making them more slender in appearance and easier to work with.

The siting of this Saxon structure is a clear indication that the henge was still a recognisable earthwork at the time of its construction. It is tentatively suggested that it made use of an earlier and long-lived crossing point, one that may have stemmed as far back as the earliest exploitation of the valley in the Late Mesolithic/Early Neolithic period. Similarly, the trackway leading to the posited bridge can be suggested to have followed the course of an earlier, perhaps processional prehistoric, route leading to the henge since the end of the Saxon structure clearly references and makes use of the monument's south entranceway.

The construction of the timber structure is likely to have been a moderately large undertaking and to have been initiated and funded by one or more people in positions of power. If that is correct then the decision to route it through the middle of the henge and the surrounding monument complex can be viewed as an assertion of secular power by a local elite, an illustration of how, by the Mid to Late Saxon period, reverence for ancient monuments had begun to diminish. Other acknowledged uses of prehistoric monuments during that period were largely secular and included those of meeting points, boundary markers and places of execution (Semple 2013).

A belief amongst the Middle and Late Saxons (in contrast to the Early Saxons) that prehistoric barrows were places of malign supernatural forces (Semple 1998 and 2013; Williams 1998, 97–8) is more likely to have been superstition than hard conviction as it does not appear to have deterred them from utilising the central component of the relict monument complex. The intrusion of the posited bridge into the remnant ancient landscape is a clear manifestation of how, during the Mid to Late Saxon period, reverence and mythic investment in ancient monuments had begun to breakdown following widespread acceptance of Christianity (Semple 2013, 237).

The two phases of Middle to Late Saxon or medieval ditches suggest that tighter control and a sub-division of the lower valley slopes and floor for encroaching agriculture first

took place during this period (Fig. 16). The ditched trackway of the second phase of ditches heads towards the river and overlies the remains of the bridge, possibly implying that the first bridge was subsequently replaced by a second. Barrow remains 565 is clearly referenced by ditches 1218 and 1219 and was probably still extant as an earthwork when they were laid out. According to the results of the cropmark ring-ditch survey, examples of ditches with relationships with barrows are quite common (Figs 18 and 19, cropmark ring-ditches 17, 20, 25, 34, 36, 41, 43 and 55). Use of barrows as boundary and territorial markers probably took place from the moment they were first introduced into the landscape. It may have been a recognised secondary function, but was perhaps not emphasised by accompanying man-made linear features such as hedges, trackways and ditches until the Late Saxon period, as perhaps implied by Late Saxon charter bounds (Semple 2013, 13 and appendix 4).

### Medieval, post-medieval and modern

The settlement pattern of Boreham during the medieval period would have been typical of most of Essex, in that it would have composed dispersed polyfocal settlement, much of which would have consisted of manors and rented holdings. It is probable that the 13th/14th-century remains of Site B are remnants of a rented farmstead tenement belonging to one of the local manors, three of the candidates for which comprise Culverts Farm to the north, Old Hall to the north-west and Boreham Hall to the west (Fig. 1). Culverts Farm lies closest, although this does not necessarily imply that Site B had been part of its estate. Archaeological excavations carried out elsewhere within the parish have revealed further elements of its medieval polyfocal settlement pattern. Their findings include a solitary early medieval long-house at Great Holts Farm, a 12th/13th-century windmill in a moated enclosure at Bulls Lodge Quarry, medieval house plots alongside the B1137 and a 13th-century farmstead holding near the Boreham Interchange (Germany 2003; Clarke 2003; Foreman 1997; Lavender 1999).

The alluvium that covers a large part of the valley floor is the product of an increase in the rate of water and fine sediment being discharged into the river, probably brought about by woodland clearance, large-scale conversion of pasture to arable, and an increase in the amount of artificial drainage issuing into the Chelmer. It overlies some of the Saxon or later ditches and two small sherds of medieval pottery have been retrieved from it; it is therefore likely to have been deposited during the medieval period or later and is presumably the product of the encroachment of arable agriculture down the lower slopes of the valley. This change in land-use is likely to have been widespread as alluvial deposits of medieval date have also been found alongside the river at Little Waltham and in the middle of Chelmsford (Drury 1978, 50–1; Wickenden 1992, 1, 10 and 141).

Most of the post-medieval and modern ditches on the valley side are recorded on the first four editions of the Ordnance Survey and are former field boundaries and drains that have been removed within the last fifty years to make the fields more suitable for mechanised agriculture. The relationship between the Saxon or later ditches and the post-medieval/modern field system is not clear, but it seems unlikely that one developed from the other. Within this agricultural landscape, the only significant features comprise the coal wharf compound located

next to the present-day bridge, and its ditched trackway extending away up the valley side. Although for a different purpose and a product of a very different and increasingly industrialised age, their positioning very much reflects that of the prehistoric henge and subsequent monuments and structures on the valley floor and close to the river.

## CONCLUSIONS

The Old Hall excavations demonstrate that the Chelmer Valley has been utilised, exploited and settled since the Late Mesolithic period. The evidence for this human activity within the mid-section of the valley extends down the valley sides and is equally prolific on the valley floor. Alluviation on the flood plain has masked those remains, making them non-conducive to cropmark detection. Nonetheless, because of that interment, important Late Mesolithic and Neolithic features and deposits are preserved and remain only partly disturbed due to the relatively late arable cultivation of what would have been marginal land. The relict soil, numerous tree throws and occasional pits, all of which contain large quantities of worked flint, attest to movement of people up and down the valley, following the river and exploiting the resources offered within its tree-covered floor.

With increasing sedentism, from the Late Neolithic onwards, the upper slopes of the valley are settled and cultivated, no doubt with the lower slopes being important areas for grazing of livestock. The Boreham henge, with its close proximity to, and association with the nearby river, is just one of a number of communal earthwork monuments built in the middle part of the valley. Together with Springfield Cursus and Causewayed Enclosure, it signals the presence of a cohesive and organised community and henceforth a pattern of continuity and change, the thread of which arguably extends into the post-medieval period.

In essence, in the case of Sites A to C, there is a continuity of land-use with settlement occupying the upper slopes and above, and monument building and use below. This lower valley use is the most instructive in terms of people's evolving engagement and interaction with the developing landscape, with successive cultures appropriating and assimilating the earlier monuments into their physical worlds and understanding, as well as periodically augmenting them with their own monuments. Behind this, probably lay desires to explain, consolidate and enhance their presence, belonging and ownership of this portion of the landscape and in doing so landscape elements, including monuments, were often reused, renegotiated and reinterpreted. Hence, the Late Neolithic/Early Bronze Age henge, a place of communal religious and ritual practice, is subsequently a focal point for an Earlier to Middle Bronze Age barrow cemetery, a place of elite burial. A Middle Iron Age barrow and associated mortuary activity augment this, a thousand years later. It is evident from the incidence of Roman period features near the barrows and artefacts in the upper fills of their enclosing ditches (e.g. the 1st century flagon in ring-ditch 565) that they continued to attract attention. Perhaps finally, Earlier Saxon burials are possibly inserted within and around one of the surviving barrow earthworks, a thread of continuity resulting from recognition of the earthwork remnants being significant as a place of burial and remembrance of dead ancestors and heroes, whether real or imagined or fabricated. Connection with these prehistoric

monuments probably waned during the latter half of the Saxon period, presumably as a consequence of Christianity, the incorporation of a large timber structure, perhaps a bridge, being a clear indication of this.

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