

A LATE BRONZE AGE ENCLOSED SETTLEMENT AT THE OLIVER CLOSE ESTATE, LEYTON, LONDON BOROUGH OF WALTHAM FOREST

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SUMMARY

Archaeological investigations at the Oliver Close Estate, Leyton revealed evidence of a number of phases of human activity. The earliest presence was evidenced by a small quantity of residually deposited struck flints datable to the Mesolithic or Early Neolithic period as well as a few fragments of pottery of possible Neolithic date. These have been interpreted as representing brief intermittent visits to the site. The main period of occupation was dated to the Late Bronze Age. This comprised the construction of a large ditched enclosure, which included numerous internal and external features. This activity has been dated to the 10th–9th centuries BC. The morphology of the enclosure and the nature of its related features suggest that it belongs to the class of Late Bronze Age enclosures termed ‘aggrandised enclosures’ or ‘Springfield style enclosures’. Activity associated with the enclosure did not continue beyond the Late Bronze Age. The site apparently remained as fields until the 19th century when it was partly developed for housing. Associated features included 19th-century rubbish pits and Second World War Anderson air raid shelters.

INTRODUCTION

Archaeological excavations were undertaken by Pre-Construct Archaeology Ltd as part of the Phase IV redevelopment at the Oliver Close Estate, Leyton, London Borough of Waltham Forest (Fig 1). The three earlier

phases of fieldwork are briefly described in the project background section (see below). The fieldwork associated with the Phase IV redevelopment was conducted in three stages. The first, involving an archaeological evaluation and excavation, took place during 2001. The second stage concerned a watching brief that was carried out during the construction of a tower crane base in 2002, and the third phase in 2005 included an archaeological evaluation and excavation. The Phase IV investigations were conducted on a block of land located towards the south-eastern corner of the Oliver Close Estate (Fig 2).

The Oliver Close Estate is located on the eastern side of the Lower Lea Valley at Leyton in the London Borough of Waltham Forest. It is bounded by Oliver Road to the east, Osier Way to the south, playing fields and allotments to the west and Ive Farm Lane to the north. Its boundaries comprise Walnut Road to the north, Oliver Road to the east, buildings facing on to Osier Way to the south and Tupelo Road to the west. The site is centred on NGR TQ 3768 8654, and the archive will be deposited at the Vestry House Museum under the site code OVC 01.

GEOLOGY AND TOPOGRAPHY

The site is identified by the British Geological

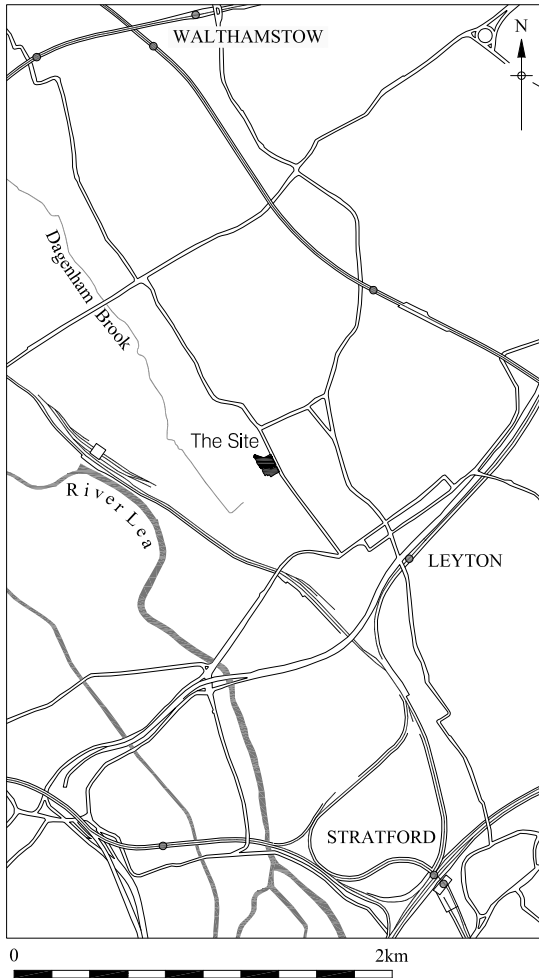


Fig 1. Site location plan (scale 1:40,000)

Survey (1993) as situated on the Quaternary Taplow Gravel Terrace, overlying Palaeogene London Clay. Gibbard (1994) has divided the Quaternary sequence in this area into two separate deposits: the Leyton Gravels, a Lea equivalent of the Lower Thames East Tilbury Marsh Gravel (*ibid*, 94), itself equivalent to the Middle Thames Kempton Park Gravel, and the Leytonstone Gravels, equivalent to the Lower Thames Mucking Gravel and the Middle Thames Taplow Gravel. The elevation of the deposits at the Oliver Close Estate would indicate these belong to the Leytonstone Gravels. In this area, the edge of the Leytonstone Gravel Terrace runs north to south roughly following the 10m contour line and close to the western former boundary of the site. To the west of this

contour, on the 'School Playing Field Site', a thick accumulation of fine-grained alluvial deposits exists, presumably as a result of flood events connected with the River Lea (Corcoran *et al* 2011, 157–9).

The site is located on and overlooks the eastern side of the Lea Valley, some 6km north of its confluence with the River Thames at Canning Town. The topography in the vicinity of the site is relatively flat with a general slope downwards to the west towards the River Lea. At the time of the excavations the then current ground surface was between 12.55m and 12.59m OD. The Oliver Close Estate is bounded to the north and the south by two now-dry tributary valleys currently roughly defined by Leyton Grange Estate/Primrose Road to the north and Coronation

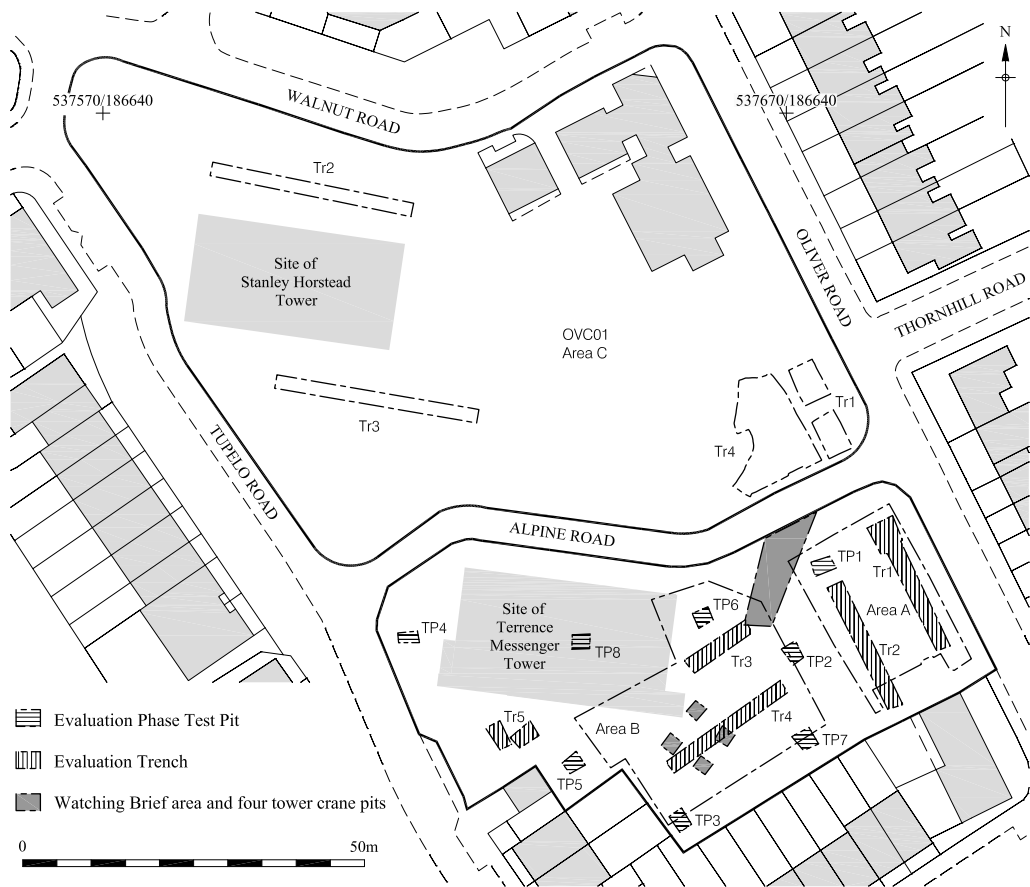


Fig 2. Evaluation and watching brief trench location plan (scale 1:1100)

Gardens/Sidmouth Road to the south; the latter is referred to as the ‘Leyton River’. It is uncertain whether these would have carried water during the Holocene. The Oliver Close Estate is situated on a blunt peninsula of higher ground c.800m wide facing directly on to the Lea Valley flood plain. From the site, there would have been extensive views both up and down the valley and, across the river and slightly to the south, the confluence of the Hackney Brook and the River Lea would have been visible. Locally, the presence of fine-grained alluvial deposits recorded along the central-eastern section of the Oliver Close Estate may indicate the presence of a former tributary channel running approximately through the middle of the estate, although its date or precise course has yet to be determined (Sabel 1995; Moore 1996).

ARCHAEOLOGICAL BACKGROUND

As with much archaeological knowledge our understanding of the archaeology of the area covered by the five east London boroughs has increased significantly following the introduction of archaeological planning guidance and developer funded investigations, particularly over the past decade. The following provides a short account of some of the more pertinent discoveries from the area. Palaeolithic flint tools and occasionally bioarchaeological remains have been recovered in significant quantities from the Pleistocene alluvial deposits and superficial brickearth deposits located along the Lea Valley and Lower Thames Valley Gravel Terraces, and include a small number of finds that have been recovered from

within the Leytonstone Gravel Terrace in the vicinity of the site. Scattered Mesolithic (*c.*9600–*c.*4100 BC), Neolithic (*c.*4100–*c.*2000 BC) and Early Bronze Age (*c.*2000–*c.*1500 BC) find-spots, mostly representing small temporary encampments and possible deliberate deposits of prestigious artefacts, have been made along the Lower Lea Valley. These demonstrate extensive, if not intensive, occupation of the valley by mobile groups exploiting the rich and varied habitats that the area would have offered. Similar evidence has been recorded along the banks of the Lower Thames and its tributary rivers, although so far the only evidence of a more substantial monument within east London consists of a Neolithic ring-ditch recorded at Launders Lane in Rainham, Havering (Howell *et al* 2011, 24–6). At Edmonton, Enfield, a series of parallel ditches and a possible enclosure may also date to the Neolithic period (Bishop 2005). During this time, dramatic changes in climate and relative river levels would have radically altered the topography and physiology of the river valleys and this would have resulted in much of the evidence for these periods being buried under often-substantial deposits of alluvium (Bates & Whittaker 2004, 55; Stafford 2012).

By the Middle (*c.*1500–*c.*1000 BC) and Late Bronze Age (*c.*1000–*c.*800 BC) there is evidence of intensified activity in the marshes bordering the Lea and the Thames which was marked by the construction of a number of wooden trackways and other structures (Meddens 1996; Stafford 2012, 139). It is believed that these trackways were laid down to facilitate the movement of livestock grazing in the wetlands. The increase in wetland activity was probably linked with an increasing density of settlement and an intensification in agriculture, two trends that have been recognised in many parts of south-eastern England (Pryor 1998, 144; Yates 1999; 2001). In the London region this pattern has also been recognised on the west London Gravel Terraces and the Wandle Valley (Brown & Cotton 2000, 89), but there is increasing evidence that this process also occurred in the Lea Valley. For the first time permanent agrarian settlements with adjoining ditched field systems were established. These features have been identified at a number of sites,

including Edmonton, Rammey Marsh and Aylands Allotments (all in Enfield) (Bishop 2005; Maloney & Gostick 1998; Maloney 2002). Closer to the current study site, similar evidence of settlement and agricultural activity have been recorded at Lea Valley Road in Chingford, Waltham Forest, at Bow in Tower Hamlets on the western edge of the Lea Valley, and at Warton Road (J Payne, pers comm), Stratford Market Depot (Hiller & Wilkinson 2005) and the Olympic Park site (Powell 2012, 37–46) in Stratford, Newham, within the Lea Valley flood plain. Later Bronze Age/Iron Age (*c.*800 BC–AD 43) features have been recorded at the George Mitchell School playing fields on Leyton High Street, *c.*500m to the north-east of the site (Taylor-Wilson 2000; Bishop 2004), while up to seven Middle Iron Age (*c.*400–*c.*100 BC) roundhouses, two phases of enclosure and four inhumation burials were discovered on the site of the Aquatic Centre in the Olympic Park (Powell 2012). Iron Age metalwork and possible wooden pile-driven structures have been recorded from within the Lower Lea Valley, although the most notable site in the area consists of the massive defended enclosure at Uphall Camp, in Ilford (Redbridge), which is situated between the confluence of the River Roding and Loxford Water. It was established during the 2nd century BC (Wilkinson 1978; Greenwood 1988; 1989; 2001). Further evidence of Bronze and Iron Age settlement and agricultural activity has been recorded at various other locations in east London but, so far, these investigations remain only partially published.

Masonry foundations including arches as well as segments of mortised oak timbers purportedly associated with Roman building material and coins were discovered in 1718 at Grange Park Road near the manor house in excavations connected with the landscaping of a garden, *c.*400m to the north-east of the site. It has been suggested these remains may have been part of a Roman villa complex (White 1863, 641–2). Many stray finds of Roman date (AD 43–*c.*410) have been recovered from the vicinity of Grange Park. Roman ditches were found to the north at Church Road, and a stretch of Roman road has been discovered at the Beaumont Road Estate, Leyton (Taylor 2004). This may be

linked to a 'corridor' of Roman period find-spots that have been recorded from the Leyton area to Temple Mills, Stratford, and beyond, which may represent a hitherto unknown Roman road (P Moore, pers comm).

Medieval activity is not particularly well attested in the locality and settlement appears to have concentrated within small, scattered villages across the district. Numerous seemingly isolated ditches, pits and postholes of Saxon (c.AD 420–1066) and medieval (1066–1500) date have been found, although probably the closest medieval remains were uncovered at the Old Baths site on Leytonstone High Road, and at 789 High Road (Chew 1993; Douglas 1995). The parish church of St Mary at Leyton was in existence by 1182 (Weinreb *et al* 2008, 482). The investigations at Oliver Close suggest that the site consisted of fields during the medieval period. The area of the site appears on John Rocque's map of 1746 (sheet IV: Rocque 2008) as part of a field system and still appeared as fields on the Ordnance Survey map of 1870 (sheet XII). At the end of the 19th century some ribbon development occurred along the western side of Oliver Road, although the northern parts of the Oliver Close Estate still appeared as open land until the mid-20th century, with the 1916 Ordnance Survey map showing a football field and a plant nursery, but some gravel extraction and dumping may also have occurred. During the Second World War, the area suffered badly from bombing and afterwards the site was used for pre-fabricated temporary housing. During the 1960s a number of high-rise residential towers were constructed, along with ancillary buildings and associated infrastructure. The building works during the second part of the 20th century involved considerable disturbance, including levelling and landscaping.

PROJECT BACKGROUND AND PREVIOUS WORK AT THE OLIVER CLOSE ESTATE

The site was located within an Archaeological Priority Zone (APZ), as defined in the London Borough of Waltham Forest's Unitary Development Plan.¹ Because of its location within the APZ and its archaeological potential, as demonstrated by the results

from the previous investigations at the Oliver Close Estate, an archaeological evaluation was required prior to any developments that could potentially have an adverse impact on any surviving archaeological remains. The Planning Committee of the London Borough of Waltham Forest had granted permission to the Waltham Forest Housing Action Trust to demolish high-rise residential tower blocks at the Oliver Close Estate and to replace them with low-rise housing and other community buildings. This process was to take place as a phased development.

The redevelopment of the Oliver Close Estate proceeded in four Phases (I–IV) between 1992 and 2005 and the archaeological programme was geared to fit into this extended scheme of works (Fig 3). A brief account of these investigations has been compiled (Bishop 2006). The sequence of events and the principal findings can be determined from examination of documents produced as part of the Phase I and II investigations by the Passmore Edwards Museum and latterly Newham Museum Service (Chew 1992; Moore 1992; 1996; Sabel 1993; 1995; Jarrett 1996; Lawrence 1996; MacGowan 1996a; 1996b), and the Phase III works by the Essex County Council Field Archaeology Unit from their report on part of the site (Hickling 2003). The initial evaluation consisted of the monitoring of ground-engineering test pits across the Oliver Close Estate during 1992. This revealed the survival of alluvial deposits on the 'School Playing Field Site' and undisturbed plough soil in the area adjacent to Osier Way (Chew 1992). The subsequent phases of work can be summarised as follows.

Phase I, stage I

Watching brief (21–23 September 1992), which involved the monitoring of 24 soil investigation test pits excavated by contractors. This revealed Bronze Age activity on the gravel terrace in the form of cut features and Bronze Age material contained within alluvium on the 'School Playing Field Site', to the west of the Oliver Close Estate (Chew 1992; Moore 1992).

Phase I, stage II

Excavation (5–19 July 1993), which com-

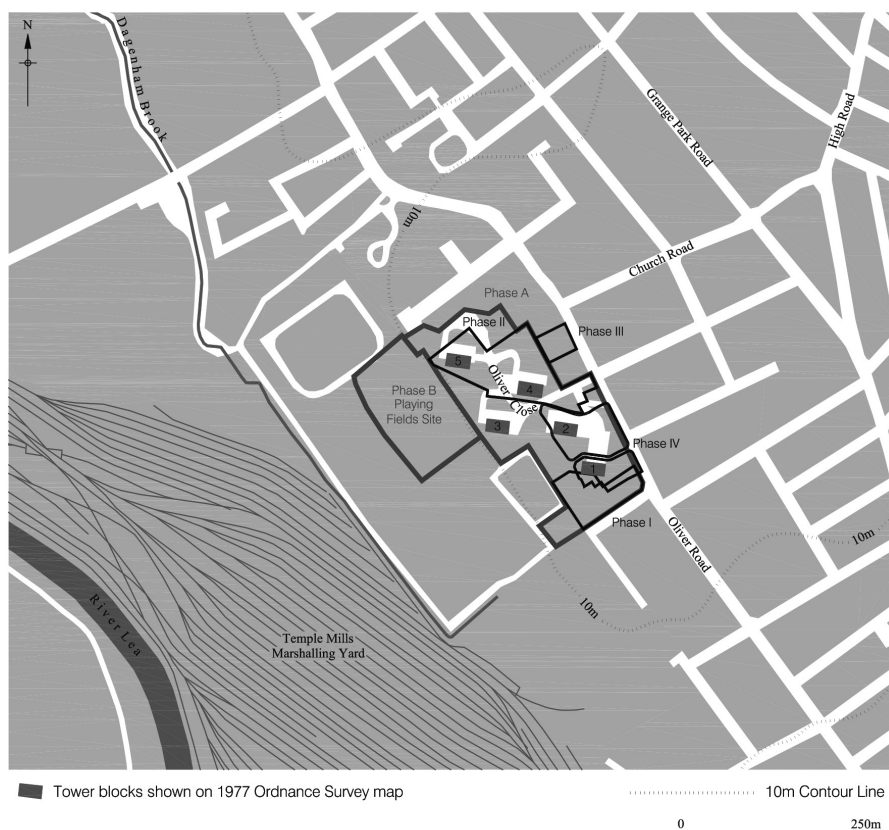


Fig 3. Excavation phases layout. Key: 1. Terence Messenger Tower; 2. Stanley Horstead Tower; 3. Arthur Punshon Tower; 4. James Collins Tower; 5. Clifford Hicks Tower (scale 1:10,000)

prised the excavation of Trench 1 in the section adjacent to Osier Way and Oliver Road. This revealed Late Bronze Age post-holes representing linear features (fence lines?) and a curved structure. There was also ephemeral evidence of Roman activity and extensive post-medieval disturbance (Sabel 1993).

Phase I, stage III

Watching brief and resistivity survey (10–11 August 1993). The watching brief was conducted on two soil investigation pits, recorded as Trenches 5 and 6. These revealed 2.8m-thick modern dumps overlying organic alluvial silts, possibly a river channel. The resistivity survey was conducted in Area B and identified areas of potential pitting.

Phase I, stage IV

Excavation and environmental investigations (13 September–20 October 1993). This involved the excavation of a trench (referred to as Trench 2) along the southern sector of the site adjacent to Osier Way, which revealed Second World War air raid shelters relating to two properties. These were preceded by a plough soil sealing ‘hundreds of pits, postholes, stakeholes and gullies’ including a ring-ditch and associated fences, and pits and troughs with evidence for cooking activities. A second phase of activity was evidenced by a realignment of the fences. Finds recovered included pot, worked flint, burnt flint and a loom weight (Moore 1996; 2001). Two trenches (referred to as Trenches 3 & 4) were excavated at the ‘School Playing Field Site’. Trench 3 revealed further archaeological

deposits and Trench 4 uncovered extensive alluvial deposits, from which column samples were taken and analysed by the Museum of London Environmental Service (MacGowan 1996b). MacGowan also reported eight potential Late Bronze Age structures, provisionally interpreted as possible fence lines, a c.5m diameter roundhouse, rectangular structures, pits containing domestic debris, placed deposits, a possible cremation and a 5m-diameter semicircular gully.

Phase II, stage I

Watching brief and geophysical survey (14 March–21 April 1995). This comprised a watching brief undertaken on 25 test pits and a three-dimensional subsurface contour plot. The watching brief found river silts indicating a possible tributary of the River Lea as well as a 'prehistoric' soil horizon, though no archaeological features were evident. The contour survey involved the mapping of the current ground surface and the surviving natural deposits. It demonstrated the presence of a localised high point in the vicinity of the Phase IV investigations.

Phase II, stage II

Excavation (10–21 June 1996). Two evaluation trenches were opened in the northern part of the Oliver Close Estate. One (referred to as Trench 2) was archaeologically sterile. The other (referred to as Trench 1) revealed pits, postholes and possible quarries containing post-Deverel-Rimbury Plainware pottery of Late Bronze Age date, struck flint and burnt flint (MacGowan 1996b). A number of pits in Trench 1 may have been of Roman date. Saxon pottery (AD 400–800) was found in the plough soil, possibly associated with post alignments and a pit. A medieval (1200–1400) post-built structure was also identified. Some pre-19th-century field boundaries and apparently random pitting were present. This activity was superseded by 19th-/20th-century drainage runs, concrete surfaces and air-raid shelters, pits and postholes associated with the development of Oliver Road.

Phase III

Evaluation (3–6 March 2003). Three evaluation trenches were excavated at 24–34

Oliver Road. A number of features of 19th-century date, which cut an earlier plough soil and subsoil, were uncovered. The plough soil overlay two pits and a gully which remain undated, although one of the pits contained fragments of baked clay and the other fire-cracked burnt flint, which is suggestive of a prehistoric date (Hickling 2003).

METHODOLOGY FOR THE PHASE IV INVESTIGATIONS

The Phase IV investigations were conducted in three stages, the first in the northern part of the Phase IV development area, Area C, and the second and third in the southern part, Areas A and B (Truckle 2000; Moore 2005). The first stage was conducted between 16 January and 7 February 2001 under the supervision of David Divers (2001). This comprised the investigation of three evaluation trenches. The two westerly trenches, 2 and 3, were located near the footprint of the recently demolished Stanley Horstead Tower and revealed only heavily truncated natural deposits. Evaluation Trench 1 was located close to Oliver Road and revealed subsoil features cut into the natural gravels, which were overlain by a plough soil that formed during antiquity. This trench was extended to the east as Trench 4, where further cut features were recorded.

The second stage of the Phase IV investigations involved a watching brief conducted on the excavation for the foundation of a tower crane base located within the southern part of the Phase IV development area to the east of the Terence Messenger Tower and immediately east of the stage III excavations. This was supervised by Strepchon Duckering from 30 May to 16 June 2002 and revealed natural gravel terrace deposits overlain by a plough soil, but no archaeological features.

The third stage was undertaken between 16 August and 8 September 2005 under the supervision of Chris Pickard and comprised the excavation of five evaluation trenches. These revealed extensive truncation of the natural deposits in the vicinity of the Terence Messenger Tower, but to the south and east of this subsoil features were present, overlain by a plough soil that had formed in antiquity and had survived. In consequence, two open area excavations (Areas A & B) were

conducted on this part of the site, where the proposed new buildings would have impacted on the archaeological deposits.

The excavation and recording methodology used is that commonly applied across London and details concerning the Oliver Close excavations can be found in Bishop (2006).

ARCHAEOLOGY AT THE OLIVER CLOSE ESTATE

Natural drift geology

Natural deposits were revealed across all areas of excavation. They consisted of a loosely compacted orange brown sandy gravel, containing pebbles and cobbles. They were recorded as [01] in stage I of the investigations, [104]/[108] during stage II and [1024] during stage III. Observations of engineers' test pits at the site indicated that this deposit was at least 3.5m in thickness. No evidence for the possible palaeochannel recorded during the earlier phases of fieldwork at the Oliver Close Estate was encountered.

The natural deposits were interpreted as Quaternary Terrace Gravels, presumably part of the Leytonstone Gravel member. The highest point recorded on the natural gravels was in Trench 1, located in the south-east corner of the Phase I investigations, where it attained an upper elevation of 12.80m OD (Fig 3). From here, the natural surface sloped gradually downwards in all directions. The highest point identified in the Phase III investigations was 11.74m OD in the north-west corner of Area A. From there, the surface of natural deposits gently sloped down to the east, south and west, being recorded at between 11.58m OD and 11.62m OD along the western, eastern and southern edges of excavation Trench A. In excavation Trench B, the slope downwards became more pronounced. On the eastern side of this trench it was recorded as 11.61m OD, dropping to 11.35m OD on the north-western side of the trench. Levels are not available for the natural deposits identified during stage II.

A contour survey undertaken at the Oliver Close Estate showed a slight prominence in the vicinity of the excavations, centring on the south-eastern corner of the stage I

and the area of the stage III investigations (Sabel 1995). Although the terrace gravels in the vicinity were generally fairly level, this prominence or low hill may have held important implications for later land use (Fig 7).

Early prehistoric activity, Mesolithic (c.9600–c.4100 BC) and Neolithic (c.4100–c.2000 BC)

No subsoil features that could convincingly be shown to date prior to the Late Bronze Age were identified. However, from across the site a small collection of struck flint flakes datable to the Mesolithic or Neolithic periods were recovered (see Bishop below). In addition, one or two sherds of possible Neolithic date were extracted from Bronze Age features. Pit [1222], located within the south-east part of a possible roundhouse (see below), produced the largest single assemblage of lithics recovered during the course of the excavations. The assemblage comprised 22 flakes, blades and pieces of knapping waste which, although not refitting, probably mostly originated from just two cores. Also present was a truncated blade and a cortically backed blade that had been used for cutting or sawing. Although this feature has been dated to the Late Bronze Age by associated pottery, the struck flint assemblage it contained is, on typological grounds, compatible with a Mesolithic or Early Neolithic date. The presence of this material indicates the disturbance or truncation of earlier features and the residual redeposition of their contents. The struck flint demonstrates that the site was utilised prior to the Late Bronze Age, although the small quantities of material present indicate that such visits were brief and sporadic.

A Late Bronze Age settlement (c.1000–c.800 BC)

Introduction

The principal prehistoric occupation of the site has been dated by pottery to the Late Bronze Age (see Cotton below). A total of 378 separate subsoil features were assigned to this phase, 20 of these within Area C and the remainder in Areas A and B (Fig 4). These consisted of ditches, pits, postholes

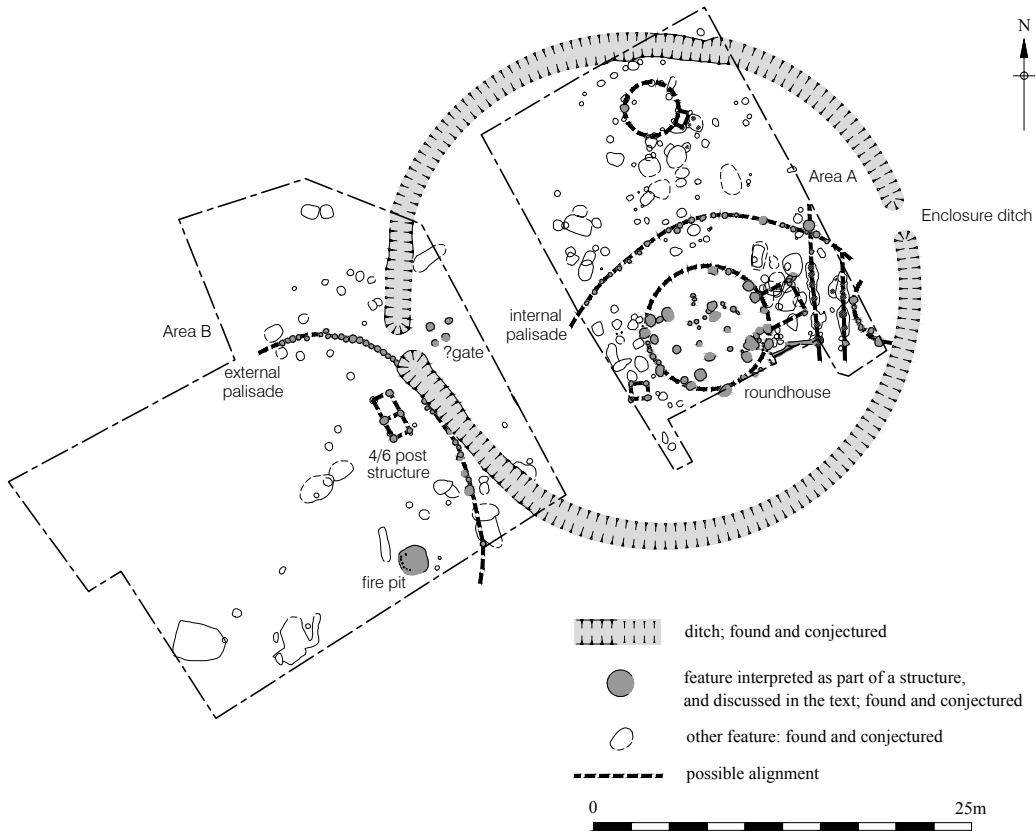


Fig 4. Bronze Age features in Areas A and B (scale 1:500)

and stakeholes, which were densely clustered across large portions of the excavated areas. The principal features of this phase related to the construction of a ditched enclosure that was probably circular in plan and bounded an area of *c.*35m in diameter with a west-facing entrance. Inside the enclosure, postholes were the most common feature type. Two principal structures were identified: a curved post-built screen and a possible roundhouse. Other structures present included a four-post structure to the west of the possible roundhouse and a number of postholes to the north of the palisade screen, which may have represented a succession of different structural developments. Many of the postholes present appeared to form simple structures, such as two-post settings or short lengths of fencing, but, given the high density of postholes present within the excavated areas and the plethora of possible structure

plans that could be construed from the numerous features present, identification of definite patterns was difficult. However, it was clear that all of the areas investigated, both inside and outside the enclosure, witnessed sustained and intensive construction activity.

Many pits were also present. Although these were generally rather evenly distributed, two areas of sustained and intercutting pitting were identified. These comprised an area to the east of the possible roundhouse and another immediately north of the internal palisade (see below). The majority of features recognised on the outside of the enclosure, which was only exposed in Area A and the eastern side of Area B, consisted of postholes with lesser numbers of pits present (Fig 4). A large curving post-built screen was present immediately west of the enclosure and to the west of this was a four- or six-post structure (see below). With the exception

of these, no other structures could be confidently identified, although a complex 'fire pit' was present. Only a minority of features, both internal and external to the enclosure, actually intercut. It was evident that several phases of activity associated with the enclosure were represented, with some groups of superimposed features. Confident identification of both individual structures and broader phases of activity has been limited by the sheer number and concentration of features present. Some more-confidently identified coherent structures

can be speculated upon, and these are discussed in more detail below.

The enclosure ditch

The most prominent feature present on the site comprised a large ring-ditch (Fig 5) enclosing an internal area *c.*35m in diameter centred approximately over the 12m contour (Figs 6 & 7). Three lengths of the ditch were uncovered, including two terminals that formed the western entrance. The individual lengths of ditch were relatively straight and

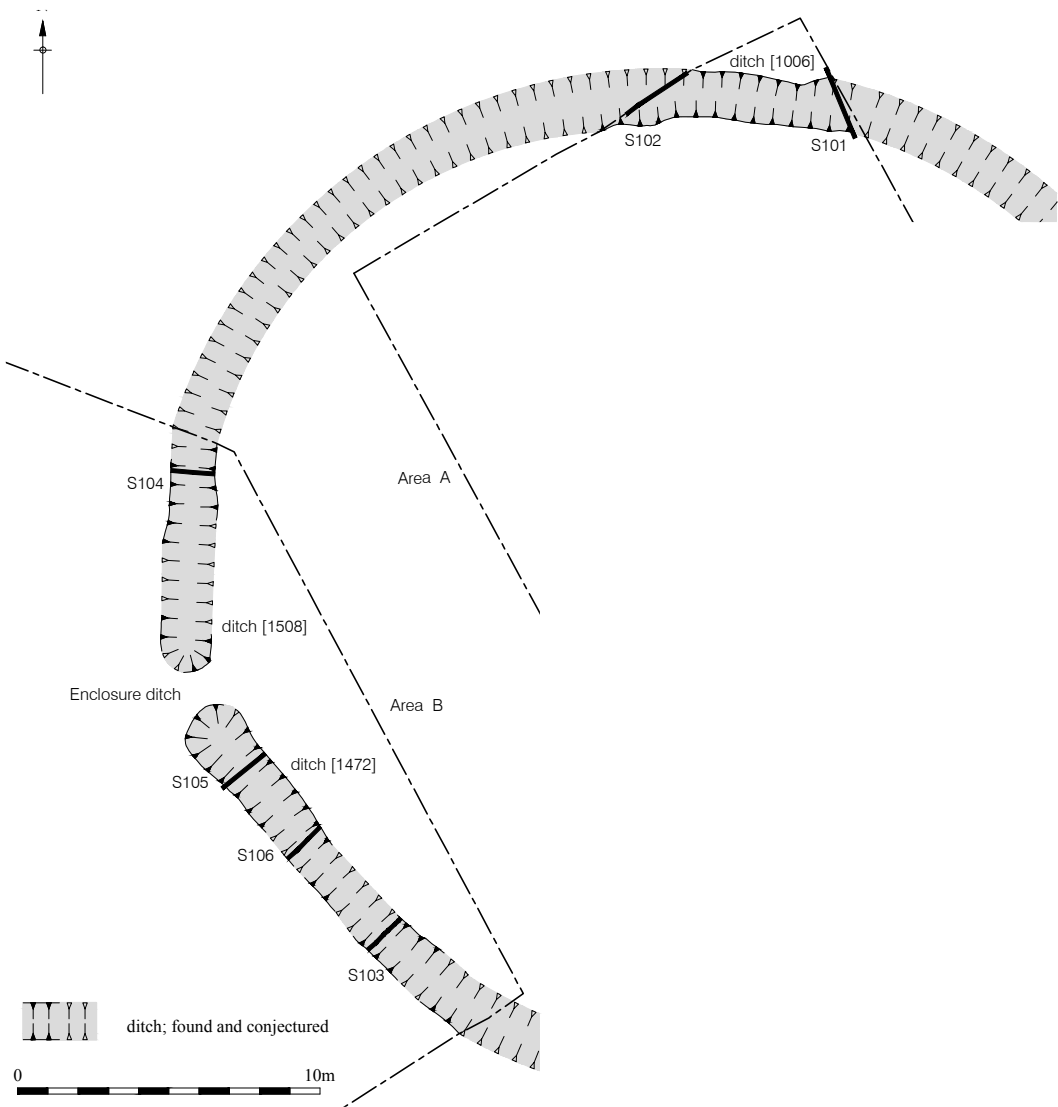


Fig 5. Detail of Bronze Age enclosure ditch in Areas A and B (scale 1:250)

it is possible the feature as a whole was constructed as a series of interlinked short, straight stretches forming a polygonal shaped structure, rather than a true circle. The ditch exhibited a 'V' profile, was between 1m and 1.5m wide and up to about 1m deep (Fig 6). Its manner of infilling varied with up to eight separate filling events being recognised. Some of the sections suggested that the ditch may have been recut or heavily cleaned out on at least one and perhaps two or three occasions, although this could not be demonstrated within all excavated slots. There were significant variations in the way that the fills had accumulated across the various excavated sections, although the broad sedimentary

sequence suggested an initial period of fine-grained silting, followed by the deposition of fills consisting predominantly of coarser-grained gravels, pebbles and cobbles, in turn followed by mixed deposits of coarse and fine-grained sedimentation. This sequence indicated that the ditch had been open for some time during which silty material had slowly accumulated naturally, followed by the relatively rapid infilling of coarse-grained material interpreted as the collapse or deliberate levelling of a bank originally constructed within the ditch circumference from material thrown up from excavation. Following this, the ditch was finally infilled with material eroded from its edges and washed in from the remnants of the bank.

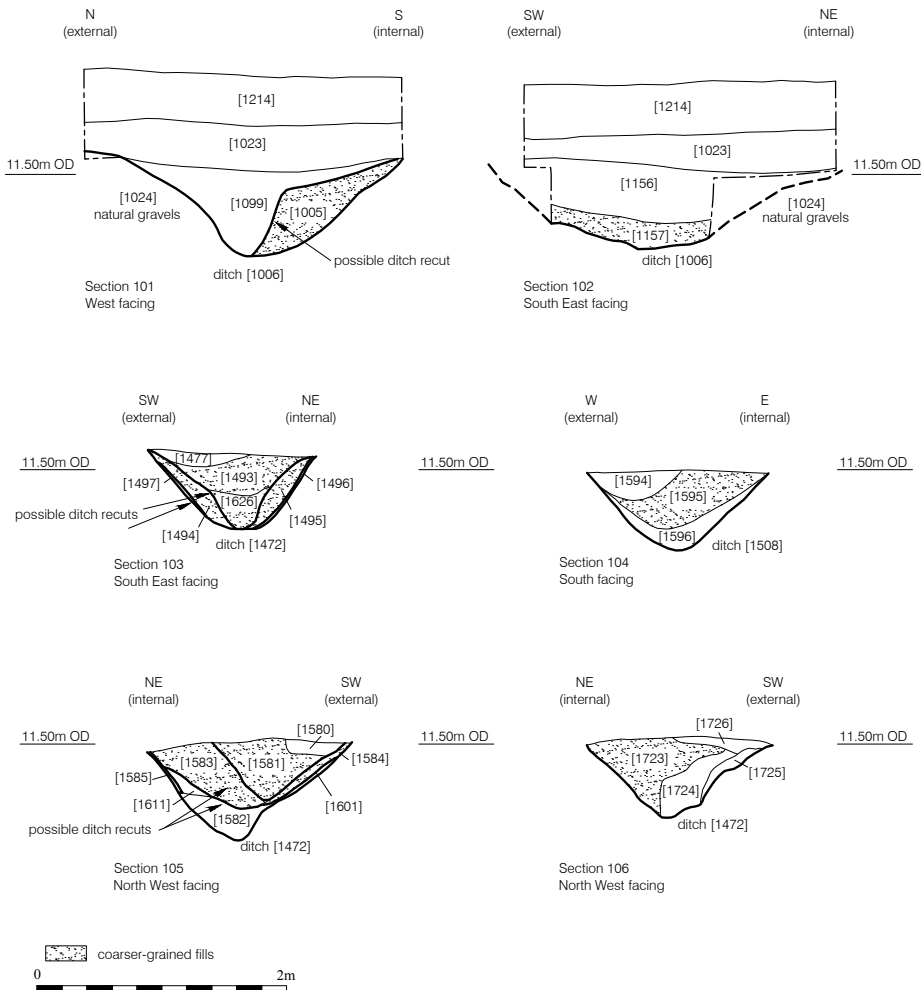


Fig 6. Sections through Bronze Age enclosure ditch (scale 1:60)



Fig 7. Site topography and principal Bronze Age features (scale 1:2125)

As the original pattern of silting within the ditch has been disturbed by a number of possible intermittent recuts, there was no clear or consistent asymmetrical pattern of silting, which would be indicative of the presence of an internal bank. These banks have been commonly identified at other contemporary enclosures. However, there are a few features, principally in the north of Area A, that would appear to be too close to the ditch to allow room for an internal bank. One possibility is that an internal bank as identified at other comparable enclosures was not continually present throughout the use of this particular enclosure. It is also possible that these features either cut through the internal bank or pre-dated the enclosure.²

Entrance to the enclosure

The excavations revealed one entrance within the western side of the enclosure. It

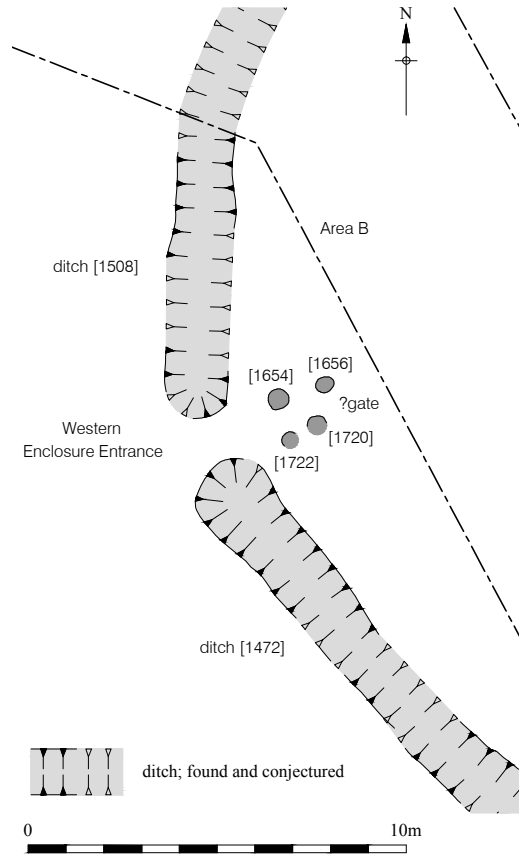


Fig 8. Detail of western entrance to enclosure (scale 1:200)

was defined by a causeway slightly less than 1.5m wide between two ditch termini (Figs 4 & 8). Immediately inside the enclosure was a group of four fairly substantial postholes, each measuring approximately 0.5m in diameter arranged in a trapezoidal pattern. Very similar structures have been found at other comparable enclosures and they are usually interpreted as representing some form of gate structure. The postholes may have formed a revetment for the putative internal bank, allowing access through it to the entrance, although it is also possible that they formed the superstructure of a gatehouse. If such an entranceway structure was present then access would have been quite restricted as the posts would have left a gap of less than 1m wide. Consideration of other contemporary enclosures, however, would suggest that this enclosure may have

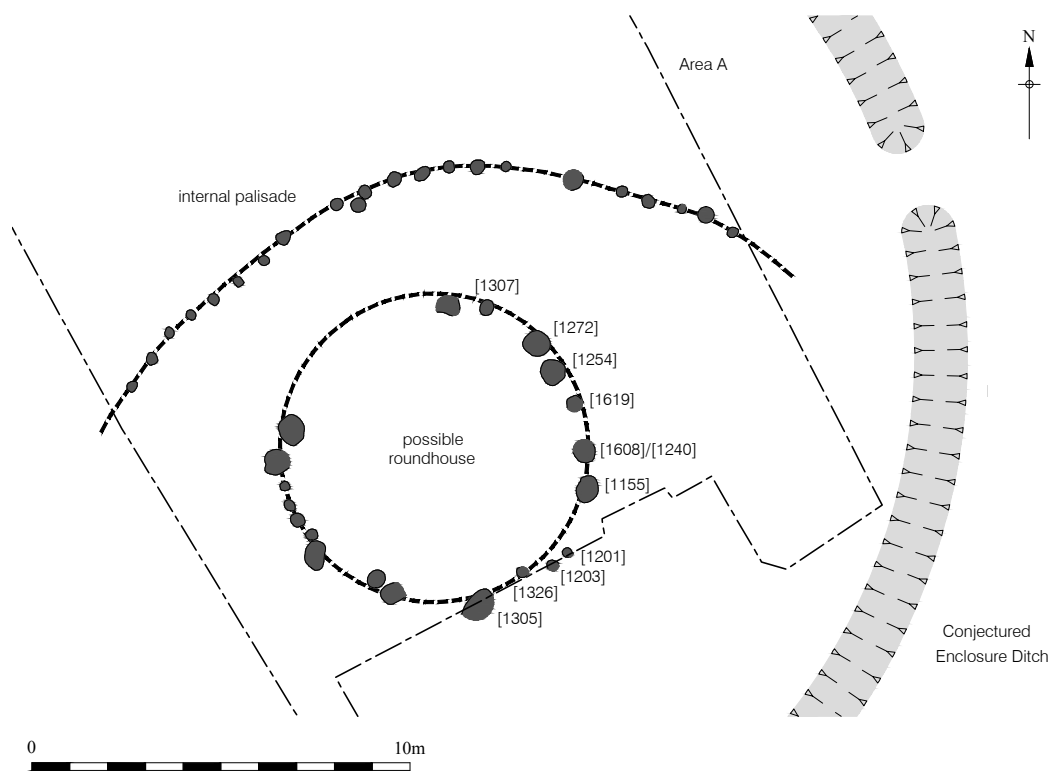


Fig 9. Detail of internal palisade and possible roundhouse (scale 1:200)

had one or more other, possibly wider entrances (Buckley & Hedges 1987; Priddy & Buckley 1987; Bond 1988). An eastern entrance is conjectured in the illustrations on the opposing side of the ditch (Figs 4, 7, 11 & 13).

An internal screen and possible roundhouse

Aligned approximately east to west and running through the centre of the enclosure was a c.20m long curving line formed of 21 postholes, each set approximately 0.80m apart (Fig 9). This appears to have formed a fence line or screen, roughly dividing the enclosure into two sections and cordoning off a possible roundhouse from the remainder of the enclosure to the north. If it was intended as a screen then it would have required infilling with wattle panels or withies.

Amongst the masses of postholes present within the enclosure, a circular arrangement of twenty or more may have represented a

structure measuring c.8m in diameter (Figs 9 & 10). Within the area defined by the circle of posts, there was a markedly lower density of other features than seen external to it, particularly to the east and west. The circular structure also lay well within the area defined by the arc of postholes that constituted the internal palisade. As repeatedly noticed within comparable enclosures, this structure most likely represented a roundhouse, usually interpreted as a dwelling. Identification of the precise elements of this structure has been problematic due to the density of postholes and other features along parts of its postulated circumference. The absence of a penannular eaves-drip or drainage gully may be due to the high degree of truncation by both Bronze Age and more recent features. Several postholes appeared to have been either replaced or deliberately dug out when the structure was dismantled. Nevertheless, a reasonably convincing circle of postholes could be discerned and it is thought very likely that amongst this mass of postholes

a circular post-built structure was present. However, not every posthole indicated on the plan could be unequivocally said to be part of the structure, and there may have been other postholes not indicated, that were. There is also the possibility that the structure may have been rebuilt, so that not all postholes present were necessarily utilised at the same time.

Some postholes contained basal post impressions, such as [1254] which had the impression of a *c.*0.45m diameter post (Fig 9). This posthole was quite substantial and may have formed part of the entrance structure. Other postholes may have had a more complex history. Posthole [1155], for example, truncated an earlier posthole, [1163], which in turn truncated a cut, [1185], that may have represented a deeper post impression measuring *c.*0.25m by 0.21m. This complex of cuts could in fact have represented either the removal of the post when the structure was dismantled or possibly the replacement of the original post during the lifetime of the building. Posthole [1305] also appeared to be composed of two elements, a circular posthole *c.*0.50m wide and an abutting shallower pit, which may have represented either a construction ramp or attempts to dig out the post.

The possible individual elements of the structure varied quite considerably in size. Large postholes were present sporadically along its circumference with smaller examples situated in between. If all of these features have been correctly interpreted as part of a roundhouse it would appear the basic construction method involved the erecting of a number of fairly widely spaced substantial posts in a circle and then infilling the spaces between these with smaller posts and possibly stakes. Posthole [1307] had an upper fill containing charcoal and burnt daub fragments, perhaps providing evidence of the nature of the wall cladding of this structure.

Possible roundhouse entrance

If the circular structure was a roundhouse then it must have had at least one entrance. During the Late Bronze Age, roundhouse entrances most commonly faced either east or south. The largest and deepest-set postholes

in this example were present on the eastern side and, although modern truncation had greatly obscured the area, it appeared that there were two double pairs ([1272], [1252]; [1608], [1163]) which formed a gap facing just north of east and *c.*1.5m wide, although there was a further posthole, [1619], located within this gap that may or may not have been related (Fig 9).

Late Bronze Age roundhouses frequently had entrance elements, usually termed porches. A number of features to the east and south-east of the roundhouse may have formed such structures. However, this area was severely disturbed by a mass of postholes and pits and it also lay close to the limits of excavation, resulting in two possible alternatives. If the double pair of larger postholes on the east side of the possible roundhouse indicated an entrance then some of the postholes further to the east could potentially have represented a porch. The most likely candidates are postholes [1082] and [1101]/[1109] (Fig 10). These were located *c.*2.5m from the putative entrance and if these are included then they would have formed a square structure comparable to the porches found on other roundhouses of the period. There were, however, other postholes in the vicinity that may have been associated with such a structure. It is also entirely possible that the structure did not have a porch or that such a feature lay beyond the area of excavation to the south-east. This latter possibility is given some support by the irregular line of stakeholes that ran transversely across the perimeter of the postulated roundhouse at this location (stakeholes [1169], [1171], [1175], [1177], [1179], [1181] & [1183]). Along the edge of the excavated area there were two roughly east to west aligned gullies, which led away from the possible roundhouse. Gully [1107] had two postholes at either end and gully [1088] had deeper 'slots' in the base that may have represented a short section of a plank-built fence or screen (Fig 10). Three smaller postholes, [1201], [1203] and [1326], along the southern side of the roundhouse circumference could, if the gullies and stakeholes did form an entrance structure, have represented the actual roundhouse entrance (Fig 9).

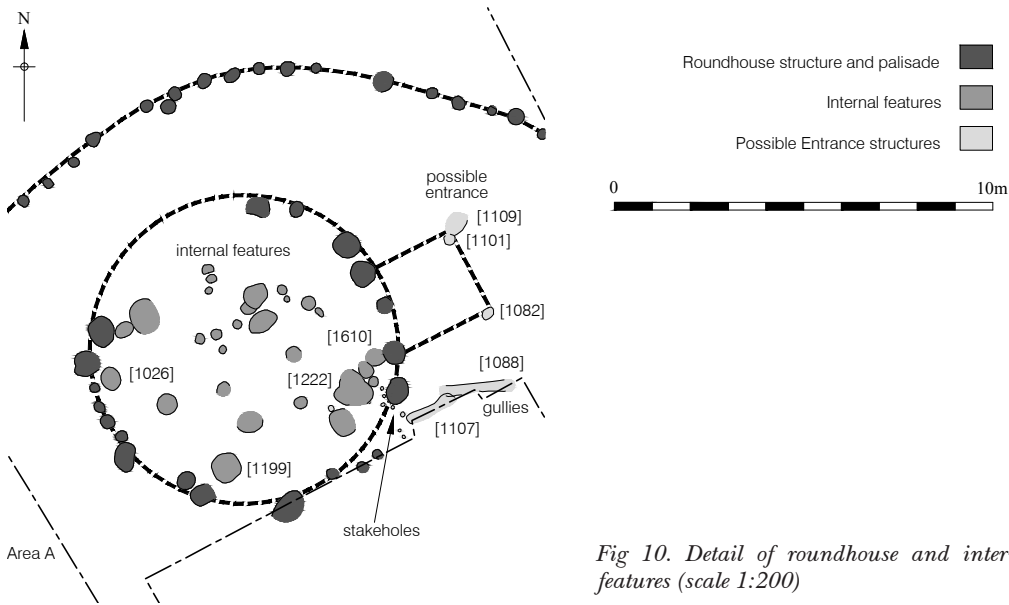


Fig 10. Detail of roundhouse and internal features (scale 1:200)

Features internal to the possible roundhouse

Twenty-seven features were present within the perimeter of the possible roundhouse, all of which have been interpreted as postholes (Fig 10). No central post was present, although there was a cluster of variably sized postholes located around the central point, but no coherent patterns were suggested by their layout. These postholes are likely to have represented structures such as loom settings or internal partitions. There was a concentration of large postholes close to the south-west perimeter of the roundhouse, four of which were intercutting. Two postholes, [1220] and [1199], both contained reasonably large quantities of burnt flint. This could have been utilised as post-packing although it is also possible that these features represented small pits where hearth rake out was deposited. Some postholes may even have served a ceremonial or ritual function; posthole [1610] also contained relatively high quantities of pottery, which may also have been deliberately placed. Feature [1222] (Fig 10), which appeared to consist of a series of intercutting pits or postholes, produced by far the largest single assemblage of struck flint from the site, with 22 pieces present. These flints could be typologically dated to the Mesolithic or Early Neolithic period and the assemblage probably origin-

ated from only two cores (see Bishop below). As Late Bronze Age pottery was also recovered from this feature, it is clear that the flint work was curated or residual.

Features external to the possible roundhouse

To the east of the possible roundhouse was a dense cluster of features, including a higher proportion of pits than recorded elsewhere during the excavations (Fig 11). Some of these, including [1102], [1004], [1103], [1187], [1074] and [1070], contained much higher than average quantities of pottery and/or burnt flint fragments, as well as occasional other fragments of artefacts such as fired clay, burnt daub and clay weights. This suggests that this area either witnessed a variety of 'domestically orientated' activities, such as food preparation and/or consumption, or was used to dispose of the residues from such activities. This evidence implies that the roundhouse was residential. Some of these pits virtually abutted the eastern sector of the roundhouse, which if contemporary with it, would negate the idea that there was an entrance at this point. Several of the more-irregular pits here had circular or oval depressions in their bases, and could conceivably have held large posts. These included [1074] whilst [1004] had a linear series of four circular impressions in

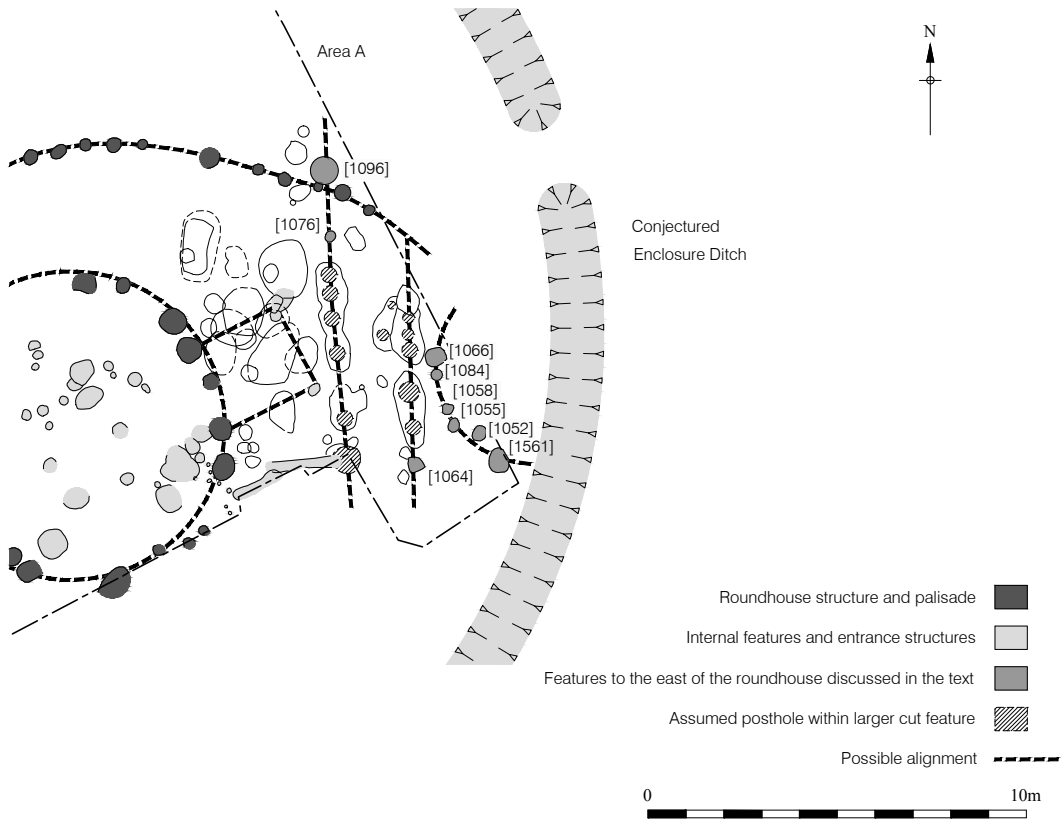


Fig 11. Features east of the roundhouse (scale 1:200)

its base and may have represented a bedding trench for four posts. Pits [1048], [1187] and [1189] may have held double posts. A possible alignment may be conjectured from postholes [1074], [1090] and [1096] and possible bedding trench [1004]. Many other possible alignments could be conjectured from the postholes and possible postholes in this area, with varying degrees of confidence (Fig 11).

To the west of the roundhouse there was also a high density of features, nearly all of which comprised reasonably large postholes, although some may have represented small pits (Fig 12). The only structure that could be inferred, however, comprised four postholes of similar size arranged in a square measuring approximately 1m by 1m, which formed a reasonably convincing but small four-post structure. The two westernmost postholes of this structure, [1143] and [1161], both contained fragments of cylin-

dricl clay weights (Fig 12). Four-post structures, as well as the six-post structure described below, have been commonly found on Late Bronze Age and Iron Age sites. They are interpreted as granaries or storehouses (Cunliffe & Poole 1991, 104; Harding 2012, 204).

To the north of the enclosure internal post screen, there was a relatively high density of pits (Fig 13). These mostly contained only small quantities of artefactual material. Exceptions included feature [1383] which produced 5.7kg of burnt flint and fragments of a cylindrical clay weight, and which may have represented either a hearth or a pit used to deposit hearth rake out, and feature [1367] which produced 1.4kg of pottery (see Cotton below). It is not clear why such high quantities of pottery were deposited here although it may have been interred ceremonially. To the north of these and continuing to the very edge of

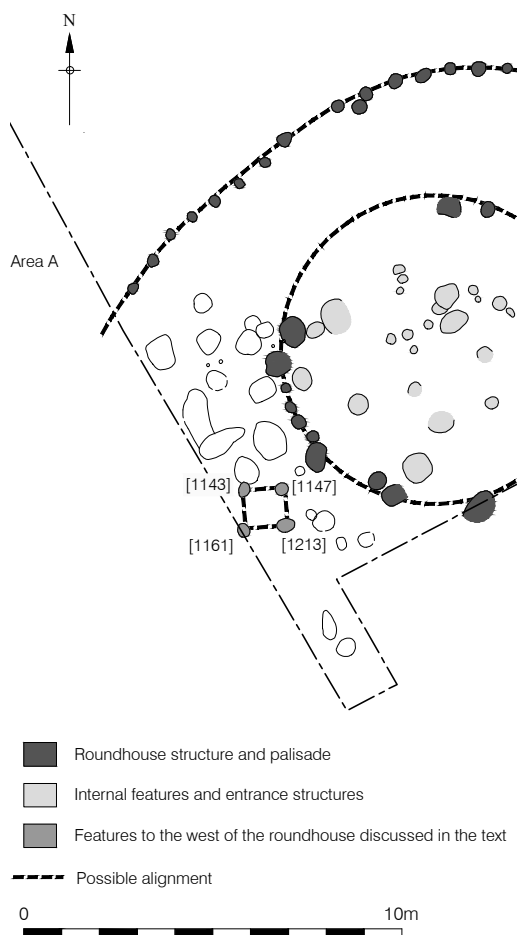


Fig 12. Features west of the roundhouse (scale 1:200)

the enclosure ditch was a concentration of postholes. It is possible to conjecture numerous linear, sub-circular and irregularly shaped arrangements, possibly representing sequences of buildings and fence lines, with varying degrees of conviction (Fig 13).

Beyond the enclosure

The most notable feature located outside of the enclosure proper consisted of a second curvilinear screen arrangement of 31 postholes (Fig 14). The arc, if continued, would have formed a large circle of roughly comparable size to that of the ditched enclosure itself, although this is less likely as there was no evidence for it continuing further westwards. The postholes were tightly

spaced, with many virtually abutting, and the arc of features would have formed an effective screen or fence line. It was located immediately to the west of the ditched enclosure although its relationship with the enclosure was not fully resolved. The ditch appeared to cut through some of the postholes of the screen and must therefore have superseded it. However, the precise relationships between the postholes and the ditch were not entirely clear; it was initially thought that they represented a fence line along the ditch's side, which had partially eroded, and therefore they could have been contemporary with it. It is also likely that the enclosure ditches were recut, further obscuring the relationships between the initial ditch and the screen. The northern section of the palisade formed a regular curve leading away from the western enclosure entrance and, if contemporary with it, would have restricted and regulated access into and out of it. The southern section formed a slightly more irregular and less-curved arc, following the edges of the ditched enclosure for a short distance. Similar fence lines have been recognised at comparable enclosures. Other than the palisade, a single feature, pit [1488], was truncated by the enclosure ditches. This produced a small fragment of Late Bronze Age pottery and testified to at least some activity at the site prior to the construction of the enclosure.

Just outside and to the south of the western enclosure entrance were four postholes arranged in a square measuring *c.*1.5m by 1.5m. If a further posthole to the north, [1650], and a putative posthole truncated by a post-medieval pit are included, this structure could be extended from a four- to a six-post arrangement (Fig 14). Three slightly smaller postholes close to the southern pair may also have been associated with it. To the south-west of this structure was a large, shallow circular pit, [1682], with an arc of seven stakeholes, [1785]–[1791], located around its western side (Fig 14). The pit was filled with a considerable quantity of uniformly burnt flint fragments, weighing nearly 14kg in total. It also contained a substantial pottery assemblage, mostly comprising large sherds and weighing in excess of 7kg, thereby representing nearly half of the prehistoric pottery by

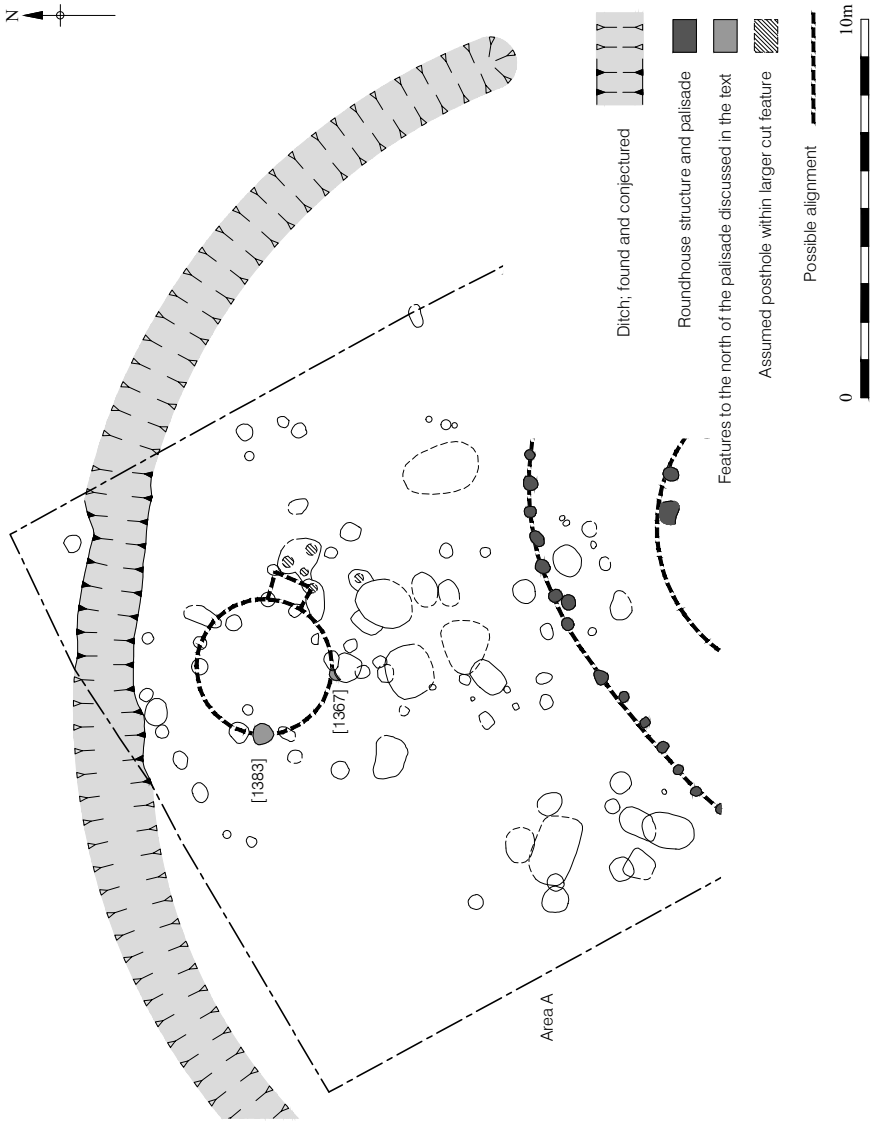


Fig 13. Features north of the internal palisade (scale 1:200)

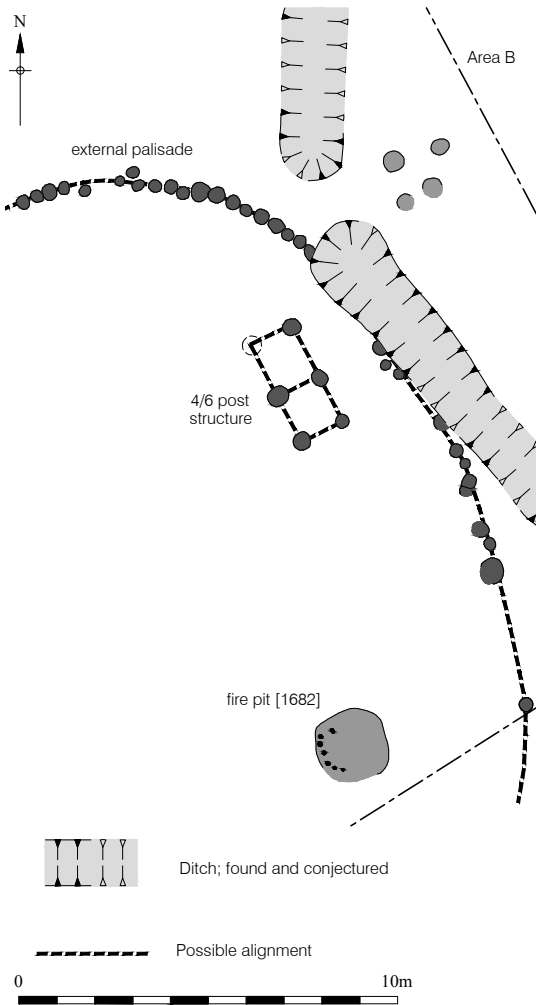


Fig 14. Features west of the enclosure (scale 1:200)

weight recovered from the site (see Cotton below). Large quantities of burnt clay and four conjoining fragments from a possible crucible were also recovered from the pit. Despite the evidence for burning, only small quantities of charcoal were present and this was confirmed by analysis of the samples taken, which indicated that only negligible quantities of carbonised wood or other organic remains were present. The function of this feature remains enigmatic. The lack of charcoal and reddening of the soil indicates that it was not used as a hearth *per se*, but it clearly contained large quantities of flint that had been burnt and some of the pottery

fragments were also coated with carbonised residues. Possible functions include it being used for cooking, with the burnt flint being used to heat food, either through boiling or dry baking. The stakes along its western side may have served as a screen. The pottery assemblage from its fill comprised the largest single group from the entire site and included large pieces from vessels, which would have been for communal use. The presence of a possible crucible hint at an industrial function, such as metal working, although little other corroborative evidence for industrial activities was associated. A nearby posthole, [1797], and stakehole, [1799], may have been related features. To the east of the pit was a cut feature that had been heavily truncated by modern drains [1700]. There was some evidence that it had contained a post but it also produced a significant quantity of pottery and some burnt flint. Although heavily truncated it is possible that it was of similar size to pit [1682] and it may have fulfilled a comparable function.

The remainder of the external features predominantly comprised scattered postholes, which did not form any recognisable structures. Away from the enclosure, in the south-west corner of the site, were two large, shallow features, interpreted as tree-throw hollows, [1827] and [1858] (Fig 4). Six postholes or small pits were present in the vicinity of these including one, [1856], that actually cut through one of the tree-throws and which produced a complete thick-walled thumb-pot-type cup placed upright in the base of the cut, as well as numerous fragments of fired clay. There was some evidence of *in situ* burning within the feature, as well as the presence of quantities of charcoal, predominantly of oak but also some hazel and cherry/blackthorn, which had been burnt at high temperatures (see Allott & Young below). To the north of this and presumably associated with it was a similar shaped and sized feature that also contained charcoal and fired clay-rich fills, [1840]. Certainly with [1856], the presence of a complete pot and evidence of intense burning suggests it was used for ritual purposes, and its similarities with [1840] suggest the latter may have performed a similar role. It is conceivable that these

activities were connected with the removal of the tree with which they were linked.

Features in Area C

In Area C, 16 features were recorded underlying the plough soil (Figs 2 & 15). These were interpreted as representing four pits and 12 postholes. A number of other elements were present, although there was some doubt as to whether these were genuine purposefully dug features, anomalies within the natural deposits or root/animal disturbance. Little dating evidence was recovered from them although it is thought they were predominantly associated with the Late Bronze Age activity on site. No clear structures or patterns could be construed from the layout of these features, although they showed a similar density as recorded over most of Areas A and B and confirmed that fairly intensive activity continued this far north. At North Ring, Mucking, in Essex, there was a similar pattern of external activity outside the ditched enclosure (Bond 1988).

Site abandonment and a cessation of activity

Sealing all of the features within Areas A, B and C was a layer of loosely compacted mid greyish brown sandy clay-silt, up to 0.30m thick. It was interpreted as the formation of a biologically and perhaps plough-worked soil which marked the abandonment of the enclosure and the associated Late Bronze Age activity ([1023], Fig 6). It is likely that the soil horizon formed as the site reverted to agricultural usage and this process appeared to continue from the abandonment of the site around the end of the Bronze Age, probably until the 18th or 19th centuries. While these circular enclosures frequently show evidence of abandonment at the conclusion of the Bronze Age (see site discussion below), at other types of settlement in the region such as Hunt's Hill in Havering there is evidence that occupation continued into the Iron Age (Howell *et al* 2011, 44–50).

No features of unequivocal Roman, Saxon or medieval date were identified during the Phase IV investigations, although a single fragment of possible Roman pottery was recovered from the top of one of the features



Fig 15. Features in Area C (scale 1:250)

in Area C, and more sherds of Roman, Saxon and medieval pottery, plus possible pits and structures were identified during the earlier investigations at the Oliver Close Estate.

Post-medieval activity

There was no evidence from the Phase IV investigations for any sustained use of the site from the abandonment of the Late Bronze Age enclosure until the 18th–19th centuries, when a number of features, mostly pits and service trenches, were dug across the areas excavated (Fig 16). By the late 19th century, rows of tenements had been constructed facing on to Oliver Road, and the features recorded are likely to be linked to the occupation of these properties. The majority of the recorded features consisted of unlined pits that contained a range of domestic refuse, including broken pottery, clay tobacco pipe, bone, shellfish, ash, pieces of roof slate, broken bricks, glassware and assorted metal items. The ceramics

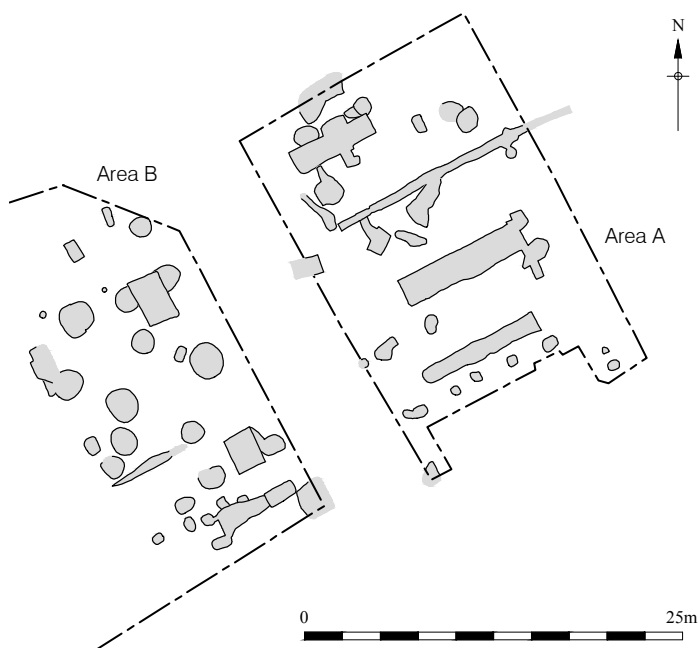


Fig 16. Post-medieval features (scale 1:500)

recovered from these pits ranged in date from the 18th to 19th century, although consideration of the individual assemblages suggested that the pits were infilled between the late 19th and the middle of the 20th century. The pits were most frequent in Area B and it is thought that they represented rubbish/cess pits constructed in the rear gardens of the tenements facing on to Oliver Road. Remnants of humic, worm-sorted soils indicative of gardening or horticultural activity were also identified in this area.

Traversing approximately east to west through Area A and extending on to Area B were a series of drainage runs with associated inspection holes and downpipes. These are likely to have represented services associated with the tenements facing on to Oliver Road. A similar range of features was recorded in Area C which were also interpreted as service trenches relating to the residential building fronting on to Oliver Road. The latest recorded features consisted of two Anderson air raid shelters, both of which truncated the enclosure ditch and the post-medieval plough and topsoil ([1023] & [1214], Fig 6) which covered much of the site. These were constructed in the back gardens of the tenements during the Second World War. After the war a temporary pre-fabricated

housing estate was constructed here; the positions of these houses were delineated by concrete rafts. Much of the central part of Area B as well as the north-western part of the Phase IV development sites had been seriously truncated by the construction of the Terence Messenger and Stanley Horstead residential tower blocks, during the 1960s.

LITHIC MATERIAL FROM THE OLIVER CLOSE ESTATE

Barry Bishop

Introduction

The Phase IV excavations recovered 57 struck flints and just over 27kg of burnt flint and stone fragments. This report quantifies and describes the material. It concentrates on the assemblage's technological and typological characteristics in order to formulate a chronological framework and includes some preliminary impressions and interpretations of the material.

Burnt flint

Just over 27kg of burnt stone, consisting of otherwise unmodified fragments of heat affected flint and occasional quartzite

pebbles, was recovered from 62 separate contexts. Where identifiable it consisted of smooth-worn or chatter-marked alluvial cobbles. By far the largest quantity was recovered from 'fire pit' [1682], which produced nearly 14kg of material (Fig 14). This had mostly been burnt to a uniform greyish white colour and, although generally very fragmentary, several large rounded cobbles weighing up to 150g were present. It would appear that large alluvial cobbles had been gathered and deliberately burnt, characteristic of 'pot-boilers'. Although the very high quantities such as recorded from 'burnt mound' sites were not found here, the concentrations and the degree of burning suggest the intensive and systematic production of burnt flint, usually identified with processes such as cooking or industrial or craft activities (Hedges 1975; Barfield & Hodder 1987; Barfield 1991).

A large quantity comprising nearly 6kg of burnt flint was also recovered from posthole [1383] (Fig 13). There was no evidence of *in situ* burning in this feature and it is presumed that it was incorporated as post-packing. Small pit or posthole [1272] also contained a significant quantity at just over 1.7kg and, in addition, produced several large rounded pebbles. Other contexts that produced large quantities (arbitrarily defined here as over 100g) included a number of other postholes, which again may indicate the use of burnt flint for post-packing, and some of the fills of the enclosure ditch. This may have resulted from the periodic dumping of hearth rake out or the 'sweeping' of the internal area of occupation debris into the ditch. The remainder of the burnt flint was recovered from numerous disparate contexts and most likely represents residual 'background' waste accruing from hearth use within and around the enclosure.

Struck flint

Fifty-seven pieces of struck flint derived from 23 different contexts. These tools and waste originated mostly from good-quality translucent black to semi-opaque grey flint with a weathered but still thick and rough cortex. A few pieces were of coarser-grained cherty flint and some retained patches of smooth rolled cortex. It is likely that all

of the raw materials were gathered from local alluvial terrace deposits although the prevalence of pieces with thick rough cortex suggests that better quality material may have been selected. The condition of the struck flint varied, but it was predominantly in a good and still reasonably sharp condition, indicating that although much of it was probably redeposited (see below) it had not experienced extensive post-depositional disturbance.

The only typologically diagnostic piece consisted of a truncated blade from pit [1222] (Fig 10), which is most likely to be of Mesolithic date. Technologically the assemblage suggests a mix of industries, the most obvious and probably accounting for the majority of the material was a systematic blade-based reduction strategy typical of Mesolithic and Early Neolithic industries. A much smaller component involved the rather ad hoc production of thick, broad flakes and the minimal and opportunistic working of cores; these strategies are consistent with Bronze Age industries and may be contemporary with the Late Bronze Age occupation at the site. Included within this may be the two crudely and minimally worked cores from 'fire pit' [1682] (Fig 14) and a thick badly struck primary flake with some rough bifacial flaking around its bulbar end, forming a crude denticulated edge from pit [1002].

The bulk of the struck flint possesses Mesolithic or Early Neolithic characteristics and would significantly pre-date the main period of occupation at the site. This includes the material from pit [1222], which produced the largest assemblage recovered during the excavations. This comprises flakes, blades and knapping waste which, although not refitting, probably mostly originated from just two cores. Also present were the truncated blade and a cortically backed blade with extensive edge damage consistent with a use for cutting or sawing. Although this feature has been provisionally dated to the Late Bronze Age, its contained struck flint assemblage would be more compatible with a Mesolithic or Early Neolithic date and indicates that this material is residual.

Overall, this early material is suggestive of occasional visits to the site by small groups, perhaps attracted by the site's location with its views across the Lea Valley.

Only a very few pieces may have been contemporary with the Late Bronze Age occupation, indicating that flint use was a minor aspect of the activities conducted during that period. Perhaps the most convincing evidence of some flint use was the small assemblage recovered from 'fire pit' [1682] that tentatively suggests that the production of struck flint was associated with the activities represented by the pit. Notably, none of the struck pieces from this context had been burnt, indicating a different depositional history to that of the mass of burnt flint recovered.

The assemblage is of significance in that it indicates prehistoric activity that pre-dates the main period of occupation at the site. There is also some limited evidence of flint working associated with the Late Bronze Age occupation that may help understand the range of activities represented there, as well as the role of flint working within a Late Bronze Age settlement context, close to the end of structured flint working within Britain.

PREHISTORIC POTTERY FROM THE OLIVER CLOSE ESTATE

Jonathan Cotton

Introduction

A modest assemblage of 763 sherds weighing 14.95kg was recovered from 104 separate contexts in Areas A and B, all but seven of which are likely to be of prehistoric date. The vast majority of the prehistoric contexts comprise the fills of pits and postholes within and beyond the main ditched enclosure.

The assemblage is in reasonably fresh condition with intact surfaces, although much of it is in the form of small plain body sherds. Few contexts held large groups of material: for example, a mere 14 contexts produced ten sherds or more, while only 16 contained sherd assemblages weighing more than 100g.

Nearly half of the total assemblage (by weight) and a little under a third (by sherd count) was recovered from fill [1681] of a single large pit, [1682], beyond the ditched enclosure. Reasonably substantial groups by sherd count and/or weight were recovered from the fills of three other pits within the enclosure (contexts [1002], [1367] &

[1610]), and from a number of contexts comprising the primary and secondary/upper fills of the enclosure ditch itself (eg [1005], [1507], [1580] & [1581]).

With the exception of one or two sherds of potentially Early Neolithic (*c.*4100–*c.*3650 BC) and Middle Bronze Age (MBA) (*c.*1500–*c.*1000 BC) origin, the pottery is of Late Bronze Age (LBA) (*c.*1000–*c.*800 BC) character and is dominated by elements here taken to be characteristic of a classic Plainware assemblage (Barrett 1980; *sensu* Needham 2007).

Fabrics

The pottery was quantified by sherd count/weight within individual contexts, and was sorted by fabric using the system devised for Essex by Nigel Brown (1988, fiches 3–7).

Fabrics were initially scanned macroscopically on the basis of type, size and frequency of inclusions; these subdivisions were subsequently confirmed by use of a x20 binocular microscope.

The inclusions were overwhelmingly of crushed burnt flint, of which six main fabric types (fabrics A–E & U) were identified, although quartz (fabric L), sand (fabric H) and grog (fabric M) were used too. Small pellets of iron oxide were also noted in a number of fabrics, though these appear to have been incidentally incorporated in the clay matrices rather than representing deliberate additions.

Size of inclusions:

- S = <1mm diameter
- M = 1–2mm diameter
- L = >2mm diameter

Density of inclusions:

- 1 = <6 per sq cm
- 2 = 6–10 per sq cm
- 3 = >10 per sq cm

Fabrics:

- A Flint, S 2 well sorted
- B Flint, S-M 2
- C Flint, S-M with occasional L 2
- D Flint, S-L 2 poorly sorted
- E Flint & sand, S-M 2
- H Sand, S 2
- L Quartz with some sand, S-L 2
- M Grog, with sand/flint
- U Flint, S-L 2 with occasional irregular voids

Table 1. Percentage of fabrics, by sherd count and weight, all contexts

Fabric code	Sherd count	% count	Sherd weight (g)	% weight
A	53	6.9	563.6	3.77
B	92	12.1	1084.2	7.25
C	390	51.1	6641.1	44.40
D	108	14.2	3701.9	24.75
C/D	2	0.3	109.0	0.73
D/U	56	7.3	1384.0	9.25
E	1	0.1	3.5	0.02
H	31	4.1	184.6	1.23
L	2	0.3	14.0	0.09
M	5	0.7	81.0	0.54
U	23	3.0	1191.0	7.96
Total	763	100.0	14957.9	100.00

Table 1 indicates that flint fabrics C and D are the most common, with flint fabrics D/U, U and B well represented. Of the sandy fabrics, H is the most significant. The assemblage is dominated by coarse jars and bowls of various forms and sizes; fine ware jars and bowls are few in number and only one small complete cup is present.

As noted elsewhere, there is a correlation between fabric type and vessel form: jars and large bowls are confined to fabrics C, D and U; the few fine bowls are invariably in flint fabric A or sand fabric H. The single small cup is in flint fabric B.

Vessel class and form

Where possible, sherds were ascribed to the five vessel classes originally defined by Barrett (1980) to characterise LBA pottery assemblages, as follows:

- Class I (coarse jars)
- Class II (fine jars)
- Class III (coarse bowls)
- Class IV (fine bowls)
- Class V (cups)

Diagnostic sherds are relatively few, and the range of forms is limited. Much of the assemblage comprises coarse vessels of classes I and/or III. These are often difficult to assign from small sherds. Typically, fine wares of classes II and IV are in a minority, while class V cups are confined to the complete

thick-walled round-based vessel from isolated context [1855], beyond the enclosure.

Where sherds can be assigned to a vessel class they can occasionally be ascribed to a more specific form, as follows:

- Jar, round shouldered with short upright rim and internal bevel;
- Jar, convex sided with inward curving 'hook' rim;
- Jar, slack-shouldered with expanded rim;
- Jar, bipartite or slightly angular shoulder;
- Jar, round shouldered with concave neck and everted flared rim;
- Bowl, round-bodied, closed;
- Bowl, round-bodied, open.

Rims are generally rounded or flattened, occasionally expanded, and a number have deliberate and well-formed internal bevels. There are several flared examples with weak cabling along the top. External cordons below rims are absent. Other decoration is virtually absent, apart from a single sherd of a class I jar with shallow fingertip decoration at the rounded shoulder and a tiny sherd of a class IV bowl with traces of linear tooling. A single sherd of a class I jar has been neatly perforated below the rim before firing. Handles or handled vessels are absent.

Bases are usually either flat or pinched to produce a slightly protruding foot. One or two have a dense 'crusting' of burnt flint on the underside, the latter suggesting that they had been placed on a bed of burnt

flint to dry prior to firing. Other techniques indicative of the process of manufacture include the presence of coil junctions (particularly noticeable at changes of wall angle such as rims, shoulders and bases), finger or grass wiping of coarse vessels and surface burnishing/polishing of fine vessels.

Distribution

The ceramic assemblage was widely but thinly

scattered across the site. As noted above, few contexts yielded anything more than a handful of miscellaneous plain body sherds a few tens of grams in weight. However, grouping sherds from specific structures and areas of the site together offers one way of organising the material, and this contextualising approach has been adopted here.

The material is considered under the following main headings (see Table 2): pre-enclosure activity; enclosure ditch fills;

Table 2. Percentage of fabrics from grouped and individual contexts across the site (for illustrated material see Figs 17 & 18)

Fabrics	A	B	C	D	E	H	L	M	U	P no.
Grouped contexts										
Enclosure ditch fills (46 sherds: 1130g)	0.9	13.2	28.2	25.4	-	5.6	0.8	6.2	17.3	P2–P5
?Roundhouse contexts (76 sherds: 889.4g)	2.3	5.4	85.5	5.0	0.4	1.3	-	-	-	P7–P13
Features S of internal post screen (162 sherds: 2442.9g)	3.0	15.3	47.0	31.2	-	2.8	-	0.5	-	P14–P25
Features N of internal post screen (127 sherds: 1942.7g)	1.7	4.7	18.7	2.7	-	0.7	-	-	71.2	P26–P31
External ‘fire pits’ [1682] & [1700] (251 sherds: 7249g)	5.2	0.4	47.0	32.2	-	0.1	-	-	-	P32–P43
Other external features	2.5	32.2	42.6	21.5	-	1.0	0.2	-	-	P44, P45
Individual contexts										
Enclosure ditch terminal [1507] (10 sherds: 509g)	-	-	-	40.0	-	12.2	-	4.1	38.5	P1
Pit [1609], ?roundhouse interior (40 sherds: 602g)	1.3	-	98.7	-	-	-	-	-	-	P12, P13
Pit [1001], E of ?roundhouse (56 sherds: 589g)	4.0	-	56.2	31.0	-	8.1	-	0.7	-	P14–P25
Pit [1366], N of internal post screen (57 sherds: 1402g)	1.3	-	-	-	-	-	-	-	98.7	P26–P31
‘Fire pit’ [1681], beyond the enclosure (234 sherds: 7031g)	5.3	0.1	45.6	33.2	-	0.1	-	-	15.6	P32–P43

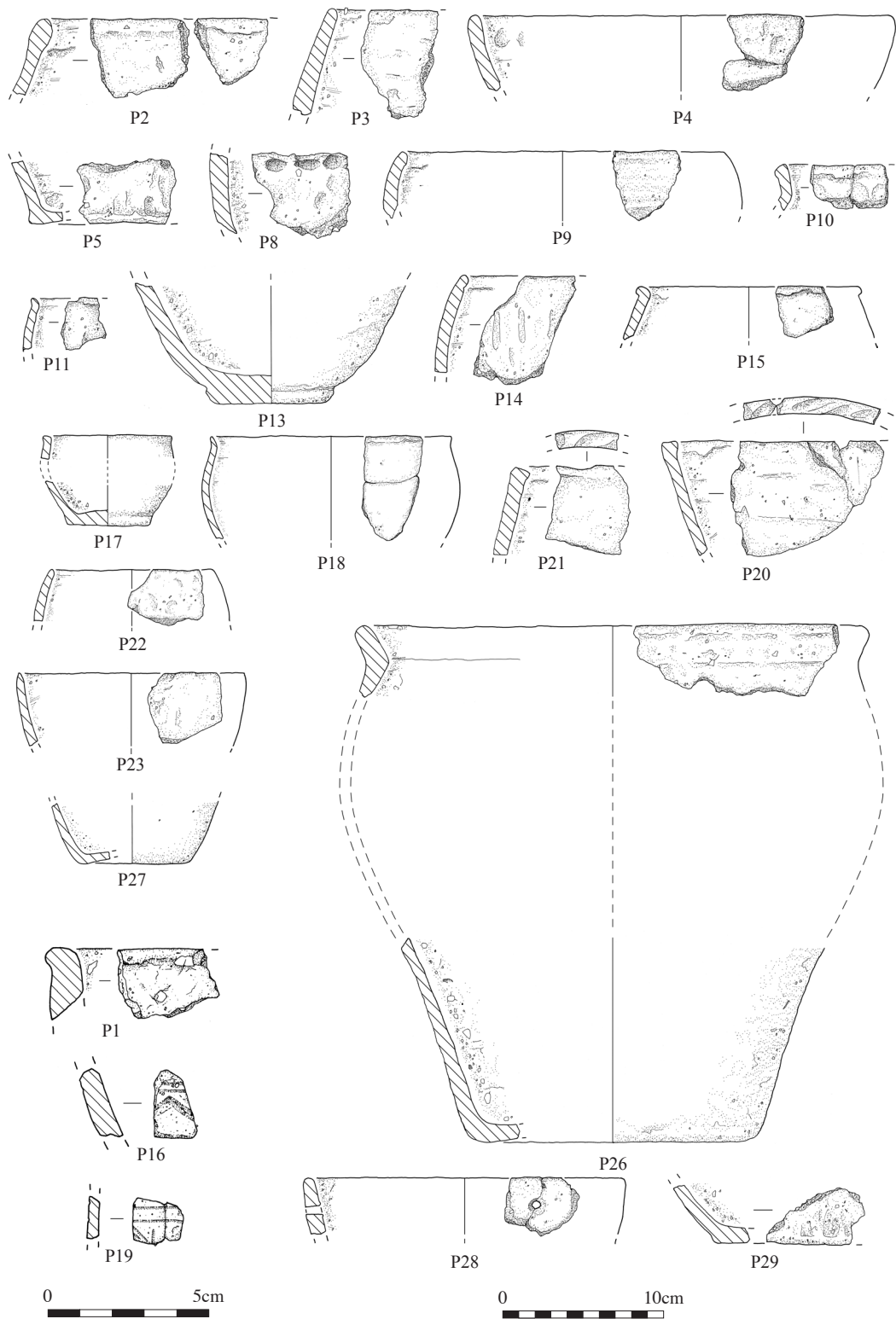


Fig 17. Pottery vessels P1–P29. Detailed descriptions of vessel forms and fabrics are provided in the text (scale 1:4, except P1, P16 & P19 scale 1:2)

internal features (post screen, possible roundhouse, features inside the roundhouse, features south of the screen and features north of the screen); and external features (post screen, six-post structure, 'fire pits' [1682] and [1700], and other features).

Pre-enclosure activity

A handful of sherds relate to early, pre-enclosure, activity on the site. These include a single small rim sherd of ?Early Neolithic open bowl (Fig 17, P1), from a small posthole north of the post screen, and a thick-walled body sherd (fabric U) of possible MBA date from one of the main enclosure ditch terminals (context [1507]).

In addition, one linear feature (context [1488]) appears to pre-date the enclosure ditch, but produced only a single undiagnostic body sherd in fabric B.

P1. Simple upright rim laminated in the break; heavily flint-tempered fabric D. ?Early Neolithic. Fill [1287] of posthole [1288], north of post screen (Fig 17).

Enclosure ditch fills

Forty-six sherds weighing 1130g were recovered from nine contexts that comprised the fills of the ditch of the main enclosure. Most represented fragments of coarse jars in fabrics B, C and D (including a basal sherd with dense flint 'crusting' from context [1099]), although there were a number of thinner-walled body sherds, some with smoothed and/or burnished surfaces in fabrics A, H and M. Many of the latter appear to have been retrieved from the upper fills.

A small group from the primary fill (context [1005]) contained sherds of a class I jar with an internally expanded rim (Fig 17, P2), and one of two groups from the upper fills (context [1580]) contained a sherd of a class I jar of weakly biconical form with a rounded shoulder (Fig 17, P3). One small sherd of a coarse jar or bowl with weak cabling on top of an internally bevelled rim was recovered from undifferentiated ditch context [1581] (P6).

The largest group by weight was recovered from the northern ditch terminal at the narrow western entrance (context [1507]). This contained the thick-walled body sherd

of possible MBA date noted above, together with sherds of a class III open bowl with a simple, externally thickened rim (Fig 17, P4), and several basal sherds including one with external thumbing (Fig 17, P5).

P2. Class I jar, fabric C. Two sherds of inturned, internally thickened rounded rim, smoothed inside and out. Primary fill [1005] (Fig 17).

P3. Class I jar, fabric C. Inturned simple rim with rounded shoulder. Upper fill [1580] (Fig 17).

P4. Class III bowl, fabric C/D. Rim of open bowl with simple plain rim externally thickened. Internal wiping, [1507] (Fig 17).

P5. Class I jar/class III bowl, fabric D. Sherd of base with thumbing at foot, [1507] (Fig 17).

P6. Class I jar/class III bowl, fabric C. Inturned rim with internal bevel and weak cabling, [1581].

Internal features

Post screen (internal palisade)

Only one posthole (context [1475]) within the arcing screen produced any ceramic material: three small body sherds, including one with burnished surfaces in fabric A.

Possible roundhouse

Small groups of ceramics were recovered from seven of the postholes interpreted as comprising the structural elements of a large roundhouse south of (*ie* inside) the post screen. These included sherds of class I jars and/or class III bowls, including one with weak cabling at the rim, a second from the same feature with fingertipping at the rounded shoulder (Fig 17, P8) and a third with a pronounced 'hook' rim (Fig 17, P9). A single basal sherd with dense flint crusting was recovered from [1200].

P7. Class I jar/class III bowl, fabric C. Simple, flattened inturned rim with possible weak cabling. Fill [1154] of posthole [1155] on east side of roundhouse.

P8. Class I jar, fabric D. Rounded shoulder with traces of fingertip decoration. Fill [1154] of posthole [1155] on east side of roundhouse (Fig 17).

P9. Class I jar/class III bowl, fabric C. Simple inturned 'hook' rim. Fill [1304] of double posthole [1305] (Fig 17).

- P10. Class I jar, fabric C. Two conjoining sherds of short upright, slightly out-turned rim, externally expanded. Fill [1406] of posthole [1407] (Fig 17).
- P11. Class III bowl, fabric C. Small hemispherical bowl with simple upright, slightly out-turned rim with internal bevel. Carbon residue on internal wall. Fill [1406] of posthole [1407] (Fig 17).

Features inside the roundhouse

Fifty-six sherds were recovered from eight small pits or postholes within the possible circular roundhouse. These included a single sherd of a thin-walled class III bowl in fabric A from [1025] (P12), and a number of sherds belonging to the flint-crusted base and lower wall of a class I jar/class III bowl from context [1609] (P13).

- P12. Class III bowl, fabric A. Simple, slightly inturned 'hook' rim. Fill [1025] of pit [1026].
- P13. Class I jar/class III bowl, fabric D. Base of round-bodied jar/bowl with flint crusting on the underside of the base. Fill [1609] of small pit [1610] (Fig 17).

Features south of the post screen

Over 160 sherds weighing nearly 2.5kg were recovered from features south of (*ie* inside) the post screen close to the putative roundhouse. The majority of these, some of large size, were recovered from a concentration of pits and postholes lying immediately to the east in an area interpreted as a possible porch or entrance structure. Other finds from this same complex include complete and fragmentary perforated clay weights and several possible fragments of (unperforated) clay slab.

The ceramics include a few class I jars with convex sides and 'hook' rims (*eg* Fig 17, P14) and round-shouldered, biconical and flaring forms, several of which (*eg* Fig 17, P20 & P21) have weak cabled decoration along the top of flattened and/or bevelled rims. Smaller bowl forms are rather more prevalent in these contexts, and they include several thin-walled class IV examples amongst the group of sherds recovered from context [1001] (*eg* Fig 17, P18 & P19), one of which has shallow-tooled decoration.

- P14. Class I jar/class III bowl, fabric C. 'Hook'

rim with internally thickened bevel. Traces of internal wiping. Fill [1001] of pit [1002], east of the roundhouse (Fig 17).

- P15. Class I jar/class III bowl, fabric C. Inturned, externally thickened beaded bevelled rim. Fill [1001] of pit [1002], east of the roundhouse (Fig 17).
- P16. Class III bowl, fabric A. Sherd from below shoulder with internal and external burnishing and tooled lines. Fill [1001] of pit [1002], east of the roundhouse (Fig 17).
- P17. Class III bowl, fabric D. Simple inturned bevelled rim; impressions of crushed burnt flint on underside of base; walls externally smoothed. Fill [1001] of pit [1002], east of the roundhouse (Fig 17).
- P18. Class IV bowl, fabric H. Globular bowl with simple, plain upright rim. Surface burnished inside and out, outside very worn. Fill [1001] of pit [1002], east of the roundhouse (Fig 17).
- P19. Class IV bowl, fabric A. Two small conjoining bowl sherds with external burnishing and tooled lines. Fill [1001] of pit [1002], east of the roundhouse (Fig 17).
- P20. Class I jar/class III bowl, fabric C. Outward-flaring, simply expanded rim with weak cabling. Wiping inside and out. Fill [1003] of pit [1004], east of the roundhouse (Fig 17).
- P21. Class I jar, fabric C. Simple, slightly inturned rim with weak cabling. Fill [1089] of pit [1090], east of the roundhouse (Fig 17).
- P22. Class III bowl, fabric C. Simple upright/slightly inturned rim with slight internal bevel. Fill [1089] of pit [1090], east of the roundhouse (Fig 17).
- P23. Class III bowl, fabric C. Open bowl with simple upright rim. Fill [1114] of posthole [1115], east of the roundhouse (Fig 17).
- P24. Class IV bowl, fabric A. Upright rim with internal bevel, burnished inside and out. Fill [1130] of posthole [1131], east of the roundhouse.
- P25. Class I jar, fabric D. Simple out-turned rim. Fill [1184] of posthole [1185], east of the roundhouse.

Features north of the post screen

One hundred and twenty-seven sherds weighing nearly 2kg were recovered from a second group of amorphous pits and postholes to the north of (*ie* outside) the

post screen. Nearly half by sherd count, and almost three quarters by weight, were recovered from the fill of a single small pit or posthole context [1366]. Most of these appear to belong to a single large class I jar with an everted rounded rim with a well-formed internal bevel in a brittle hybrid fabric D/U (Fig 17, P26). This was accompanied by a sherd of class III bowl in fabric A (Fig 17, P27).

There are roughly equal numbers of jar and bowl forms. One sherd of a class I jar with a simple upright rim from context [1382] had been perforated before firing (Fig 17, P28); also noteworthy is a class II jar with a short upright and internally bevelled rim with burnished surfaces (Fig 18, P31).

- P26. Class I jar, fabric D/U. Large jar with simple out-turned rim with well-formed internal bevel; some flint temper >9mm in size. Fill [1366] of pit [1367], north of the post screen (Fig 17).
- P27. Class III bowl, fabric A. Base of small bowl, externally smoothed. Fill [1366] of pit [1367], north of the post screen (Fig 17).
- P28. Class I jar, fabric C. Simple, rounded upright rim with hole drilled from the outside before firing. Fill [1382] of posthole [1383], north of post screen (Fig 17).
- P29. Class I jar, fabric D. Rounded shoulder. Fill [1498] of ovoid pit [1499], north of post screen (Fig 17).
- P30. Class III bowl, fabric A. Simple, slightly inturned flattened rim, burnished inside and out. Fill [1498] of ovoid pit [1499], north of post screen (Fig 18).
- P31. Class II jar, fabric C. Round-bodied jar with short out-turned rim with internal bevel. Burnished inside and out. Fill [1527] of posthole [1528], north of post screen (adjacent to enclosure ditch) (Fig 18).

External features

Post screen (external palisade)

Only three of the posts that comprise the external post screen produced small groups of pottery totalling seven sherds ([1631], [1641] & [1763]). All comprised undiagnostic body sherds in fabrics B and C.

Six-post structure

A handful of small body sherds were recov-

ered from the fills of the various postholes comprising the six-post structure. A range of fabrics are represented and, apart from the presence of several sherds in fine fabric A, no particular patterning was discernible.

'Fire pits' [1682] and [1700]

As noted earlier, the group of 234 sherds weighing over 7kg from fill [1681] of pit [1682] represents the largest single ceramic group on the site (Fig 14). In addition to the pottery, the pit fill contained fired clay, four conjoining fragments of possible crucible and over 14kg of burnt flint. By contrast, there are only 17 sherds weighing just over 200g from fill [1699] of pit [1700], though the latter had been much disturbed by post-medieval intrusions.

The group from fill [1681] contains a number of large conjoining sherds belonging to several class I jars in fabrics C and U, one with a round shoulder and short upright internally bevelled rim (Fig 18, P32), and a second with convex sides, thin externally 'rippled' walls and a 'hook' rim (Fig 18, P33). A third class I jar is more biconical with a short upright rim with an internal bevel and wiped surface (Fig 18, P34). Finer vessels include a class III bowl with weak cabling at the rim (Fig 18, P38) in fabric A, a small class III bowl with a short upright internally bevelled rim (Fig 18, P39) and an expanded base, also in fabric A, and a flaring class IV open bowl in sand fabric H with smoothed/burnished surfaces (Fig 18, P40).

The group from fill [1699] is much smaller, but contains at least one class I jar (P41), and two class I jars/class III bowls, one with a short upright rim (Fig 18, P42) and the second with an angled shoulder (Fig 18, P43).

- P32. Class I jar, fabric C. Large, conjoining sherds of round-shouldered jar; short upright irregularly rounded rim with internal bevel; thumbled foot. Vertical wiping on exterior, horizontal wiping on interior. Traces of internal sooting on lower wall. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P33. Class I jar, fabric U. Large conjoining brittle sherds of jar with 'hook' rim, thumbled foot and pronounced vertical rippled smearing on the exterior surface.

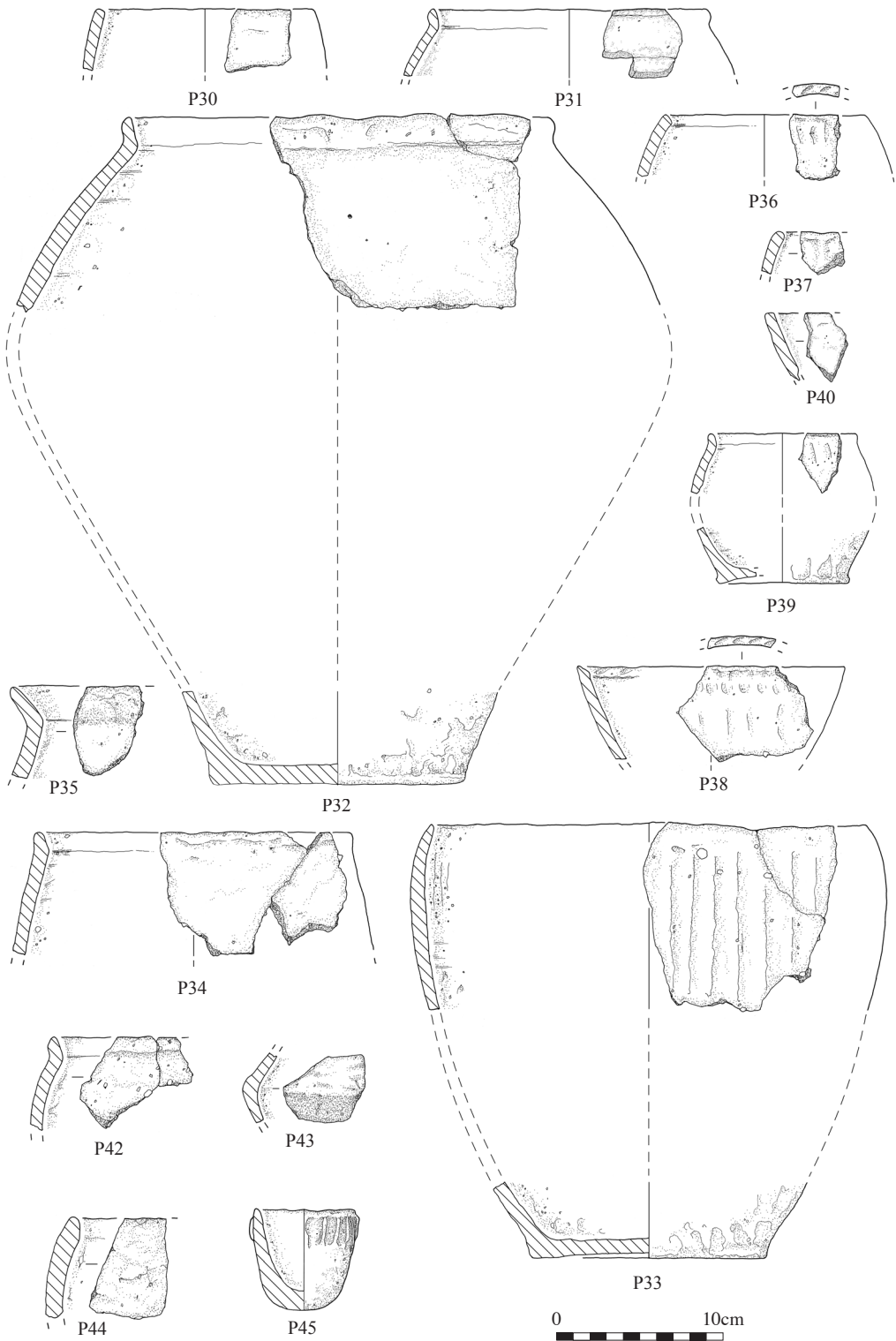


Fig 18. Pottery vessels P30–P45. Detailed descriptions of vessel forms and fabrics are provided in the text (scale 1:4)

- Traces of internal sooting on the lower wall. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P34. Class I jar, fabric C. Large rim sherd of weakly shouldered biconical jar with upright internally bevelled rim. Wiping on interior surfaces. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P35. Class I jar, fabric C. Plain short everted rim with well-formed internal bevel. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P36. Class I jar/class III bowl, fabric A. Small 'hook' rim, internal bevel with faint cabling. Rippling below rim on external surface. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P37. Class I jar/class III bowl, fabric C. Small plain 'hook' rim. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P38. Class I jar/class III bowl, fabric A. Open, flaring jar/bowl with internal bevel and cabling on rim. Rippling below rim on external surface. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P39. Class III bowl, fabric A. Small hemispherical bowl with plain upright rim with internal bevel, thumbed foot and traces of internal wiping. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P40. Class IV bowl, fabric H. Open, flaring-mouthed bowl with plain, flat-topped rim. Surfaces burnished inside and out. Fill [1681] of 'fire pit' [1682], west of the enclosure (Fig 18).
- P41. Class I jar, fabric C. Simple flattened rim. Fill [1699] of pit [1700], west of the enclosure.
- P42. Class I jar/class III bowl, fabric C. Round-shouldered jar/bowl with short simple upright rim. Carbonised residue on interior wall. Fill [1699] of pit [1700], west of the enclosure (Fig 18).
- P43. Class I jar/class III bowl, fabric C. Rather angular shoulder. Fill [1699] of pit [1700], west of the enclosure (Fig 18).
- corner of the excavated area contained a larger group of material including a brittle sherd of a class I jar (possibly refired) in sand fabric H (Fig 18, P44) and a complete class V cup in fabric B with a rounded base and a finger-pinched band of decoration below the simple upright rim (Fig 18, P45).
- P44. Class I jar, fabric H. Simple thick 'hook' rim, refired. Fill [1855] of small pit [1856], west of the enclosure (Fig 18).
- P45. Class V cup, fabric B. Complete thick-walled thumb-pot with simple rounded rim and a wide band of plastic finger-pinched decoration below the rim. Fill [1855] of small pit [1856], west of the enclosure (Fig 18).

Discussion

Sherds likely to reflect early, pre-enclosure, activity on the site are few. They include a rim identified as belonging to a plain open bowl of ?Early Neolithic date from [1287], and a single thick-walled and heavily flint-loaded sherd in fabric U from enclosure ditch [1507] – the latter with MBA Deverel-Rimbury affinities. Furthermore, one context (linear feature [1488]) physically pre-dates the enclosure ditch, but produced only a single undiagnostic body sherd, indistinguishable from the rest of the main assemblage.

Although modest in size, there are enough diagnostic elements within the main assemblage to allow it to be characterised as of LBA post-Deverel-Rimbury (PDR) type (Barrett 1980; *sensu* Needham 2007). PDR ceramics are particularly well represented in the Thames Valley and the regional sequence is becoming increasingly well understood. Good assemblages have been recovered from a wide range of sites encompassing both open and enclosed settlements including ringworks, as here. These ceramics can be divided into early 'Plainware' assemblages datable to the true LBA (*c.*1150–*c.*800 BC) and later 'Decorated' assemblages now usually regarded as representative of the 'Earliest Iron Age' (*c.*800–*c.*600 BC) (*eg* Needham 2007, 42–9), with an intervening transitional phase dating to *c.*850–800/750 BC (*ibid.*, 55) that draws on elements of both.

The Oliver Close pottery predominantly comprises a classic Plainware assemblage,

Other features

A scatter of other small pits was recorded in the limited area available for examination west of the external post screen. Most of these produced only a handful of miscellaneous body sherds in fabrics B, C and D.

A small oval pit in the south-western

as exemplified by the prevalence of various class I jars including those with convex walls and ‘hook’ rims, simple rounded rims furnished with internal bevels and infrequent decoration. The presence of a handful of Decorated sherds, principally class I jars with weakly cabled rims, and of a small percentage of sandy fabrics hint at some transitional elements within it. However, closer examination reveals that the few Decorated sherds occur in a single posthole, context [1154], which had itself replaced an earlier posthole associated with the putative roundhouse, and in the fills of pits [1003] and [1089] which lie outside and to the east of the roundhouse. Single sherds with weakly cabled rims were also present in ‘fire pit’ [1681] and in one section of the enclosure ditch [1581] – the latter also containing a relatively high percentage of sherds of sandy fabric H. As such, these potentially transitional elements are likely to be indicative of late activity as the various earlier structures decayed or silted up. The presence of a complete cylindrical clay weight within ‘late’ context [1003] might also hint at a deliberate act perhaps connected with the closure of this area of the site.

A similar argument can be advanced with regard to the small pit, [1855], outside the enclosure which contained a class I jar in sand fabric H and a complete class V cup with finger-pinched decoration below the rim. The cup was standing upright in the bottom of the pit, which contained much burnt material in the form of charcoal, fired clay and burnt flint, and may also represent activity connected with closure or abandonment. Other significant ceramic deposits include pit [1609] inside the putative roundhouse, pit [1366] to the north and shallow ‘fire pit’ [1682], all of which contained large parts of one or more vessels. Similar occurrences have been noted elsewhere (*eg* Guttman & Last 2000, 343, 355–6). A more prosaic explanation could be entertained for the higher numbers of bowls compared to jars in the pits east of the possible roundhouse: these may reflect a concentration of specific activities associated with the preparation and service of food close to the posited entrance.

Comparable Plainware assemblages have been recovered from the early phases of

a number of sites in the Lower Thames Valley and Essex, though these are often subsumed within more extensive transitional or Decorated assemblages and are often difficult to disentangle as a result (see Needham 2007, 47–8). Relevant sites include the rectangular enclosures at Lofts Farm in Essex (Brown 1988, 264–9, fig 14) and the newly discovered site at Dagenham Heathway, in Barking and Dagenham (L Rayner in Boyer *et al* 2014, see this volume), and the enclosure at Springfield Lyons in Essex (Buckley & Hedges 1987), North Ring, Mucking (Barrett & Bond 1988), and South Hornchurch in Havering (Guttman & Last 2000). It would seem that, like Oliver Close, these various sites were established during the Late Bronze Age, but continued in use up to, and in some cases beyond, 800 BC.

FIRED CLAY OBJECTS FROM THE OLIVER CLOSE ESTATE

Jonathan Cotton

Introduction

In all, 209 pieces of fired clay weighing some 4.7kg were recovered from 47 separate contexts across the site. The majority were not identifiable as to form or function. The few diagnostic pieces comprise the following: a number of fragments of clay weights of cylindrical form (including one complete example from context [1003]); half of an annular example from [1106]; a single fragment of horizontally perforated pyramidal form from [1607], together with part of a possible briquetage pedestal from [1726]. No certain fragments of perforated clay slab could be identified and no fragments of clay investment mould were noted either, although four conjoining fragments comprising the base of a possible crucible were recorded from [1681].

The clay weights were mainly concentrated in the fills of the pits and postholes immediately to the east of the putative roundhouse. Further fragments were packed into two of the postholes ([1143] & [1161]) comprising a four-post structure to the west of the roundhouse. A possible briquetage pedestal was recovered from a section of the main enclosure ditch, [1726].

Catalogue of significant fired clay objects (none illustrated)

- FC1. Complete cylindrical fired clay weight, 130mm in diameter, weighing 1690.7g. <Sf100>, [1003], fill of pit [1004], east of the possible roundhouse.
- FC2. Half of a perforated annular fired clay weight, 90mm in diameter, weighing 121.9g. <Sf101>, [1106], fill of linear [1107], east of the possible roundhouse.
- FC3. Horizontally perforated fired clay weight of pyramidal form, weighing 39.6g. [1607], fill of pit [1608], east of the possible roundhouse.
- FC4. Four conjoining fragments of fired clay ?crucible base, weighing 78.5g. [1681], fill of 'fire pit' [1682], beyond the main enclosure.
- FC5. Two conjoining fragments of fired clay pedestal, weighing 54.2g. [1726], fill of main enclosure ditch.

Discussion

Clay weights of various forms have been noted on a number of Bronze Age sites, with cylindrical forms giving way to pyramidal forms around the turn of the 1st millennium BC or a little later (Lambrick 2010, 6). The preponderance of cylindrical weights noted at Oliver Close hints at an early date, a point corroborated by the presence of the Plainware ceramic assemblage.

The function of these weights is open to speculation, though they are usually interpreted as loom weights. The weight of the complete example from Oliver Close (1.6kg), for example, is such that it is as likely to have secured thatch as the warp threads on a loom. A complete example at Dagenham Heathway weighed over 2kg, though Barford and Major (1992, 117) suggest that the average weight for such objects was probably around 1kg.

The apparent absence of fragments of perforated clay slab from the site is surprising given their ubiquity on other Thames Valley sites of this period, and even though their function remains uncertain no convincing explanation for their absence here can be offered (Longley 1980, 32; Adkins & Needham 1985, 35, fig 13; Bond 1988, 39; Harrison 2000, 344; Boyer *et al* 2014, see this volume).

The presence of part of a clay pedestal and the base of a possible crucible hints at industrial processes connected with salt-extraction and metal working, respectively. Both processes are well attested on Essex sites of this period.

BOTANICAL AND FAUNAL REMAINS

Lucy Allott and Dan Young

Introduction

Post-excavation assessment of 93 samples revealed moderate assemblages of charcoal and macroplant remains. The charcoal assemblage was dominated by oak wood with other taxa such as sloe/blackthorn and hazel also evident. Cereals of wheat and barley, and non-cereal weed taxa such as fat hen were recorded in the charred macrobotanical assemblage. Further uncharred 'waterlogged' seeds of fat hen, bramble and docks/sorrels were also recorded. Samples from various Late Bronze Age features were selected for further analysis based on the abundance of material present. No animal bones were recovered from the samples and due to adverse soil conditions only tiny amounts were encountered during the excavations, mostly from the post-medieval features. However, some poorly preserved cattle tooth fragments were found in the fill of a Late Bronze Age double post setting (Yeomans 2006).

Methodology

Macroplant remains

Flots from 24 bulk samples were included in this analysis (Table 3). Sample sizes varied from 10 litres to 40 litres, although the majority consisted of 10 litres of processed soil. Samples were processed by flotation by Pre-Construct Archaeology and the flots and residues were captured on 300µm and 1mm meshes respectively. The flots were measured and weighed before being passed through 4mm, 2mm, 1mm, 500µm and 250µm sieves. All flots were analysed in their entirety and each of the size fractions >250µm were viewed and sorted for charred macroplant remains under a stereozoom microscope at magnifications of x7–45. Identifications

Table 3. Flot quantification and identifications

			[1003]	[1102]	[1132]	[1498]	[1519]	[1289]
Context			<101>	<112>	<115>	<162>	<164>	<135>
Sample			fill of	fill of	fill of	fill of	fill of	fill of
Description			ovoid	pit	post-	ovoid	post-	posthole
			cut		hole	cut	hole	
Sample volume processed (l)			10	10	10	10	10	10
Sample volume remaining (l)			10	0	30	10	10	10
Flot volume (l)			15	20	10	5	<5	60
Flot weight (g)			4	2	8	8	2	12
Taxonomic identification	English name	Habitat codes						
CEREALIA								
<i>Triticum dicoccum/spelta</i>	emmer/spelt caryopses	C	1 cf	2	1	1		1
<i>Triticum cf aestivum</i> L	bread wheat caryopses	C		1 cf				
<i>Triticum</i> sp	wheat caryopses	C		2		1 cf		
<i>Hordeum</i> sp	barley caryopses	C	1	3				1
<i>Avena</i> sp	oat caryopses	A G C						
Cf <i>Avena/Bromus</i> sp	oat/brome caryopses			5				
Indet Cerealia	caryopses fragment			14	7			1
POACEAE								
Cf <i>Bromus</i> sp	chess	A D G		4				
LEGUMINOSAE								
<i>Trifolium/Lotus/Medicago</i> sp	clover/trefoil/medick	D G				1 unch		
Cf <i>Pisum/Vicia/Lathyrus</i> sp	pea, vetch, tare	C D G			1			
LILIACEAE								
Cf <i>Allium</i> sp	wild garlic/chive/ramsons							
CARYOPHYLLACEAE								
<i>Silene/Stellaria</i> sp	indet campion/stitchwort				1 (ch) 1 cf (ch)			1 unch
CAPRIFOLIACEAE								
<i>Sambucus nigra</i>	elder	D H S W				1 unch		

Table 3 (cont.). Flot quantification and identifications

			Context	[1003]	[1102]	[1132]	[1498]	[1519]	[1289]
			Sample	<101>	<112>	<115>	<162>	<164>	<135>
			Description	fill of ovoid cut	fill of pit	fill of post-hole	fill of ovoid cut	fill of post-hole	fill of posthole
Sample volume processed (l)				10	10	10	10	10	10
Sample volume remaining (l)				10	0	30	10	10	10
Flot volume (l)				15	20	10	5	<5	60
Flot weight (g)				4	2	8	8	2	12
Taxonomic identification	English name	Habitat codes							
CHENOPODIACEAE	cf <i>Amaranthus</i> sp			6 ch					
<i>Chenopodium</i> cf <i>album</i> L	fat hen	C D n	28 unch	6 ch?	28 unch	45 unch	3 unch	13 unch, 1 ch	
Cf <i>Beta vulgaris</i>	beet								
BRASSICACEAE									
<i>Brassica</i> / <i>Sinapsis</i> sp	cabbage/ mustards/ charlock etc	C D	1 cf ch						
CYPERACEAE									
<i>Carex</i> sp	sedge	M P w							
FUMARIACEAE									
<i>Fumaria</i> sp L	Fumitories	A D H			4 unch				
EUPHORBIACEAE									
<i>Euphorbia pepplus</i>	petty spurge	C D							
<i>Euphorbia</i> cf <i>helioscopia</i>	sun spurge	C D							
POLYGONACEAE									
<i>Polygonum</i> / <i>Rumex</i> / <i>Fallopia</i> sp	knotgrass/ dock/ bind- weed	C G D			1 ch, 1 unch				
Cf <i>Persicaria</i> sp	knotweed	C D o				2 unch		1 cf	
ROSACEAE									
<i>Rubus</i> sp	bramble/ raspberry	H D S				1 unch			
RUBIACEAE									
<i>Galium</i> / <i>Asperula</i> sp	bedstraws/ woodruff	C D H	2 unch		12 unch	3 unch	3 unch	4 unch	
URTICACEAE									
<i>Urtica dioica</i>	stinging nettle achene	C D n							

[1294]	[1223]	[1001]	[1088]	[1507]	[1707]	[1765]	[1839]	[1855]	[1047]	[1099]
<141>	<127>	<108>	<106>	<179>	<185>	<191>	<195>	<198>	<104>	<111>
fill of post- hole	fill of post- hole	fill of sub-rounded pit	linear slot	fill of enclosure ditch	fill of post- hole	fill of post- hole	fill of post- hole [1840]	fill of post- hole [1856]	fill of double posthole	fill of enclosure ditch
10	10	10	10	10	10	10	10	10	10	10
10	10	20	10	10	5	10	25	0	10	20
10	5	340	5	<5	<5	5	10	15	5	100
6	4	36	2	2	2	6	6	12	4	18

1 unch

6 unch	>250 unch			1 ch		1 unch	38 unch, 1 ch	13 ch & unch	178 unch (predom)
						1 ch			
		1 ch						1 cf	1
		1 unch							1 unch 1 frag unch
	1						1 frag ch	1	2 ch, 2 unch
							1 ch		
									1 unch
1 unch	3					1 unch			
								1 cf unch	

Table 3 (cont.). Flot quantification and identifications

	Context	[1003]	[1102]	[1132]	[1498]	[1519]	[1289]
	Sample	<101>	<112>	<115>	<162>	<164>	<135>
	Description	fill of ovoid cut	fill of pit	fill of post-hole	fill of ovoid cut	fill of post-hole	fill of posthole
	Sample volume processed (l)	10	10	10	10	10	10
	Sample volume remaining (l)	10	0	30	10	10	10
	Flot volume (l)	15	20	10	5	<5	60
	Flot weight (g)	4	2	8	8	2	12
Taxonomic identification	English name	Habitat codes					
VIOLACEAE							
<i>Viola</i> sp	violet	G H W		3 (cf) ch			1 ch
MORACEAE							
Cf <i>Ficus carica</i>	fig					1 unch	
VITACEAE							
<i>Vitis vinifera</i>	grape						
Unidentified seeds							
Indet cpr			3	30	1	1 fruit?	4
Industrial debris							

Key:

Frequencies: * = 1–10, ** = 11–50, *** = 51–250, **** = >250

Habitat preferences: A = arable; B = river banks *etc*; C = cultivated; D = disturbed/waste ground; E = heaths; F = fens; G = grassland; H = hedgerows; M = marsh/bog; P = ponds, rivers, ditches; S = scrub; W = woods; Y = waysides

Soil preferences: a = acidic; c = calcareous; d = dry; n = nutrient-rich; o = open; s = sandy; w = wet/damp

Preservation state: cf = compares favourably; ch = charred; unch = uncharred

[1294]	[1223]	[1001]	[1088]	[1507]	[1707]	[1765]	[1839]	[1855]	[1047]	[1099]
<141>	<127>	<108>	<106>	<179>	<185>	<191>	<195>	<198>	<104>	<111>
fill of post- hole	fill of post- hole	fill of sub-rounded pit	linear slot	fill of enclosure ditch	fill of post- hole	fill of post- hole	fill of post- hole [1840]	fill of post- hole [1856]	fill of double posthole	fill of enclosure ditch
10	10	10	10	10	10	10	10	10	10	10
10	10	20	10	10	5	10	25	0	10	20
10	5	340	5	<5	<5	5	10	15	5	100
6	4	36	2	2	2	6	6	12	4	18

1 cf ch

1 unch

1

1

4

5

3

3

5
(1 indet
fruit)

11

8

**

*

Table 4. Charcoal identification and quantification

			Context	[1003]	[1102]	[1089]	[1498]	[1519]	[1289]	[1294]	[1198]	[1025]
			Sample	<101>	<112>	<107>	<162>	<164>	<135>	<141>	<125>	<102>
			Description	fill of ovoid cut	fill of pit	fill of pit	fill of ovoid cut	fill of post-hole	fill of post-hole	fill of post-hole	fill of post-hole	fill of post-hole
Taxonomic identification	English name	Habitat description										
<i>Quercus</i> sp	deciduous oak	woodland, deep rich soils (<i>Q robur</i>), or shallow sandy, acid soils (<i>Q pertraea</i>)	15	6	20	29	1	35 (1 rw)	1cf	157	25	
<i>Corylus avellana</i> L	hazel	hedgerows, scrub and woodland	1							7 (4 rw)	2	
<i>Corylus/Alnus</i> sp	hazel/alder				2	4				1	1	
<i>Prunus</i> sp	wild cherry/sloe	hedgerows	8	3				1				5
Cf <i>Prunus</i> sp	wild cherry/sloe	hedgerows			1	1						1
Maloideae	apple/pear / whitebeam / hawthorn	hedgerows, woodland, woodland margins				1				1		
<i>Salix/Populus</i> sp	willow/poplar	alluvial soils, near rivers, springs										2 lg rw
Unidentifiable			8	5	7	6	2	13		1		17
Total identified			24	9	23	35	1	36	1	166		36

Key:

cf = compares favourably; lg = large; rw = roundwood

[1223]	[1001]	[1088]	[1368]	[1507]	[1366]	[1382]	[1707]	[1765]	[1699]	[1839]	[1855]	[1047]	[1099]
<127>	<108>	<106>	<148>	<179>	<155>	<156>	<185>	<191>	<183>	<195>	<198>	<104>	<111>
fill of post- hole	fill of sub- rounded pit	linear slot	fill of pit [1369]	fill of enclosure ditch	fill of post- hole	fill of post- hole	fill of post- hole	fill of post- hole	fill of pit [1700]	fill of post- hole [1840]	fill of post- hole [1856]	fill of double posthole	fill of enclosure ditch

9	7cf	5	4	1rw	7	4 (2 cf)	4	5cf	11	79	197	26 (1 rw)	2
3											1		
4						2			1			5	2
	2					1					1		
1		1											
2								1 cf			1		
7	4	9	12	12	6	1		8	4	6	2	13	1
19	9	6	4	1	7	7	4	6	12	79	200	31	4

were made by comparing the macroplant remains and archaeological charcoal with modern reference specimens held at the Institute of Archaeology, University College London, and with specimens documented in reference manuals (Berggren 1969; 1981; Anderberg 1994; National Institute of Agricultural Botany 2004; Cappers *et al* 2006; Jacomet 2006). Nomenclature used follows Stace (1997).

Charcoal

Fragments of wood charcoal were recovered in both the flots and residues. The bulk of the charcoal assemblage was identified by Imogen Poole during the post-excavation assessment (Poole *et al* 2006). However, where further charcoal specimens were available these were fractured along three planes (TS – transverse section; TLS – tangential longitudinal section; and RLS – radial longitudinal section) following standardised methodology (Gale & Cutler 2000). The fractured surfaces were viewed using both a stereozoom Leica EZ4D microscope at x8–45 magnifications (for preliminary sorting) and an incident light Olympus BHMJ microscope at x50, x100, x200 and x400 magnifications (for taxonomic identifications). Roundwood fragments and vitrified charcoal are recorded where apparent. Identifications, recorded in Table 4, have been made through comparison with modern reference material at the Institute of Archaeology, University College London, and with taxa documented in identification manuals (Schweingruber 1990; Hather 2000; Schoch *et al* 2004).

Results

Macroplant remains

Flots from these samples were generally very small and dominated by uncharred vegetation such as small roots and uncharred seeds. During the post-excavation assessment uncharred macrofossils were recorded as being waterlogged and they have therefore been included in the analysis. There is evidence to suggest that in some instances these uncharred remains may be modern and intrusive (see below) and therefore any interpretations based on these remains should be made tentatively. This analysis confirms

the presence of charred cereal caryopses of wheat (*Triticum* sp), barley (*Hordeum* sp) and wild or cultivated oat (*Avena* sp). Intact caryopses were not abundant in any of the samples and, although it has been possible to suggest the presence of spelt or emmer wheat (*T spelta/dicoccum*) as well as a possible bread type wheat (*T aestivum*), no elements of chaff were present to help confirm or refine the identifications. Further oat/brome (*Avena/Bromus* sp) grains were also present (Table 3). Non-cereal legume crops that are likely to be pea, vetch or tare (cf *Pisum/Vicia/Lathyrus* sp) were only recorded in two samples, and in both instances the remains were fragmentary and poorly preserved and could not be securely identified.

Charred macrofossils of other plants were also infrequent although knotweed (*Persicaria* sp), knotgrass/dock/bindweed (*Polygonum/Rumex/Fallopia* sp), violets (*Viola* sp) and sedges (*Carex* sp) were recorded. Charred seeds from the pink (Caryophyllaceae) family and fat hen (*Chenopodium album*) as well as other Chenopodiaceae taxa including orache (cf *Atriplex* sp) and beet (cf *Beta vulgaris*) were infrequently noted. The majority of seeds from these families were uncharred and relatively fresh. Uncharred fat hen seeds were particularly abundant in several deposits and in sample <108> (from fill [1001] of a sub-rounded pit) a sprouting seed was recorded. This is likely to be relatively modern and suggests evidence for disturbances and intrusive material. Uncharred seeds including bedstraws/woodruff (*Galium/Asperula* sp), bramble/raspberry (*Rubus* sp), knotgrass/dock/bindweed (*Polygonum/Rumex/Fallopia* sp), elder (*Sambucus nigra*) and fumitory (*Fumaria* sp) were present in many of the samples and were more abundant than charred macrofossils. Sun spurge and petty spurge (*Euphorbia helioscopia* & *E peplus*) were present in contexts [1001], <108>, and [1099], <111>. Seeds from two exotic taxa, grape (*Vitis vinifera*) and fig (cf *Ficus carica*) were recorded in <164>, [1519], and <179>, [1507]. Both were introduced to Britain during the Roman occupation and are considered intrusive in these features. Their presence sheds further doubt on the antiquity of the uncharred macrofossils recorded in these deposits.

Charcoal

Much of the charcoal assemblage derives from mature wood specimens and from deciduous oak (*Quercus* sp) in particular (Table 4). Wild cherry/sloe (*Prunus* sp), apple/pear/hawthorn/whitebean (Maloideae family taxa), hazel/alder (*Corylus avellana*/*Alnus glutinosa*) and poplar/willow (*Populus*/*Salix* sp) were less abundant but were present in many of the samples. Roundwood fragments of oak, willow/poplar and hazel were occasionally noted and tended to be from very small twigs often <1cm in diameter. The presence of vitrified charcoal specimens, recorded by Poole during the assessment, was confirmed during analysis. Vitrification is considered indicative of charring at high temperatures (Braadbaart & Poole 2008) and many of these specimens had charred to such an extent that structural features were no longer apparent. Anatomical structures needed for identification were often obscured or absent and much of the vitrified charcoal was therefore classed as unidentifiable.

Beech (*Fagus sylvatica*) was recorded during the assessment although when the specimen from sample <101>, [1003], was viewed again during analysis the identification could not be confirmed. Unfortunately the specimen was from distorted wood (perhaps knot wood) and could not be satisfactorily identified. Several characteristics, such as the presence of large and small vessels, inconsistent with beech wood were noted and therefore the occurrence of beech cannot be confirmed.

Discussion

All of the samples included in this analysis are of Late Bronze Age date and have produced small assemblages of charred macrobotanical remains, moderate quantities of charcoal as well as uncharred botanicals, some of which may be waterlogged. The aim of the analysis was to establish the range of taxa present in the charcoal and macrobotanical assemblages, to characterise the natural vegetation environment and the evidence for agriculture and woodland resource management. It was also hoped that the botanical remains would help examine questions surrounding the

accumulation of these remains and whether these could be attributed to functional site activities or whether they were a result of deliberate deposits.

Local vegetation and woodland resources

The range of taxa present in the charcoal assemblage is relatively limited with only five different trees (or groups of trees) identified. This implies that either a limited range of trees grew within the site vicinity or that the composition of the charcoal assemblage is strongly influenced by resource selection. Oak fragments were present in all of the samples analysed and although it may have been prominent in the vegetation, in climax woodland for example, its prominence may also indicate that it was favoured for fuel and timber. Much of the oak wood charcoal derived from relatively large, mature specimens that would have provided sturdy timber for posts and other structures. Given the large quantities of fire-cracked flint that are evident in many of the features sampled it is possible that much of the charcoal assemblage derives from fires used to produce the burnt flint. Industrial debris was also present in flots from samples <195>, [1839], and <198>, [1855], from the fills of two features located to the west of the enclosure. Both samples also contained large quantities of oak charcoal that may be directly associated with the industrial activities. At the South Hornchurch Late Bronze Age enclosure, analysis of charcoal samples revealed that the most common species present were oak, blackthorn and members of the Pomoideae and alder genera (Gale 2000).

There is no evidence in the charcoal assemblage for woodland management through coppicing and instead the composition of the assemblage suggests that relatively mature wood was preferentially selected. If used in large quantities over prolonged periods this would have had a significant impact on woodland resource availability. Hazel could have grown in woodland alongside the oak while the willow and/or poplar would have grown on richer alluvial soils, on damper ground near rivers, streams or springs. Blackthorn and Maloideae taxa such as hawthorn could have grown at the

woodland margins and provided both fuel and food resources. Although not noted within the charcoal assemblage, elder trees and brambles may have grown in the region, as indicated by the presence of uncharred seeds. This suggestion is made cautiously as it is possible that these seeds are intrusive. Other vegetation habitats are poorly indicated by violets (charred seeds) that grow on grassland or in woods, and sedges (charred and uncharred seeds) that tend to prefer damp ground conditions.

Agricultural and food resources

Evidence for the agricultural economy is extremely scanty as the cereal and non-cereal crop assemblages were limited and in many instances poorly preserved. Glume wheat (emmer/spelt) and possible free-threshing wheat are indicated by cereal caryopses in some of the assemblages. Barley, oats and beans/pulses were also evident and may have been grown for fodder or for human consumption. The assemblages are too limited, however, to provide conclusive evidence for crop cultivation or processing. The overall scarcity of charred macrobotanical remains may result from a lack of incidents (whether deliberate such as crop processing, or accidental) in which seeds, fruits and other plant parts were exposed to fire and the potential for charring. The richest grain assemblage in which barley and oats were prominent was recovered from fill [1707], <185>, of a posthole located near to a six-post structure to the west of the enclosure.

Charred weeds, such as knotweed/docks, oats/bromes, campion/stitchwort and fat hen, that are common on cultivated land and are often found with crops such as those noted here, were recorded in small quantities in samples from pits located to the east of the roundhouse; pits and linear features associated with the roundhouse and postholes to the west of the enclosure. Weeds such as these may have been brought to the site with the crops, although the assemblages hold no conclusive evidence for crop processing. Unfortunately the assemblages are too limited to draw conclusions about whether such activities were undertaken at the site or not.

Many of the uncharred botanical remains are also from arable weed taxa or taxa common on disturbed ground. The most prominent taxon, fat hen, grows on nutrient-rich disturbed or cultivated ground. Other arable weed taxa include fumitories, knotgrass/dock, knotweed, bedstraws/wood-ruff and sparges. Nettles and brambles are perhaps more commonly found on disturbed ground such as infilled ditches and are frequently associated with settlements. Given the presence of very fresh looking uncharred plant remains and two exotic food taxa (fig and grape) it is probable that many of the uncharred botanical remains provide evidence for relatively recent disturbances within the soil and vegetation within the site vicinity.

Conclusions

These samples provide strong evidence for mature oak being preferentially selected for fuel. Fuel selection may be specifically associated with burnt flints that were recovered from many of the features. In addition, there is some evidence for industrial activities for which fuel wood selection would also have been important. The charcoal assemblage does not provide evidence for woodland management and it is likely that prolonged exploitation of mature oaks would have significantly depleted the woodland resources available to the site occupants. Evidence for agricultural related activities or domestic plant use at the site or in the near vicinity is very limited in the botanical assemblages. The assemblages also provide no conclusive evidence for deliberate/ritual placement of botanical remains. In both instances this is likely to be a result of preservation bias and 'invisibility' within the archaeological record rather than a lack of evidence for such activities taking place.

SITE DISCUSSION

Natural deposits

The natural deposits comprised sandy gravels. These conform to Gibbard's (1994) Leytonstone Gravel deposits, the Lea equivalent of the Middle Thames Taplow Gravels. The mineralogical composition

of the gravel terraces has resulted in them supporting soils that are light and easy to till, have good drainage and which are often regarded as preferred areas for early agricultural exploitation. Immediately to the west of the site, the land slopes down into the flood plain of the Lea Valley, which would have comprised a mosaic of varied habitats, including braided stream channels, marshes and seasonally flooded land. These areas would have provided a rich variety of resources, including seasonal pasturage.

Early prehistoric activity

This phase is represented by a small assemblage of struck flint datable to the Mesolithic or Early Neolithic period, plus one or two sherds of potentially Early Neolithic pottery. This material was recovered residually from later contexts, with no evidence for any contemporary structural features identified. It demonstrated that human activity had occurred on the site, probably in the form of a series of short duration presences or task-specific camps exploiting the rich and varied ecological habitats within and adjacent to the flood plain of the River Lea. The evidence for exploitation of this area during the Mesolithic and/or Early Neolithic was slight, but it is consistent with similar evidence identified in other parts of the Lower Lea Valley (Corcoran *et al* 2011, 179). The evidence for a human presence during these periods overwhelmingly consists of small scatters of flint with few other traces of occupation, although it is becoming increasingly apparent that the valley was fairly extensively visited during this period.

Late Bronze Age activity

During the Late Bronze Age (*c.*1000–*c.*800 BC) a circular ditched enclosure was constructed at the site, roughly centred on a small natural prominence (Fig 7). The interior of the enclosure was divided with a palisade fence or screen; in its southern sector was a post-built roundhouse (Fig 4). The interior of the enclosure also contained many pits and postholes, testifying to intense activity. Some pitting clusters were recognised and many of the postholes probably represented structures such as irregularly constructed

buildings or four-post settings, as well as fences and internal partitions. The enclosure had a small west-facing entrance formed by a narrow causeway through the ditch, and a group of postholes close to this inside the enclosure may have constituted a gateway structure. It is possible that the enclosure possessed an internal bank, although other features close to the internal side of the ditches suggest this may not have been present throughout the entire phase of occupation. The presence of intercutting features and the spatial arrangement of some structures confirm that there was a certain amount of change over a period of time.

Outside the enclosure was a further long and curved palisade, which may have predated the ditched enclosure itself, although this is not certain. At least one four- or possibly a six-post structure was present near the outside of the gateway and further south was a pit containing substantial quantities of burnt flint and pottery fragments. Numerous other features outside of the enclosure indicate that the external area was also heavily used. The excavations provided a large corpus of pottery, some of which may have represented ceremonial deposits, fired clay weights, unperforated slabs and other objects, a fragment from a possible metalworking crucible and possibly a fragment of a briquetage vessel, related to salt-extraction (discussed above). A small proportion of the struck flint recovered from the excavations may belong to the Late Bronze Age phase of occupation.

The circular ditched enclosure can be convincingly attributed to the class of enclosed settlements of the Late Bronze Age identified across south-eastern England, particularly along the Thames Valley and around the Greater Thames Estuary (Fig 19). These have been termed ‘aggrandised enclosures’ by Yates (1999; 2001; 2004), that is to say these enclosures apparently were intended to enhance the sense of power and status of their occupants. They represent a new type of permanent settlement linked with agricultural intensification, concentrations of metalwork and craft activity including metal working (Yates 2001, 65). The siting of these enclosures on low prominences or gravel terraces suggests that visibility may have been an important consideration

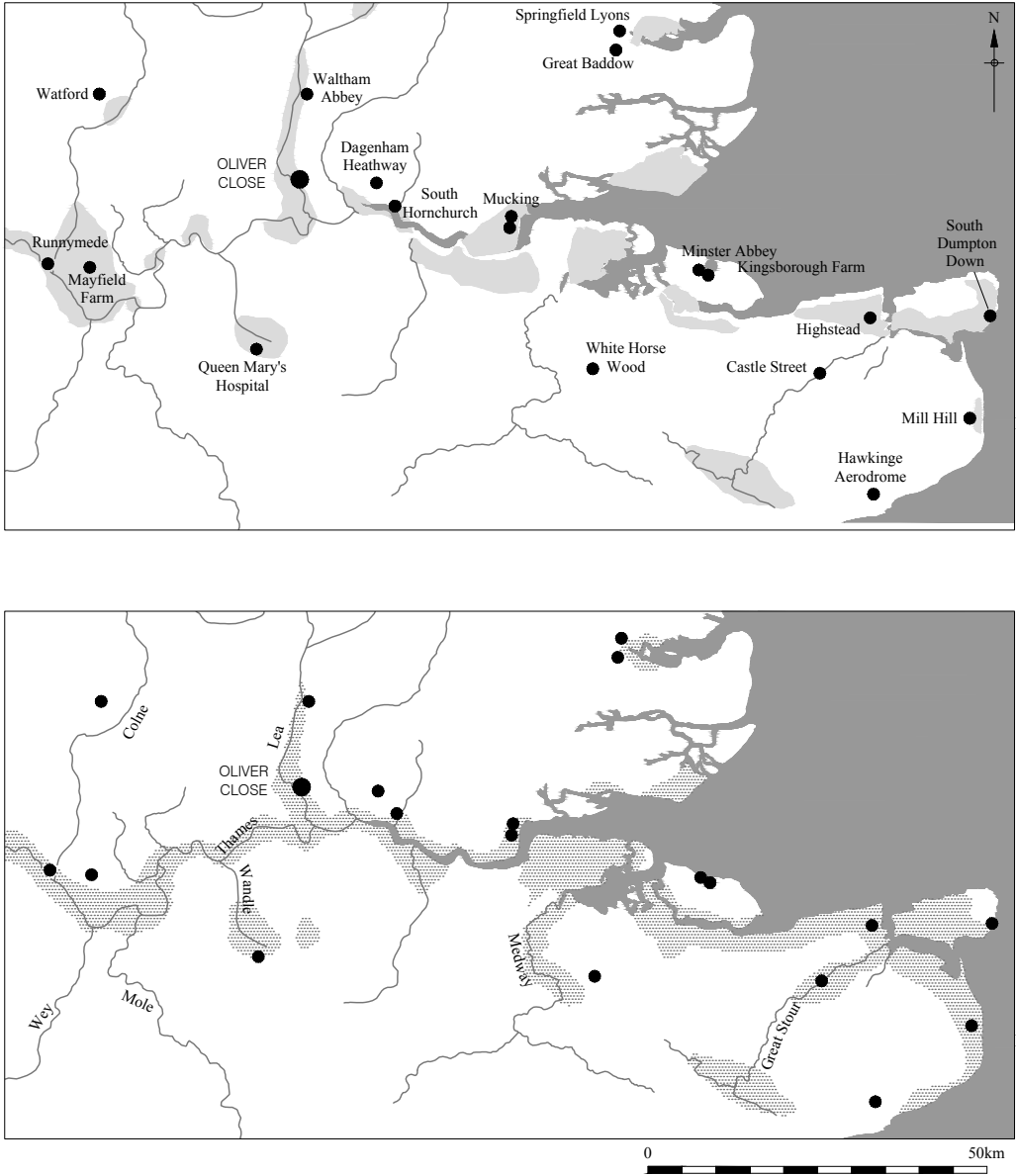


Fig 19. (a, above) Late Bronze Age enclosure sites, field systems and metalworking sites, distributions related to river systems in the Lower Thames Valley and estuary; and (b, below) areas and find-spots of Late Bronze Age metalwork finds within the Lower Thames Valley and estuary (scale 1:1,100,000)

(Howell *et al* 2011, 42). In the English Heritage Monument Protection Programme these enclosures are known as ‘Springfield style enclosures’, a term derived from the type site at Springfield Lyons (Buckley & Hedges 1987).

The various examples of these enclosures

appear to display a greater degree of complexity and investment than the more commonly identified contemporary settlements, which mostly consist of un-enclosed roundhouses scattered within wider expanses of field systems. A number of possible Springfield style enclosures

have been identified (Fig 19a), although many of these are only indicated on aerial photographs (Howell *et al* 2011, 41–3). Within the Greater Thames Estuary,³ fewer than twenty have received any further archaeological investigation and only five, South Hornchurch (Guttmann & Last 2000), North Ring, Mucking (Bond 1988), Springfield Lyons (Buckley & Hedges 1987), Lofts Farm (Brown 1988) and the riverside settlement at Runnymede in Surrey (Longley 1980; Needham & Longley 1980; Needham 1991), have witnessed extensive excavation and publication. Aggrandised or Springfield style enclosures form a diverse group and, although all form focal points within wider agricultural landscapes, they bear similarities to early hill forts (Jones 1975), and probably embraced a wide variety of functions and levels of settlement hierarchy. Springfield style enclosures are often, although far from exclusively, circular in shape, have structural elements suggestive of fortification, such as palisades, internal banks and/or gate structures, and contain evidence of occupation in the form of roundhouses and other structures. These enclosures are usually situated within or adjacent to large tracts of agricultural land, as evidenced by the laying out of extensive areas of ditched field systems, trackways and wells or waterholes. Springfield style enclosures are a relatively rare monument type for the Later Bronze Age, which only existed over a 150–300 year period.

These enclosures are often located in areas where significant deposits of bronze, usually in the form of hoards or as riverine deposits, have been found (Fig 19b) (Yates 1999). No metal items were recovered during the excavation at Oliver Close and the only evidence for metal working was the recovery of a possible crucible fragment. Nevertheless, the Lea Valley has provided numerous examples of Late Bronze Age metalwork, particularly that of the Ewart Park phase which is broadly dated to 900–700 BC (Needham & Burgess 1980, fig 7) and contemporary with the inhabitation of the enclosure. It is now generally accepted that many of these probably represented ‘votive’ offerings deliberately deposited into the wetlands. In addition, a number of bronze objects have been recovered from

‘dryland’ sites in the Leyton and Wanstead areas, and it is possible that the deposition of these had a ritual or ceremonial significance associated with the settlement at Oliver Close (*cf* Needham & Burgess 1980, fig 5; Cotton 2005).

The enclosures were usually sited in order to provide easy access to the major communication routes, such as the Thames and its major tributaries, or directly on the English Channel, and their aspect appears to confirm an association with contact with the Continent. It is likely that their location was intended to somehow control or administer routes and the land associated with them. Although these enclosures evidently played a pivotal part in the functioning of Late Bronze Age society, their precise role is more difficult to elucidate. Given the effort required to construct the enclosures and their associated features, an obvious interpretation would be that they were the residences of the elites who organised the setting out of land and the agricultural production within the tracts of complex and formally laid-out agricultural landscapes that appear in the archaeological record during this period. The close association with this type of enclosure with areas of organised agricultural production and the supply and circulation of metalwork would suggest that such enclosures may have had an important role in the organisation, production and distribution of agricultural, craft and industrial products. Aside from enclosed sites a number of unenclosed settlement-related locales, such as for instance Whitehall Wood and Hunts Hill Farm in Havering, co-exist in the same landscape (Howell *et al* 2011, 39–43). A small number of cremation burials as well as a single inhumation of Middle to Late Bronze Age date have been identified along the course of the River Lea (Boyer *et al* 2013).

Information about the agrarian economy of the Oliver Close enclosure is limited, as faunal evidence was restricted to some cattle tooth fragments due to adverse soil conditions. Cereals present included wheat and barley (discussed above), while the charcoal assemblage was dominated by oak, showing it was the preferred species, as it is an excellent fuel, burning very hot and producing lasting hot embers.

On a local level, the archaeology of the Lower Lea Valley has been little explored until recent years, despite the large quantities of metalwork recovered during the 19th and 20th centuries, particularly from water-lain deposits along the valley floor but also as hoards along its banks (Needham & Burgess 1980, figs 7–8). A number of wooden piled structures were recorded during dredging works and reservoir construction during the early 20th century, although these remain inadequately recorded and poorly dated. In recent years a number of large-scale excavations have demonstrated that the lower part of the valley, that lying within the Greater London region, was intensely occupied with a number of often quite extensive settlements and field systems. These include a Middle to Late Bronze Age settlement at Innova Park in Enfield (Wessex Archaeology 2006) and settlements and field systems at Edmonton (Bishop 2005). Nearer to the Oliver Close Estate, recent excavations have found Late Bronze Age settlements at Warton Road (J Payne, pers comm) and at Stratford Market Depot (Hiller & Wilkinson 2005). This evidence would appear to fit in with a general pattern of settlement and agricultural reorganisation recognised along the lower reaches of the Thames, particularly that on the west London Gravel Terraces but also further eastwards in south Essex and north Kent (Bishop & Bagwell 2005).

These developments make the region assume a new importance, possibly associated with a greater population density and connected to systems of exchange operating along the Thames to the Continent (Sherratt 1996). It has been suggested that these patterns demonstrate the Thames estuary's 'participation in an increasingly cosmopolitan world' (Yates 2004, 11), and that the greater emphasis on the circulation of prestige weaponry and deposition of ostentatious objects suggests the development of a new social elite during the Late Bronze Age (*ibid*).

Abandonment

There was no evidence that the site continued to be occupied after the Late Bronze Age, and this apparently complete and seemingly abrupt abandonment of the site for anything

other than marginal or low-key agricultural activity follows a pattern seen across much of south-east England, although it has been suggested that some settlement activity may have increased during this period locally (Howell *et al* 2011, 53). The only material evidence of activity at the site between the end of the Bronze Age and the post-medieval period recorded during the Phase IV investigations consisted of a fragment of possible Roman pottery recovered in Area C. However, further artefactual and structural evidence dating to Roman, Saxon and medieval periods was recovered during the earlier investigations at Oliver Close.

It has been noted that within the London region (*eg* Greenwood 1997) and along the Thames estuary the dense pattern of settlement and agricultural organisation established during the Late Bronze Age does not continue for long into the Iron Age, with settlements during this period being generally rarer, smaller and with less evidence for central organisation. The precise reasons for this apparent decline in archaeologically visible activity are not readily apparent. Factors such as increasingly wetter conditions, climatic deterioration, rising river levels and the depletion of previously fertile soils from over-exploitation have all been considered. Jones and Keen (1993, 272) noted that: 'between about 3000 and 2300 BP (the Late Bronze Age and Early Iron Age), a drop in average temperatures of up to 2°C has been postulated for the British Isles, together with an increase in precipitation'. Such changes would have had profound effects on the agricultural basis of Late Bronze Age prosperity, including a possible increase in crop failure and the potential loss of productive low-lying areas fringing the major river valleys. In the Lower Thames Valley (downstream of Blackfriars) the period between c.1200 BC and c.AD 100 was characterised by the 'final submergence of the former floodplain' and a shift of settlement to the higher drier areas of the gravel terraces (Bates & Whittaker 2004, 55). At South Hornchurch the abandoned Late Bronze Age enclosure was apparently sealed by a build-up of colluvial deposits (Guttmann & Last 2000, 349). At Farmoor in Oxfordshire, higher up in the Thames Valley, Early and Middle Iron

Age settlement concentrated on the flood plains, but increasingly wetter conditions, combined with renewed rates of alluviation, forced settlement to shift higher up on to the valley sides (Lambrick & Robinson 1979). A loss of pasturage along the fringes of the Thames and its tributaries could have led to dislocation, both economically and in settlement patterns. Other factors include wider European disruption (Yates 2004), possibly resulting in the collapse of long distance communication, along with its associated political organisation. Later Bronze Age politics was perhaps underpinned by the exchange of bronze and may have been closely related to the ability to create and control agricultural surplus, a surplus evidenced by the 'new' densely settled agricultural landscape. A collapse of one would no doubt have far-reaching implications for the other.

Post-medieval activity

There was little evidence for settlement or any other form of activity at the site following the abandonment of the Late Bronze Age enclosure until the construction of 19th-century tenements fronting on to Oliver Road. These were represented principally by a number of drainage runs and associated features, which bisected the excavated areas from east to west, and a number of rubbish pits were apparently dug to the rear of these properties.

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NOTES

¹ Waltham Forest: archaeology excavations and surveys, <http://www.walthamforest.gov.uk/pages/services/archaeology-excavations-and-surveys.aspx?l1=100006&l2=200074> (accessed 1 April 2015).

² One pit, [1448], in Area B was clearly cut by the enclosure ditch confirming that some features pre-dated it (Fig 4).

³ As defined in the *Archaeological Research Framework for the Greater Thames Estuary* (Williams & Brown 1999).

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