Surrey Archaeological Collections, **89**, 65–103, 2002

Late Bronze Age/Early Iron Age placed deposits from Westcroft Road, Carshalton: their meaning and interpretation

JENNIFER PROCTOR

with contributions by

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This paper details the results of the excavation of a late Late Bronze Age site at Westcroft Road, Carshalton, and the analysis of material recovered from the site. The archaeological remains consisted of a series of cut features, which do not have any apparent domestic or agricultural function. Artefacts and faunal material had been placed at the bases of many of these features in an ordered manner, and on the basis of environmental indicators, almost certainly in late spring, these remains are interpreted as representing a ritual structured deposition. Placed deposits have been identified on sites dating from the Neolithic to the Iron Age and there is growing evidence from the Late Bronze Age/Early Iron Age period for ritual activity which is very similar in form and content to the findings from Westcroft Road. This paper discusses the remains from Westcroft Road in the light of this evidence, examines the site within the context of Late Bronze Age occupation in the locality, and proposes an interpretation of the meaning of the ritual activity.

Introduction

An archaeological evaluation and excavation were undertaken by Pre-Construct Archaeology at Westcroft House, Westcroft Road, Carshalton, in September 1996 and June 1997, respectively. The evaluation, carried out to a specification prepared by the archaeological consultants CgMs Consulting, comprised six trenches (fig 1, trenches 1–6). Building activity associated with the modern car park had resulted in the widespread truncation of any potential archaeological deposits in trenches 1 and 2. However, a small quantity of residual lithic material dated to the Late Mesolithic/Early Neolithic and Bronze Age was recovered from these trenches. In trenches 3, 4 and 5 the natural gravel was sealed by ploughsoil, no archaeological features were present but a relatively large quantity of lithic material, also dated to the Late Mesolithic/Early Neolithic and Bronze Age, was recovered from trench 4. Three pits were partially excavated in trench 6 and Late Bronze Age (LBA) pottery and lithic material were recovered from these features. The identification of this LBA activity in trench 6 resulted in a programme of archaeological excavation in advance of the redevelopment of the site.

The excavation of the site comprised two trenches: trench 7, which measured 11 x 10m, incorporated trench 6 and the location and dimensions of this trench were dictated by the footprint of a building which formed part of the redevelopment plan for the site (fig 1). Trench 8, located to the north-east of trench 7, measured 13 x 2.4m (fig 1). A number of LBA features, many of which contained basal 'placed deposits' of various types of artefacts and faunal material, were excavated in trench 7 (fig 1). Although archaeological features continued beyond the limits of this trench, extension of the area investigated was not possible due to the constraints imposed by the redevelopment plan. Two ditches and several postholes, from which a small quantity of LBA material was recovered, were excavated in trench 8 (fig 1).

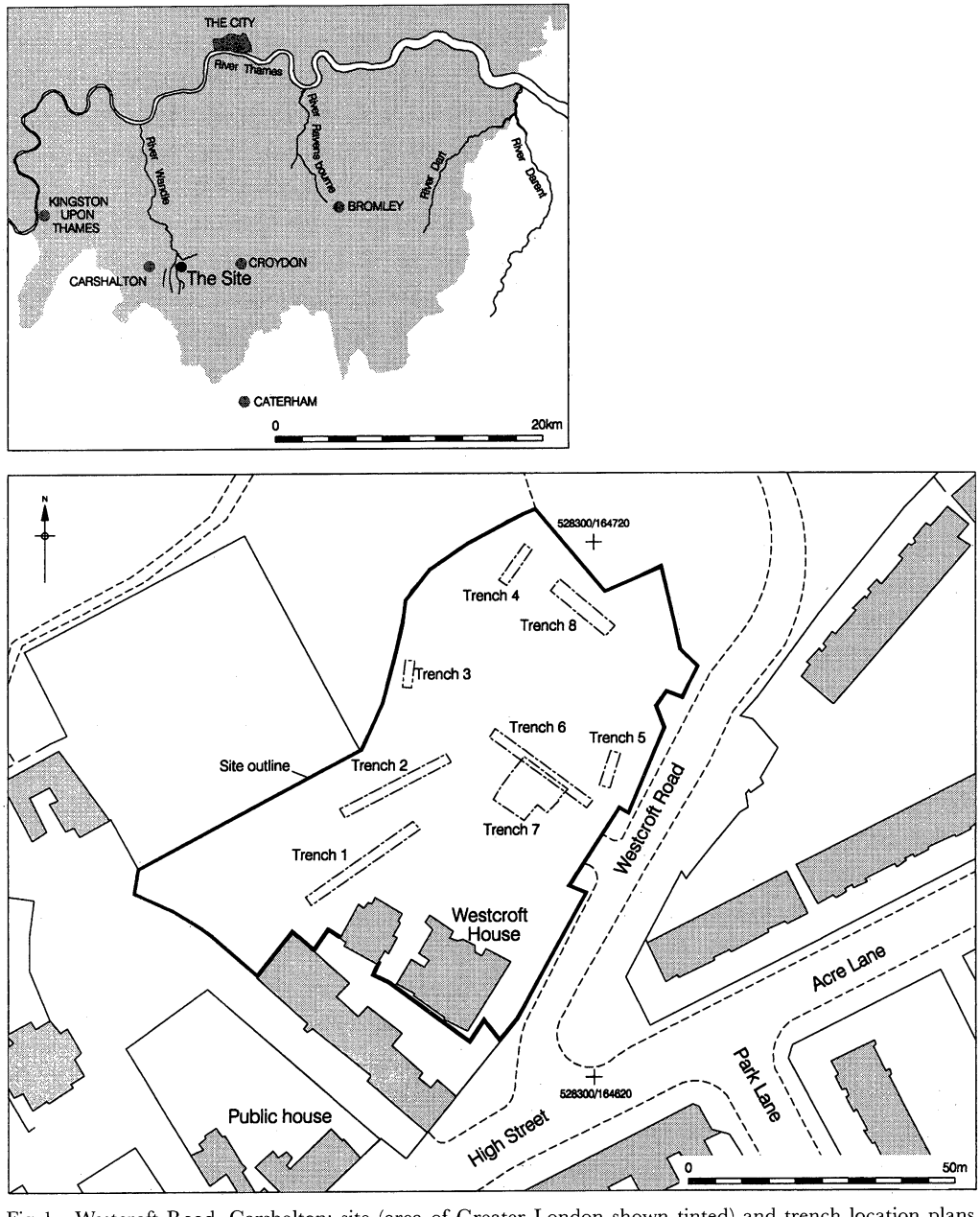

Fig 1 Westcroft Road, Carshalton: site (area of Greater London shown tinted) and trench location plans. (© Crown Copyright. MC 100014198)

GEOLOGY AND TOPOGRAPHY

The solid geology of the area is Upper Chalk (fig 2), which in the vicinity of the site is overlain by Tertiary gravels and sands (BGS 1998, sheet 270). Thanet Sand is a marine deposited formation that outcrops along the northern edge of the Downs (*ibid*). The chalk ridge of the North Downs lies several hundred metres to the south and this is capped by Clay-with-flints along much of its length (*ibid*). The Woolwich and Reading Beds and

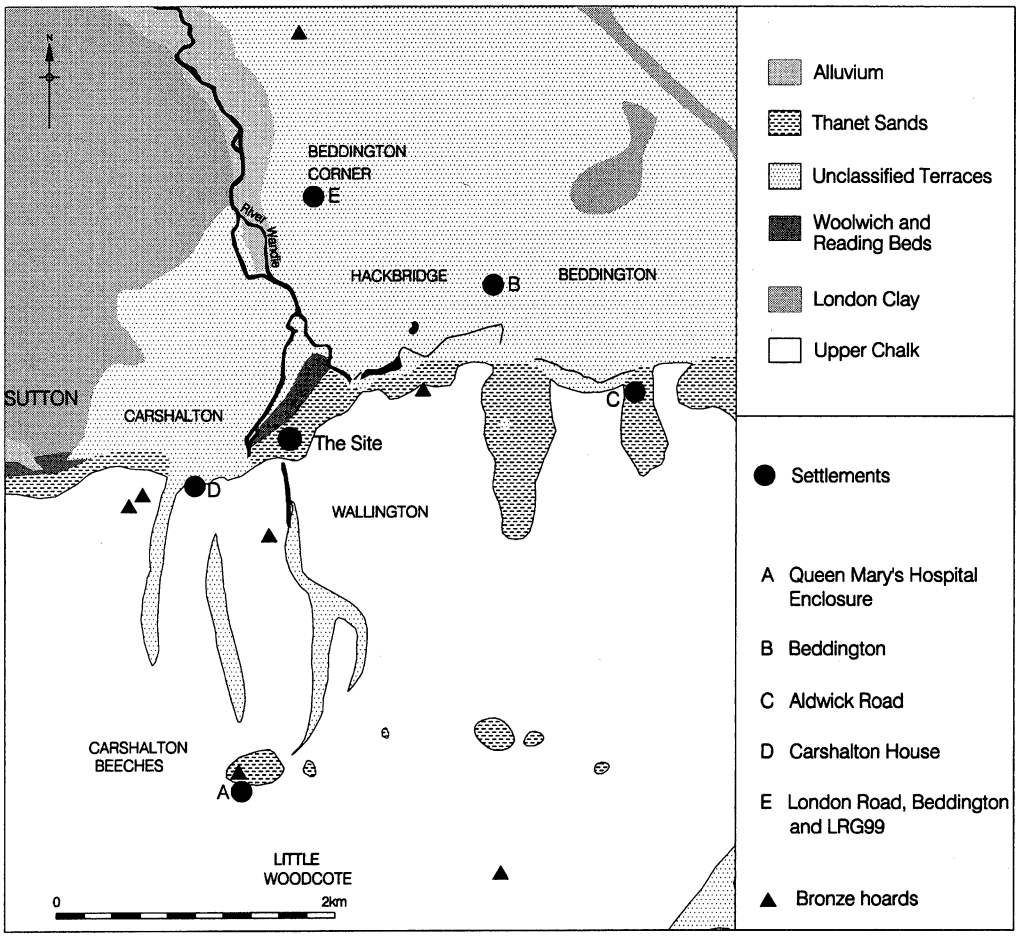

Fig 2 Westcroft Road, Carshalton: geological map showing location of LBA settlements and hoards mentioned in the text.

Taplow Terrace gravels are situated nearby to the north (*ibid*). The site is located on the northern foot of the Downs along the dip-slope spring line at the head of the Wandle valley (Orton 1989, 169). The gentle north-facing dip-slope would have been an important position for settlement and the surrounding area offered a range of environments for exploitation (Needham 1987, 128), thus allowing access to a greater range of potential resources (fig 2). The present course of the river Wandle lies a short distance to the north-east of Westcroft Road. The natural topography has been altered in recent times by landscaping; part of the eastern stream, the closest to the site, has been diverted into a canal in Carshalton Park and then into the Westcroft Canal (Orton 1989, 169). The location of the watercourses before the construction of the canals and the Carshalton Park Grotto is uncertain. The 1771 Bridges estate map in the British Library depicts a watercourse running along the north side of the east end of Westcroft Road, but the site lies beyond the western limit of the map (Skelton 1995, 19). It is possible then that a watercourse passed very close to the site, but this is as yet unproven.

THE ARCHAEOLOGICAL BACKGROUND

In the Croydon and North Downs region there was an increase in human activity during the LBA period. Much of the evidence for this comes from chance finds of bronze hoards (Needham 1987, 120), but more recent excavations and the reinterpretation of previously excavated sites have increased the evidence for LBA settlement in the region. There appears to have been a concentration of activity near to the LBA enclosure at Queen Mary's Hospital, Carshalton (fig 2), which is in the tradition of LBA ring-forts (Adkins & Needham 1985, 45). Fortified settlements of this type began to be constructed from the 10th century BC (Bradley 1984, 120). So called ring-forts are circular ditched enclosures of relatively small size, the majority are less than 160m in diameter (Needham 1993, 52). The enclosures are located mainly in valleys in south-east England in positions overlooking the valley floors (*ibid*). Their small size coupled with the large area occupied by internal ramparts severely restricted the area available for buildings (*ibid*). Some contained only a single large building, such as at Mucking South Rings, Thwing and West Harling sites 2 and 3, and it has been suggested that they constituted settlements for the elite (Bradley 1984, 120–1). The variety and quality of the finds recovered from the Carshalton enclosure appear to support the theory that it was the residence of a local ruler, individual, or family of high status, and it may have served as a 'regional place for meeting and bartering' (Merriman 1990, 31). This enclosure appears to have been located within an area of ritual significance; a cluster of LBA metalwork hoards and single finds have been recovered from the vicinity of the site (fig 2; Needham & Burgess 1980, 459). It is suggested that the enclosure controlled an area of around 10km radius (Adkins & Needham 1985, 46). The Carshalton enclosure is situated on the chalk Downs commanding views along the Wandle valley towards the Thames (*ibid*, 11); Westcroft Road lies less than 2km downhill to the north.

Further evidence for LBA settlement has been found *c* 2km to the north-east of Westcroft Road at Beddington Sewage Works. Roundhouses dating from the Late Bronze Age (LBA) to Late Iron Age (LIA) were excavated along with ditches which are interpreted as field and enclosure boundaries (Adkins *et al* 1987, 349–50). LBA material recovered from this site included pottery, perforated clay slab fragments, bronze awls and an axe fragment. Nearby at London Road, ditches, pits and postholes were excavated, some of which contained LBA pottery (Filer 1991, 308). Recent excavations undertaken by Pre-Construct Archaeology at London Road (site code LRG 99) revealed evidence of LBA settlement. Three post-built structures and associated rubbish pits were excavated within an area defined by a boundary ditch (Bagwell *et al* 2001). At Aldwick Road, Beddington, excavations produced LBA pottery, a spindle whorl, a loomweight fragment, hearths and burnt flint (Needham & Burgess 1980, 459). Excavations at Carshalton House, *c* 750m south-west of Westcroft Road, produced evidence of LBA occupation. Pottery, burnt flint and animal bone were recovered from a feature interpreted by the excavators as either the western terminus of a ditch or a pit (Skelton & Howes 1992, 13). The pottery from this site is similar to the material from Queen Mary's Hospital (*ibid*). The size of the pottery assemblage, the fresh condition of the breaks and the range of forms present has led the excavators to the conclusion that there was more than a limited or intermittent settlement in the area (*ibid*).

The archaeological evidence from Westcroft Road

PHASE 1: NATURAL DEPOSITS

The natural geological drift deposit of Thanet Sand in trench 7 consisted of a fine sand, mottled in colour; light orange–brown and yellow–brown, becoming grey–green with depth. The highest and lowest levels at which this occurred were 35.5m OD and 34.75m OD, reflecting a slope down from south to north. This natural deposit was also present in

trenches 1 and 2 to the south-west and trench 5 to the north-east. The interface between this natural sand and the overlying ploughsoil was indistinct owing to the combined actions of ploughing and worm and root action. The natural geological deposit in trenches 3, 4 and 8 was very different in character to the Thanet Sand; it comprised small to medium flint gravel within a matrix of orange coarse sand. The highest and lowest levels at which this was encountered in trench 8 were 34.64m OD and 34.44m OD. This deposit comprised the Tertiary gravels that overlie the Upper Chalk along the northern foot of the Downs.

PHASE 2: LINEAR FEATURE

A linear feature (142) aligned north-west to south-east ran across the northern side of trench 7. A slot was excavated through this in the east of the trench; the feature was 3m wide in this area, 0.40m deep, and had concave sides and a flat base. The primary fill (148) was 0.3m thick and consisted of fairly compacted orange sand with moderate inclusions of flint gravel. This was overlaid by 144, which consisted of moderately compacted, orange–brown, silty sand and flint gravel. No cultural remains were recovered from this feature, but the uniformity of its course suggests an anthropogenic origin, although it is also possible that it was a naturally formed feature such as a palaeochannel.

PHASE 3: LATE BRONZE AGE DITCHES, POSTHOLES AND PITS

A map regression exercise undertaken for the desktop assessment demonstrated that the site lay within agricultural land throughout the medieval and early post-medieval periods (Brown 1996). A relatively deep ploughsoil overlay the prehistoric features found in trenches 7 and 8, and it is presumed that this developed over a considerable period of time; it was up to 0.75m thick in trench 7 and 0.84m thick in trench 8. A large quantity of LBA material was recovered from the ploughsoil in trench 7, which confirms that the top of the prehistoric cut features had been truncated by ploughing and that the prehistoric occupation surfaces do not survive. The quantity of the LBA material within this ploughsoil suggests that the truncation was severe.

The earliest features in trench 7 appear to be a group of nine postholes and four pits located in the east of the trench. The postholes were similar in shape: oval or circular with straight sides and concave bases (fig 3). The dimensions ranged from 0.25 x 0.35m to 0.47 x 0.6m, and the depths ranged from 0.2m to 0.4m. Features 102 and 104 formed a double posthole. Their fills were homogenous: a grey–brown silty sand and flint gravel, suggesting that if they had contained posts, these had been deliberately removed, and were not left to rot *in situ*. The fills were relatively clean, containing only a few burnt and worked flints and two fragments of pottery. The exception was posthole 126, the fill of which (125) contained a large quantity of charcoal and some burnt animal bone.

Four small oval pits with flat bases were located in the same area as the posthole group. Feature 90, which measured 0.64 x 0.54 x 0.24m deep, was filled with very similar material to that in the postholes. Pit 118 measured 0.56 x 0.48 x 0.18m deep and was filled with brown silty sand and flint gravel. The western side of this feature was truncated by a later pit (77). Pit 141 was truncated to the north by 100 and to the south by 130 and was filled by orange–brown silty sand and flint gravel; the surviving dimensions were 0.76 x 0.48 x 0.15m deep. The south-eastern butt end of ditch 59 truncated the fourth small pit (133) which was filled with orange–red brown silty sand. This pit measured 1.06 x 0.64 x 0.35m deep. Although only three of the small pits have stratigraphic relationships with the later larger pits, these features are interpreted as a contemporary group because of their similarity in size, shape and the homogeneity of their fills.

Although the archaeological features excavated in trench 8 have no stratigraphic relationship to those in trench 7, they have been grouped with the phase 3 occupation

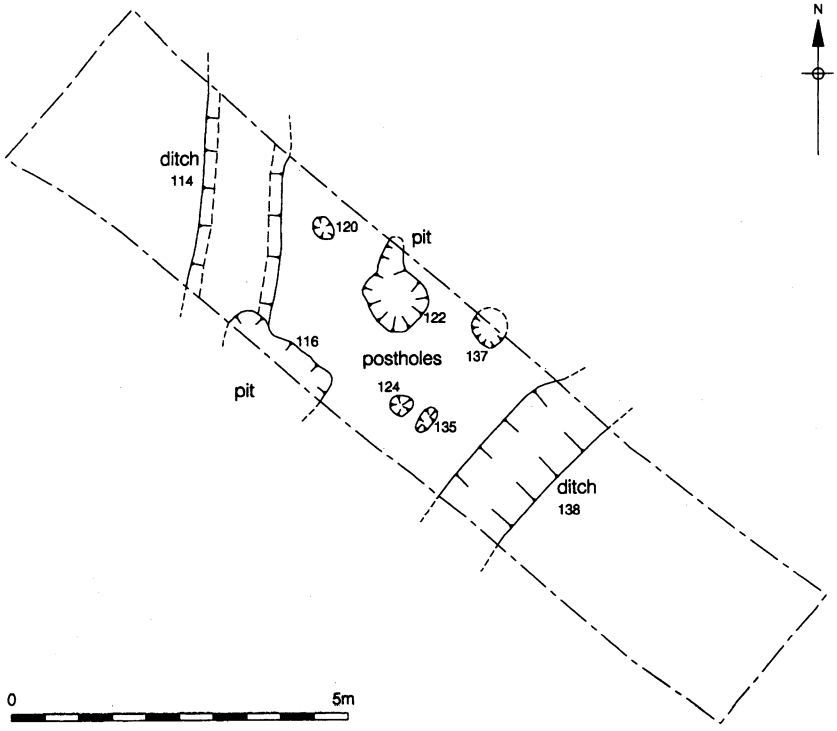

Fig 3 Westcroft Road, Carshalton: plan of trench 7

because of their similarity with these features and also the striking differences from the phase 4 features. Ditch 138, which was aligned north-east to south-west, measured 1.15m wide x 0.42m deep and had steep sides with a slightly concave base (fig 4). It was filled with a light grey–brown silty sand (131), with moderate inclusions of flint gravel. A small quantity of worked and burnt flint was recovered from the ditch. A few sherds of pottery were also recovered from the fill of ditch 138 and these date to the same period as the assemblage from trench 7, *c* 950–700BC (see Macpherson-Grant, below). To the north-west was ditch 114, aligned approximately north–south, which had steep sides and a flat base. This ditch was 1.28m wide x 0.32m deep and the fill (113) was similar to 131; burnt flint and animal bone were recovered from this feature.

Four postholes and two shallow pits were located between the ditches (fig 4). Posthole 120 had vertical sides with a sloping base and measured 0.27 x 0.3 x 0.18m deep. Postholes 124 and 135 had concave sides and bases and these measured 0.3 x 0.3 x 0.24m deep and 0.4 x 0.22 x 0.23m deep, respectively. These three features were all filled with the same material; grey–brown silty gravel with moderate inclusions of chalk flecks. Posthole 137, which had vertical sides and a flat base, continued beyond the edge of excavation to the north; the visible dimensions were 0.45 x 0.27 x 0.23m deep. This was filled with a brown, sandy silt and gravel (136), from which one fragment of burnt flint was recovered. Feature 122 was sub-rectangular in shape with rounded corners; a linear cut extending from the north corner of this feature is interpreted as probably the result of root or animal action (fig 4). The fill (121) comprised brown sandy silt and gravel with occasional inclusions of chalk and very occasional charcoal flecks from which a small quantity of burnt and worked flint was recovered. The dimensions of this pit were 0.9 x 1.3 x 0.2m deep. In the south of the trench the east side of ditch 114 was truncated by a sub-rectangular cut (116), which had irregular sides and an uneven base. This measured 1.78m north-west to south-east x

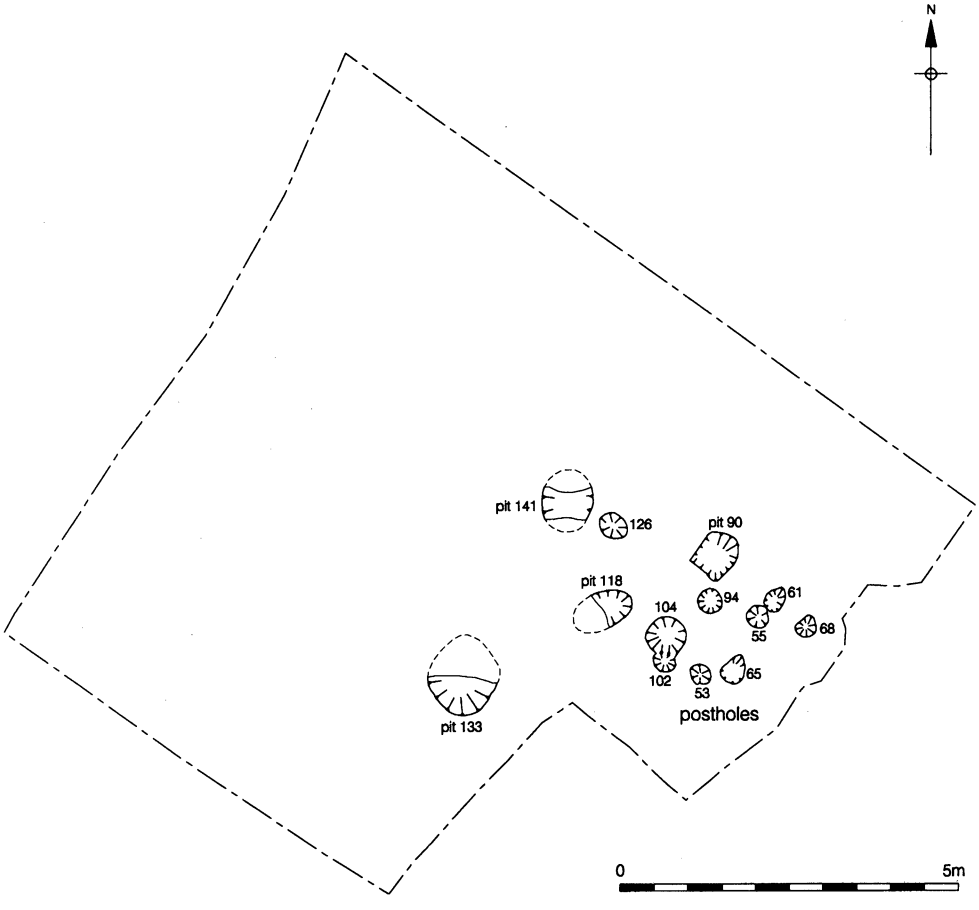

Fig 4 Westcroft Road, Carshalton: plan of trench 8

0.38m north-east to south-west, continuing beyond the limit of excavation to the south-east, x 0.32m deep. The fill (115), from which one fragment of burnt flint was recovered, comprised grey–brown silty sand with moderate inclusions of gravel.

Interpretation of these phase 3 features is problematic; it is not possible to identify any structures from the postholes, owing to a combination of the limited area of excavation imposed by the redevelopment plans for the site and the horizontal truncation of features through ploughing. The group of features in trench 7, which appear to pre-date the phase 4 ritual activity, may have originated from an earlier stage in the ritual complex. However, it is also possible that these features may be from a domestic settlement, as yet unidentified, located to the east and north of the site.

PHASE 4: LATE BRONZE AGE PITS AND DITCH (figs 5–12)

A semi-circular ditch (59) was located in the central area of trench 7 (figs 5 and 8). It was 2.35m wide at the north end, 1.3m wide at the south-east end, and the maximum depth was 0.35m. The ditch had concave sides, a relatively flat base and rounded butt ends with oval pits cut into the base at each end.

Pit 62, located in the northern butt end of the ditch, was oval in plan with vertical sides and a flat base. This measured 2.5 x 1.6 x 0.43m deep. A horse skull was located at the

base in the southern end; the skull and jaw were slightly apart. Quernstone fragments and a large lump of fired clay were next to the skull (figs 6 and 8). The remainder of the primary fill (112), which was only located at the southern end of the pit overlying the skull and quernstones, was a mid-brown silty sand which contained occasional sherds of pottery and fragments of perforated slab. This was overlaid by a light yellow silty sand (63), from which animal bone, worked flint, pottery, perforated slab and fragments of quernstone were recovered. The upper fill (58) was a dark grey–brown sandy silt which contained occasional pottery, fragments of perforated slab, worked and burnt flint, and quernstone fragments. Reconstruction of the quernstones has shown that smaller pieces from the upper fills of this pit join to the large quern fragments located at the base.

Pit 82, located in the south-eastern butt end of the ditch, was oval with vertical sides and a flat base which measured 0.9 x 1.6 x 0.25m deep. This contained a large quantity of sizeable flint nodules within a matrix of mid-brown silty sand (81). A number of flint flakes, two flint blades and a small broken saddle-quern were also recovered from the fill.

The primary fill of ditch 59 was a deposit of brown–yellow silty sand and flint gravel (57), which was slumped against the sides of the ditch. A small quantity of pot, daub and worked flint was recovered from this fill. The fill was truncated in the north by a sub-circular pit with an irregular profile (80), which measured 0.53 x 0.67 x 0.34m deep. The fill of the pit (79) comprised mid-brown sandy silt which contained inclusions of charcoal, charred plant remains and occasional burnt animal bone and pot. The upper fill of ditch 59 sealed cut 80. This consisted of brown silty sand (56), with moderate inclusions of flint gravel, pottery, burnt and worked flint, charred plant remains and dumps of charcoal.

Pit 77 was located to the east of the south-eastern end of ditch 59. It was sub-circular in plan with vertical sides and a flat base and measured 1 x 0.97 x 0.52m deep. Three stakeholes were cut through the base of the pit; it is presumed that these were contemporary and associated with the pit, and not with earlier features which the pit had truncated. The dimensions of these stakeholes were: (106) 75 x 90 x 120mm deep; (108) 90 x 90 x 90mm deep; (110) 85 x 90 x 110mm deep. The primary fill (111) of pit 77 was 0.19m thick and comprised yellowish-brown, silty sand with moderate inclusions of pot. This fill contained traces of a decomposed material which may originally have been bone. On top of this fill were three large flint nodules, one of which had a decayed bronze object on top which may have been part of a small socketed axe (see Riddler, below). At the southern end of the pit a red deer skull had been placed face down resting on the edge of one of the flint nodules. Both antlers were broken, but were still attached to the skull. A skull with one antler still attached, but broken, was located at the opposite side of the pit, with a second antler located next to the pedicle (figs 7 and 8). The antler which was still attached showed a distinct line of severance from the pedicle, while the second antler had been shed from it (see Riddler, below). The upper fill (76), which covered the skulls and antlers, was composed of a dark brown–grey silty sand and contained frequent inclusions of pottery and burnt flint, occasional worked flint, and a fragment of briquetage.

A large oval pit (100), which measured 2.9 x 1.88 x 2.14m deep, was located to the east of the northern end of ditch cut 59. In the upper half of the pit the north side was near vertical, the other sides were overhanging. The sides then rounded out gradually to form a concave base with a step down from north to south. The primary fill of the pit (128) was a deposit of apparently mixed dumps. This fill included orange–brown coarse sand and gravel, white–green fine sand and brown sandy silt. Two small deposits (143 and 146), an amalgam of black silt, charcoal, pottery and burnt bone probably of a single young sheep, were contained within fill 128. Deposit 143 was located against the eastern edge of the pit cut and 146 was towards the centre; both lay near the top of fill 128. The overlying fill (127) was composed of fine white and yellow–green sand, which contained inclusions of occasional burnt and worked flint. The fill was mounded up in the centre of the pit to a height of 0.4m. This was overlain by a deposit of mid-brown sandy silt (99), which contained frequent patches of fine yellow–white sand. The upper fill (96) was a dark brown

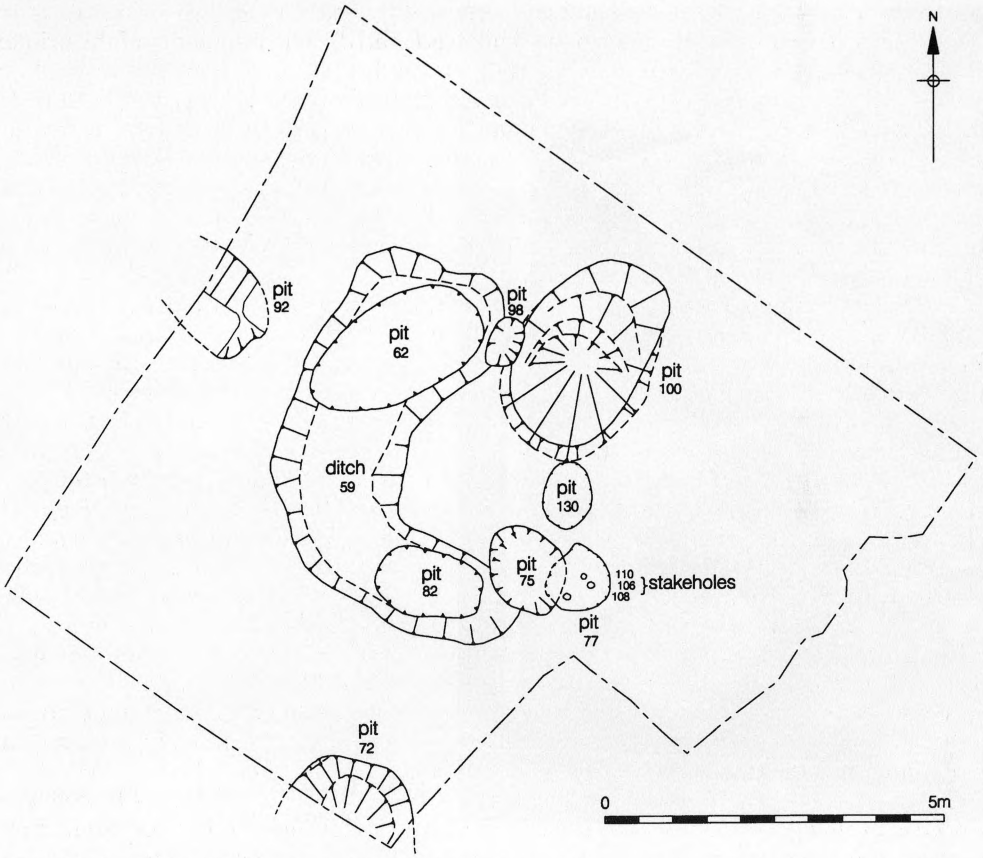

Fig 5 Westcroft Road, Carshalton: plan showing pits in trench 8

sandy silt. These fills both contained moderate inclusions of pottery and burnt and struck flint. The pottery assemblage from fill 96 included half a small unworn coarseware tub. The other half of this pot was recovered from the ploughsoil close to the pit (fig 10, no 13)

Pit 130 was located to the south of pit 100 and north of the south-eastern end of ditch 59. This was oval with vertical sides and a flat base and measured 0.72 x 0.92 x 0.21m deep. Large flint nodules were tightly packed into the pit within a matrix of silty sand (129) with occasional inclusions of charcoal and burnt and worked flint (fig 12).

A large pit (72) was partially excavated in the southern corner of the trench. The area visible, 1.63 x 1.04 x 0.68m deep, suggests that this was a substantial feature, but it was not possible to ascertain the total size and depth of the pit as it continued beyond the limits of excavation. The fill was composed of brownish-orange silty sand and gravel from which burnt and worked flint were recovered.

The western side of pit 77 and the south-east end of ditch 59 were slightly truncated by pit 75 which measured 1.28 x 1.1 x 0.32m deep. This was sub-rectangular in plan with rounded corners, sloping sides and a flat base. The primary fill (139) was a relatively clean sand which contained a broken saddle-quern rubber and a water vole mandible. The upper fill (74) was a mid-brown/grey silty sand which contained occasional inclusions of pottery, burnt flint and very occasional charcoal flecks. This fill also contained a broken saddle-quern rubber. A tapered stakehole cut through the latest fill near to the southern edge of the pit. Its fill displayed evidence of burning, suggesting that the stake may have been burnt *in situ*.

Fig 6 Westcroft Road, Carshalton: photograph of horse skull in pit 62

The western side of pit 100 and the upper fill of ditch 59 were truncated by a small pit (98), which was sub-circular in plan with vertical sides and a flat base and measured 0.51 x 0.78 x 0.39m deep. It was filled with a mid-grey/brown silty sand and no artefacts were recovered from this feature.

Feature 92, located against the western edge of excavation, had been truncated by modern intrusions to the south and north and continued beyond the limits of the trench to the west. Interpretation of this feature is therefore problematic but it may have been a pit or the terminus of a ditch. The maximum visible dimensions were 1.3m north–south x 1.25m east–west x 0.25m deep.

Most of the features did not display any physical stratigraphical inter-relationships, but material recovered from their fills suggests that they represent a broadly contemporary sequence of events; sherds of pot and perforated slab from the lower fills of pits 62 and 77 join to fragments recovered from the upper ditch fill, and conjoining sherds also occur in the upper fills of separate pits (see Macpherson-Grant, below). This demonstrates that material from the same source was utilized to backfill these features.

The pottery recovered from the features in trench 7 consisted of sherds which were mainly small to moderate in size; there was a general absence of complete profiles, and the assemblage contains a high number of vessels. The assemblage is dominated by thin-walled, high-shouldered, open-mouthed and flaring-necked bowls and jars. Most of the sherds are from coarseware vessels and only a small number of fineware types were present. The form, decoration types and manufacturing characteristics are all typical of a general mid–lower Thames valley and Kentish LBA ceramic tradition current during the 1st millennium BC. Although there are obvious similarities between the assemblages from

Fig 7 Westcroft Road, Carshalton: photograph of deer antler *in situ* in pit 77

Westcroft Road and Queen Mary's Hospital, the closest parallel is with Runnymede Bridge 1976 (Longley 1980). A date of between *c* 950 and 700BC is proposed for the Westcroft Road assemblage and the justification for this is set out in the pottery report below.

Finds

THE POTTERY, by Nigel Macpherson-Grant (figs 9–10)

Pottery was recovered from two trenches, 7 and 8, producing an overall total of 545 sherds (9303g). This total sub-divides into the following period groups: late LBA transition, 541 sherds; ?LIA, 2 sherds; Roman, 1 sherd; post-medieval, 1 sherd.

The statistical frequencies are self-evident, with activity in the second half of the 1st millennium BC virtually non-existent. The ploughsoil horizon contained pottery disturbed from the main phase of use, but also produced two markedly worn sherds, whose mixed-temper flint, grog and shell fabrics could be either of LIA date or broadly contemporary with other minority fabric types from the main assemblage. A limited degree of post-prehistoric activity is represented by the later sherds which, like the putative LIA material, may be the by-product of manuring scatters.

In view of the unusual nature of the main phase of use, with its symbolically intriguing structured deposits, the recorded ceramic types, their condition and their stratigraphic distribution have been thoroughly reviewed for any complementary trends. The results of this assessment are summarized in the final discussion section below.

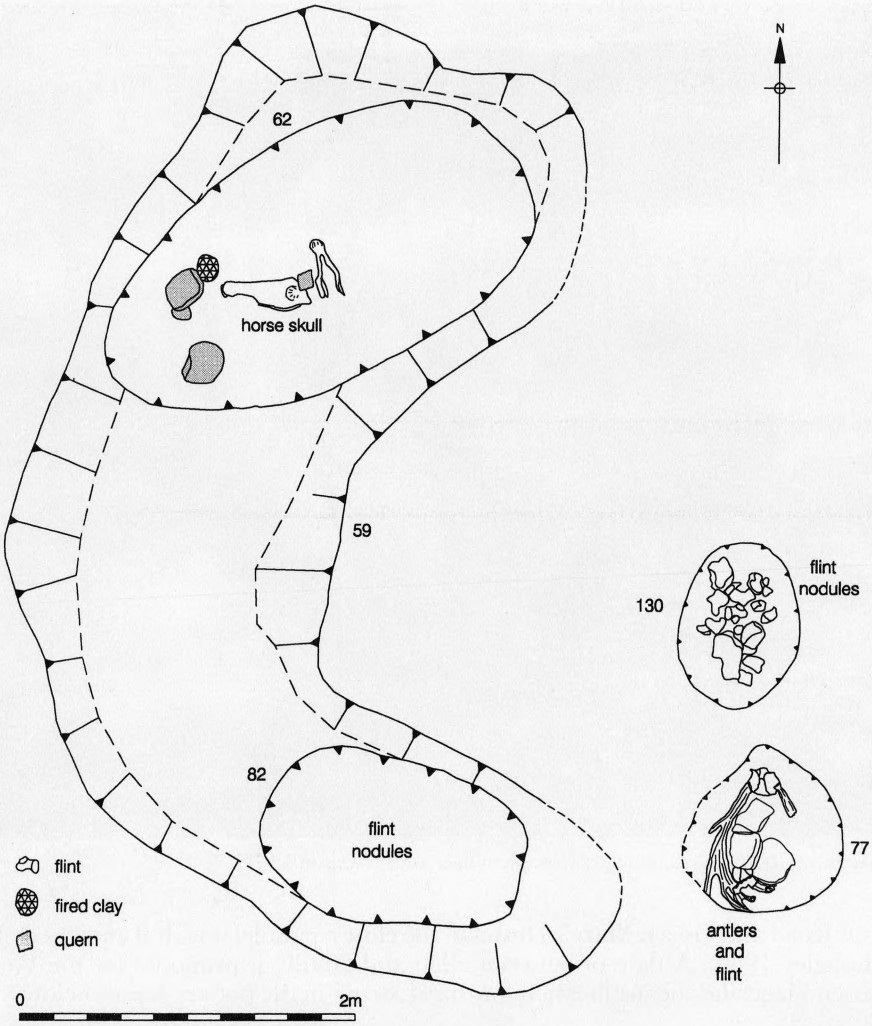

Fig 8 Westcroft Road, Carshalton: plan of placed deposits in pits

With the exception of one near-complete pot, most of the material is rather fragmentary and the rims are too small to warrant illustration; their presence is indicated in the figure captions. Some pot bases and fired clay elements have additional surface 'skins' of profuse flint grits (either a deliberate but still undetermined technological feature or resulting from being made or stood to dry on beds of crushed flint); illustrated examples are provided with a graphic symbol, eg fig 10, nos 13, 18 and 19.

A site-sequence and context-based fabric frequency analysis is held with the site archive. Fabrics have been identified macroscopically and under magnification but are sub-divided by main matrix or tempering characteristics; detailed analyses and descriptions (leading to definition of likely sources) are recommended for future broader period- and region-based synthetic studies.

Inter-context associations

A review of sherd distributions indicates that very little material came from the occupational activity associated with phase 3; no more than five sherds (including pot no

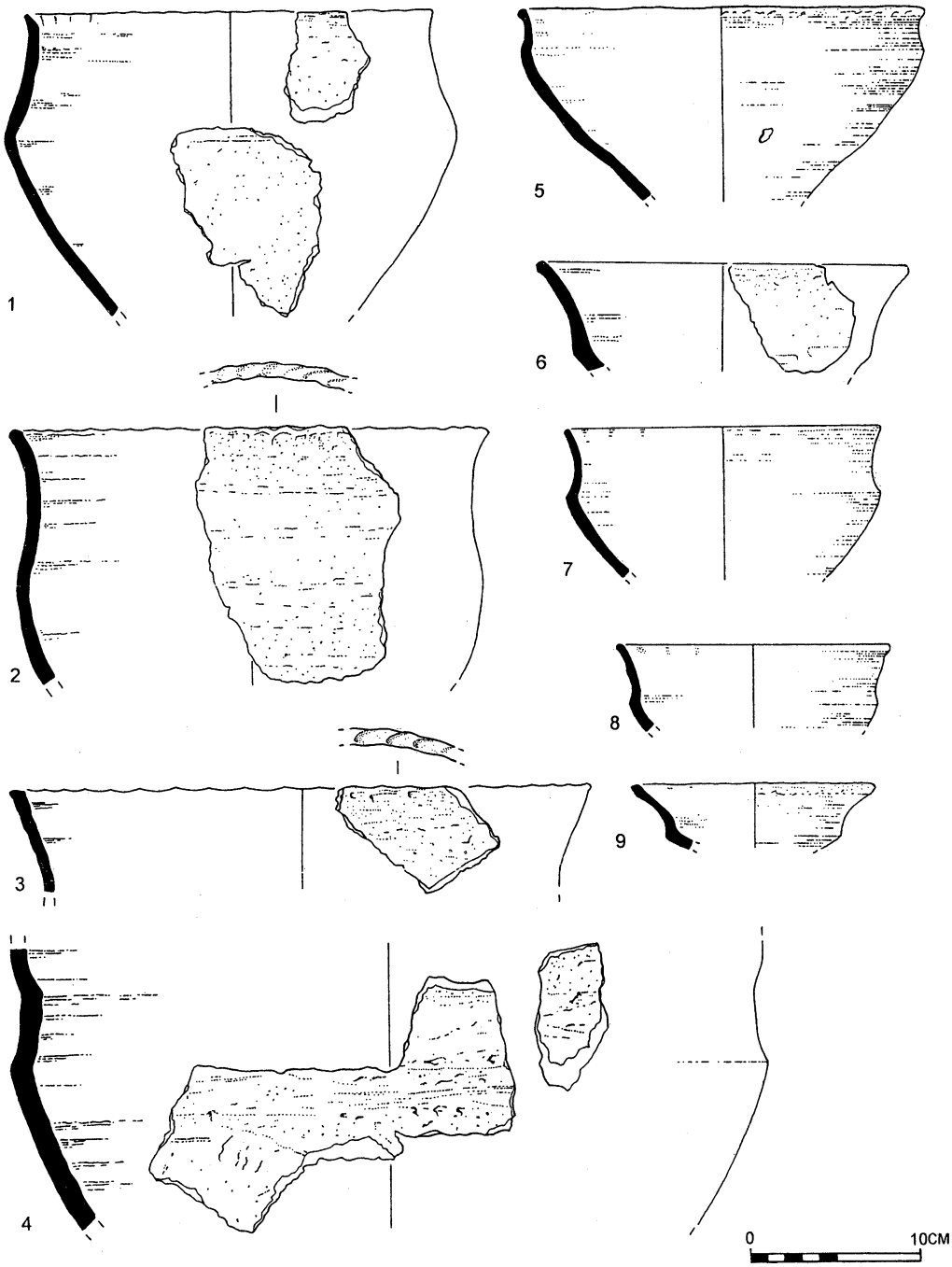

Fig 9 Westcroft Road, Carshalton: the pottery, nos 1–9

1: fig 10, no 17) from the various ditches, pits and postholes are considered to belong to this phase. The bulk of the pottery (455 sherds) comes from the phase 4 contexts associated with the backfill of features containing the structured deposits. Within phase 4 there is a technical sub-phase represented by two pits (75 and 98), which partially cut and post-date

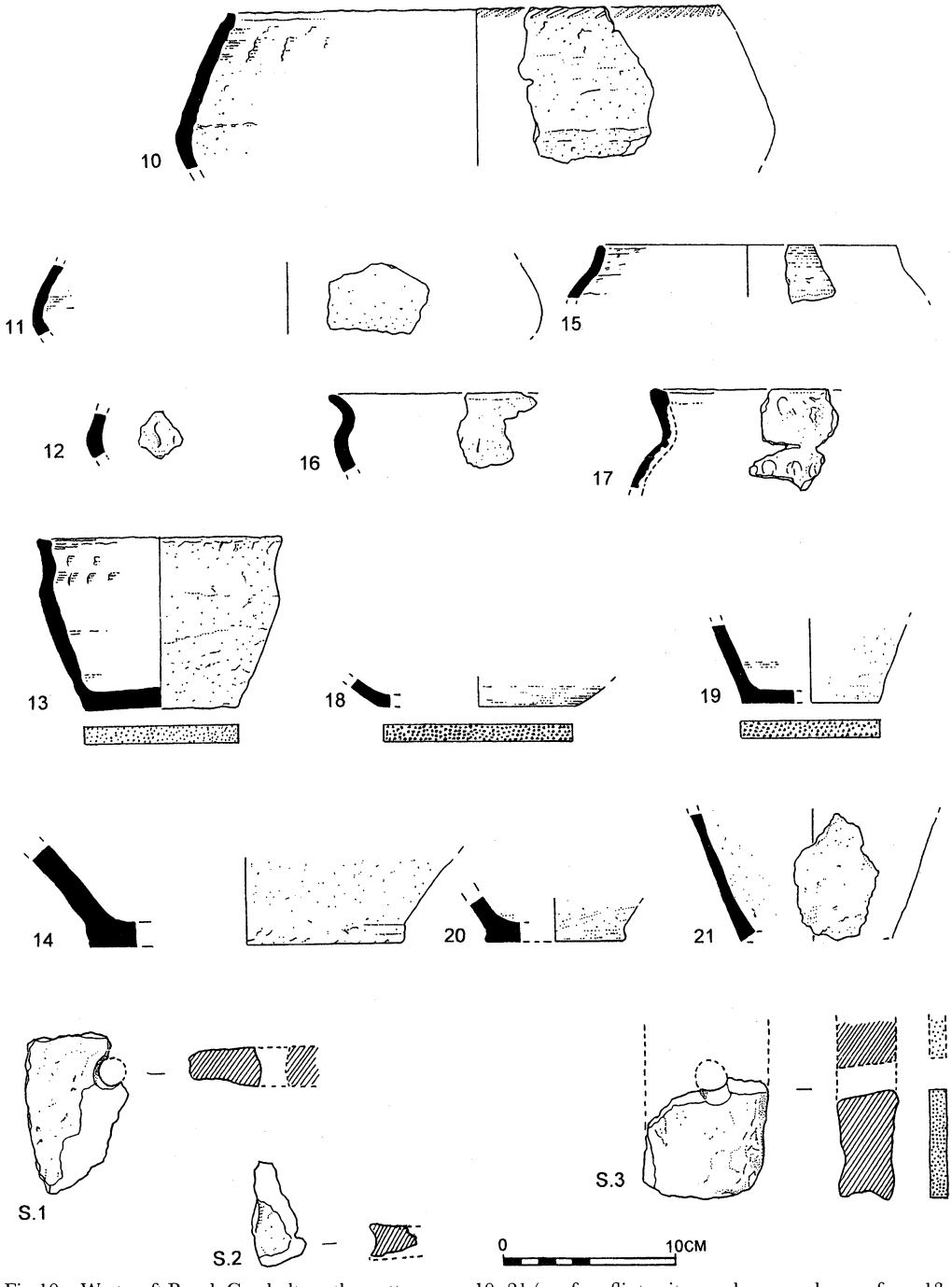

Fig 10 Westcroft Road, Carshalton: the pottery, nos 10–21 (profuse flint grits are shown on bases of nos 13, 18 and 19), and perforated slabs (S.1–S.3)

the main set of ritual features. A small quantity of material (fifteen sherds) is from this sub-phase. The overlying ploughsoils contain moderate quantities derived from either the

reduction of the upper fills of the main phase 4 features or from land-use associated with its sub-phase.

Within phase 4 itself there are up to ten obvious (and probably more that are less clear) inter-context conjoins between sherds from the same vessels or perforated slabs. With the exception of the plough-disturbed pot (fig 10, no 13), all detectable equations come from apparently undisturbed contexts and it is clear that the main ritual contexts were backfilled at more or less the same time from the same source(s), and can be considered as a contemporary group. A review of the entire recovered assemblage from all phases indicates that, despite the implications of individual phases for assessments of site-longevity, all the pottery belongs to a single broad period of activity. For characterization and dating purposes the overall assemblage is therefore treated as one group.

Assemblage content and overall character

The assemblage is epitomized by the dominant presence of mostly thin-walled high-shouldered open-mouthed and flaring-necked bowls and jars; there are relatively few closed forms. In keeping with the majority of broadly contemporary assemblages examined from eastern Kent, the initial impression provided (particularly by coarseware finishes) is of a rather rough-and-ready approach to production, but this masks a fundamental competence typified by fabric preparation, wall-thickness trends in relation to diameter and the generally careful application of decoration.

Fabrics and other manufacturing traits

Excluding the possible LIA fabrics, nine main vessel fabric types were recorded:

Fabric	Description	Quantity
1	Flint-tempered, fine matrix with nil/sparse quantities quartz sand	449
2	Flint-tempered, matrix with moderate–profuse quartz sand	67
3	As 2 but with moderate organic inclusions	5
4	As 1 but with sparse grog inclusions	2
5	As 1 but with sparse–moderate grog and organic inclusions	1
6	As 2 but with sparse flint and moderate–profuse shell inclusions	2
7	Fine matrix with moderate–profuse chalk/marl inclusions	1
8	Fine sandy matrix, no obvious additions	4
9	Moderate–profuse organic-temper	1

All perforated slabs and the potting clay lump from pit 62 are in fabric 1. For the minority fabrics, the grog in fabric 4 may be accidental, and the organic component of fabrics 3, 5 and 9 are in sufficient quantities to indicate deliberate inclusion (where present in other fabrics, it is accidental or natural to the clay used). Where used, crushed flint filler grades are characteristically (for the period) fairly fine for all fabrics, with ranges best epitomized by tub 23 (fig 10, no 13: with profuse fine dust-grade and sparser >2mm grits) and the potting clay lump from pit 62 (with sparse fine grades and moderate frequencies of >4mm grits); for other pots, grades are between these extremes with a general trend for fairly profuse fillers with coarser grades generally >2–3mm. As a general trend finer grades are reserved for finewares, but there are some surprises including the fairly coarse fillers for the bowl forms 26–27 and the profuse fine temper of the coarseware tub 23. Fabric 8 appears to have been used deliberately for the production of finewares (two to three vessels represented). Fabric 9 (briquetage) is another function-related fabric but in this instance probably non-local.

The occurrence of visually profuse fillers occurs as either a fabric component or as a by-product of production (pots made or stood to dry on beds of grit: Longley 1980, 65). The former occurs among the coarsewares: jar 13 (fig 10, no 20), tub 23 (fig 10, no 13), bowl 26

(fig 9, no 6) and five other vessels and fineware pots, bowl/jars 3–4; the latter as a basal skin, on coarsewares: jar 9 (fig 10, no 19), tubs 23–24 and five other examples and on fineware bowl/jars 3–4 and 16.

The bias towards coarsewares in both cases is likely to be accidental and the occurrence of both profuse fabric fillers and profusely gritted bases in pots 3–4 and 23 suggests that these are more likely to be a by-product of manufacturing habit than a function-related trend. An interesting issue that is common to both this assemblage and other (certainly Kentish) assemblages of this period is the occurrence of only some fine or coarseware vessels with profusely gritted bases. There appears to be no equation with specific vessel classes or forms, so why on only some vessels? More specifically, why does this partiality occur as a common trend in other geographically disparate assemblages?

Fineware finishes are confined to burnishes which originally were only fairly glossy; high quality burnishes are absent. With the exception of the irregular vertical burnish on bowl 3, most are horizontal and variably even, usually stronger externally except for the competently produced cup/bowl 25 (fig 9, no 8), which has a good even burnish overall. Despite its form, cup/bowl 27 (fig 9, no 9) is poorly finished over a lumpy surface.

Coarseware surface treatments are typified by superficially rough but technically slick and competent finishes. A characteristic of the period is the occurrence of jars with, externally, only partially smoothed-over coil-pinching, sometimes at the rim as with jar 5 (fig 10, no 17), more often on the lower bodies of larger-diameter cooking or storage jars (there are several body sherd examples from this assemblage). Generally, exterior finishes are confined to mostly horizontal or irregularly diagonal smoothing (eg the grit-drag scoriation on jar 20: fig 9, no 4), less often the lower body finish is vertical and can be deeply fluted. Treatment of interior surfaces is similar but frequently rather more minimal, though the smoother internal finish of jar 20 reverses this rule. For this assemblage the even internal burnish of the coarseware jar 10 (fig 10, no 14) reflects a trend noticed elsewhere where large-diameter storage jars are conscientiously provided with good-quality burnishes all the way down into the base.

Firing trends are difficult to determine with a high frequency of body sherd material, but the general visual trend is towards vessels fired in reducing conditions (blacks, dark greys and browns); the presence of frequent patchy oxidization (mostly) or reduction is indicative of not particularly well-controlled bonfire or clamp-kiln firing. The few apparently completely oxidized vessels (eg pots 1 and 5) have pale buff or buff–pink surfaces; deeper orange or red–browns are relatively rare. Context 51 produced sherds representing two finewares with rich orange–red surfaces reminiscent of contemporary red-finished (haematite-coated) bowls; these are the only obvious examples of probably controlled firing conditions. Reduced, oxidized or otherwise, only medium-range temperatures are indicated; most vessels are well-fired but have scratchable surfaces: only the storage jars 10 and 20 have noticeably compact and hard-fired fabrics, though Kentish trends suggest that this may not be function related.

In terms of overall assemblage quality the recovered finewares are rather poor though bowl 14 (fig 9, no 7) is an elegant and skilfully made product; the underlying competence inherent in the assemblage is best epitomized by the frequent occurrence of large-diameter but thin-walled coarsewares, some with neat and efficiently decorated rims.

Vessel types and forms

Overall, a total of between 116 and 126 vessels is represented and, with only jars 17–18 (fig 9, no 3) representing fineware types, coarsewares dominate. Cup/bowls 25–27 (fig 9, nos 6, 8 and 9) are the only exceptions to the high-shouldered rule and, along with bowl 14 (fig 9, no 7) and jar 20 (fig 9, no 4), are the only sharply carinated examples; the rest of the assemblage contains more softly angled (12, 19) (figs 9, no 1; 10, no 19) or round-shouldered (2, 8) (fig 10, nos 11 and 15) forms.

With the exception of tub 24 (which may not be fully intentional) all bases are flat and plain, only jars 10 (fig 10, no 10) and 13 (fig 10, no 20) are slightly footed. Of the thirteen bases recorded, only four lack basal skins of profuse flint grits; though the assemblage is too small for confident frequency trends, there appears to be no preference for vessel class.

Among the finewares (2–4, 14–16, 25–27) the markedly flaring rims of the small cups/bowls 25–27 (fig 9, nos 6, 8 and 9) form a noticeable little cluster compared with the other forms. These, together with bowl 14 (fig 9, no 7), an unillustrated rim scrap from a thin-walled small everted-rim cup/bowl from context 111, and the rather larger bowl/jars 2–3 (fig 10, nos 15 and 18) and 15 (fig 9, no 5), may be for the consumption, serving or (2) the short-term storage of prepared food or for drink. The function of the single post-fired hole bored through the lower body of bowl 15 (fig 9, no 5) is obscure; if it represents a repair no adhesive has survived.

The coarsewares (1, 5–13, 17–23, 28) represent a variety of cooking or storage utility wares; pot 1 and the bowl forms 11–12 (fig 9, nos 1 and 2) are likely examples of the former, the decorated pots 17–18 (fig 9, no 3) may be for cooking or storage, the larger thick-walled pots (10, 20) (figs 9, no 4; 10, no 14) should be storage jars with the unusual inner bevel of jar 20 possibly serving as a lid-seat. The tub 28 is a low-capacity boiling (for milk or herbs) or storage vessel (fig 10, no 21) (for fats).

Decoration types

The following applies to coarsewares only: stick or bone end on bowl 19 (fig 10, no 10), neat or squidged finger-tip on nos 5 and 7 (fig 10, nos 12 and 17) and finger-nail on pot 1 (fig 10, no 16). The latter are the only examples of shoulder decoration – the rest are finger- or thumb-tip on rim tops or inner lip – all (including bowl 19 and one unillustrated example) providing a cabled or pie-crusted effect. With the exception of no 7, decoration is neat and well spaced.

PERFORATED SLABS

Slab 1 is not a traditional 'slab' but a thick (25mm) and narrow (70mm) flint-tempered bar (fig 10, S.3) originally probably perforated by a row of one or more holes. The fabric is heavily flint-tempered and compact and fired to a completely oxidized bright orange–red. One surface has an additional 'skin' of profuse flint grits. In other finishing aspects it is similar to many perforated slabs, with one end fluted and the upcast from hole piercing left fairly proud.

Slabs 2–3 (fig 10, S.1–S.2) are more typical and both should be from standard multi-perforated sub-rectangular slabs. Fabrics are only moderately flint-tempered with partially laminar structures; no 3 has oxidized surfaces, no 2 only partially.

BRIQUETAGE

A single small fragment (2g) of fairly worn slightly sandy clay was recorded from upper fill 76 of the antler and deer skull pit 77. The fabric is latticed with fairly profuse organic temper and is oxidized bright flesh-pink. One side and part of one edge have pale cream–white surfaces. Though this piece has not been analysed, the overall appearance and fabric is typical of vessels used for the production of salt; the whitish surfaces are saline deposits that accumulate on the inside of the vessel during the boiling process. This sherd should be from near the rim of an evaporation vessel.

FIRED CLAY OBJECT

A single large heavy (1283g) lump of flint-tempered fired clay (112) was recovered adjacent to the horse skull in pit 62. It is partially oxidized and has been folded, compressed and

roughly moulded into a sub-square shape and contains fairly profuse quantities of coarse-grade (2–4mm average) flint. It is a lump of clay deliberately prepared for potting purposes; since the fillers are too coarse for the production of fineware pottery, it may have been for the manufacture of coarsewares such as cooking pots or storage jars. However it is worth noting that the only close parallel among the fabrics on site is with perforated slab 2.

DATING

The number of available local and inter-regional parallels and their bibliographical references are given in the supplementary appendix below; only relevant sites and associated dating are given here.

Form and decoration types and manufacturing characteristics within the main assemblage are all typical of a general mid–lower Thames valley and Kentish LBA ceramic tradition current during the earlier 1st millennium BC. The Queen Mary's Hospital, Carshalton, assemblage has been dated to between the 10th and 8th centuries BC. Applying and adjusting Needham's term 'Runnymede-Carshalton group' to embrace the Coombe Warren (Kingston) parallel quoted below for bowl 14, a date of between *c* 1000 and 900BC can be indirectly applied to this vessel. For Runnymede Bridge, radiocarbon-underpinned dating of between the 9th and 8th centuries BC has been given for the 1976 material, which appears to be confirmed by ^{14}C dates provided for the 1984–9 assemblage.

Further afield and downriver, a radiocarbon-supported date of between *c* 900 and 700BC has been applied to the Mucking North Ring assemblage. From eastern Kent a set of carefully considered typological dates can also be applied. A modified bronze hoard-associated dating of *c* 850/800–600BC was given for the material from Monkton Court Farm, Thanet. The present fineware bowl 14 has a close smaller parallel with a bowl from Highstead Period 1 (dated *c* 950–850/750BC) though other Westcroft Road jars (17–18) have Whitstable and Herne Bay area parallels that are closer to material from Highstead Period 2, dated to *c* 850/750–600BC.

While there are clear equations between the Westcroft Road and Queen Mary's Hospital assemblages (which confirm a broad contemporaneity), the distinctive forms of bowls 25–27 (fig 9, nos 6, 8 and 9) appear to be absent in the fairly large assemblage from the latter site. Formally they are much closer to flaring wide-mouthed elements from Runnymede 1976, and though both Runnymede and Queen Mary's Hospital have similarly broad date ranges, there is a personal suspicion that the Westcroft Road material should be closer in date and formal content to Runnymede. This particular formal type appears to be absent from eastern Kentish assemblages recorded to date, most of which appear to fall between *c* 850 and 600BC. Although any equation with Westcroft Road is geographically rather tenuous this trend could suggest that bowls 25–27 (fig 9, nos 6, 8 and 9) are somewhat earlier. Their association here with bowl 14, and its parallels with both Coombe Warren and Highstead Period 1, and their respective dating of between *c* 1000–900 and *c* 950–850/750BC, could encourage the application of a relatively early date for Westcroft Road. As the sample size and range of parallels quoted is rather small, and to accommodate the various points raised, a date of between *c* 950 and 800/700BC is initially proposed.

DISCUSSION

Assemblage condition

The low number of small–medium sized sherds from phase 3 contexts includes two sherds with fairly heavy wear-patterns to either sherd edge or face; both indicate at least medium-term partial exposure in semi-static open-ground conditions and a moderate timespan pre-dating phase 4 events.

The main phase 4 assemblage is represented by a mixture of mostly moderate-sized sherds with lower counts of small or fairly large sherds. Whatever the size, the dominant wear trend is towards either fresh, or generally only slightly worn, sherds with a limited degree of edge or face damage; only the split and heavily worn fabrics of pot 5 (fig 10, 17) and slab 2 and sherds representing a further two vessels suggest a significant degree of exposure before deposition. Some sherds have received light post-breakage sooting from inclusion in bonfire or hearth edges, others (including three of the fifteen sherds representing pot 19) have been lightly re-fired. The presence of re-fired light and corky semi- or totally vitrified ceramic is almost a type fossil among contemporary assemblages in Kent, and the present one contains at least two examples of same-vessel sherds where exterior surfaces have been heavily re-fired (one beginning to polygonize and bubble); the regularity of inter-assemblage occurrences suggests that accidental inclusion in rubbish fires is not the sole reason; re-use of broken sherds as temporary hearth bases or as container/flue elements in domestic or craft activities requiring high temperatures are other possibilities.

The above wear-pattern trends indicate that the backfilling of phase 4 contexts mostly comprised recently broken material which, depending on the use-span of the ritual features, is either contemporary with their use or just pre-dates their construction. The frequency of numbers of sherds from the same vessels not only tends to confirm this likelihood but also indicates that this material was collected from specific midden locations.

Overall, the wear-patterns associated with the four recorded phases of activity (including the pits 75 and 98 sub-phase, post-dating the main ritual elements) suggests that no more than one to two generations of occupation are represented.

The presence of briquetage

Carshalton is a considerable distance from the nearest likely Lower Thames salt-extraction zone, and though there is a little evidence from eastern Kent for the deliberate portage of wet or unrefined salt prior to final in-settlement evaporation (Macpherson-Grant forthcoming), Carshalton is likely to have been too far inland for practical portage (unless transport was via boat up the Thames and the lower reaches of the Wandle), so the single small sherd is more likely to represent a traded item, a container carrying pre-dried salt.

However, despite the relative social value of salt and the presence of this sherd in the sealing fill of deer skull pit 77 (which could imply a deliberate association with curing processes), the sherd is really too small and worn to recommend its deliberate selection and inclusion.

Phase 4 sherd and vessel frequencies and distributions

The sherd sizes involved unfortunately preclude accurate vessel counts per layer per feature. Other than a very general trend for fewer sherds in lower fills and a tendency for fineware sherds to be concentrated in upper fills, there do not appear to be any significant numeric frequencies, either in terms of vessel class and context equations or in inter-layer vertical distributions within an individual context (table 1).

Potentially ritual aspects

While it would be possible to say that the data represent no more than the convenient disposal of domestic rubbish, the likely use of midden material with respect to the pottery component as a backfill can also be interpreted as part of a cycle of regeneration. Any belief-sets specifically associated with pottery production would be automatically included conceptually within the regenerative function normally associated with midden material; if the latter had no organic component then honoration of the cycle of clay collection,

TABLE 1 Sherd distribution, quantification and joins within the 'ritual' pit fills

Context	Sherds	EVEs	Slabs	Other	Conjoins
Pit 62					
Fill 112	21	4–5	2	Lump of potting clay	Perforated slab 1 with sherd from ditch fill 56
Fill 63	28	11–12	1		Pot 11 with sherd from pit 100, fill 99 Pot 28 with sherd from ditch 59, fill 56 Perforated slab 2 with a sherd from ditch 59, fill 56
Fill 58	14	6–7	1		Pot 20 with a sherd from ditch 59, fill 56
Ditch 59					
Fill 57	8	6			
Fill 56	276	30–35	2		See other contexts for slab and pot conjoins
Pit 77					
Fill 111	30	7–8			Sherd with sherd from upper fill 76
Fill 76	79	22–24		1 briquetage	Pot 5 with sherd from ditch fill 56
Pit 100					
Fill 99	3	3			
Fill 96	8	2			Pot 23 with sherd from ploughsoil 70
Pit 75					
Fill 139	4	3			
Fill 74	11	5			The close formal similarity of pot 27 (from the overlying ploughsoil 73) with pots 25–26 (fig 9, nos 6, 8 and 9: from upper fill 74 of pit 75) suggests that 27 may well be plough-disturbed from pit 75

pottery manufacture and use, fragmentation and weathering back to source may alternatively be represented. That this is a genuine possibility is strengthened by the presence of a large lump of prepared potting clay from the base of pit 62, folded, compressed and roughly moulded into a sub-square shape; its immediate associations (horse skull and quernstone) imply intended integrated sacredness. In view of this relationship, the sequence of vertical associations within the pit may also be significant: it is at the base of the pit (unassociated with either whole or broken pots) and yet sealed above by fills containing broken vessels: a conscious symbol reflecting matrix, creation, fracture, return and renewal.

One small complete and virtually unworn coarseware tub (23: fig 10, no 13), from the final fill of pit 100 is the only nearly complete vessel from the whole sequence; it may have been deposited complete, towards the end of the ritual sequence, and could be interpreted as representing full renewal and closing the cycle.

In terms of sherd distributions and vessel type, the pottery from pit 75 is worth mentioning. This pit is one of a pair that cuts the backfills of the preceding main ritual features; pit 98 contained no pottery whereas pit 75 produced a small quantity, including the two distinctive bowl forms 25–26 (and possibly 27 from the ploughsoil). An interesting point is that the positions of both pits may be intentional: both appear to be superimpositions, one at each end of the U-shaped ditch 59 and possibly cut to link 59 with pit 100 at one end, and pit 77 at the other. Bearing in mind the sense of duality evident within pit 62 (potting clay below, broken sherds above – both combining to complete the circle) the positioning of these two pits in relation to the underlying ditch 59 appears to continue this trend, not only linking related underlying elements but again, in a vertical sense, closing the circle. The duality is continued in the presence and absence of ceramics from pits 75 and 98: that which is below, unseen, visually absent and hidden, and that which is above, seen, present and tangible – both aspects which curiously reflect the

condition of one of the deer skulls from pit 77, with its single shed and single unshed antlers.

Appendix: inter-assemblage parallels

Vessels, in relation to the following assemblages:

Queen Mary's Hospital, Carshalton (Adkins & Needham 1985, 48 and figs 3–11):

FINEWARES	COARSEWARES
Bowl 14: a more angular version of Carshalton 215	Rim bowl 12 = Carshalton 1, cf Carshalton 85
Bases 3–4 and 16 are in keeping with Carshalton 320(?), 372	Bowl 12 cf larger Carshalton 324, broadly cf 1, 3, 84
Bowl 15 hole cf Carshalton 325	Bowl 19 broadly related to Carshalton 317
	Jar 8 probably related to Carshalton 315

Coombe Warren, Kingston Hill, Surrey (Field & Needham 1986, 138 and fig 3):

FINEWARES	COARSEWARES
Bowl 14 cf Coombe Warren 9	–

Runnymede Bridge, Egham, Surrey 1976 (Longley 1980, 74 and figs 19–42):

FINEWARES	COARSEWARES
Bowl 14 cf less angular Runnymede 275	Bowl 26 related to Runnymede 272, 555, 557
Bowl 14 cf Runnymede 561 and many shoulder equivalents	Jar 17 cf Runnymede 318
Bowl 25 closely cf Runnymede 272, cf 1 and 350	–
Bowl 27 cf smaller Runnymede cup 429, related to 555, 557	–

Area 16 East Runnymede 1984–9 (Needham & Spence 1996, 230 and figs 60–83):

FINEWARES	COARSEWARES
–	Bowl 12 related to E16 P670, P708
	Tub 23 cf E16 P701

Mucking, North Ring, Essex (Bond 1988, 37 and figs 20–23):

FINEWARES	COARSEWARES
–	Tub 23 = smaller Mucking 27
	Jar ?lid-seat 20 cf Mucking 14

Monkton Court Farm, Thanet 1992 (Macpherson-Grant 1994, 287 and figs 5–18):

FINEWARES	COARSEWARES
–	Jars 17–18 cf smaller Monkton 77

Highstead, Chislet 1975–78 (Couldrey forthcoming):

FINEWARES	COARSEWARES
Bowl 14 = Highstead 1 (smaller), 193	Jars 17–18 cf Highstead 21, 126

South Street, Whitstable 1995 (unpublished assemblage):

FINEWARES	COARSEWARES
Bowl 14 related to South Street	–

Eddington Farm, Herne Bay 1990 (unpublished assemblage):

FINEWARES	COARSEWARES
–	Jar 17

Perforated slabs

Slabs 2–3 (fig 10, S.1–S.2) are best paralleled amongst the better-preserved range from the main Carshalton assemblage (Adkins & Needham 1985, figs 12–13), though there are a number of general parallels among contemporary Thames Estuary assemblages. The bar form of no 1 (fig 10, S.3) is not paralleled among these or locally, though its single face with a skin of profuse grits is equivalent to some more traditional slab forms from Carshalton (*ibid*, 37), where this trait appears on six out of nineteen slabs recorded. As noted above, the inconsistency of this trait may reflect no more than potting methods. As with conventional slabs, function is not obvious, but the one or more original perforations suggest a mutual relationship and the reference to possible pottery production may be pertinent (*ibid*, 38), as may its form and highly oxidized and hard fabric.

Briquetage

The identification is definite, but since it is represented by only a small worn rim scrap, specific formal parallels cannot be quoted. Briquetage was not recorded during the re-assessment of the broadly contemporary assemblage from Queen Mary's Hospital, Carshalton, nor from the 1976 and 1984–9 excavations at Runnymede Bridge (Longley 1980; Needham & Spence 1996). Organic-tempered vessel briquetage was recorded from Mucking North Ring (Barford 1988, 39–41). Several unpublished assemblages from eastern Kent inter-tidal or coastal margin sites such as Minnis Bay and St Mildred's Bay, Thanet, and Chislet, produced either flint-tempered or variably organic-tempered briquetage, mostly fragments of evaporating troughs or pans.

THE QUERNSTONES, by D F Williams (fig 11)

A visual inspection of the quernstones and rubber material show that all but one of the stones listed below are in a hard, dark brownish–grey, medium-grained, siliceous, glauconitic sandstone. Five shaped saddle-querns are present, two large and three smaller, each with a smooth, slightly concave, worn grinding surface. Evidence of deliberate surface pecking to produce the desired shape can clearly be seen on the sides of one of the large saddle-querns (no 3: fig 11, no 3). None of the querns is complete and some show evidence of burning, as do many of the small accompanying fragments (table 2).

A number of samples from the saddle-querns and rubbers were thin-sectioned and studied under the petrological microscope. The results showed that there can be little doubt that the rock derives from the glauconitic sandstones of the Lower Greensand series of the western Weald. Similar LBA saddle-querns of Lower Greensand have already been noted at Queen Mary's Hospital (Adkins & Needham 1985). The saddle-querns and rubbers must have been imported since this rock does not outcrop in the immediate vicinity of the site. The absence of very small waste pieces makes it appear likely that the saddle-querns may well have been brought to the site ready made. The petrological characteristics of the material are quite different from the nearest known greensand prehistoric quarry, at Lodsworth in West Sussex, which utilized the local Hythe Beds (Peacock 1987). Unfortunately, the rock seems to lack any particular distinguishing features, making sourcing a problem. The Bargate Beds tend to be calcareous, unlike this material, which seems to rule them out. It is possible, therefore, that a source may lie in the Folkestone or Hythe Beds (a different facies to Lodsworth), both of which were utilized for prehistoric quern-making in the region (*ibid*). The nearest source of such Lower Greensand formations lies some 8–10 miles directly to the south of Carshalton (BGS 1998, sheet 286).

THE LITHIC MATERIAL, by Barry John Bishop (fig 12)

Culturally altered flint: 480 pieces, 11,731.5g, 266 struck flints, 211 burnt flints, three modified thermally fractured spalls and a quantity of flint nodules.

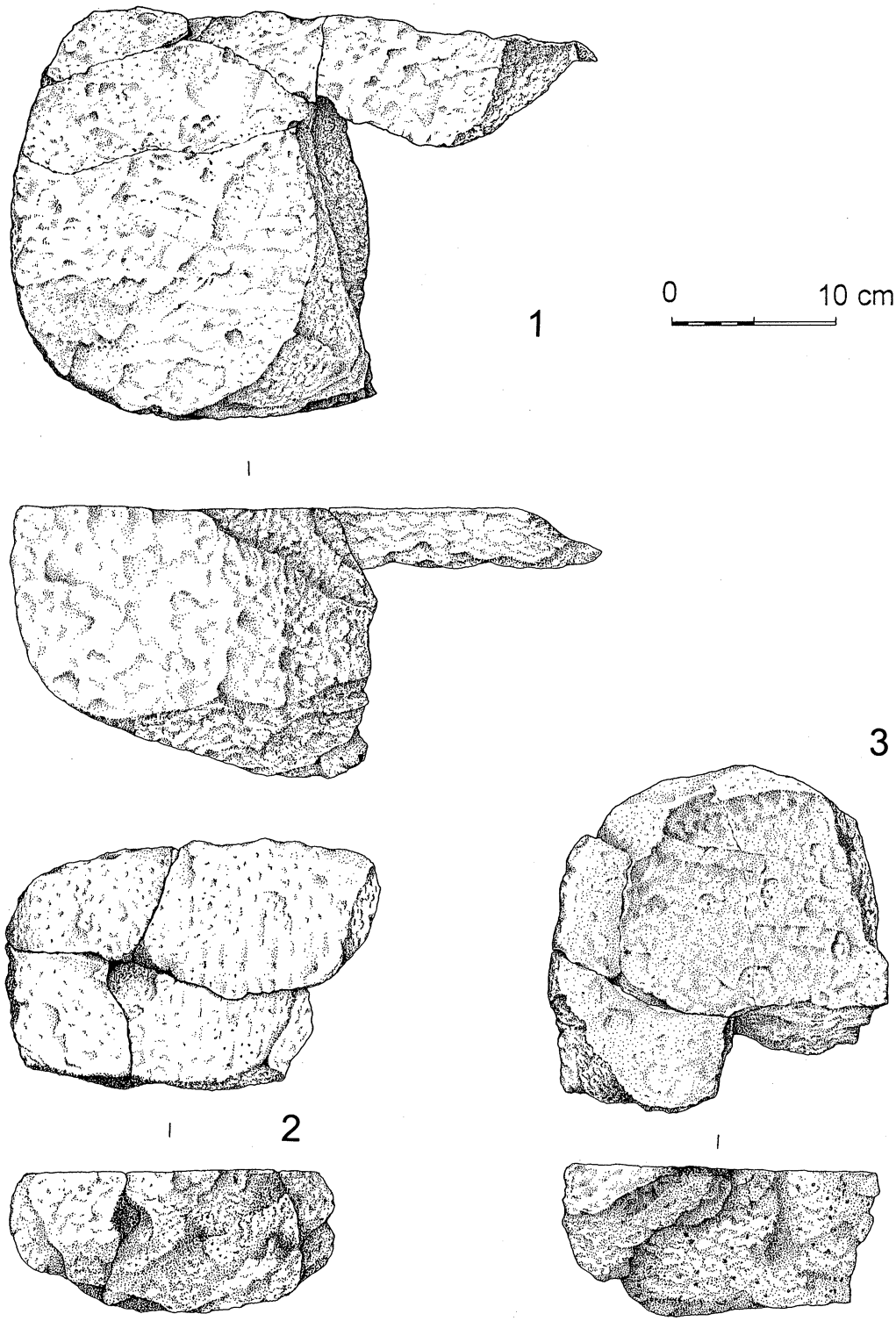

Fig 11 Westcroft Road, Carshalton: quern stones

TABLE 2 Querns and rubbers

No	Context	Thickness (mm)	Width (mm)	Length (mm)	Weight (g)	Notes
1	112	95	210	235	3962	Large broken saddle-quern with smooth concave grinding surface (fig 11, no 1).
2	58, 63, 112	–	–	–	921	5 fragments, join to no 1 (fig 11, no 1).
3	112	150	255	195	7623	Large broken quernstone with evidence of pecking around sides (fig 11, no 3).
4	63, 112	–	–	–	583	2 burnt fragments, join to no 3 (fig 11, no 3).
5	63, 112	–	–	–	1765	2 small fragments, one burnt, both with smooth grinding surface. Possibly join to no 4.
6	139	80	131	107	1297	Part of small, burnt quern with smooth concave grinding surface.
7	81	42	64	103	288	Small, burnt fragment with smooth grinding surface.
8	57	–	–	–	480	2 burnt non-joining fragments with smooth grinding surfaces.
9	56	–	–	–	1175	4 non-joining fragments.
10	58	–	–	–	150	Burnt fragment with smooth grinding surface.
11	81	50	140	220	1485	Small quern with smooth concave grinding surface.
12	58	49	105	155	784	Small quern with smooth concave grinding surface.
13	58, 63, 112	70	155	248	2652	4 joining pieces, 1 very burnt, with a smooth convex rubbing surface showing signs of wear. Possibly a rubber for a saddle-quern (fig 11, 2).
14	74	53	148	166	2652	Broken rubber for saddle-quern with smooth convex upper surface.
15	56	–	–	–	313	Broken, burnt, quartzite pebble with smooth surfaces and rounded edges. A very hard stone, possible a rubber stone.

THE LITHIC MATERIAL (continued)

The placed deposits

Pits 82, 77 and 130 contained placed deposits of large flint nodules. The identification of ritual deposition in the pits was not made until after pit 82 had been excavated. Consequently only half the flint nodules from this pit were retained for examination. This assemblage comprised eighteen nodules of three different types of flint. Sixteen nodules were of good quality black flint with an abraded chalky cortex; these varied in weight from 0.5 to 4kg. Nodular protuberances still survived but with some slight damage. The flint frequently exhibited recorticated thermal-fracture scars. One fragment of grey-banded tabular flint (0.5kg), which had a similar cortex to the black flint, was also present in the assemblage. These two types probably had a similar origin from periglacial mass wastage of chalk, and would be found in the vicinity of the site. There was also one complete rounded pebble (0.3kg) with a smooth 'chattermarked' surface. This is very similar to beach pebbles, but could have originated from the alluvial deposits of the river terraces. Two nodules, weighing 6kg and 4.5kg respectively, from pit 130, were also examined. Although of slightly different raw material, both nodules consisted of good quality dark grey to black flint exhibiting slightly abraded chalky cortex. They had experienced some mechanical abrasion resulting in localized 'chattermarking' and had undergone a small amount of dressing, which may have occurred accidentally during transportation. There are few parallels known for the deliberate placing of flint nodules in the later Bronze Age; at Minnis Bay, Kent, flint nodules had been placed in pits (Worsfold 1943), although a structural function for this was ascribed by the author. At Steyning Round Hill in Sussex a

Late Bronze Age interment, recently reinterpreted as dating to the Middle Bronze Age (Stuart Needham, pers comm), was found buried beneath a large flint (Burstow 1958, 159).

THE BURNT FLINT

Burnt flint comprised just under half the assemblage. The burning was mostly fairly intense and is consistent with the flint having been placed in a hearth, either as a structural component or in order to heat the flint intentionally. Although the heating had altered the surface, many pieces were still fairly large (up to 100mm in diameter and 280g in weight) and retained the remnants of a chalky cortex. It is likely therefore that at least some of the burnt flint was deliberately imported to the site in nodular form. The deliberate burning of flint has been recorded from many areas of Britain during the Bronze Age (eg Hedges 1974–5; Barfield & Hodder 1987; Bowsher 1991).

MODIFIED THERMAL FRACTURES

Three naturally formed spalls had been modified subsequently to form crude scraping tools. The opportunistic working of naturally fractured pieces is a feature of later prehistoric technologies, especially those of the Bronze Age. Similar examples can be found at Lofts Farm, Essex (Brown 1988, 277), or the former Jewsons Yard in Uxbridge (Barclay *et al* 1995, 17).

STRUCK FLINT

Raw material

The raw material used was a black to grey medium- to fine-grained flint with variable inclusions of cherty impurities. It was generally of a good knapping quality but had been subjected to considerable thermal fracturing, thus seriously impairing flaking control. Also recovered was a small quantity of 'bullhead' flint which originates in the Cretaceous Upper Chalk of Kent, Essex and East Anglia and has a fine grain with few impurities and is very good for knapping (Shepherd 1972)

The majority of the pieces displayed either chalky or abraded chalky cortex which, combined with the frequent thermal fractures and internal fractures, would suggest that the main source or sources of the flint were deposits created by periglacial mass wastage and slope wash. Large fan-like deposits of this material cloak and infill the lower slopes of chalk hills (Gibbard 1986) and would be common in the near vicinity of the site on the North Downs.

Condition

The assemblage was mostly in a good fresh condition, and the quantities of unbroken flakes suggest that for the most part it has not been subjected to extensive taphonomic movement.

One interesting aspect of the assemblage is that some of the flakes appear to have been struck from recorticated cores or flakes. This re-use of earlier material indicates an opportunistic use of readily available material.

Technology and typology

Most of the flakes (65%) were secondary, often displaying considerable cortex. The small number of primary flakes (2%) may indicate that little primary knapping was occurring on the site, although the thermally fractured nature of much of the raw material would also result in fewer primary flakes. Surprisingly, no cores were recovered and it must be assumed that final core reduction and discard occurred off-site.

A total of 155 complete flakes and blades was recovered. This comprised mostly flakes (87.5%) with a few blades present (12.5%). The majority were less than 50mm in length and 40mm in breadth. Just over half the complete flakes and blades were medium sized (as defined by Saville 1980) and about a third were broad, with narrow flakes contributing only 10% of the assemblage.

A small proportion of the assemblage exhibited features such as trimmed, narrow and lipped striking platforms, diffuse bulbs of percussion, feather distal terminations and parallel dorsal scars. These attributes, and the four core rejuvenation flakes recovered, are indicative of a carefully and systematically worked soft hammer or indirect percussion technology.

The majority of the debitage was, however, more crudely produced. The flakes were variably sized and shaped, but generally squat and chunky, with wide striking platforms, visible Hertzian cones, pronounced bulbs of percussion and frequent hinged distal terminations. These are more characteristic of an unsystematic and opportunistic reduction strategy based on hard-hammer percussion technology.

A technological shift from blade to flake production in southern England has been shown during the Neolithic (eg Pitts 1978; Pitts & Jacobi 1979; Saville 1990), suggesting that most of this assemblage comes from the later prehistoric periods, but with the possibility of a smaller component reflecting controlled flaking and producing systematically reduced blades and narrow flakes. This is a characteristic of Mesolithic and early Neolithic industries with the less-controlled and more opportunistic production of non-standard flake sizes and shapes being more characteristic of later industries, especially those of the Bronze Age.

Ten unretouched flakes and blades appear to have been utilized as they showed a regular microfracturing pattern along one or more of the longer edges. The identification of utilized flakes should always be treated with caution, however, as taphonomic factors can imitate the effects of use-wear on otherwise unmodified flakes.

Twelve pieces (4.5% of the total struck assemblage) were considered to exhibit secondary working comprising eight scrapers (fig 12, nos 1, 3, 5 and 7), two knives (fig 12, nos 2 and 6), one piercer (fig 12, no 4) and one miscellaneous retouched flake. Three

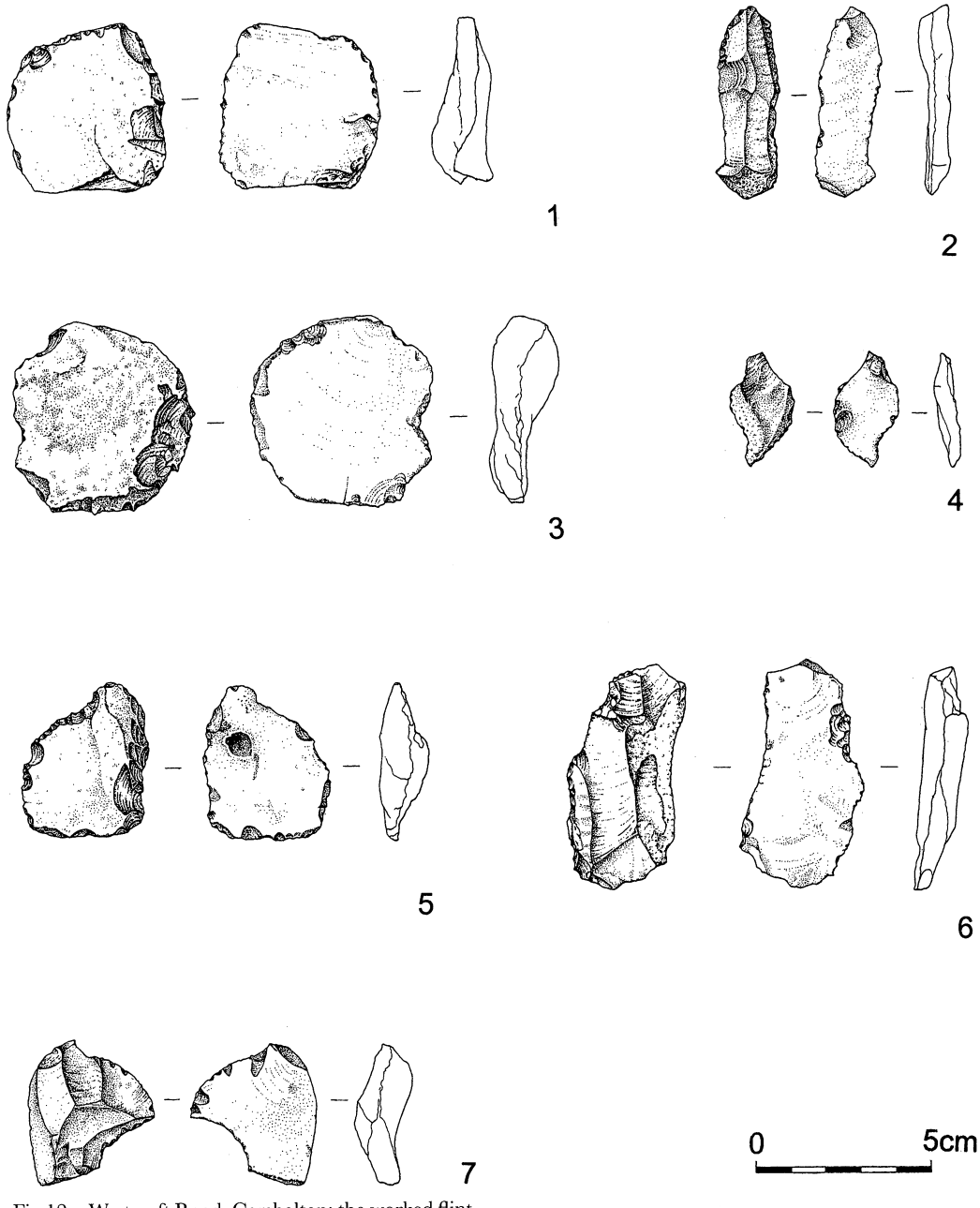

Fig 12. Westcroft Road, Carshalton: the worked flint

scrapers came from a pit excavated during the evaluation of the site, two each from the ploughsoil (51) and the upper fill of ditch 59, and one from the ploughsoil of an evaluation trench. The piercer was from a modern pit fill, a blunted backed knife from pit 100, a cortically backed knife from a modern pit fill, and the miscellaneous retouched piece from pit 130. None of the retouched pieces show any standardization over their production but they demonstrate an expedient use of opportunistically obtained flakes. Indeed, three of the scrapers were made on naturally fractured pieces of flint.

Discussion

The assemblage is a small- to medium-sized collection. No cores and few primary flakes were recovered, suggesting that only part of the flint reduction process was being carried out on the site.

Other than the placed flint nodules there was little evidence for any non-utilitarian aspect to the assemblage. It has been noted that later Bronze Age stone tools were rarely drawn into more formal acts of deposition (Edmonds 1995, 186), although the specific context of disposal of finished implements and waste material is intriguing and may be significant (see General discussion, below).

Most of the struck assemblage is characterized by hard hammer percussion (Ohnuma & Bergman 1982) and a lack of systematic reduction techniques using easily obtained but thermally flawed flint. This impoverishment of techniques is characteristic of Bronze Age assemblages (Edmonds 1995, 184). Most flakes were relatively broad and chunky, as is typical of later prehistoric assemblages. There was also a smaller component of the debitage that consisted of more systematically produced blades and narrow flakes showing some evidence of concern for core rejuvenation and maintenance. These are possibly from an earlier phase of flint working and are characteristic of Mesolithic or Early Neolithic industries.

The retouched component demonstrates an expedient approach to manufacture producing a restricted range with little regard for systematic reduction techniques, as is typical of the later Bronze Age (Ford *et al* 1984; Edmonds 1995).

Similar later Bronze Age assemblages can be found at the former Jewsons Yard in Uxbridge (Barclay *et al* 1995), settlement sites such as Ilford Hill, Sussex (Burstow & Holleymen 1957), Knights Farm, Berkshire (Bradley *et al* 1980), Black Patch in Sussex (Drewett 1982) and the 'quarry' site at Micheldever Wood, Hampshire (Fasham & Ross 1978).

The flint assemblage recovered would therefore indicate limited occupation of the area from at least the Late Mesolithic or Early Neolithic, but with the greatest quantity of material being from a much later date, consistent with the Late Bronze Age dating of the features excavated.

THE COPPER-ALLOY OBJECT, by Ian Riddler

A small fragment of copper alloy, weighing 12g, was retrieved from pit 77. This had been placed on top of a flint nodule and covered by the red deer skulls. The fragment is heavily corroded and originally formed part of a hollow object with an angled exterior cross-section. Its size and weight suggest that it may have been a part of a small socketed axe, but too little of the object survives to allow for a precise identification.

THE ANIMAL BONE, by Robin Bendrey

The excavation produced a limited quantity of animal bone, consisting of red deer (discussed below), a horse skull, and a small quantity of fragmented material. Boessneck (1969) was used to differentiate between sheep and goat elements where possible. This was greatly hindered by the fragmentary nature of the material. Only sheep elements have been identified in the assemblage. 'Sheep' is used in this text to refer to sheep/goat. The fragmented nature of the assemblage also meant that there was a quantity of bone that was unidentified; this material has been separated into cattle-sized and sheep-sized categories where appropriate. A very small quantity of metrical data was available; this was taken following von den Driesch (1976). Ageing data were insufficient to provide animal mortality age profiles.

The entire mandible of the horse skull was present, but the cranium was incomplete. Among the remains of the cranium were identified fragments of maxilla, occipital condyle,

temporal, and frontal bone. Owing to the fragmentation of the maxillae a number of the upper cheek teeth were loose. All teeth were present except for the upper first premolars. The lower incisors bore a dark staining on the occlusal and labial surfaces, and had undergone greater attritional wear than the upper incisors. There was also a small caries on the occlusal surface of the upper left third premolar. Such caries are not uncommon in horses (Hillson 1986, 299). There are no marks on the skull to give any suggestion as to the cause of death, or any butchery.

The horse skull was aged both by measurements of crown heights from the upper cheek teeth, and from a comparison of infundibulum wear patterns on the incisors (Levine 1982). The crown heights gave an age of 10–12 years, the upper incisors 8–9 years, and the lower incisors 10–11 years. The lower incisors gave a greater age as they had undergone more wear. An age of about 10 years would therefore seem appropriate.

The bone from contexts 143 and 146 consists of hundreds of tiny, brittle fragments, the majority of which are less than 3mm in greatest axis and were unidentified. Approximately one-third of these fragments had been burnt. Among the material there were a number of elements, all of a comparably small anatomical size, probably deriving from a single young sheep. The other, unidentified, fragments were all sheep-sized, and possibly from the same skeleton. The individual was positively identified as a sheep (Boessneck 1969), and was aged between 3 and 10 months. Fusion date is from Schmid (1972), 3–9 months, and Silver (1969), 10 months. Elements from all areas of the body were present, some were burnt, fewer were not. Burning is mostly shown by black (carbonized) areas on bones, but there are also areas of white and white–grey (calcined) burning. Burning was therefore of different durations or intensities on different elements (Lyman 1994, 386). Some elements have patchy burnt and unburnt surfaces, which suggests that some flesh was still covering areas of the bone when the burning took place (*ibid*, 387). Whether a whole skeleton was burnt is difficult to assess as immature bone would be more susceptible to destruction by fire and post-depositional processes. There are a number of transverse cuts on the posterior surface of a tibia diaphysis fragment. The burning of a whole young animal may be seen as indicative of ritual activity. The inconsistent burning, and cut marks on one tibia, may imply some consumption of the animal's meat before the rest was burnt. There are also a small number of very young bones from these two contexts, a few of which have been identified as foetal sheep (Amorosi 1989).

The material excavated from the various fills of the pits and ditch was not as fragmented as the above sample. Material identified to species includes: a cattle humerus, tibia, and mandible fragment; a sheep ulna, molar and vertebra (roughly axially split); a pig molar; a fragment of burnt red deer antler; and a horse mandible fragment (not from the above skull). The rest of the bone was mostly cattle-sized and sheep-sized long bone and rib fragments. The material was very fragmented, suggestive of domestic consumption waste. Small quantities of burnt bone were present; with the exception of the red deer these were all unidentified cattle-sized fragments. A water vole (*Avoricola terrestris*) mandible was also identified, suggesting slow-moving open water in the locality.

A limited quantity of material was recovered from trench 8. This included a cattle radius fragment, cattle proximal phalanx, a sheep tibia, and a few unidentified sheep-sized fragments.

The red deer antler, by Ian Riddler

The deposit from pit 77 included two pairs of red deer antlers, still attached to the skull of the animal. In both cases the skull had been neatly separated from the neck vertebrae, none of which remained. The heads and antlers of the deer were present, but no other elements of the deer were found. The terms used to describe the antlers are based on those of Putman (1988, fig 7.7).

One pair consisted of two antlers for which both the brow and bez tines survive, although the former tines are in a fragmentary state. The antler beam is truncated just above the bez tine. A slight exotosoic lump is present on one pedicle, just below the coronet of the burr. This may indicate that the deer was relatively old. The lack of any crown elements on either antler cannot confirm this suggestion, however.

The second pair includes one antler that has separated from its pedicle. The second antler shows a distinct line of severance, although it remains attached to its pedicle. Unusually, with both these antlers the brow tine is present but the bez tine is not, although a stub or 'snag' of growth remains in each case. The bez tines grew only in this truncated form and never developed fully. The lack of any further tines on each antler is unfortunate, because the subsequent development cannot be readily ascertained. It has been argued that antler tines develop from growth points distributed over the surface of the pedicle, and a problem with these would result in malformed antlers (Darwell & Clark 1986). Deer are environmentally dependent animals whose health, nutrition and hormone supply is reflected in the size and shape of their antlers (Putman 1988, 151–2). It is clear, therefore, that this animal had suffered a form of trauma during the early years of its life.

The fact that one antler has been shed from the head, while the other remains on it, indicates that the animal had been slaughtered during the late spring. Red deer lose their antlers during April and May, and this is usually a secluded process, for which the animal withdraws from its community (Putman 1988, 93). It is unusual to recover a set of antlers that have been partially shed in this way, and they may have been retained in part for their rarity value.

THE CHARRED PLANT REMAINS, by R G Scaife

Barley was the predominant grain type present with only a very small number of *Triticum spelta* type (emmer and spelt wheat) and undifferentiated *Triticum* also present (table 3). The grain was variably preserved with some (barley) caryopses in an excellent state of preservation. Some grain was, however, puffed and fragmentary, preventing identification even to genus.

The majority of caryopses recovered were barley (*Hordeum vulgare* L. emend LAM or more recently *H. vulgare* subsp. *vulgare,* Zohary & Hopf 1994) of hulled form; that is, with traces of palea and lemma present. Identification of barley to species level can be hazardous (Jones 1981; Jacomet 1987). However, the numbers of angular and asymmetrical/twisted grains from the lateral florets indicates that the crop was six-rowed and, as noted, was hulled barley. No chaff debris (rachis fragments) was recovered which would show whether lax or erect forms were present. A small number of grains (three) were sprouted and not in enough quantity to postulate malting processes. A very small number (nine) of caryopses of *Triticum spelta* type (hulled emmer – *T. diccoccum* Schubl. and spelt wheat – *T. spelta* L.) were also found in ditch 59 and pits 75 and 77. The similar/overlapping morphology of this grain precludes specific identification without the corroboration of identifiable chaff remains. The latter was not present.

Weed seeds were only recovered from contexts 56 (ditch 59) and 79 (pit 80). These comprised largely *Chenopodium* sp. (goosefoots/fat hen) with *Polygonum aviculare, P. lapathifolia/persicaria/mite* and *Fallopia convolvulus, Rumex* sp. *Malva* sp.

Discussion

Helbaek (1952) illustrated that barley was perhaps the most important crop plant during the Bronze Age period, supplanting wheat during the Neolithic. This has, however, been contested by Dennell (1977) as a statistical/data under-representation with suggestion of the continued importance of differing crop types. Clearly, however, barley (most probably the hulled six-row variety) was the most important crop type represented here and was the

crop most likely to have been grown in fields adjacent to the ditch complex. Jones (1981) suggests that barley was more suited to well-drained soils, which however may not necessarily be light, such as the often-quoted chalk soils. Thus, it is quite possible that the local field systems/soils present here on Thanet Sand were suited to cultivation of barley. Quernstones found on the site (fig 11), although of suggested ritual importance (see General discussion, below), also indicate final crop processing perhaps at the domestic/consumer level.

Triticum spelta type wheats (the glume wheats, emmer and spelt) were also recorded in ditch 59 (context 56) and pits 75 and 77 (contexts 74 and 76). Whether these wheat remains are part of another charred/preserved crop or a lesser (weed) element of the barley crop remains unclear. The absence of any substantial quantity of chaff debris of barley (or wheat) suggests that the crop had been threshed and cleaned of chaff (rachis and straw) except for removal of the palea and lemma by heating. Both emmer/spelt wheat and barley require heating (parching) for removal of the grain from the ear, and in the case of barley, also for drying for storage and/or to halt germination after malting. This process may have led to the accidental charring of the grain and subsequent disposal. Alternatively, however, there is strong evidence for votive or ritual archaeological contexts in which food remains and other materials may have been placed (see General discussion, below). It is possible that this grain, along with the faunal remains recovered, are part of votive offerings deliberately burnt on small fires. The weed seeds noted above are all representative of ruderals which are typically associated with arable and waste ground. It is possible that these weeds may have been growing on the ground on which the fires were lit.

TABLE 3 Carbonized plant material

Context	56	58	74	76	111	79	143
Feature	Ditch 59	Pit 62	Pit 75	Pit 77	Pit 77	Pit 80	Pit 100
Sample	14	15	11	13	16	12	18
Grain							
Hordeum vulgare	200	17	24	8	3	4	1
Triticum spelta type	6		1	2			
Triticum indet.	2	1				1	
Indet. fragments	56		16	9	6	18	
Miscellaneous							
Culm nodes	1						
Straw fragments	6					7	
Seeds							
Viola sp.	1						
Chenopodium	31					18	
Medicago/Trifolium						1	
Malva sp.	4						
Polygonum lapathifolia/persicaria type	3					2	
Fallopia convolvulus	6					7	
Polgonum aviculare	2					1	
Rumex sp.	11					1	

General discussion

The phase 4 pits and ditch excavated in trench 7 do not have any obvious domestic or agricultural function. The archaeological evidence suggests that these features were not created for the purpose of rubbish disposal or for storage. The presence of conjoining sherds of pottery in the lower and upper fills of separate features demonstrates the contemporaneity of the backfilling and the lack of silting at the base of the pits indicates that the backfilling occurred soon after they were dug. The archaeological evidence

therefore demonstrates that the pits and ditch were dug and backfilled at the same time; this is not indicative of rubbish disposal from a settlement, which would be expected to develop over a period. The wide variety in the size and shape of the features also suggests a non-utilitarian function; there is a lack of the uniformity that might perhaps be expected if these were simply rubbish pits or storage pits. This evidence all points to these features not being domestic in origin.

The quantity of material recovered from the features also suggests that their purpose was not refuse disposal. The most striking example of this is pit 100, which survived to a depth of 2.14m (the original depth is unknown owing to truncation by ploughing), yet only the upper fill contained any quantity of artefactual material. There is also a general trend for higher quantities of pot, burnt and struck flint, and post-cranial animal bone in the upper fills in comparison to the lower fills. The lower fills contained large quantities of flint nodules, quernstones and skulls. If the pits were being used for domestic refuse disposal then it would be expected that there would be a more even distribution of refuse throughout the fills (Hill 1995).

The composition of the material that is present within the pits, particularly the basal deposits, is not indicative of domestic refuse. Three of the pits contained a large number of good quality sizeable flint nodules, while pit 62 contained a lump of prepared potting clay and pit 77 contained antlers. These raw materials do not appear to constitute rubbish as they are useful items that were unlikely to be disposed of as refuse; this suggests that there was another reason for their burial. The composition of the bone assemblage is also curious; a horse skull and two red deer skulls were present but there were no post-cranial bones. If this material was domestic refuse then it would be expected that more elements from the animals would be represented, which, in a ritual context, may reflect the fact that consumption of these individuals was not part of this ritual process. The assemblage recovered from the site included five worn quernstones in fragmentary condition. These were of Lower Greensand, which must have been imported, as this rock does not outcrop in the vicinity (see Williams, above). As established above, the quernstones appear to have been deposited contemporaneously. It seems unlikely that all five would have become unusable at the same time, which suggests that as the querns became worn they may have been retained for later deposition. The deer skull with its one shed and one unshed antler is a rare find, and may have been retained in part for its rarity value.

The bone from the two deposits 143 and 146, located towards the top of the primary fill of pit 100, comprised hundreds of tiny fragments of which approximately one-third were burnt. These mostly derived from a single young sheep (Hill 1995). Foetal sheep bones were also present in the assemblage. It is suggested that some of the meat may have been consumed before the rest was burnt (*ibid*). The evidence from this pit demonstrates that a whole animal was burnt and the remains were then collected and placed into the pit in two discrete deposits; this is not indicative of domestic consumption and the ensuing disposal of the remains.

The arrangement of the material in the pits implies that the objects were deliberately and carefully placed within them. The flint nodules within pit 130 were tightly packed together in a manner which would not occur if they had been thrown into the pit (fig 8). The position of the flint nodules, deer skulls and antlers in pit 77 also demonstrates that this material had been carefully arranged and not simply thrown in. The curve of the base of the deer skull at the south end of the pit fitted tightly onto the curve of a flint nodule (figs 7 and 8). The shed antler from the second skull was positioned next to the pedicle from which it had been shed, giving the impression that it was still attached. The shape of the west side of the pit cut mirrored the curve of this antler, suggesting that it may have been cut to accommodate it. Such careful arranging of material within pits is not indicative of refuse disposal.

The archaeological evidence demonstrates that objects, some of which were of value as raw materials, and others which were unusual in terms of their rarity, had been carefully

placed and arranged within features which appear to have had no domestic function. Similar selection of material has previously been recognized and discussed by Wait who identified 'non-rubbish deposition' of animal bone within Iron Age pits, an interpretation equally pertinent to the LBA. He states: 'There is evidence that care, if not ceremony, was taken in the placing of some remains – bodies curled up, skulls consistently displaced or facing skywards, some burials accompanied by stones or chalk blocks' (Wait 1985, 151). Grant (1984, 222–3) defines a number of characteristics that imply ritual deposition of animal bones: the juxtaposed burial of two or more animals, and the deliberate placement of the deposits at the base of a pit or associated with other objects. Hill (1995, 101) has examined in detail such 'special deposits' and although he emphasizes that it is not possible to form rigid criteria for the definition of ritual behaviour, he suggests that such activity can be recognized in the archaeological record: 'neither the content nor the location of a deposit is a secure guide to its ritual origins, but evidence for the irregularity, form, procedure, and ways in which the deposit was made is'. He concluded that the structured deposits he examined were ritual in origin, and among the evidence he uses to support this is the fact that the material had been 'deposited in features according to a proper sequence, and with people often actually carefully placing material in' (*ibid*). The material excavated at Westcroft Road exhibits such characteristics and should therefore not only be seen as structured deposits, but also interpreted as ritual activity.

Finally, it is the combination of all the characteristics displayed at Westcroft Road which provides compelling evidence for the interpretation of the site as an area of ritual activity. A great deal of effort was obviously employed in digging a group of features at the same time that have no domestic function and then carefully placing objects of value and rarity within these features. The juxtaposition of these features strongly argues the case for a zone of ritual activity, the implications and significance of which will be discussed below.

INTERPRETATION AND ANALYSIS OF THE EVIDENCE FROM WESTCROFT ROAD

There can be little doubt that the features at Westcroft Road contained ritual deposits, parallels for which can be found throughout the later prehistoric period – but what was the significance of the actual material that was selected for such treatment? Most of the objects deposited at Westcroft Road appear at first glance to have little intrinsic value, indeed some of them could be viewed in another context as simply rubbish. However, it is precisely this class of material which does appear in the archaeological record as placed deposits: 'The evidence from Late Bronze Age Britain suggests that what we would classify as rubbish may have had a role to play in ritual practice' (Brück 1995, 255). Hill (1995, 98) also concluded that the material utilized for such activities need not be prestigious items: 'It is perfectly possible to have ritual practices which used and deposited daily domestic garbage'. Parallels for the deposition of usable objects, such as the flint nodules and antlers found at Westcroft Road, are also found in the prehistoric record. An examination by Brück (1999, 332) of ritual deposition in the Middle Bronze Age (MBA) demonstrated that 'not only was it deemed appropriate in certain circumstances to "waste" useable artefacts by burying them, but categories of "refuse" were sometimes treated carefully upon deposition'.

Flint as a raw material had a variety of uses in the LBA. The importation of flint nodules that were subsequently burnt suggests a deliberate policy of obtaining large pieces to be heated and this is a common feature of Bronze Age sites. In some settlements there is evidence that food was cooked by placing heated flints in boiling troughs (Parker Pearson 1993, 104). An alternative method, suggested by ethnographic parallels, is that heated flints were used to bake or steam food. There is also some debate as to whether troughs excavated outside settlements were exclusively for cooking food; they may have been used for bathing purposes and functioned as 'saunas' (*ibid*). Flint was also used as a temper in the production of pottery. The flint nodules deposited within the pits at Westcroft Road

consist of good quality material, the same as the struck flint. Although the use of flint for the manufacture of tools declined in the Bronze Age, it was still utilized in this period; scrapers in particular were still manufactured as there were few metal equivalents. One of the pits within the ritual area at Runnymede contained a cluster of corticated flint nodules, unburnt and unworked, with a group of pot sherds placed on top (Stuart Needham, pers comm). This is directly paralleled at Westcroft Road with the skulls and antlers placed on top of flint nodules and also the cluster of flint nodules within two other pits.

The deposition of quernstones in ritual contexts occurred throughout the prehistoric period, although in the past recognition of such a practice has tended to focus on complete querns (Buckley 1992). At Barford, Warwickshire, a heavily burnt quern was placed in a Neolithic pit that had been specifically dug to accommodate it (*ibid*, 3). A complete quernstone was found in a feature at the MBA site of Black Patch, Sussex (Drewett 1982). A saddle-quern and rubber were placed at the base of the ditch of a Bronze Age barrow at Buckskin, Hampshire (Allen *et al* 1995, 165). A skeleton of a child lying on top of a saddle quern was found outside the Queen Mary's Hospital enclosure and although no other datable material was found with this burial, its association with the enclosure and the presence of similar querns from the site suggests it was contemporary with the enclosure (Adkins & Needham 1985, 46). At Westcroft Road two large broken saddle querns were placed next to the horse skull and fragments of quern from other fills in this pit joined onto these large pieces. In addition, four conjoining fragments of a saddle-quern rubber were recovered from this pit. Reconstruction of the querns from Westcroft Road demonstrates that in total five saddle querns and two rubbers were present, along with several non-joining fragments. Similar querns were recovered from Queen Mary's Hospital (*ibid*). The nearest likely source for the raw material is at least eight miles away (*ibid*). Quernstones were essential to the economy of the LBA for processing grain and as such would be valued objects. Buckley (1992, 4) has suggested that broken querns may be seen as votive and should not be dismissed as the disposal of rubbish. 'Rituals may employ mundane objects, potentially including refuse or the simultaneous destruction of objects' (Needham & Spence 1997, 86). The deliberate destruction of objects may have been necessary in order for the material to be acceptable as an offering. Brück (1995, 262) proposes that 'materials whose lives had ended or which were in a state of decay may have been seen as sources of fertility'. Quernstones may have had ritual significance as they were used to process grain, the product of fertility. Quernstones as a category of finds recovered from LBA and Iron Age contexts quantitatively appear to constitute a far more representative element of the original parent group of material from which they derived in comparison with other categories of finds recovered for these periods. As found in the type of ritual deposits discussed here, they are consistently broken or damaged, and their presence, as in the case of certain other types of finds, appears to be related to the transforming attributes of the quern, converting harvested grain into useable flour (Hill 1995, 108).

The red deer skulls had been neatly separated from the neck vertebrae, none of which remained, and no other elements of the deer, other than the antlers, were present. One of the skulls had both antlers still attached, but broken. A second skull had an antler placed next to it, which created the impression that it was still attached to the skull. In addition to their inherent value as a raw material (for example antler was used for making objects such as cheek pieces for horse bridles) these particular antlers may have had further value owing to their rarity. The inclusion of wild animal remains in the ritual activity may also have further significance; the red deer skulls may symbolize hunting skills and the appropriation of nature (Pollard 1995, 152). The bones of non-domesticated animals form a very minor proportion of the animal bone recovered from later prehistoric sites in southern Britain (Hill 1995, 26). Some minority species appears to have been emphasized in special treatment, such as dog, horse and wild species. Although it is unclear whether they would have been preferred in a sacrificial context, evidence suggests that they were selected for complete or partial deposition of the carcass rather than consumption as part of the ritual.

The head appears to have been a particularly important element in this context (Hill 1995, 103). At the Iron Age site of Wakerley in Northamptonshire worked bone and antler appeared to be particularly associated with boundary locations (Gwilt 1997, 161). The lower the contribution of a species to the overall animal bone count, the more elaborate was its treatment in deposition. This indicates that the use of such animal remains would have been highly regulated (Hill 1995, 104).

The use of horses for riding was an important development in the LBA as it allowed a quick response to threats from other territories and horses were also used as a means of displaying wealth and power (Merriman 1990, 32). At Runnymede the remains of horses and equipment associated with horses were ritually deposited and Needham (1991, 380) suggests that 'the standing of the horse [. . .] may have extended to veneration beyond death'. The horse skull at Westcroft Road consisted of the entire mandible and an incomplete cranium; there were no signs of butchery or indications of cause of death. The estimation of age at death is about 10 years (*ibid*). The use of animal skulls for ritual deposition has been noted by Hill (1995, 13–14) and by Cunliffe (1992, 75) at Danebury.

The large lump of fired clay located at the base of pit 62 was partially oxidized and had been folded, compressed and roughly moulded into a sub-square shape. It was flint tempered and had been deliberately prepared for potting purposes; it may have been for the manufacture of coarsewares, but the closest on-site parallel is with a fragment of perforated slab. The largest weight of perforated slab fragments was recovered from the basal deposit of pit 62. The function of these objects is yet to be established, although it has been suggested that they were used in the manufacture of salt or as components in ovens (Parker Pearson 1993, 120). Another interpretation is that they were used in the process of pottery production in bonfire kilns perhaps to construct a raised floor or to support the load in the kiln (Adkins & Needham 1985, 38).

It is possible that further classes of material that have since decayed without trace were also selected for deposition at the site. Cunliffe (1992, 77) has suggested a range of organic materials, including wool, milk and skins, which may have been placed in the pits at the Iron Age site at Danebury. The large oval pit (100) was very deep yet there were no ritual deposits at the base of the pit; it is possible that organic material, which has left no evidence, may have been deposited here. Although negative evidence of this sort is difficult to interpret, it is unlikely that every 'empty' pit contained organic materials that left no trace.

The upper fills of most of the features were very similar in composition and content and displayed a marked difference from the lower fills. The latter tended to consist of natural sands with relatively few inclusions while the former contained a higher silt content and contained pottery, charcoal, charred plant remains, fragments of bone, and burnt and worked flint. The predominant grain present in the environmental samples taken from the upper fills of the pits and ditch was barley and there was an absence of any substantial quantity of chaff debris, suggesting that the crop had been threshed and cleaned of chaff elsewhere. Although the charring may have occurred accidentally during the processing of the grain, it is possible that the grain was deliberately burnt as part of a votive offering and deposited within these features. Four distinct patches of charcoal concentrations could be seen within the upper ditch fill pointing to a deliberate deposition of this material.

It is probable that some of the material used in the final backfilling of these features originated from a midden source; the bone, flint and pottery assemblages are consistent with such a source (see finds, above). The preservation of bone on this sandy site suggests that the material that filled these features had a high organic content; this again points to a midden as the source of some of the material. The utilization of refuse-rich material in the upper fills may have been invoking a concept of fertility and regeneration: 'Refuse has links with fertility where the value of green midden as fertiliser was recognised, and more generally to the cycle of death and renewal' (Needham & Spence 1997, 85). Perhaps the ritual deposition at Westcroft Road may be linked to ideas of regeneration and fertility of

the resources important in this community. Thus the material selected for deposition may have been seen as a source of fertility that was ritually buried in order to ensure the continued success of the economy of the community. Hill's views on the role of fertility in this type of ritual practice are at variance with the ones expressed in this paper. Hill argues that the above-ground versus below-ground opposition requires a reappraisal of the fertility cult interpretation. As the ritual practices are not exclusively confined to pit locations their link to grain storage would not be pervasive and these rituals should therefore be seen as being essential to securing the structure and renewal of society (Hill 1995, 111, 114, 118). In our view the central role that fertility plays in ensuring the continued renewal of the structure of society and in confirming the success of its leaders and justification for their position of power is underestimated in the alternative explanation favoured by Hill.

The ritual deposition of material in grain storage pits in the Iron Age was interpreted by Cunliffe (1992, 78) as representing offerings to the gods: 'it would be surprising if a community, whose survival was based on the success of its crops, did not have some system of placating the deities who controlled fertility'. Needham (1993, 63) has examined LBA ritual deposits, which are similar to those from Westcroft Road, and concluded that 'all these deposits suggest some recurrent themes in reinforcing social values and the structure of society'. The evidence from Westcroft Road displays similar characteristics to the ritual area at Runnymede, and the interpretation of this area as 'a shrine for low-key, that is to say not highly ostentatious, acts of ritual' could also be seen to be applicable to Westcroft Road (Needham 1993, 64 and pers comm). The themes invoked by the ritual activity appear to refer to everyday society and economy, and the form and content of the ritual act reflects this. This ritual may have been 'periodic, planned, and perhaps part of the seasonal or agricultural cycle [...] designed to renew fertility and to reproduce the authoritative structures of society' (Brück 1995, 262). Brück (1999, 336) suggests that MBA structured deposits 'may have acted as a means of maintaining the productivity of land and livestock through the giving of offerings, perhaps to particular spirits, ancestors or deities'. It is suggested that the ritual activity at Westcroft Road occurred in the late spring (see Bendrey and Riddler, above). The association with spring also reinforces the idea of the ritual being concerned with fertility. Needham (1993, 63) has highlighted the distinction between ritual sites where regular repeated deposition occurred, such as Flag Fen, and sites where the ritual activity was an isolated event. 'One possible explanation for the distinction would be the difference between deposits made to the gods as an overt display to be witnessed as widely as possible (at sanctuaries), and those made to appease the relevant spirits in a given situation or to ensure the future well-being of a new structure, a crop, a personal bond' (*ibid*).

Indeed evidence for ritual activity on prehistoric sites should not be seen as unusual when a society was greatly dependent on the productivity of agricultural and natural resources which could easily be affected by natural disasters, crop failures and diseases. Brück (1999) has highlighted the problems of viewing prehistoric ritual activity in relation to modern Western concepts and proposes that there is considerable evidence within anthropological literature to suggest that many societies do not distinguish between the sacred and the profane. In such societies where this distinction is not made 'ritual action may not be spatially or temporally distinguished from more "mundane" or secular activities' (Brück 1999, 319). Brück (*ibid*) cites Bourdieu's observations of the Berbers' agricultural cycle which includes appropriate rituals at each stage of the cycle to ensure the success of their harvest. The ritual at Westcroft Road may have been an offering to appease the forces responsible for the productiveness of the economic resources of the society, or indeed to praise those forces for previous fertility in order to ensure continued success. Anthropological and archaeological evidence suggests that such an offering should perhaps be viewed as an integral part of the everyday agricultural cycle of the community, and not a separate and exclusively sacred activity.

There appears to have been a pattern governing placement of material. The locations chosen for the deposition of classes of material may have had symbolic significance: raw materials and tools used for the preparation of food, pottery and objects were selected for basal deposits, while finished and broken products such as pottery, bone, flint tools and grain were selected as suitable material to be used to seal the basal deposits. The only near-complete pot from the site was found in the upper fill of pit 100. The inclusion of a complete vessel may suggest the completion of the ritual cycle. This closing of the cycle is also suggested by the position of two pits: pit 75 truncated the east end of the ditch and the antler pit (77), and pit 98 truncated the north end of the ditch, and pit 100. These may have been intentionally cut in order to link these features together. The content of these two pits is also noteworthy in that 98 contained no artefacts and the pottery recovered from pit 75 – sherds from small cups/bowls which had markedly flaring rims – formed a noticeable cluster in comparison with the rest of the pottery assemblage from the site.

THE ECONOMIC EVIDENCE

Although there are no domestic settlements or structures associated with Westcroft Road, the material recovered from the site can be used to reconstruct the basic economy of the society that made this ritual offering. The bone assemblage recovered from the upper fills of the features is primarily from sheep and cattle, and pig, red deer and horse were each represented by a single fragment. The predominant grain type present in the charred plant remains was barley, with a small quantity of emmer and spelt wheat also being present. The proportions of these grains suggest that barley was the most important crop and this would have been well suited to the local soils. Weed seeds recovered from the fills are all representative of species associated with arable and waste ground. The quernstones, which would have been used to process the grain, were made of Lower Greensand and must have been imported into the area. No waste pieces from the production of querns were recovered from the site, but this cannot be used as evidence that the querns were imported ready made, as it may be that such material was not present in the midden source. The flint assemblage also demonstrates that waste from primary knapping was not included in the midden material. The flint assemblage is typical of LBA traditions. The coarseware pottery represents a variety of cooking or storage utility wares. The majority of the finewares were for drinking purposes and a few of the larger examples may be for the consumption, serving, or short-term storage of prepared foods. One fragment of briquetage was recovered and the appearance and fabric of this is typical of vessels used for the production of salt. As Carshalton is a considerable distance from the nearest likely salt-extraction area, this fragment may well have originated from a traded vessel containing pre-dried salt. Fragments of perforated clay slab were also recovered from the site. It has been suggested that they were used in the manufacture of salt or as components in ovens, or alternatively that they were used in the process of pottery production in bonfire kilns.

A final point about the range of materials recovered from Westcroft Road concerns what is not present on site. With the exception of one very small fragment of copper alloy, no metalwork or metalworking debris was found. Although this may be connected with the nature of the ritual at the site, which appears to be a relatively low-key affair, it could also reflect the status of any associated settlement. There is evidence of metal production at some of the LBA ring-forts, including Carshalton, Deal and Highstead, which has led to the suggestion that ordinary settlements did not manufacture metal (Bradley 1984, 120–1). It is further suggested that metal production was undertaken on the high-status sites and that the lower-status settlements may have supplied the elite with food (*ibid*). However, it has also been noted that evidence for metalworking is becoming more frequent on sites recently excavated that are not ring-fort settlements (Needham 1993, 55). Similarities in the pottery assemblage, perforated clay slabs and quernstones suggest that there may have been an association between the site at Westcroft Road and the ring-fort at Queen Mary's

Hospital. The enclosure is thought to have been a regional centre, which wielded control over an area of downland up to 10km in radius. However, without further evidence of the LBA occupation in Carshalton it is not possible to be certain about the nature of the relationship between the sites.

Conclusions

The site at Westcroft Road has been interpreted as an area of ritual activity that can be seen to fit into a pattern of LBA ritual deposition which, in recent years, has begun to be recognized in the archaeological record. Ritual deposits within the context of settlements have been identified on a number of LBA sites. The relatively small size of the excavated area has to be taken into account; clearly these deposits are important but they form but one aspect of a wider settlement and landscape area. Although it may never be possible to interpret the precise meaning of the various rituals, or even identify every single ritual act which may have occurred on the site, it is possible to suggest the basic notions that the ritual activity appears to be invoking. The material selected for special deposition appears to symbolize the resources important to the survival and success of the community and an offering to ensure the continued fertility and productivity of the local environment clearly makes sense for the community that is dependent on these resources. The location of the site, in a position where it would maximize access to the greatest variety of available resources, may have been linked to the nature of the ritual deposition, as may the season of the year (late spring) during which time it is likely that the deposits were made. Despite the fact that only a small area was excavated, the results from Westcroft Road have provided a fascinating insight into LBA ritual activity. At Runnymede the ritual area was situated on the northern periphery of the settlement and future investigations in Carshalton may provide evidence of the domestic settlement which must surely lie somewhere in the vicinity.

ACKNOWLEDGEMENTS

The author would like to thank the excavation team, Mark Bagwell, Tim Carew, Andy Daykin, Dawn Griffiths and Mark Randerson, for all their hard work and enthusiasm. Thanks are also due to the Project Manager, Gary Brown, the Publication Manager, Dr Frank Meddens, and Vicki Ridgeway of Pre-Construct Archaeology, for their comments, suggestions and editing of the text; Josephine Brown and Sally Pickard for the illustrations, Helen Davies for the finds illustrations and Tim Loveless for the photography.

Advice, information, suggestions and comments on the text were also provided by Barry Bishop (PCA), Esther Boulten (Croydon Museum), Duncan Hawkins (CgMs), Graham Hull (Thames Valley Archaeological Services), Charlotte Matthews (Wessex Archaeology), Clive Orton (Institute of Archaeology), William Pearson, John Philips (Heritage Manager, London Borough of Sutton), David Pratt, Victoria Ridgeway (PCA), Andrew Skelton, and Ken Whittaker (GLAAS). Thanks to Jon Cotton (Museum of London) for visiting the site, commenting on the text, and for providing information. I would especially like to thank Dr Stuart Needham for the time he has taken to discuss ideas about the site, for comments and suggestions on the text, and for providing access to material and information from Runnymede.

Pre-Construct Archaeology would like to thank the developers, Barratt (South London) Limited, for the provision of funding.

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