Excavation of a Late Bronze Age enclosure site at Gatwick Airport, 2001

by Framework Archaeology

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In the summer of 2001, Framework Archaeology was commissioned to undertake a programme of archaeological investigations in advance of car park development in the North-West Zone of Gatwick Airport. The investigations culminated in the excavation of a partially enclosed Late Bronze Age settlement lying on the edge of the River Mole floodplain. Pollen, plant and insect remains indicated that the settlement occupied an area of previously cleared forest and woodland. An open landscape of grassland floodplain with scattered clumps of trees provided browsing and grazing for domestic animals. We can suggest that tillage occurred on the higher ground beyond the floodplain. The settlement developed and the landscape was cleared for pasture. The floodplain became drier, possibly because of modification and management of the watercourses and the increasing intensity in land-use. The excavation has demonstrated the archaeological and palaeo-environmental potential of the Mole Valley as it cuts through the Weald.

INTRODUCTION

Framework Archaeology (a joint venture between Oxford Archaeology and Wessex Archaeology) was commissioned by BAA Gatwick Airport Ltd (GAL) to undertake an archaeological evaluation in the area of the North-West Zone of the airport in advance of development. Following documentary research (Framework Archaeology 2001a), the first stage of the evaluation, a programme of trial trenching was undertaken in May 2001 in the area of the expansion of the public long-term block car park. As a result of the evaluation an archaeological excavation was undertaken in August 2001. The site archive has been deposited with Crawley Museum Centre.

Gatwick Airport is situated on the northern edge of the Weald, lying within a broad valley created at a point where the River Mole and several small tributaries flow off the Weald and run northwards towards the Thames. The underlying geology is Weald Clay. Over this is a wide expanse of low energy alluvium deposited by the River Mole lapping against the remnants of two gravel terraces.

The site is located in the county of West Sussex within the Borough of Crawley in the north-western corner of the GAL landholding (Fig. 1). Centred on NGR 526100 141300, it covers c. 2.8 hectares of flat boggy grassland bisected by tree-lined hedgerows lying at approximately 57 metres above Ordnance Datum (OD). To the east the site was, until recently, bounded by the River Mole. The original course has been filled in and a new one cut around the boundary of the North-West Zone.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

By Steve Webster

There is sparse archaeological evidence for the prehistoric period from the immediate environs of the site itself (Fig. 1). This may reflect the scant archaeological attention the area has attracted until recently. Previous research suggests that prehistoric site densities are higher at the margins of the area (at the foot of the North and South Downs) and on the sandy soils in the centre of the weald than on the clay soils in the north (Gardiner 1990). This pattern may merely reflect the activity of archaeologists rather than the true archaeological distribution in the Weald.

By analogy with work in the Mole valley in Surrey, the gravel terraces would have been highly favourable to human activity from the Mesolithic through to the medieval period.
Mesolithic activity has been identified to the north-west of Charlwood (Fig. 1:1) and a fresh Mesolithic flint core was found in the backfill of the former channel of the River Mole (John Lewis pers. comm.). Mesolithic flint was also recovered during fieldwalking to the north of Charlwood in the 1940s (Fig. 1:2 & 3).

Evidence of prehistoric activity in the area is largely confined to stray finds and cropmarks. Flint arrowheads found during the construction
of the railway in 1839–40 (Fig. 1:4) have been
dated to the Mesolithic — but could be Neolithic
or Bronze Age. A Late Bronze Age sword (Fig. 1:5)
was found in 1952 during the canalisation of the
Polesfleet Stream (a tributary of the Mole) to the
south of the site. Faint cropmarks to the west

Fig. 2. Main area of excavation and selected sections through features.
(Fig. 1:6) and east (Fig. 1:7) of the site have not been dated but probably belong to the Bronze or Iron Age. One of the cropmarks to the west of the site (Fig. 1:8) has been identified as a ‘banjo’ enclosure.

There is no indication of Roman activity within the general area of the North-West Zone, although chance finds of pottery and coins (Fig. 1:9 & 10) have been recorded on the Burstow Stream Valley. Within the Weald the archaeology of the Roman period is dominated by the iron industry and the near absence of non-industrial sites in this area supports the hypothesis that this was an Imperial estate, which restricted civilian activity (Gardiner 1990).

Little is known about the early to mid-Saxon period in the Weald but, by the late Saxon period the Weald was thoroughly, though sparsely, settled (Drewett et al. 1988). Population records for the medieval period and the enlargement of the church at Charlwood in 1280 and 1330 point to a growing population, but the Black Death ravaged the Weald in 1348–49. The dramatic population decline and ensuing excess of land resulted in a change to less intensive types of farming and the enclosure of open fields to create pasture for sheep (Sewill Lane 1979).

The land-use information provided by the tithe map for the North-West Zone indicates that by the mid-19th century enclosed pastoral land had given way to arable. At some point prior to the incorporation of the area into BAA’s landholdings, however, the land had once again reverted to pasture.

THE ARCHAEOLOGICAL EXCAVATION

Initial evaluation of the development area involved the excavation of 20 trenches, each 30 metres long and 2.1 metres wide (Fig. 1). Evidence for prehistoric and post-medieval activity was recovered from a number of trenches (Figs. 1 & 2). A series of undated gully features found in Trenches 2, 5, 19 and 20 have been interpreted as drainage gullies situated on the marginal land between the higher ground and the wetter floodplain of the River Mole. No dating evidence was recovered from the gullies, but they are likely to be of post-medieval date. Features interpreted as tree throws were identified in Trenches 1, 14, 17 and 19. As a result of the identification of prehistoric features in several other trenches, an area of c. 5500 metres², centred on a curvilinear gully observed in Trench 10, was machine-striped. Further investigations were carried out at points along a large linear ditch observed in Trenches 4, 17 and 18 (Figs 2 & 7).

Within the excavation area the Weald clay was generally found to be covered by thin topsoil and subsoil layers, although it was apparent that some truncation had taken place, particularly in the eastern third of the development area. This was almost certainly as a result of topsoil stripping and the creation of a bund during the recent diversion of the River Mole.

THE LATE BRONZE AGE FEATURES (1100–700 BC)

The archaeological remains from this period included a probable structure represented by a small curvilinear gully and several shallow features within an enclosure gully which appears to bound the edge of a settlement. A more substantial north–south aligned ditch was situated some 40 metres to the west of the enclosure at a point which separated marginal, boggy land from the higher land occupied by the settlement.

The curvilinear gully and associated features (Figs 3 & 4)

Gully 102162 was a shallow curvilinear feature 122 mm deep enclosing an area approximately 6.2 metres across. It varied in width from 220 mm to 0.60 metres and was widest at its western terminus. On excavation the gully proved to comprise four inter-cutting segments containing similar fills. The major segment, 102175, was 3.7 metres long. It cut post-hole 102160 at its western end, at a point where it joined a shorter segment, 102174. The post-hole fill resembled that of the gully and it may have been a contemporary feature, possibly a support for an end post or an internal structure. Another short segment, 102176, linked 102175 to the easternmost segment, 102177. Two post-holes (102023 and 102026) appeared to continue the eastern curve northwards but no additional features that may have represented a northern sector of a circular structure were recognized. This may be due to the extensive truncation that had affected the site, but even deeper features, such as post-holes, were absent. The structure may, therefore, have
been a fence, windbreak or temporary shelter of some description occupying the southern fringe of a more substantial settlement. That there was some level of occupation in the vicinity during the Late Bronze Age is attested by a group of 82 sherds of pottery recovered from the fills of the gully.

A post-hole (102184) and two small hollows (102018 and 102163) lay within the area defined by the gully. Feature 102018 was an elongated, curved hollow approximately 350 mm long and 100 mm deep. Feature 102163 was a roughly circular hollow 200 mm in diameter with four stake-holes visible in the base. Both features contained a fill that included fragments of fired clay and flecks of charcoal that may have derived from a hearth, suggesting domestic activity nearby. A small assemblage of pottery recovered from feature 102018 included a carinated bowl in fine flint-tempered ware and the flaring rim of a second bowl in a slightly coarser fabric (Fig. 9:4 & 5). Feature 102163 contained a single carinated sherd from a similar vessel (Fig. 9:6).

**The enclosure gully** (Fig. 2)

Gully 102162 was encompassed by a shallow curvilinear gully (102803). The northern terminal of this feature was exposed in the
trench and its length was traced for some 132 metres in a broad S-shape across the excavation area. The gully varied in width from 180 mm to 0.77 metres and in depth from 110 mm to 460 mm, and was cut by an undated field boundary ditch (102725).

In general, only one fill was present, although a second was observed in three sections excavated at the point where the gully was cut by the later field boundary. The gully was wider and deeper in this area suggesting that the presence of the field boundary had mitigated the worst effects of overall truncation observed elsewhere along its length. A few Late Bronze Age sherds were recovered from five of the sections excavated across the feature.

**Ancillary enclosure (Fig. 2)**

Gully 102803 was also cut by a short gully (102806) which, together with a second linear feature of similar dimensions (102633), may have formed part of another small enclosure. The gullies were 420 mm to 0.65 metres wide and up to 180 mm deep. A small post-hole (102446) may
have been associated with the gully complex but the original extent of this possible enclosure was unclear and much of it may have been subject to complete truncation. No finds were recovered from the gullies or the post-hole.

**The pit and post-hole complex** (Fig. 5)
A group of shallow pits and post-holes lay approximately 25 metres to the north-east of curvilinear gully 102162. The features were irregular in shape and 102208 and 102211, in particular, may best be interpreted as tree throws. Feature 102440, located on the southern edge of the complex, was 0.80 metres in diameter and 370 mm deep. A pottery assemblage of 65 sherds was recovered from the fill. Sixty sherds belonged to a single Late Bronze Age jar (Fig. 9:1). The sherds lay on the base of the feature, sealed by a layer rich in charcoal (102444). The jar was in coarse vesicular ware and bore finger-impressed decoration on the shoulder and vertical scoring on the body. Feature 102622 was a shallow, irregular hollow measuring approximately 1.5 metres across. Four small post-holes had been cut through its fill and Late Bronze Age sherds placed on the base of three (102616, 102618 & 102620). Cut 102616 was the most prolific, containing 62 sherds (Figs 5 & 6). A fifth pit (102504), immediately adjacent, was 0.80 metres deep, 0.92 metres in diameter, and contained three flint-tempered sherds in a single charcoal-rich fill.

It is unlikely that the large quantities of pottery and charcoal present in these features were incidental inclusions. The deposits consisted of often large, stacked sherds which, even allowing for truncation, filled most of the confines of the features in question. They may have been votive deposits of some type, but no specific motive for deposition can be ascribed on the available evidence.

Five post-holes, possibly forming a fence line, were also excavated in this area. Two, 102210 and 102508, were very shallow at 80 mm and 90 mm deep respectively. Three others, 102506, 102512 and 102514, were deeper at 240 mm, 220 mm and 170 mm deep respectively. Post-holes 102506 and 102512 contained a few Late Bronze Age sherds.

**The boundary ditch** (Fig. 7)
A large north–south aligned ditch (102340) was situated approximately 40 metres to the south-west of the settlement enclosure. It was revealed in Trenches 4, 17 and 18 to be a substantial feature averaging 3.5 metres wide and 2 metres deep. Its northern terminal was exposed in Trench 18 and its southern terminal in an evaluation trench opened subsequent to the main excavation (Trench 8, Framework Archaeology 2002). The total length was approximately 136 metres. A section excavated through the central stretch (Figs. 7 & 8) revealed a complex fill sequence. A primary alluvial fill (102337) was overlain by a more organic alluvium (102336), indicating a phase of standing water and plant growth. This was followed by episodes of backfilling from what appears to have been a substantial bank on either side of the ditch, layers 102334 and 102330 deriving from the east side and 102335 and 102331 from the west. These were interspersed with further water-lain deposits resulting from flooding (102333, 102328, 102329, 102324, 102325 & 102326) and peaty and organic deposits (102332 & 102327) resulting from periods of standing water and plant growth within the ditch. These fill episodes culminated in a stabilisation phase represented by layers 102322 and 102323. The fills of the termini (102313 & 106004) consisted of redeposited natural clay interspersed with thin water-lain deposits.

The position and fill of the ditch suggest that it was designed to separate marginal, low-lying boggy land from the higher land occupied by the settlement. It produced few artefacts, but a few Late Bronze Age pottery sherds were recovered from upper fills 102323 and 102304 (evaluation Trench 4). The assemblage from 102304 consisted of ten sherds from a hooked rim jar (Fig. 9:3).
UNDATED, MEDIEVAL AND POST-MEDIEVAL FEATURES
A linear ditch aligned north-east to south-west (102516) was exposed in the heavily truncated eastern sector of the excavated area (Fig. 2). It was 1.40 metres wide, 380 mm deep and at least 35 metres long and contained a single fill. The ditch terminated at the junction with field boundary ditch 102725. A single fragment of medieval pottery (13th/14th century) was recovered from the fill, but the area had been heavily disturbed during the recent diversion of the River Mole and the precise provenance of the sherd was uncertain. The medieval date is, therefore, tentative, but an earlier date is unlikely as the line of the ditch is mirrored by a row of trees on the OS 25-inch map (1st edition, 1870).

Ditch 102725 ran north-west to south-east.
across the site (Fig. 2), truncating the curvilinear gully (102803) and the possible medieval field boundary (102516). It was traced in excavation for at least 77 metres and was, on average, 2 metres wide and between 450 mm and 0.70 metres deep. The feature contained between one and three fills. The basal fill (102705, 102718 & 102722) seems to represent material from a bank that had slumped in from the southern side of the ditch. The upper fill (102707, 102712, 102720 & 102724) contained post-medieval and modern finds (brick and tile fragments, glass and slag). This ditch is also shown as a line of trees on the OS 25-inch map (1st edition, 1870).

Ditch 102420 ran parallel and 12 metres to the south of field ditch 102725. It was on average 1 metre wide and 0.5 metres deep and contained up to three fills. No evidence of a bank was present. It ran for at least 102 metres, extending from the main excavation area and apparently respecting the north terminal of prehistoric ditch 102340. Although no finds were recovered from its fills, it is likely that this ditch was contemporary with ditch 102516, possibly together forming a drove-way of medieval date. A terminating ditch of similar dimensions (102429) ran parallel to 102420. Its full length is unknown but it clearly did not continue into the main excavation area. No dating evidence was recovered from either of these ditches.

THE FINDS
by Rachel Every & Lorraine Mepham

THE LATER PREHISTORIC POTTERY (Fig. 9)
A small assemblage of pottery (263 sherds, 2257 g) provided the primary dating evidence for the site. Apart from a single medieval sherd, the assemblage was entirely of later prehistoric date. Condition varied from fair to poor and mean sherd weight was only 8.3 g overall despite the presence of large conjoining sherds in a number of features.

Fabrics
Nine fabrics belonging to three general categories were recognised. Fabric proportions by context are set out in Table 1. The majority of sherds (76% by count) were flint-tempered, and most contained contained ovoid, black ferrous pellets in addition to quartz sand and relatively sparse, small flint pieces (fabric F2). A second common flint-tempered variety had prominent inclusions of powdery red iron oxide, probably haematite (fabric F1). Sandy sherds with no flint inclusions made up only one per cent of the total assemblage.

A group of 60 sherds belonging to a single vessel (fabric V1) contained the distinctive red inclusions seen in fabric F1, but flint was completely absent and numerous irregular voids suggested the presence of leached calcareous material, perhaps shell; (burnt-out organic matter would have been unlikely to produce voids of the shape observed). The fabric was clearly related to fabric F1 but the presence of calcareous matter is unusual in Late Bronze Age pottery from the Weald.

A single medieval sherd (Surrey white-ware; 13th/14th century) came from a disturbed context within ditch 102516.
Table 1. Sherd count / fabric type.

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</tr>
<tr>
<td>Post-hole 102512</td>
<td></td>
<td>5</td>
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<tr>
<td>102513</td>
<td>5</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>total</td>
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<td>5</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>60</td>
<td>1</td>
<td>2</td>
<td>263</td>
</tr>
</tbody>
</table>

Flint-tempered fabrics

F1 Moderate to common calcined flint up to 6mm, sub-angular; moderate red haematite pieces <4mm, sub-rounded; sparse quartz backing.

F2 Common rounded quartz; common to abundant black ferrous pellets <1 mm; sparse calcined flint <2 mm.

F3 Fabric resembling F1 but with soapy texture due to smaller quartz component.

F4 Abundant sub-rounded quartz; Sparse calcined flint <2 mm, rare red haematite <2 mm.

F5 Common calcined flint <5mm.; rare red haematite <1 mm; moderate quartz backing with rare small silver mica.

F6 Common sub-rounded quartz <1 mm with rare, small silver mica; sparse to moderate calcined flint <3 mm.

Vesicular fabric

V1 Sherds display frequent irregular voids suggesting inclusions of leached calcareous material (probably shell but possibly chalk). Additional moderate to common red haematite pieces <6mm, sub-rounded; sparse quartz backing.

Quartz-tempered fabrics

Q1 Abundant quartz, sub-rounded; sparse ovoid ferrous pellets.

Q2 Common fine quartz, sub-rounded; sparse red haematite <2 mm.

Forms

Over 90% of the assemblage comprised undiagnostic body sherds. Vessel forms included large slack-shouldered jars with finger-impressed shoulders and vertical scoring (Fig. 9:1). A ‘fineware’ component including carinated bowls (Fig. 9:4 & 6) in finer fabrics with small flint inclusions. A hooked rim jar (Fig. 9:3) was produced in a coarse sandy ware with sparse, small flint inclusions.

Discussion

Pottery from the site was recovered from shallow, isolated features and was absent in all but the upper part of the complex sequence of fills of the boundary ditch (102340). It was not possible, therefore, to construct a detailed ceramic sequence for the site and it is possible that the entire assemblage was broadly contemporary.

The recovery of a substantial group of pottery from gully 102162 and smaller quantities from features in the vicinity of this possible structure suggest some level of domestic occupation within the enclosure, although this may have involved little more than food storage or preparation during short spells of seasonal occupation. More compelling is the presence of large, conjoining sherds deposited within a number of shallow features. Fifty-eight sherds belonging to a decorated jar (Fig. 9:1) were recovered from a feature interpreted as a tree throw (102440) and 79 sherds were found in a number of separate hollows within a second possible tree throw (102622). These deposits are unlikely to represent incidental accumulation and may represent deliberate and selective deposition of...
material deriving from structured rubbish deposits, possibly within a votive context. A similar pattern of Late Bronze Age pottery deposition has been observed at Yapton, where joins between eroded sherd breaks indicated secondary deposition of material originating from a concentrated rubbish source (Hamilton 1987).

The few identifiable vessel forms and fabrics belonging to this small assemblage were characteristic of the post-Deverel-Rimbury ceramic tradition. The relative absence of decoration suggests that Barrett’s scheme of a ‘plain ware’ assemblage dating to the 11th–8th centuries BC (Barrett 1980) seems to be broadly applicable to the group, despite the lack of comparable assemblages on the northern edge of the Weald. A similar range of fabrics and the association of very coarse, large jars with fine or semi-fine ware bowls observed at Gatwick is paralleled at both Farnham (Elson 1982) and Albury (Russell 1989) on the north-eastern edge of the Weald.

Catalogue of illustrated sherds (Fig. 9)


THE FLINTS
The small lithic assemblage (11 pieces) is broadly of Bronze Age date. The assemblage consisted entirely of flake and core material; there were no tools or other utilised pieces. The raw material derives from gravel sources and the condition of the artefacts varied from relatively fresh to edge-damaged and rolled. None of these pieces was particularly chronologically distinctive, but technological attributes (irregular flakes; unsystematic cores) suggested a Bronze Age date, with a possibility of an earlier (?Neolithic) date for one or two blade-like flakes from ditch 102803.

THE PALAEO-ENVIRONMENTAL EVIDENCE

POLLEN By Rob Scaife

The Weald is noted for the paucity of pollen studies with which to reconstruct past vegetation and environmental history (Shelton 1978; Burrin & Scaife 1984). This is unfortunate as there has been much debate about the past character and status of the often quoted ‘Wealden Forest’. Some recent studies have been carried out, but all of these sites fringe the High Weald, and few are from archaeological deposits. Of particular note are studies from the south of the county at Pannel Bridge (Waller 1993), the Brede Valley (Waller 1994a,b, 1998; Waller et al. 1988), and the floodplains of the Rivers Rother (Scaife & Burrin 1987), Ouse (Burrin & Scaife 1984; Scaife & Burrin 1983; 1992) and Cuckmere (Scaife & Burrin 1985). In contrast, more studies have been undertaken on the acid heath in West Sussex, where pollen...
preservation is good, and Dimbleby’s soil pollen analysis at Iping (Dimbleby, in Keefe et al. 1965) is regarded as a pioneer analysis. This acid heathland region has produced pollen analyses from paleosols underlying a number of Bronze Age barrows from, for example, Minstead (Dimbleby 1974), and the West Heath Bronze Age barrow cemetery (Baigent, in Drewett 1976; Scaife, in Drewett 1985). The central Weald, however, has been poorly studied and whether the High Weald was still wooded throughout the later prehistoric period is still uncertain.

Waterlogged and humic deposits of some 2.10 metres depth in the boundary ditch 102340 (Fig. 8, samples 47 and 53) were analysed to examine change through time. The 300 mm sequence of dry sediment in the Late Bronze Age enclosure ditch 102803 (Fig. 2, Section A, sample 20) was directly associated with the settlement. Sub-samples from monoliths were examined and both features contained well-preserved sub-fossil pollen and spores in considerable numbers, but the taphonomy and interpretation of pollen from ditch contexts are problematic (Dimbleby 1987). Here, it has been noted from the sediment infills that they are contemporaneous with the settlement. This does not preclude the possibility that they include some pollen derived from soils eroding into the ditch as well as both contemporaneous pollen from adjacent vegetation, and anthropogenically derived components such as crop-processing activities or domestic sources such as floor coverings and animal feed. The principal aim of this study was, therefore, to characterise the changing local vegetation habitats and especially the nature of local land-use.

**Methods**

Standard techniques were used on samples of 2 ml volume from both sites (Moore & Webb 1978; Moore et al. 1991). Absolute pollen frequencies were calculated using added exotics to known volumes of sample (Stockmarr 1971). Pollen was identified and counted using an Olympus biological research microscope fitted with Leitz optics. The results are plotted as pollen diagrams using Tilia and TiliaGraph (Figs 10 & 11). Percentages were calculated as follows: Sum = % total dry land pollen (tdlp); Marsh/aquatic herbs = % tdlp+sum of marsh/aquatics; Spores = % tdlp+sum of spores; and Misc. = % tdlp+sum of misc. taxa. *Alnus,* which has extremely high values and on-site dominance in the lower pollen assemblage zone, has been excluded from the pollen sum and is incorporated into the marsh/aquatic category as originally detailed by Janssen (1969). Taxonomy largely follows that of Moore and Webb (1978) modified according to Bennett et al. (1994) for pollen types and Stace (1991) for plant descriptions. These procedures were carried out in the Palaeoecology Laboratory of the Department of Geography, University of Southampton.
Settlement enclosure Ditch 102803
(Fig. 2, Section A, sample 20 and Fig. 10)
Five samples were examined from the 300 mm sequence sampling contexts 102091 and 102092. Pollen was abundant and well-preserved with average APF values of 100,000 grains/ml, but to c. 275,000 grains/ml in the top level (context 102091). Although there are some changes in the pollen assemblages, these were not felt to be significant enough to warrant division of the sequence into local pollen assemblage zones. The pollen assemblages are dominated by herbs (to a max. 83% of total pollen) with trees (to 20%) and shrubs (to 30%).

Boundary ditch 102340
(Figs 8 (samples 47 & 53) and 11)
The deep sequence of c. 2.10 metres of sediment filling this ditch was sampled using three monoliths from a stepped excavation. Only the lower sampled sediments (in monoliths 53 and 47) were analysed. Monolith 53: (1.08–0.61 metres) encompasses contexts 102337, 102336, 102332 forming grey alluvial and organic silts containing Phragmites australis macro and wood remains. Monolith 47 (0.75–0 metres) spans
contexts 102332, 102329, 102327, 102326 and 102324 which comprise organic silty clays with charcoal. These pollen zones are characterized as follows.

Interpretation: the inferred vegetational environment

Boundary ditch 102340

Boundary ditch 102340 provided most evidence of environmental change. In spite of some possible reworked pollen (as discussed earlier), useful information was obtained of contemporaneous or near contemporaneous pollen from the surrounding environment through the progressive infill of the lower ditch sequence. Pollen derives from the local vegetation and that washed in from the adjacent soil surfaces. Excellent pollen preservation is a result of two factors, the acidity of the soils/sediments on the Ashdown Series and the local waterlogged environment in the deeper fills of the boundary ditch 102340.

Pollen assemblage zone 1 represents the basal section of boundary ditch 102340 (102337 to bedrock). It has lower absolute pollen frequencies (APF) than the overlying zone 2, possibly because this basal fill accumulated rapidly while the overlying contexts accumulated under a more stable local environment with slower deposition rates. The ditch (i.e. zone 1) was cut into a largely open environment around the Site on the river floodplain. This is shown by high grass (Poaceae) values with relatively small numbers of plants typical of grassland; these include ribwort plantain (*Plantago lanceolata*), buttercups (*Ranunculus* type) and docks (*Rumex* spp.). A small number of cereal pollen grains attest to some cereal cultivation on adjacent drier ground of the interfluves, or possibly crop-processing on site. Woodland is represented by oak (*Quercus*), hazel (*Corylus avellana*) and ashpine (*Fraxinus*). Oak and hazel may represent local trees, but equally may represent the general regional woodland. Ash and beech, which are poor pollen producers (Andersen 1970; 1973), were probably growing on or very near to the Site.

Given that the ditch is Late Bronze Age and that zone 1 is the oldest context studied here, it is significant that lime/linden (*Tilia*) is hardly present. It is now generally accepted that lime woodland was the dominant or at least co-dominant woodland (with oak) throughout much of southern and eastern England during the middle and late Holocene periods until the widespread but asynchronous ‘lime decline’ (Birks 1989; Moore 1977; Greig 1982; Scaife 1980; 1987; 2000). Regional evidence for clearance of lime in the Neolithic and Bronze Age comes from southern areas of the Weald in the Pett Levels etc. (Waller 1993; 1994a,b) and from West Sussex at Midhurst (Scaife 2001). It is probable that lime would also have been important in the Gatwick region during earlier periods and thus it is suggested that clearance had taken place during the Bronze Age (or possibly Neolithic) prior to the digging of the ditches examined. The site is, however, located on a floodplain at some distance from better-drained soils which would have been more suited to its growth. Pollen ingress into the site from more distant drier soils might have been restricted by the density of the on-site alder (and later birch) floodplain woodland.

Evidence for the character of the waterlogged floodplain of the River Mole is indicated by substantial quantities of alder sporadically distributed in zone 1 and consistently distributed in zone 2 and zone 3 (contexts 102336, 102329, 102327 and 102326) along with some willow (*Salix*) and occasional records of pondweed (*Potamogeton*), (bur-reed and reed-mace (*Typha angustifolia* type) and sedges (*Cyperaceae*). These assemblages are typical of damp floodplain woodland (alder-willow carr). An environment of pasture with local trees and some woodland existed throughout the deposition of contexts 102337, 102336, 102332 and 102329. From the less organic deposits upwards (at 0.53 metres) substantial growth of birch occurred in the proximity (contexts 102327, 102326). Oak, hazel, beech and ash woodland remained with the addition of yew (*Taxus*) and holly (*Ilex aquifolium*), probably growing on site or locally. Accompanying the expansion of birch is the demise of alder from the base of context 102327 (at 0.56 metres; zone 2/3 boundary). Birch probably replaced alder on the floodplain, perhaps due to a drier phase of lower groundwater table. This more closed environment may have been the cause of reductions in the numbers of other pollen taxa such as hazel and grasses.

From the top of context 102326 (c. 200 mm, zone 4) there is a clear indication of opening of the environment evidenced by
a general reduction in most trees, a marked expansion in herb diversity and increased percentages of ribwort plantain (*Plantago lanceolata*), buttercup family (*Ranunculus* type), daisy family (*Asteraceae* types), grasses (*Poaceae*) and spores of bracken (*Pteridium aquilinum*), typical ferns (*Dryopteris* type) and common polypody fern (*Polypodium vulgare*). This change may be due either to a change in the pollen taphonomy and catchment owing to a changing floodplain environment and/or to a significant change in the land-use on the interfluves. It is most probable that woodland was cleared (during the Late Bronze Age) with the pasture land-use, giving a marked increase in grassland taxa. However, this change is accompanied by the reduction of the on-site floodplain community of birch. Although this reduction may have been anthropogenic, it would have extended the pollen catchment substantially, allowing ingress
Table 3. The waterlogged plant remains from Ditch 102340.

<table>
<thead>
<tr>
<th>sample no.</th>
<th>Taxa context</th>
<th>Habitats</th>
<th>45 102336</th>
<th>52 102332</th>
<th>44 102332</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranunculus subg. Batrachium (crowfoot achene)</td>
<td>PR</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus sp. (oak acorn cupule frag.)</td>
<td>HW</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
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<td>Quercus sp. (acorn nut frag.)</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus sp. (immature acorns)</td>
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<td>5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Alnus glutinosa (L.)Gaertner (alder fruit)</td>
<td>RWw</td>
<td>27</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>A. glutinosa (alder female catkin)</td>
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<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium album (fat hen seed)</td>
<td>CDN</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stellaria media (L.)Villars (common chickweed seed)</td>
<td>CDN</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bryonia dioica Jacq. (white bryony seed frag.)</td>
<td>HSc</td>
<td>2</td>
<td></td>
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<tr>
<td>Salix sp. (willow bud scales)</td>
<td>wR</td>
<td>1</td>
<td>11</td>
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<tr>
<td>Salix sp. (willow fruit capsule)</td>
<td>wR</td>
<td>1</td>
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<td></td>
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<tr>
<td>Rubus sect. Glandulosus (bramble seed)</td>
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<td>3</td>
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<tr>
<td>Potentilla sp. (cinquefoil achene)</td>
<td>CDGMETRES</td>
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<tr>
<td>Galeopsis tetrahit L. (common hemp nettle nutlet)</td>
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<tr>
<td>Ajuga reptans L. (bugle nutlet)</td>
<td>WwG</td>
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<tr>
<td>Cirsium/Carduus sp. (thistle achene)</td>
<td>CDGMETRES</td>
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<tr>
<td>Sonchus asper (L.)Hill (prickly sow-thistle achene)</td>
<td>CDY</td>
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<tr>
<td>Juncus effusus-type (rush seed)</td>
<td>G</td>
<td>++</td>
<td>+</td>
<td>++</td>
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<tr>
<td>Carex sp. (lenticular sedge nutlet)</td>
<td>wGMR</td>
<td>16</td>
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<tr>
<td>Carex sp. (trigonus nutlet)</td>
<td>wGMR</td>
<td>3</td>
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<td>Glyceria sp. (sweet-grass Caryopsis)</td>
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</tr>
<tr>
<td>Leaf fragments</td>
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<td>+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>130</strong></td>
<td><strong>13</strong></td>
<td><strong>1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample volume (litres/g.)</td>
<td>2l</td>
<td>1l</td>
<td>200 g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- C = cultivated; D = disturbed/waste ground; G = grassland; H = hedgerows; M = marsh/bog; P = ponds/ditches; R = rivers(streams); S = scrub; W = woods; Y = waysides
- w = wet/damp soils; c = calcareous soils; n = nutrient-rich soils
- + = occasional; ++ = several; +++ = frequent; ++++ = numerous

from pollen from much further afield. Lime, being insect-pollinated, might be expected to show an increase in pollen with this more open landscape, rather than a reduction as a result of waterlogging (paludification) on the floodplain (Waller 1994a). It is possible that lime/linden woodland remained in some areas not utilized for Bronze Age agriculture. A larger part of the *Tilia* (lime) pollen showed some degradation, possibly because it is secondary or derived pollen of an earlier date that washed into the ditch when clearance occurred and pasture was established.

**Enclosure ditch 102803**

The shallow enclosure ditch 102803 contrasts with the boundary ditch 102340 profile in having a lower percentage of trees and shrubs. While there is a peak of birch (*Betula*) at the top of context 109092 (at 160 mm), this is not comparable with the high percentage values evidenced in contexts 102327-6 (zone 3) of the boundary ditch 102340. Similarly, oak, lime and hazel values are smaller. High values of grasses along with relatively diverse herb assemblages suggest a local grassland environment. As with ditch 102340, this may
represent on-site floodplain pasture. There are small numbers of cereal pollen grains and these may indicate cereal cultivation on the drier interfluves at some distance from the site or they may have derived from secondary sources such as crop-processing and domestic residues.

Summary and conclusions
Boundary ditch 102340 produced evidence for the changing vegetation of the floodplain site showing initially alder-willow woodland which developed into birch as perhaps local conditions became drier. Regional woodland consisted of oak and hazel with lime/lindens, ash and holly in drier zones (floodplain and interfluves). There was evidence of cereal cultivation throughout and this may have been practised at some distance from the site on the drier soils of the valley side. The possibility that this pollen may have come from secondary sources such as crop-processing is also considered. Herb pollen assemblages were dominated by grasses with lesser numbers of other herbs typical of pasture. It seems likely that much of the floodplain in proximity to the site was utilised as floodplain pasture.

THE CHARRED AND WATERLOGGED PLANT REMAINS

Methods
Environmental samples were taken from a range of pits, ditches, gullies and the large drainage ditch 102340. Sample sizes varied from 2 to 40 litres. Sample processing was undertaken using standard methods of flotation. A minimum mesh size of 250 microns was used to recover the flotation. Ditch 102340 was found to contain organic remains that had been preserved by waterlogging. The floats from these samples were, therefore, kept wet and sorted in water. This report discusses the results of analysis of 35 samples processed for charred plant remains and three samples processed for waterlogged plant remains from the large ditch 102340. Flots from the 35 bulk samples contained remarkably little charred plant material. Almost all flots were dominated by modern fibrous roots, and modern weed seeds were common.

Results
The flots from the 35 bulk samples contained little plant material. Most were dominated by modern fibrous roots and weed seeds. Samples that produced charred plant remains of note are listed in Table 2, which also presents charcoal identifications. Results of the waterlogged plant analysis are presented in Table 3. Nomenclature and most of the habitat information follow Stace (1991).

Discussion
Little information was recovered from the charred plant remains. No charred cereals were found, and only three samples contained significant quantities of charcoal. The only identifiable charred plant remains were a fragment of hazelnut shell (Corylus avellana) from pit 102163, and a single chess (Bromus sect. Bromus) caryopsis from ditch 102725. Chess is a weed of cultivated and disturbed land that is common in charred cereal assemblages, particularly those from the Iron Age and Roman periods.

It is uncertain whether the absence of charred evidence is due to preservational factors, such as utilization rather than burning of waste, or an indication that little, if any, arable cultivation was taking place in the area. The charred plant microfossil evidence favours the interpretation that any cereal cultivation took place some distance from the site since crop-processing activities in the vicinity of the settlement would have been detected in the charred plant assemblages (unless they were very small-scale).

The charcoal analysis demonstrated that oak was readily available and was the principal wood burnt on the site. The fragments were primarily heartwood, so the samples could contain burnt structural timbers in addition to domestic firewood. The widest range of taxa was recovered from pit 102504, and this included three of the taxa for which there was evidence from the seeds in ditch 102340. The small numbers of
fragments of alder/hazel and willow in three of the pit and ditch samples suggests that local trees were exploited for firewood, in addition to larger woodland trees such as oak and ash. Tree throw 102440 produced large quantities of oak heartwood and some branchwood, suggesting that an oak tree had been growing in this position.

The waterlogged samples from boundary ditch 102340 were more informative, although only the lowest context (102336) produced a reasonable number of identifiable remains. The two samples from context 102332 (52 and 44) produced very few fruits and seeds, and the few fragments of wood present showed signs of decay. It is likely that the deposits at this level of the ditch profile and above had dried out from time to time.

Sample 45 from context 102336 was primarily composed of small fragments of leaf, with frequent twigs and tree buds. Acorn fragments (Quercus sp.), willow (Salix sp.) buds and catkin fragments (fruit capsule) and alder (Alnus glutinosa) fruits and female catkins provided evidence of the range of trees and shrubs growing nearby. The fact that so many leaves, twigs and fruits had fallen into the ditch suggested that trees and shrubs had been growing very close to the ditch, perhaps as a hedge bounding the ditch. Although these species are not commonly used for hedging today, alder, willow and oak can all be coppiced, pollarded or layered, which, together with the ditch, would provide an effective stock-proof barrier.

Alternatively, the ditch may have been dug alongside surviving woodland. Willow and alder typically grow on floodplains, along rivers and where soils are permanently wet. Oak maintained a fairly high level throughout the pollen profile, and this was likely to have been growing in the locality on drier soils, along with hazel, beech, ash, yew and holly. Unless acorns had been brought to the ditch by livestock or rodents, the presence of these large seeds suggests that oak had also been growing close to the ditch.

Some of the other taxa represented in the plant macrofossil assemblage often grow on wasteground and waysides, e.g. bramble (Rubus sect. Glandulosus), prickly sow-thistle (Sonchus asper) and common hemp nettle (Galeopsis tetrahit). The tendrils of white bryony (Bryonia dioica) help it to scramble along hedgerows and through trees, but it prefers to grow on drier soils.

There were few seeds from indicators of nutrient-enriched, disturbed soils, i.e. common chickweed (Stellaria media) and fat hen (Chenopodium album), which suggests that livestock had not been trampling nearby and domestic waste had not been deposited in the ditch in any significant quantity at the point sampled.

Because grass caryopses do not survive well under waterlogged conditions, and because grazed pastures would not produce many seeds, it is difficult to assess the importance of grassland in the immediate vicinity of the ditch from the plant macrofossil evidence. However, the presence of thistle (Cirsium/Carduus sp.) achenes, a few grass (indeterminate Poaceae) caryopses and Juncus effusus-type rush seeds, does suggest that grazed grassland may have bordered the ditch to one side. Rushes in the Juncus effusus group (J. effusus, J. inflexus, J. conglomeratus) are primarily found growing in tufts in grazed pastures since they do not compete well in tall grass that is being grown for hay. Thistles are also favoured by grazing, being unpalatable to most livestock.

A few of the remains provided evidence of the vegetation growing within the ditch. Crowfoot (Ranunculus subg. Batrachium) and sweet-grass (Glyceria sp.) are both aquatic plants that grow in the shallow margins of ponds, ditches and slow-flowing streams. The lenticular nutlets of a species of sedge (Carex sp.) were also relatively frequent.

Conclusions

The charred plant remains provided no information regarding the arable economy of the Late Bronze Age settlement and the absence of charred cereal remains could suggest that pastoral agriculture was more important than arable cultivation to the inhabitants of this settlement. Being located on the floodplain of the River Mole, the soils in the immediate vicinity may have been too damp for the cultivation of cereals. Floodplain grasslands, however, are valuable sources of grazing and hay. The plant macrofossil evidence from the single boundary ditch sample supported the interpretation of the pollen evidence of a primarily open environment, with the additional information that some trees and shrubs were probably growing along the ditch as a hedge or woodland margin. Aquatic plants were growing in shallow water at the base of the ditch, but there were few signs of nutrient enrichment as
a result of the deposition of domestic waste or animal droppings.

Although far-reaching conclusions cannot be drawn from a single plant macrofossil sample, taken as a whole, the environmental evidence points to low-intensity occupation with an economy centred on the grazing of livestock. Similar results were recovered from the Middle Iron Age settlement on the Thames Valley floodplain at Farmoor (Lambrick & Robinson 1979), and it was suggested that the settlements had been seasonally occupied for a short timespan.

THE INSECT REMAINS By Mark Robinson

Samples from the boundary ditch 102340 were assessed for insect remains. One context (102336), a humic silt near the base of the ditch (Fig. 8), contained significant insect remains and was analyzed.

Methods

Ten litres of sediment from context 102336 was washed over onto a 25 mm mesh to recover organic material. It contained a large component of deciduous tree leaf fragments, giving a large wash-over fraction. The organic fraction was then subjected to paraffin flotation to extract insect remains. The flot was sorted in water using a binocular microscope and the remains identified. The Coleoptera are analysed by species group in Figure 11 after Robinson (1991).

Interpretation

The insects could be divided into aquatic and marginal species, which lived in the ditch, and terrestrial species, which had entered the ditch from the surrounding landscape. There was no evidence that any of the insects had been amongst refuse dumped in the ditch as a result of human activity.

Water beetles represented 43% when expressed as a percentage of the total terrestrial Coleoptera. By far the most abundant was *Helophorus cf. brevipalpis*, but other species such as *Agabus bipustulatus*, *Ochthebius cf. minimus* and *Limnebius papposus* occurred in lower numbers. There were also larvae of Trichoptera (caddis flies) and Chironomidae (midges). They suggest that the ditch held stagnant water. Insects, which feed on aquatic plants, were absent, but there were a few beetles of waterside mud such as *Platystethus cornutus* gp.

The terrestrial insects fell into two groups: species of woodland and species of grassland habitats. The wood and tree-dependent beetles (Species Group 4) comprised 6% of the terrestrial Coleoptera, which might suggest that the local landscape (catchment) was between a quarter and half covered in tree or scrub. These included the host-specific beetles *Scolytus intricatus*, a bark beetle that most often occurs on oak and *Chalcoides* sp., a leaf beetle that feeds on poplar and willow. Species indicating dead wood included *Platypus cylindricus*, which tends to occur on the stumps of recently felled oak and ash. The tree-dependent element of the insect assemblage was of a woodland, rather than of a hedgerow or recent scrub, fauna.

Members of Species Group 11, chafer and elaterid beetles, which feed on the roots of grassland plants, such as *Phyllopertha horticola* and *Agriotes lineatus*, comprised about 4% of the terrestrial Coleoptera. Grassland vegetation was suggested by the weevil *Mecinus pyraster*, which feeds on ribwort and hoary plantain (*Plantago lanceolata* and *P. media*) and the grass-feeding bug *Aphrodes bicinctus*. The vetch and clover-feeding weevils of Species Group 3 which tend to favour meadowland, such as *Sitona lepidus* and *S. sulcifrons*, comprised 4.5% of the terrestrial Coleoptera. Ants were particularly numerous in this sample, members of the genera *Myrmica*, *Formica* and *Lasius* all being represented. They mostly occur in other habitats as well as grassland but one species, *Lasius flavus*, is the mound-building ant of grassland. Carabidae (ground beetles) which usually occur in grassland habitats, such as *Calathus fuscipes* and *C. melanocephalus*, were also present.

The occurrence of numerous dung beetles showed that the grassland was being grazed. The scarabaeoid dung beetles of Species Group 2, which occur in the droppings of domestic animals, comprised over 18% of the terrestrial Coleoptera. This was more than the proportion that is usual for pastureland and suggests that there was a concentration of domestic animals near the ditch. The most numerous of these beetles was *Aphodius granarius*, which is still common in the region, but there was also an example of *Onthophagus nutans*, which is now extinct in Britain. However, *O. nutans* has been recorded from several Iron Age sites in the upper Thames valley (Allen & Robinson 1993, 138).
Beetles of more general foul organic material including dung, which belong to Species Group 7 (such as *Megasternum obscurum* and *Anotylus rugosus*), were also quite well represented.

The insects gave no evidence for any other major habitats. There were insufficient beetles of disturbed ground to suggest the proximity of arable. Nettle-feeding insects were absent and there were no insects indicative of timber structures or human settlement.

The insect evidence provided a rather simple picture of a ditch which held stagnant water, crossing a landscape of woodland and pasture being grazed by domestic animals, without any human settlement in the immediate vicinity. This is consistent with the ditch forming the boundary between the pasture and the woodland. Perhaps the high proportion of dung beetles was due to stock congregating in the vicinity of the ditch to obtain shade from the trees, or to browse overhanging branches or to drink from the ditch. Although there was a single individual of the extinct scarabaeoid dung beetle *Onthophagus nutans*, the beetle assemblage did not contain the high proportion of individuals of the genus *Onthophagus* that characterizes some assemblages from towards the end of the Middle Bronze Age (Robinson unpublished, Perryoaks). The character of the dung beetle fauna, which was dominated by individuals from the genus *Aphodius*, was appropriate to a Late Bronze Age date.

**THE LATE BRONZE AGE WEALDEN LANDSCAPE**

By Michael J. Allen

The Late Bronze Age farmstead appeared to have occupied an area of previously cleared forest and woodland. An open landscape of grassland floodplain with scattered clumps of trees (oak, hazel, ash and beech) provided browsing and grazing for animals. The trees, probably standing as open clumps, possibly covered about a third of the open landscape. Some trees were cut (oak and ash), possibly for building or for fuel. Locally the high water table gave rise to alder and willow carr and the deeper ditches held standing stagnant water with pondweed and sprouted reed-mace and sedges. Stock may have been corralled and penned, or grazed near the settlement and rested next to the boundary ditches. Tillage may have occurred on the higher ground beyond the floodplain but, whilst the pollen evidence suggests that cereals may have been processed within the enclosure, the charred and waterlogged plant remains do not provide sufficient evidence to support this.

The settlement developed and the landscape was further opened and cleared for established pasture. The floodplain became drier, possibly because of modification and management of the watercourses and the increasing intensity in land-use.

**DISCUSSION**

The features revealed by the excavation probably represent the edge of a Late Bronze Age (1100–800 BC) settlement consisting of a structure (102162), possibly a shelter occupied on a seasonal basis, sited within a curvilinear boundary (102803). Broadly contemporary with this complex, the large north–south aligned ditch (102340) most probably formed a boundary or drainage ditch defining the limits of land usable for agriculture. A number of deposits that had clearly been deliberately placed in features interpreted as tree throws indicate possible votive activity nearby.

The large ditch (102340) was probably excavated before any settlement activity took place in the area. The upcast from the ditch would have created a substantial bank — on both sides of the feature, based on its depositional structure. Its location in very boggy ground suggests a drainage function, though perhaps only localised. The termini show that the ditch was only 136 metres long with no further extensions, and it appears not to be part of a more extensive ditch system. Given both its substantial nature and that it would have been a clear landmark, it may have been excavated in order to provide a physical boundary — dividing two zones of landscape and running between dense woodland or marshy ground. The two backfilling episodes could be seen as the decommissioning of this physical boundary as more of the landscape was brought under pastoral or agricultural use. Certainly, as the pollen evidences indicates, we should not see Bronze Age agriculture as being confined to within the enclosure ditch (102803).

It may be that the area within the enclosure was used for grazing, whilst cereal cultivation was undertaken some distance from the site, perhaps to the east. The palaeo-environmental data suggest that grazing was occurring adjacent to ditch 102340. The curvilinear gully (102162) may not
have been a dwelling place, functioning rather as a temporary agricultural structure in the corner of a Late Bronze Age field. However, the presence of possible hearth debris within features 102018 and 102163 and the quantity of pottery in the fill of the curvilinear gully suggest that for at least part of its history there was some domestic activity in the immediate vicinity. The relationship of the structure to the enclosure gully (102803) is uncertain. Although broadly contemporary, the structure may have been associated with the possible sub-enclosure (102633 and 102806) — and therefore slightly later, as the latter cuts 102803.

The pit and post-hole complex in the northern part of the site is interesting. If the deposits in features 102622 and 102440 are Late Bronze Age votive offerings, and the features themselves are tree throws similar to 102208 and 102211, then two interpretations are possible. Either the pottery was placed in the ground below upstanding trees (suggesting the presence of a shrine), or the offerings were placed in the tree holes after the act of tree clearing as an act of replenishment or appeasement.

The excavations demonstrate the potential for continuity in the landscape over a long period of time. It is clear from Figure 2 that field boundary 102725 truncates one ditch (102516) at its terminal, then mirrors a stretch of ditch 102803 and then heads towards the northern terminal of ditch 102340.

Owing to its substantial nature this latter ditch is likely to have survived in some form — either in association with a hedgerow or as ditch and bank, and similarly ditch 102516 would have been an extant field boundary when ditch 102725 was excavated. However, it is very unlikely that any trace of ditch 102803 had survived. The important factor here is the site topology. Ditch 102803 closely follows the 58 metres OD contour, and it is probable that field boundary 102725 was excavated at least partly along this contour. Ditch 102420 runs parallel 12 metres to the south, and the drove-way they both delineate runs towards a marked kink in the existing hedgerow (where ditch 102430 terminated). This kink exists in the map regression as far back as the 1839 Tithe Map, and seems to be the remnant of a field corner in John Rocque’s 1770 map (Framework Archaeology 2001b, fig. 3).

Known Late Bronze Age settlement/farmsteads in West Sussex are largely restricted to the South Downs and the Coastal Plain. Although there is some evidence of a low-level spread of settlement in the Weald in the Late Bronze Age (Hamilton 2003), excavated sites are uncommon. The settlement site at America Wood, Ashington, on the southern edge of the Weald is a rare example. The Gatwick site, situated on the northern edge of the Weald may have closer affinities to sites on the southern border of Surrey. At Green Lane, Farnham, a settlement site severely truncated by ploughing produced a similar, though more substantial, pottery assemblage from pits and post-holes (Oakley et al 1939). At Weston Wood, Albury (Russell 1989), rescue excavations in advance of sand quarrying exposed Late Bronze Age structures represented by post-holes and wall trenches associated with hearth material and possible furnaces which resembled structures of slightly earlier date at Black Patch, Sussex (Drewett 1982). The small pottery assemblage from Gatwick had close affinities with the more substantial ‘plain-ware’ group from Albury.

A close parallel to the Gatwick site can be found further afield on the boulder clay formation in Essex. Excavations on the line of the M11/A120 Slip Roads, Stansted Airport (Framework Archaeology 2001b) found ring gully structures placed within the curves of a shallow S-shaped gully. This gully marked the general area of the furthest expansion of exploitation of the landscape during the Late Bronze Age/Early Iron Age and we have a similar picture here at Gatwick. Indeed, the curvilinear gully follows the edge of slightly higher land — equivalent to the 58metres OD contour — and this is again paralleled at Stansted where the ‘sinuous’ ditch broadly conformed to the 95metres OD contour (Framework Archaeology 2001b, 14).

Whilst the excavations at Gatwick have revealed a complex picture of settlement and changing land-use in the first half of the 1st millennium BC, it is worth exercising caution as to the wider implications for the archaeology of the Weald. The Gatwick site lies in the Mole valley floodplain, and, as such, the patterns of human inhabitation described in this report may be more closely associated with the Mole drainage systems than with the true Weald itself. Certainly, the pollen evidence hints at more widespread
landscape changes, but further excavation on the Weald itself would provide valuable data with which to compare the Late Bronze Age evidence at Gatwick.

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REFERENCES


Robinson, M. A. 1991. The Neolithic and late Bronze Age insect assemblages, in Needham, S. P., Excavation


— — 1985. The environmental impact of prehistoric man as recorded in the Upper Cuckmere valley at Stream Farm, Chiddingly, SAC 123, 27–34.

— — 1987. Further evidence for the environmental impact of prehistoric cultures in Sussex from alluvial fill deposits in the eastern Rother valley, SAC 125, 1–9.


