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THE DATE OF THE ANCIENT FIELDS ON THE BERKSHIRE DOWNS

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SUMMARY

The excavation of a series of trenches across 'Celtic' field lynchets is described. The results show that a large majority of the lynchets examined formed in Roman times. The wide distribution of these fields on the downs visible from the air appears to reflect the extent of Roman landuse.

INTRODUCTION

The physical remains of ancient fields and field systems on the chalk downlands of the south of England have been long recognised and studied (eg Bowen 1961; Taylor 1975). The common, if now perhaps inappropriate, label 'Celtic' (cf Fowler 1981a) adequately indicates their great antiquity.

The remains of these fields and field systems, often surviving as earthworks on the chalk downlands, are not an isolated phenomenon. Similar remains are visible from the air distributed widely over various terrains and geologies for much of north-west Europe (Fowler 1981a). Neither are they a single entity restricted in time. A lengthy period of use is suggested by morphological evidence as on Fyfield Down, Wiltshire (Fowler 1981a), where two field systems are on slightly different alignments with one overlying the other. Archaeologically recognisable field systems are known for the Neolithic in Ireland (Caulfield 1983) and parts of ancient field boundaries can frequently be found incorporated in contemporary field patterns. However, the present consensus, using evidence from excavation and the relationship of field systems to other dated monuments, is that the main currency of use, additions, and modifications is from the Middle Bronze Age through into Roman times.

The very extent of the remains of these fields makes their study important for an understanding of landscape history (eg Bradley and Ellison 1975; Drewett 1982) and of the economy and social organisation of their makers (eg Barrett 1980). That is, of course, providing we can say when they originated, how long they remained in use, and the nature and extent of field systems at particular times.

Rhodes (1950), using the RAF aerial photographs which became available in the immediate postwar years, was the first to demonstrate the large extent of early field systems on the Berkshire Downs. Subsequent surveys (eg Bradley and Ellison 1975; Richards 1978) have added to and improved our knowledge of these field systems to the extent that they feature prominently in a number of discussions of early landscape history (eg Fowler 1981a and 1981b; Megaw and Simpson 1979).

Little evidence from excavation or detailed fieldwork was available to be included in these general surveys. Isolated lynchets had

been excavated as at Waylands Smithy (Atkinson 1965), Rams Hill (Bradley and Ellison 1975), and Streatley Warren (Mills 1948) which suggested a broadly prehistoric date. Tentative aerial photographic evidence showing field systems predating linear earthworks was also used to support a hypothesis that many of the field systems were prehistoric, at least in origin (Bradley and Richards 1978) and that the nature and scale of later Bronze Age use of the downland was much greater than hitherto thought. Richards (1978, 47), though, did note the similarity of some elongated fields to those for which a Roman date has been suggested elsewhere.

Fieldwork subsequent to these surveys has provided two strands with which to assess the above hypothesis. The relationship of field systems to linear earthworks has recently been re-examined, with new data from both aerial photography and ground work being available. This work has argued that the incidence of field systems physically predating linear earthworks is very rare and could even be limited to a single block of fields for which vague aerial photographs provide the only evidence. Most field systems respect these probable Late Bronze Age/Early Iron Age linear earthworks (Ford 1982).

The second strand concerns the extent of Roman use of the downland. The Maddle Farm survey (Gaffney and Tingle 1985) has demonstrated a much greater density and extent of Roman use than the evidence available to the Berkshire Downs survey (Richards 1978). Even the small-scale work involved in the linear earthworks project (Ford 1982) frequently recovered Roman pottery. That large areas of the Downs covered by these field remains were used for arable in the Roman period is not now in doubt.

The evidence for the date of the Streatley Warren lynchet (Mills 1948) is also at variance with the excavators' conclusion. Iron Age pottery from the old land surface beneath the positive lynchet merely provides a *terminus post quem* and it is more likely that the lynchet build-up is a result of Roman ploughing.

A less tangible form of dating evidence comes from a comparison of the field plans under study here with the summarised countrywide typologies suggested by Taylor (1975, 59) and Fowler (1981a, 191). In particular, both authors indicate the probable Roman date of elongated fields which can occur in parallel strip-like blocks as for Barnsley Park, Gloucestershire (RCHM(E) 1976), Repton, Nottinghamshire (Riley 1980), and Chisenbury Warren, Wiltshire (Bowen and Fowler 1966). Field plans which fit this description appear frequently in the study area.

In summary, there is still evidence for prehistoric field systems on the Berkshire Downs as shown by the respect of linear earthworks for pre-existing boundaries, for example, East Ditch (Fig 7; Crawford 1953) and Baydon Ditch (Ford 1982). However, their extent and the degree of modification or obliteration in Roman times is unknown. In simple terms it is the purpose of the research described below to provide dating evidence from excavation to enable some assessment of the relative proportions of prehistoric and Roman elements present in the complex of field plans now available.

Description

The field systems under investigation lie north of Lambourn and south of the chalk escarpment which overlooks the vale of the White Horse. They lie on undulating downland between 150m and 200m OD. The soils of the region are rendzinas over chalk and brown calcareous soils or brown earths over silty, flinty drifts.

Very few blocks of fields now survive as standing earthworks but a fair number of ancient lynchets survive by being used as modern field boundaries or in woodland.

EXCAVATION STRATEGY

The most important feature of these field systems was the degree of planning that their

layout involved, blocks of fields with similar field shapes and orientation occurring continuously over one to two square kilometres, ignoring topography. Bradley and Richards (1978) termed these planned fields 'cohesive' to distinguish them from more piecemeal layouts ('aggregate').

Initially, three factors influenced the excavation strategy. First, it was realised that dating evidence from the major axes of blocks of fields was more relevant to an understanding of the origin of a field system as a whole than was evidence from trenches across shorter, subdividing field boundaries. Such subdivisions may have been created, moved, or altered sometime after a field system was first set out.

Second, the expected dating evidence was to be based on a stratified sequence of artefacts within positive lynchets. As a high density of datable finds was crucial to the success of the excavations, the first trenches were located in an area with abundant surface finds of Roman and prehistoric date.

Third, the dating evidence was expected to come mainly from pottery finds, the commonest datable artefacts and thought to be incorporated into the ploughsoil during manuring. The youngest artefacts recovered from the base of the lynchet ploughwash give a *terminus post quem* for the origin of the particular boundary examined. Other finds within the body of the lynchet may be expected to give a guide to the length of time for which the field was cultivated. This approach is not without its theoretical and practical problems.

First, some, or even all, of the artefacts recovered may well be residual. There is a possibility, particularly with small samples, that an apparent stratigraphic sequence, for example, from early Roman to late Roman, is merely a product of random mixing of finds during the movement of soil necessary for lynchet formation. The relatively loose accumulation of soil in these lynchets also attracts burrowing animal activity which increases the chance of mixing.

Second, discarded pottery sherds which find their way into manure heaps are subject to erosion after being spread on the fields. They are frequently small and abraded, and the closely dated pieces are few in number.

Third, crops may well have been grown for some time before manure was applied. In some instances such a situation could be indicated by a zone at the base of the ploughwash devoid of finds. But if residual artefacts, predating the first cultivation of a field, were to become incorporated in the unmanured lower layers of a lynchet, a false chronological sequence could be built up. The period at which the field systems go out of use may be equally difficult to determine because the succeeding Saxon period was relatively aceramic.

In the face of these problems the strategy has been to excavate many trenches and to rely more on the overall picture than on the evidence from any one site.

These initial guidelines were soon modified by practical considerations. Relatively few of the preferred locations for excavation survived as earthworks and work was carried out where possible. Fortunately, datable finds were found to be so abundant, even in 1.5m-wide trenches, that the location of sites close to known settlements was not now a priority. The interim stage of the project (13 trenches) indicated that Roman activity was probably largely responsible for the surviving plan of fields in Figure 1. More consideration was, therefore, paid to the location of prehistoric remains.

Finally, the paucity of surviving lynchets in crucial areas led to some attempts to acquire relevant evidence from possible field boundary ditches and an enclosure. Unfortunately, these attempts were unsuccessful.

DESCRIPTION OF EXCAVATIONS

Twenty-one trenches were hand dug. They were usually 5–7m long by 1.5–2m wide.

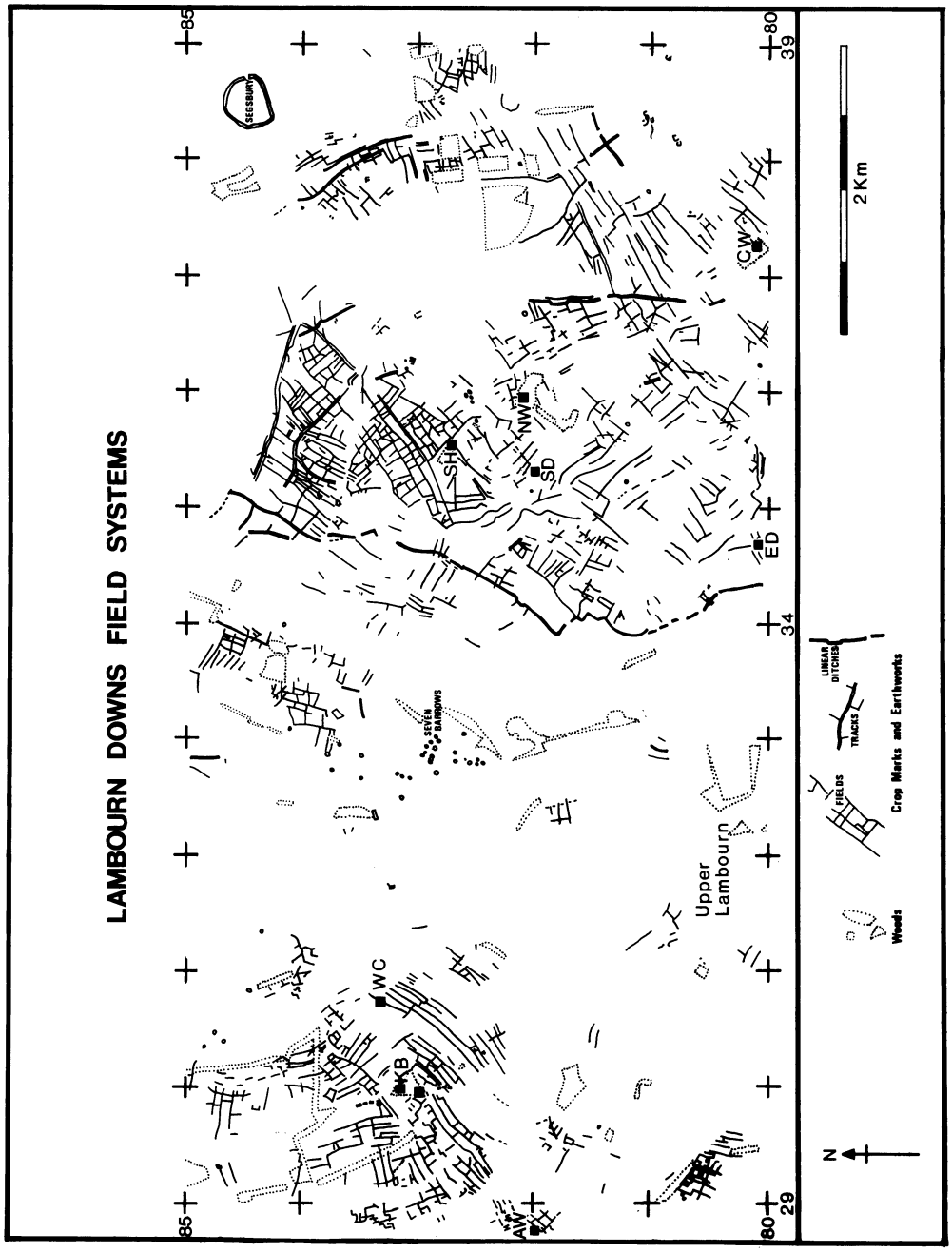

Figure 1 Lambourn Downs: general plan

Some of the trenches at Knighton Bushes which were intended to locate lines of stones along field boundaries were only 1m wide. After initial experiments, allocating finds to spits, all artefacts were recorded in three dimensions. Where these finds are plotted on sections due allowance has been made for any lateral slope across the trench.

The stratigraphic sequence for most trenches was straightforward and more than four contexts were rarely recognisable. The typical sequence downwards comprised: topsoil, worm-sorted stoneline and homogeneous well-mixed lynchet body, with, for areas with rendzina soils, recalcification deposits in the lowest levels. The only clearly visible old land surface (OLS) was at Whit Coombe (Tr2). A thin orange clayey deposit at the base of the lynchet at Eastbury Down (Tr1 and 2) may also be an OLS. For Knighton Bushes (Tr1) and Cranes Wood the trench bases were overcut through an orange/red clayey/silty deposit to expose the underlying chalk. The boundary of this natural clayey/silty material with the overlying lynchet, even where visibly indistinct, can be demonstrated by a marked decrease in the number of finds that are contained within it.

This simple stratigraphy suggests that the lynchets examined are not a result of several phases of accumulation separated by long stable periods. One check on this observation can come from molluscan analysis whereby reversion from arable to permanent grassland could be indicated by a changed snail fauna within the ploughwash deposits of the lynchet. This approach has been successfully applied in Sussex (Drewett 1982, 19) along with less successful, soil particle size analysis. Only one of the lynchets sampled for snails in our study showed a pattern that could be interpreted in this way. However, it seems that adjustments in the faunal composition on changing from arable to grassland may be small, or may take place slowly (see microfiche), so the molluscan evidence must be treated with caution.

Knighton Bushes area (Fig 2)

Thirteen trenches were dug on the block of fields centred on Knighton Bushes (SU 300 830). A number of distinctive features can be observed in the field plans and three field types may occur. The first consists of parallel, curving boundaries up to 700m long by only 80m wide. They can be subdivided into smaller rectangular fields as at 'Z' (Fig 2). The apparently undivided examples at 'Y' may be a result of these boundaries running along the contours, with any subdivisions running downslope not being enhanced by lynchet formation. However, this cannot explain the lack of subdivisions at Whit Coombe (WC). A second type may be represented at 'X'. Here elongated fields (400 × 80m) are aligned at 90° to a single central axis. More irregular patterns are present in the vicinity of the Knighton Bushes Roman settlement ('S') (Gaffney and Tingle 1985). The settlement is marked by a curving feature (cf Fowler 1967). Similar irregular fields are found at the edges of the field block on the relatively steep slopes of Ashdown ('V'). A small area of ridge and furrow may be present at 'R'.

Knighton Bushes

Nine trenches were dug at Knighton Bushes itself as shown in Figure 3.

Trench 1(KB1, Fig 5) was located across a non-major axis (L1). Poorly-dated Roman sherds were recovered from the base of the lynchet and give it a *terminus post quem*, of Roman or later. The incidental discovery of a microlith, blades, and blade cores was of great interest as one of the rare pieces of evidence for Mesolithic activity on the Berkshire chalkland.

Trenches 3, 4, and 8 (KB3, KB4, KB8, Figs 3 and 4) examined a low downslope bank (L5) which was aligned on a kink between lynchets L3 and L4. These trenches located a line of small sarsens up to 0.4m in size which were deliberately placed on the field edge, but whether they are a result of field clearance or were the originally defined boundary is not known. A single Roman

sherd was found beneath a large sarsen in Trench 3 which provides a *terminus post quem* for this feature. The boundary has been traced for at least 100m and may represent part of an elongated field.

Trenches 2 and 5 (Fig 4) were dug to examine a second downslope element (L6) which occurred as a very slight lynchet. Trench 5, however, located a second line of sarsens for which there was no prior surface indication. Trench 6 (Fig 4) showed that the line of these sarsens was not the same as lynchet L6, but Trench 7 showed that the line kinked or did not exist in that area. Trench 9 also failed to confirm positively a continuation in the opposite direction. A number of Roman sherds were recovered from on top of and within the line of sarsens, but none sufficiently well stratified to provide a *terminus post quem*. This second line of sarsens is parallel to that occurring in lynchet L5 and is probably another side of

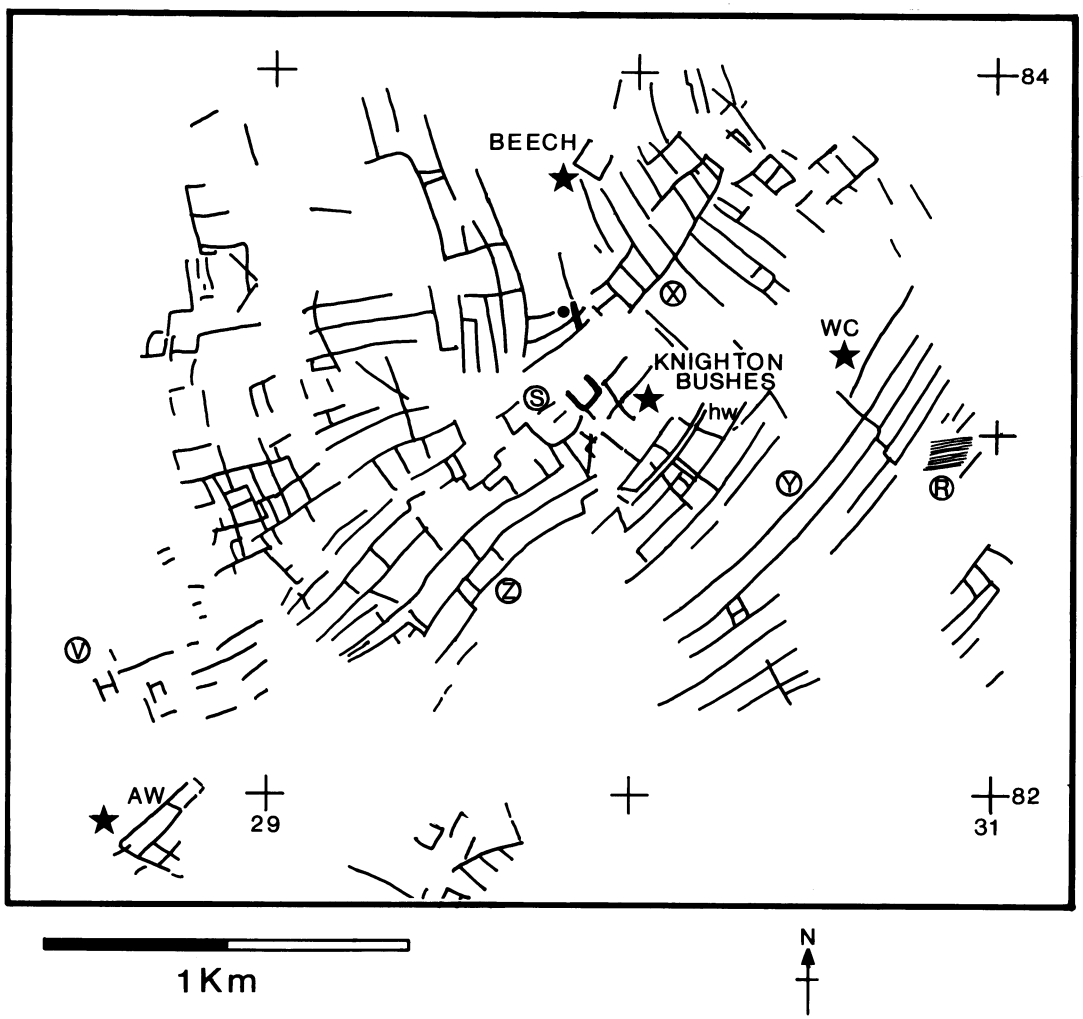

Figure 2 Knighton Bushes: area plan

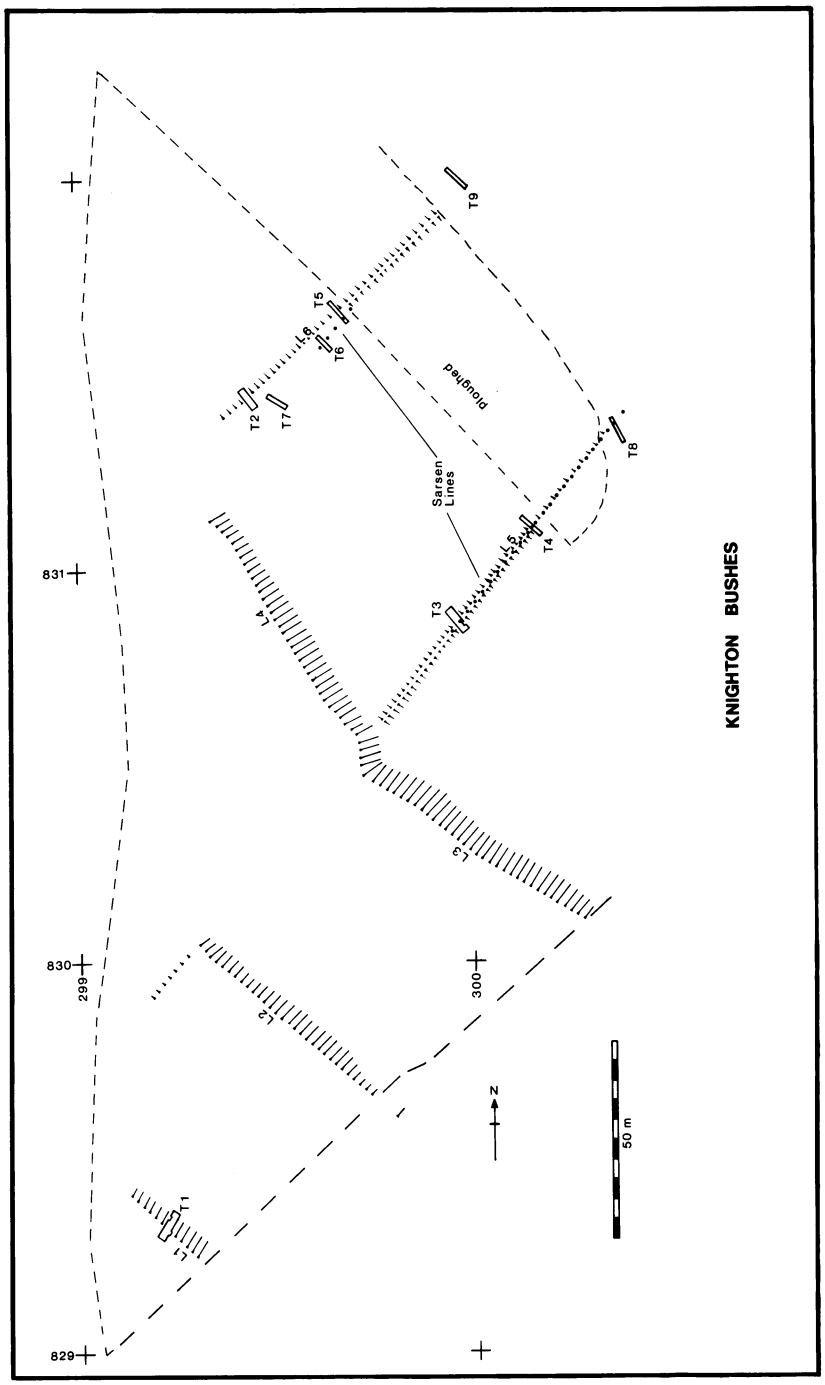

Figure 3 Knighton Bushes: location of Trenches 1–9

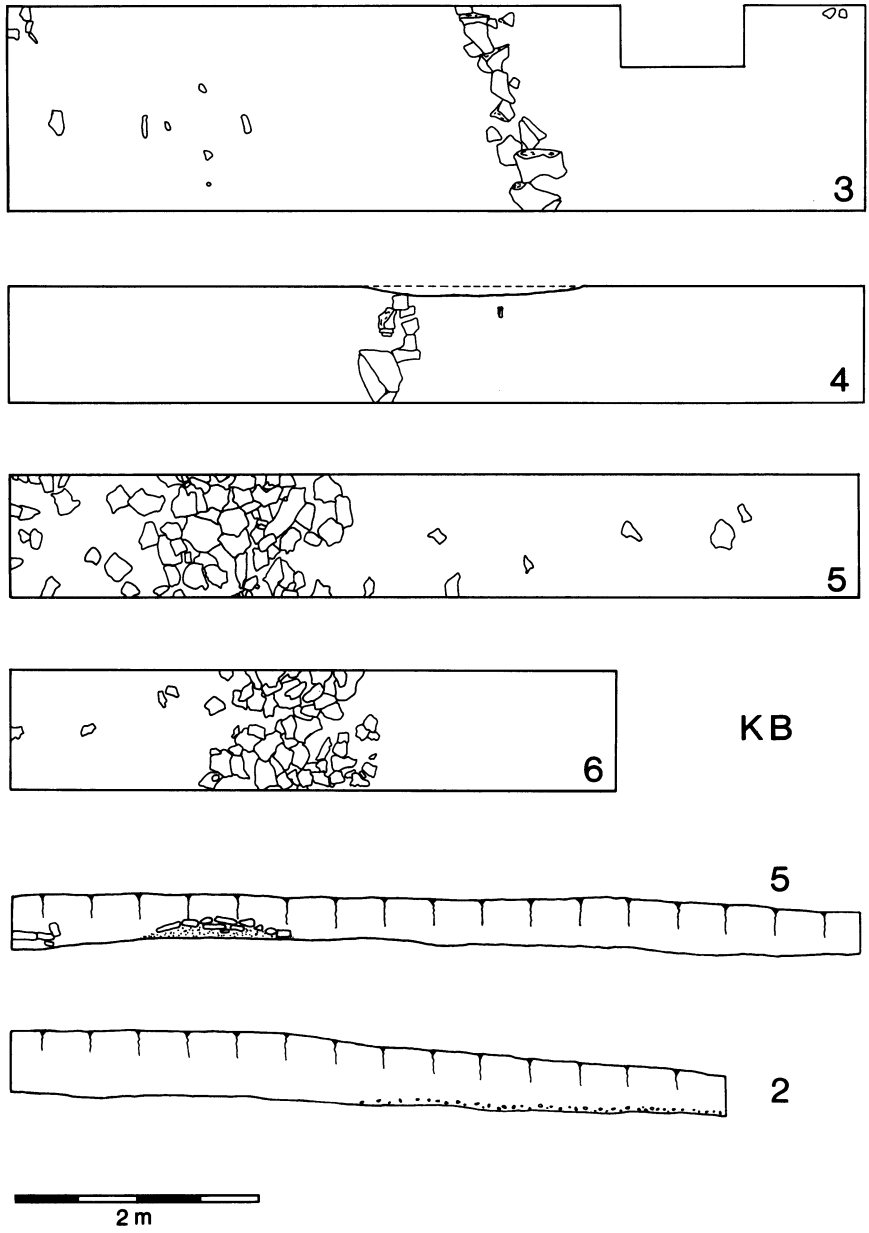

Figure 4 Knighton Bushes: plans of trenches

the same field. The presence of lynchet L2 on a slightly different alignment and the deep burial of this second line of sarsens suggests that this original field edge became lost during the build-up of L2 and its position was only generally respected.

Whit Coombe

Two trenches were dug across a single large lynchet which appears to occur only as a positive element ('WC', Fig 2). The lynchet is on the extremity of a group of elongated fields on the edge of the steep-sided Whit Coombe. The latter is devoid of cropmark evidence. It may have been an area of pasture and it is interesting that a large hollow-way ('HW') points in its direction.

Trench 1 (WC1, Fig 5) produced a good proportion of Roman pottery from the lowest levels of the lynchet providing a *terminus post quem* of Roman or later. Using the more diagnostic sherds, an apparent stratigraphic development of first- to second-century use through to third- to fourth-century use can be observed, but sample sizes are too small to allow statistical confirmation. Trench 2 (Fig 5) provided a similar sequence of events but also what is interpreted as a buried soil beneath the Roman ploughwash.

In addition to the pottery and flint finds, two tesserae were recovered from the topsoil in Trench 2 and part of a bronze ring from Trench 1. This has been identified by Dr Martin Henig as a trinket ring of the late second to early third centuries, with a setting for enamel or a gemstone. It is similar to one found at Lowbury Hill, Berkshire (Aitkinson 1916, pl XI no. 17).

Ashdown-Weathercock

Two trenches were dug across two lynchets as shown in Figure 6. The ground plan of this area suggests more than one phase of formation in addition to medieval or later enlargement of some sections to create rabbit warrens. The lynchets where the trenches were located were both damaged by rabbit burrowing and vehicular traffic.

Trench 1 produced surprisingly few finds of pottery or even flint and a lower, fine chalky fill that was unlike anything observed in the stratification of other trenches. A small number of Roman sherds were incorporated in the higher levels of the lynchet, implying use of this land in Roman times but with the possibility of the lynchet originating in prehistory. To counter this view, the paucity of prehistoric material found here is in contrast to that found in most other trenches. There appears to be little pre-Roman activity at this site. Consequently, one of the problems of the incorporation of finds in lynchet build-up referred to above may apply and it is purely chance that no Roman finds are found from the base of the ploughsoil. An alternative explanation that merits serious thought is that this earthwork is not a lynchet but a warren with the chalky lower fill representing a deliberately created bank. The use of and additions to ancient earthworks have been argued for monuments in east Yorkshire (Drummond and Spratt 1984). The small number of snails from the latter may also indicate a non-agricultural origin. Too little evidence is available to choose firmly one option or the other.

Trench 2 (AW2, Fig 5) is much better represented artefactually and several sherds from the base of the lynchet provide a *terminus post quem* of Roman. This date can be refined and it can be suggested that the lynchet is at least of third to fourth century date. This is, however, based on the position of a single, but large sherd at the base of the ploughsoil.

▲ Prehistoric
U Undated
• Roman
○ Roman (?)
■ Roman 1st–3rd centuries
● Roman 3rd–5th centuries

Key for profiles of trenches (Figures 5, 8, and 12)

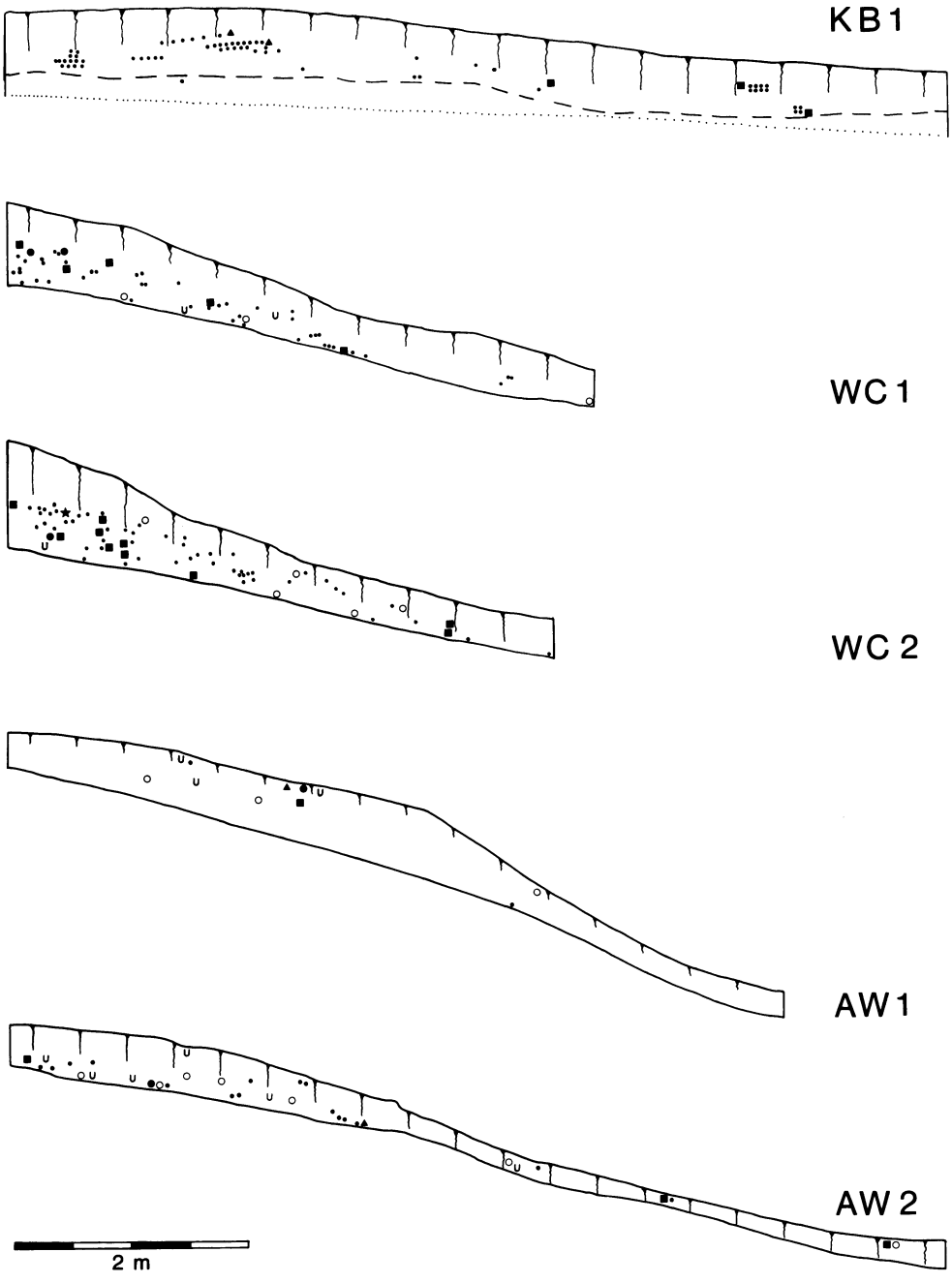

Figure 5 Profiles of trenches with location of finds: Knighton Bushes Trench 1; Whit Coombe Trenches 1 and 2; Ashdown-Weathercock Trenches 1 and 2. (above)*: pottery;* (right)*: flint*

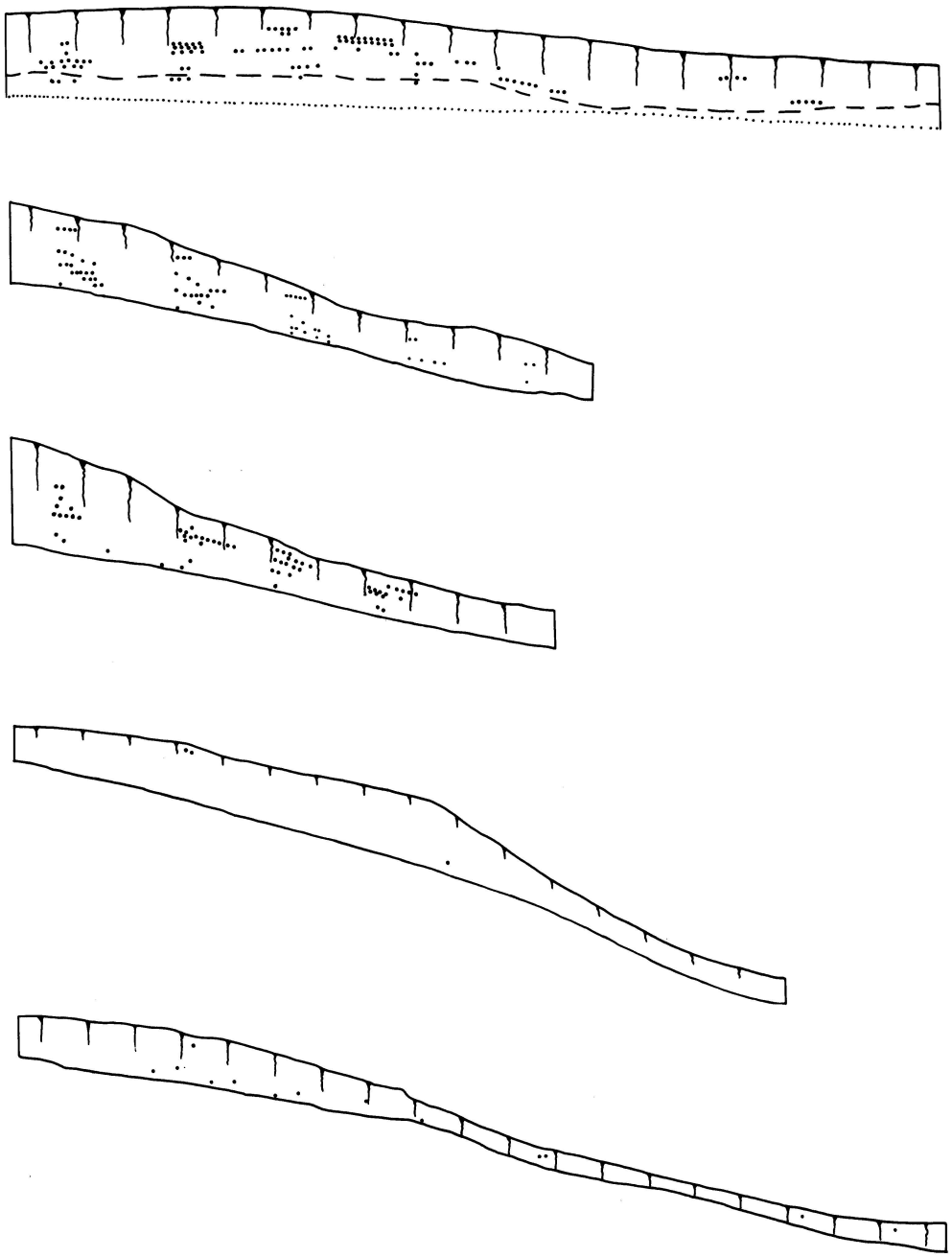

Figure 5 (continued)

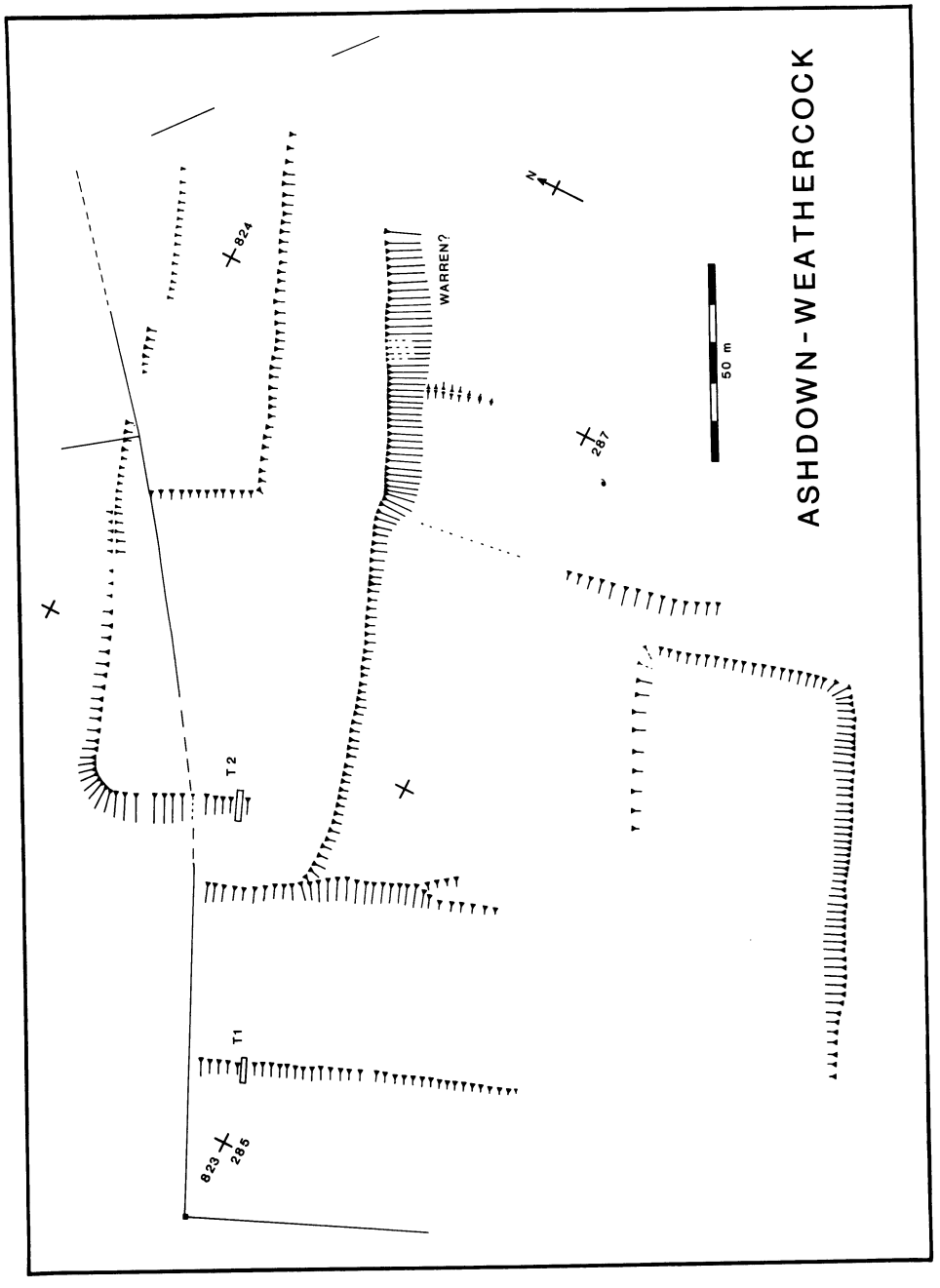

Figure 6 Ashdown-Weathercock: location of trenches

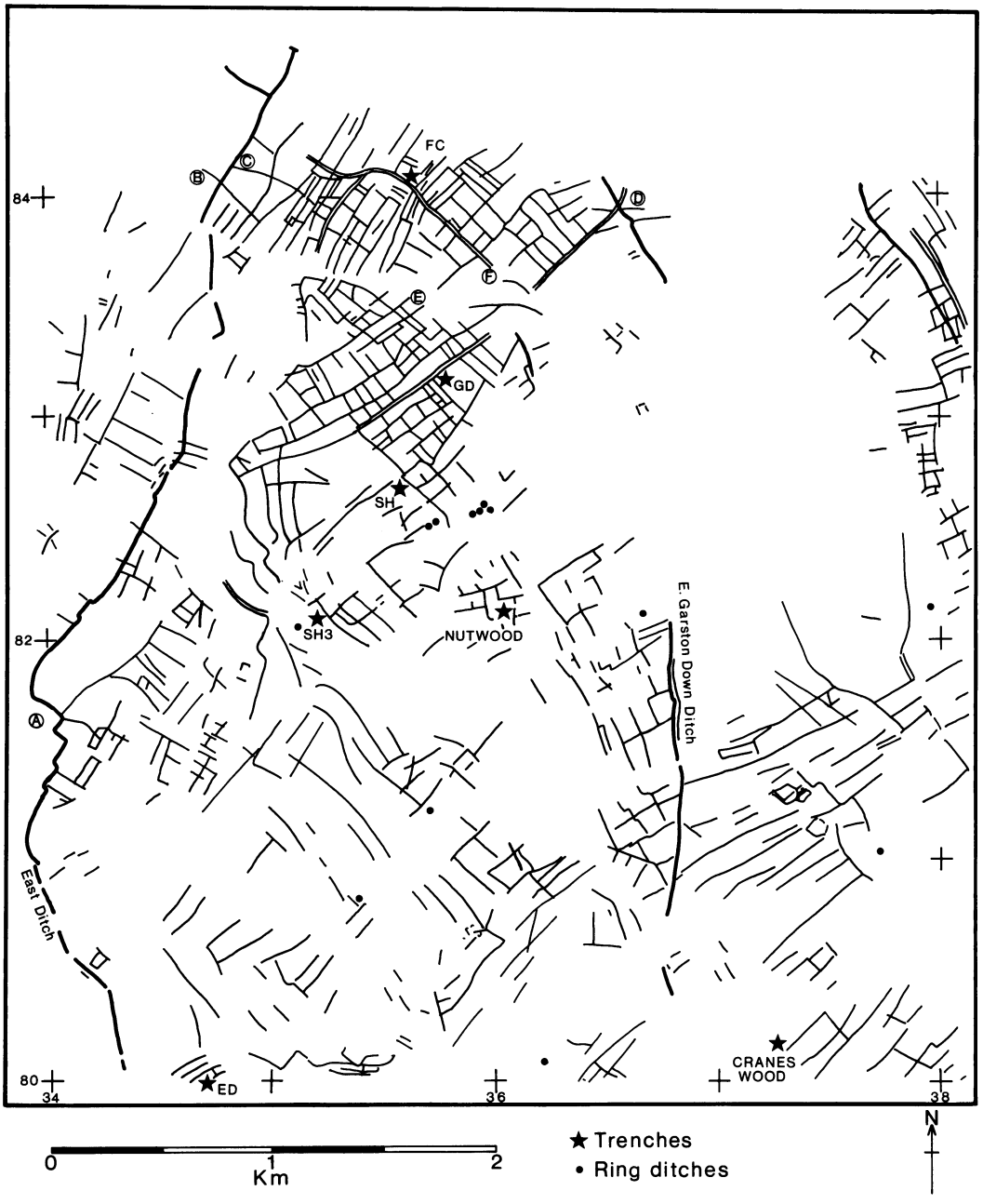

Figure 7 Nutwood and Cranes Wood: area plan

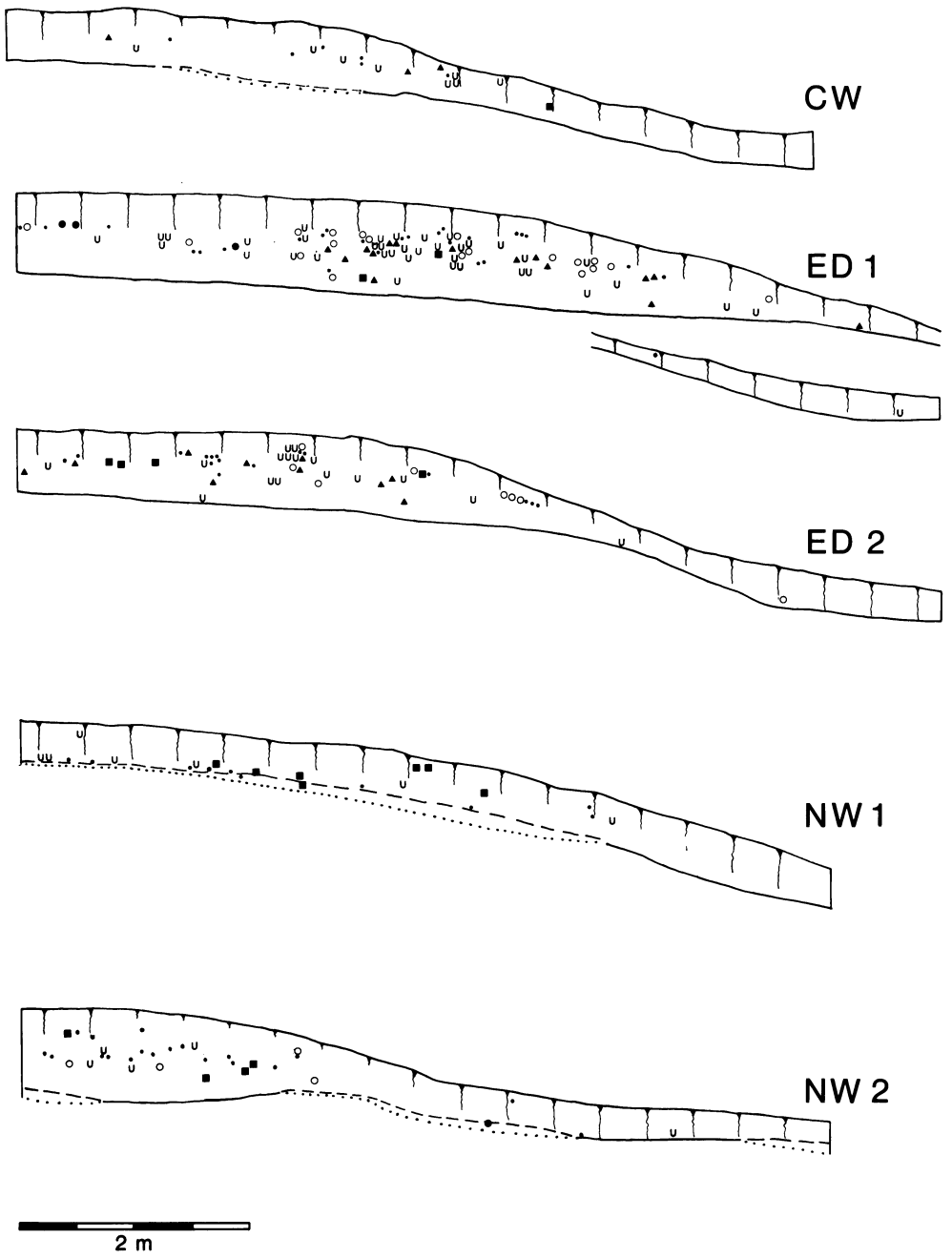

Figure 8 Profiles of trenches with location of finds: Cranes Wood; Eastbury Down Trenches 1 and 2; Nutwood Trenches 1 and 2. (above)*: pottery;* (right)*: flint*

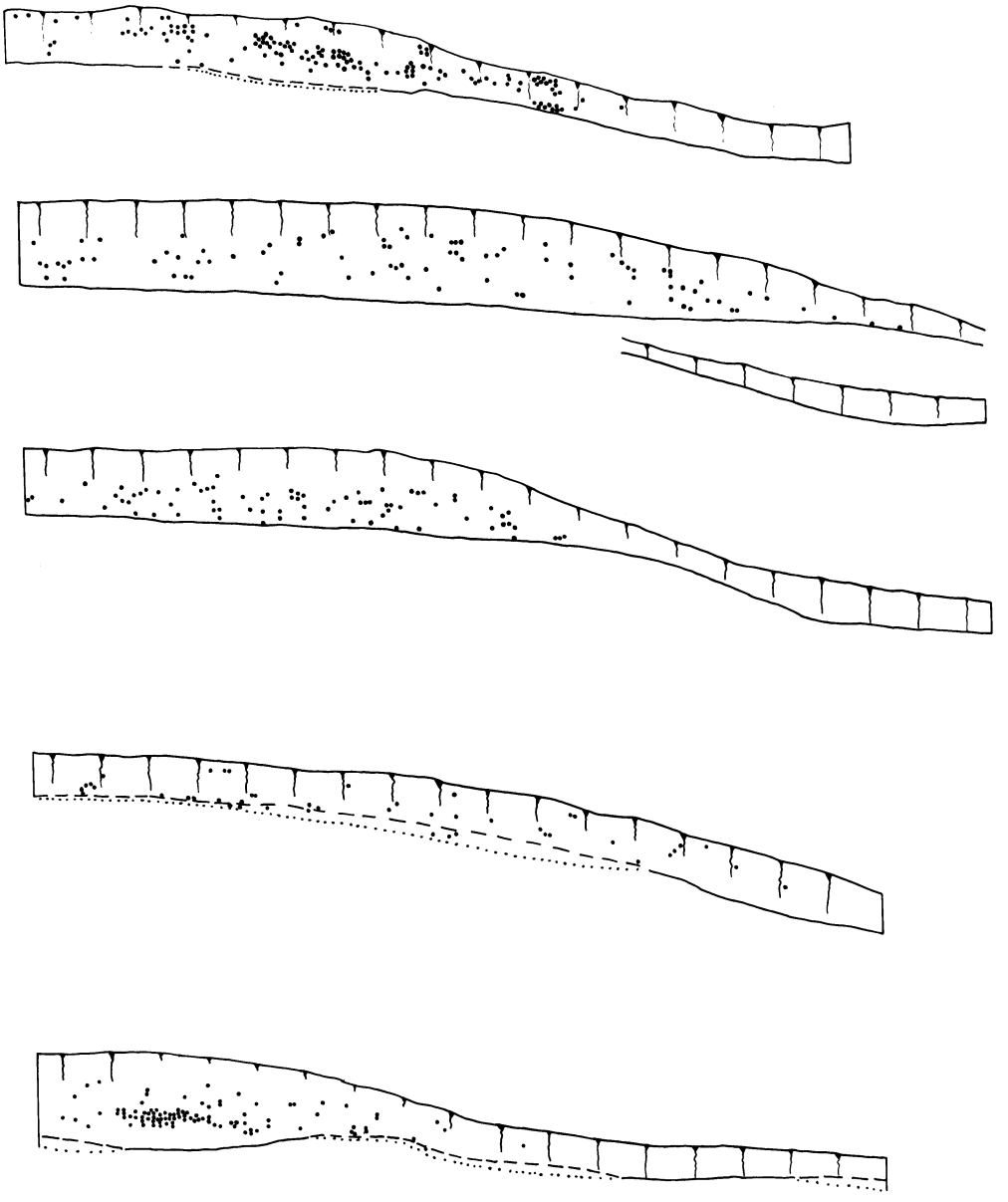

Figure 8 (continued)

Beech enclosure

A possible enclosure can be observed on aerial photographs located at Beech, 700m north of Knighton Bushes (SU 298 837, Fig 2). This feature comprises a three-sided square, 80 × 80m, which is on a different orientation to and is respected by a nearby field block. No ditch is visible and the soilmark patterns are

identical to those for the ancient field blocks. Field inspection suggests that at least parts of the enclosure were defined as lynchets. Because this feature apparently predates the ancient fields which respect it, trial trenches were dug, hoping to provide dating evidence.

Two trenches, 25 × 1m and 13 × 1m, were dug across two sides of the predicted line of the enclosure. Unfortunately, no traces of it were found. Perhaps more significantly, no settlement traces such as dense scatters of flint or pottery were found and a number of features cut into the subsoil were shown to be natural hollows.

The date and function of this feature have not, therefore, been resolved by this fieldwork. The only suggestion as to its function is that it represents a single field predating the majority of fields around it. If such a feature was used, for example, as a stock enclosure, this could explain its survival from obliteration by later field systems.

This type of enclosure is not unique on the Berkshire Downs. A feature similar in size and relationship to field blocks is also recorded north of Lambourn Seven Barrows (SU 332 837). In this case, the enclosure is surrounded on all four sides by a ditch. A similar (ditched) feature is found adjacent to the Knighton Bushes Roman settlement (Gaffney and Gaffney 1986). This three-sided enclosure was shown by excavation to be adjacent to and not coincident with the focus of settlement and possibly functioned as a farmyard or the like.

Cranes Wood area (Fig 7)
A single trench was dug to investigate the block of fields north of Cranes Wood (SU 375 801). Most of the fields in this area are of the elongated type, some with dimensions of at least 500m by 60m. Less elongated and smaller fields are found on sloping land to the west of East Garston Down linear earthwork.

Cranes Wood (Fig 8)
Relatively few finds of pottery were recovered and of these many were undiagnostic. Despite the presence of prehistoric pottery and a large number of struck flints, Roman sherds are found well within the body of the lynchet and a *terminus post quem* of Roman is probable.

Nutwood area (Fig 7)
Seven trenches in four locations were dug in this area. North parts of the area (Green Down) are well detailed in plan (see Riley 1982, pl 4; Richards 1978, pl 3) but further south the field patterns are more fragmentary. A number of early elements are recognisable: (1) the East Ditch linear earthwork 'kink' ('A', Fig 7) probably follows the edge of 'Celtic fields' which now no longer survive on the ground (Crawford 1953); (2) lynchets (eg 'B') are cut by East Ditch and probably predate the Late Bronze Age (Ford 1982).

Other elements (eg 'C') are aligned on East Ditch and probably postdate the Late Bronze Age. A probable trackway ('D') crosses a linear ditch and is again likely to postdate the Late Bronze Age. Some other irregular elements could well represent reused earlier boundaries.

The Green Down area is well integrated with a series of conjoining trackways and one could connect areas of the steep scarp slope presumably used for pasture with settlement areas surrounded by fields. A number of major axes are visible. Long (2km), parallel lynchets with a spacing of only *c* 80m ('E') are similar to those at Knighton Bushes and Cranes Wood, except for numerous subdivisions. Fields on Green Down respect the line of a hollow-way ('F') which was partly defined by a small ditch (Ford 1982). Late Roman pottery was found in the higher silts of this ditch.

Eastbury Down (Fig 9)
Initial impressions of these fields surviving in old downland pasture are that they are typically elongated fields. However, detailed field inspection shows that two elements are represented with the possibility that an earlier chequer-board pattern has been modified at a

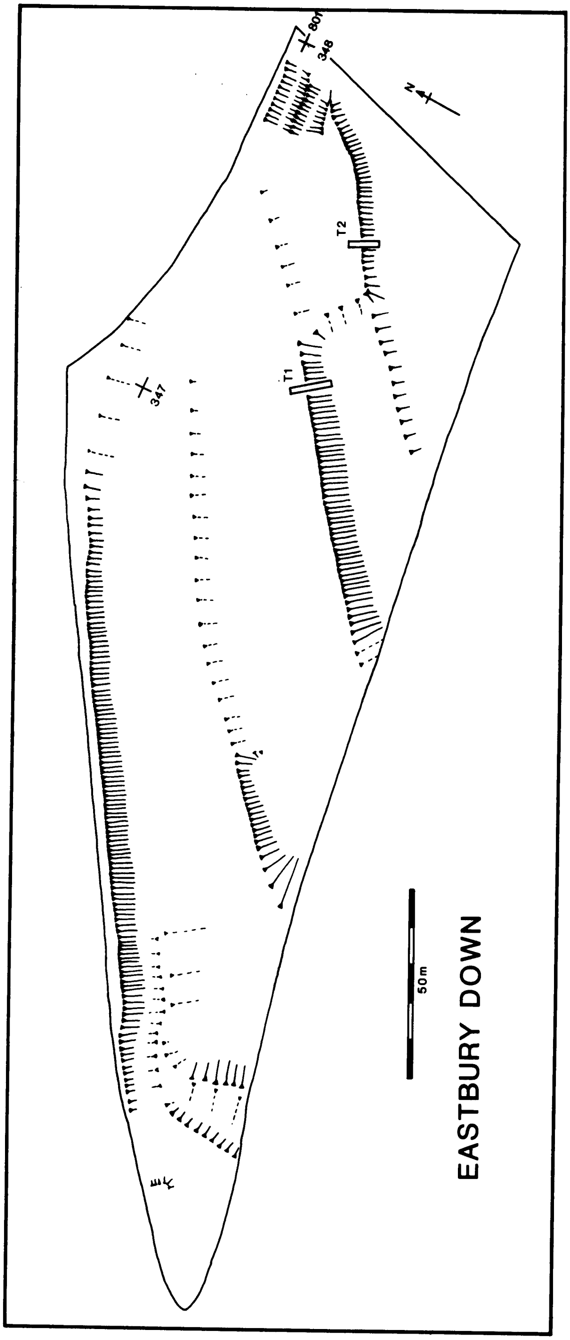

Figure 9 Eastbury Down: location of trenches

later date. The two trenches were placed to test this hypothesis.

Both lynchets (Fig 8) contained a substantial quantity of Roman finds but, in addition, flintwork and prehistoric pottery were also well represented. The disposition of datable finds within the excavated stratification allows some speculation about pre-Roman origins for these lynchets. In both trenches, flint finds are well dispersed throughout the profile. Pottery, however, is concentrated above the lowest levels. Trench 2 has the best evidence for a prehistoric lynchet subsequently reused in Roman times. Here there is a fairly clear sequence of prehistoric finds in the lowest levels with Roman pottery of first to second century date only at a higher position. This is the trench where molluscan analysis might be interpreted as showing a period of grassland between two arable phases (see molluscan report, microfiche).

Trench 1 is more ambiguous with two Roman sherds in the lower levels towards the centre of the lynchet. This, though, may be a product of an earlier lynchet, represented in Figure 8 ('ED1') by the artefact-free zone on the uphill side, being added to and extended downhill by Roman activity. A minor dip in the profile of the bedrock could indicate vestigial traces of an earlier negative lynchet. To mitigate against this, there are no variations in the stratification in the crucial location.

In the Roman period, with these two trenches so close together on what appears to be a part of the same system, it is hard to see how the lynchets could not both have accumulated at the same time. The early Roman date for Trench 2 is perhaps illusory. This, and even the apparent prehistoric phase in Trench 2, could, of course, be a product of a non-manuring phase of Roman use as suggested in the introduction.

A number of metal finds were found in Trench 1. These comprised: two bronze awls or pins, one intact, one broken; a piece of slag; a piece of iron; an iron nail.

Nutwood (Fig 10)

The field boundaries which survive in Nutwood are too few to form a coherent plan. Similarly, the layout of the levelled lynchets outside the copse is fragmentary and an

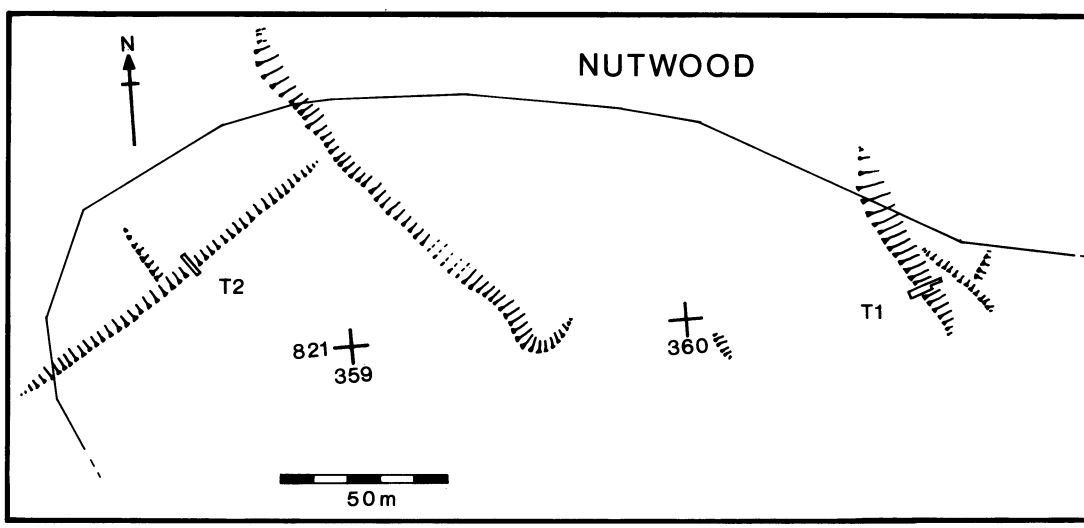

Figure 10 Nutwood: location of trenches

overall plan of field shapes cannot be distinguished with confidence.

Trench 1 (Fig 8) was located across an apparently large, positive lynchet possibly on the edge of a natural break of slope. A much smaller earthwork is to be found towards the base of the feature examined in Trench 1 and running at a slight angle to it (Fig 10). However, excavation failed to indicate much build-up of ploughsoil and a lynchet cannot be demonstrated in Trench 1.

Two explanations are possible. First, the area of Trench 1 is merely part of a field bounded by the lower lynchet with a natural break in slope being ignored. The second alternative is that Trench 1 is located across a large lynchet which has been truncated by a later field system of which the lower lynchet on the different alignment is a surviving element. The pottery from Trench 1 shows that the area was 'manured' in Roman times. If this second alternative is pursued, the number of sherds found in the shallow deposits beneath the topsoil may indicate a Roman date for this feature, but whether they are sufficiently well stratified is open to debate.

Trench 2 (Fig 8) revealed a fairly textbook lynchet which provides a clear *terminus post quem* of early Roman date. An added bonus was the discovery of a dense concentration of flintwork along with flecks of charcoal and a shallow irregular feature. The three-dimensional plot of these flints indicates a dense horizon at the base of the lynchet. While it may not locate an actual OLS it is almost certainly a deposit that has seen little horizontal movement, although refitting experiments to demonstrate *in situ* flint knapping were unsuccessful. This flint scatter is probably of later Bronze Age date and represents some type of site but its nature and extent is unknown.

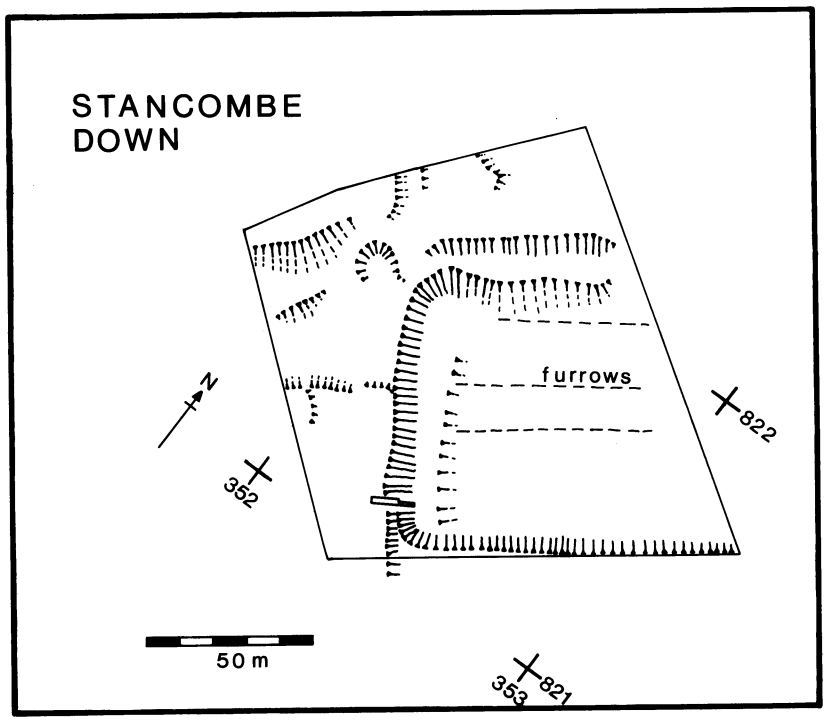

Figure 11 Stancombe Down: location of trench

Stancombe Hatts and Stancombe Down
(Figs 7 and 11)

Trenches 1 and 2 (SH1, SH2, Fig 12) were located across a lynchet that is at least 500m long but is not well integrated into the general field plan. A lynchet was found almost parallel to it only 20m away. More than one phase of field system may be represented.

Trench 1 produced a number of sherds from the middle levels of the positive lynchet, but in Trench 2 Roman pottery was found from the lower levels. Only a single certain late Roman sherd was found from the highest levels of Trench 2 and a tentative *terminus post quem* of early Roman date can be suggested.

Trench 3 on Stancombe Down (Fig 11; SD, Fig 12) was located across a visually impressive lynchet which is a part of elongated fields with dimensions of at least 200 × 70m. Other levelled lynchets observed on aerial photographs may indicate originally smaller fields, but whether this levelling occurred in ancient or more recent times is not known. The scarp face of the positive lynchet where excavated also shows a step, perhaps indicating two phases of build-up or at least of use of the lower field. For one area close by, at least, there are some faint traces of narrow ridge and furrow.

The very lowest levels only contained undiagnostic pottery so a *terminus post quem* cannot be assigned with certainty. Roman pottery was recovered from a slightly higher level. The molluscan analysis

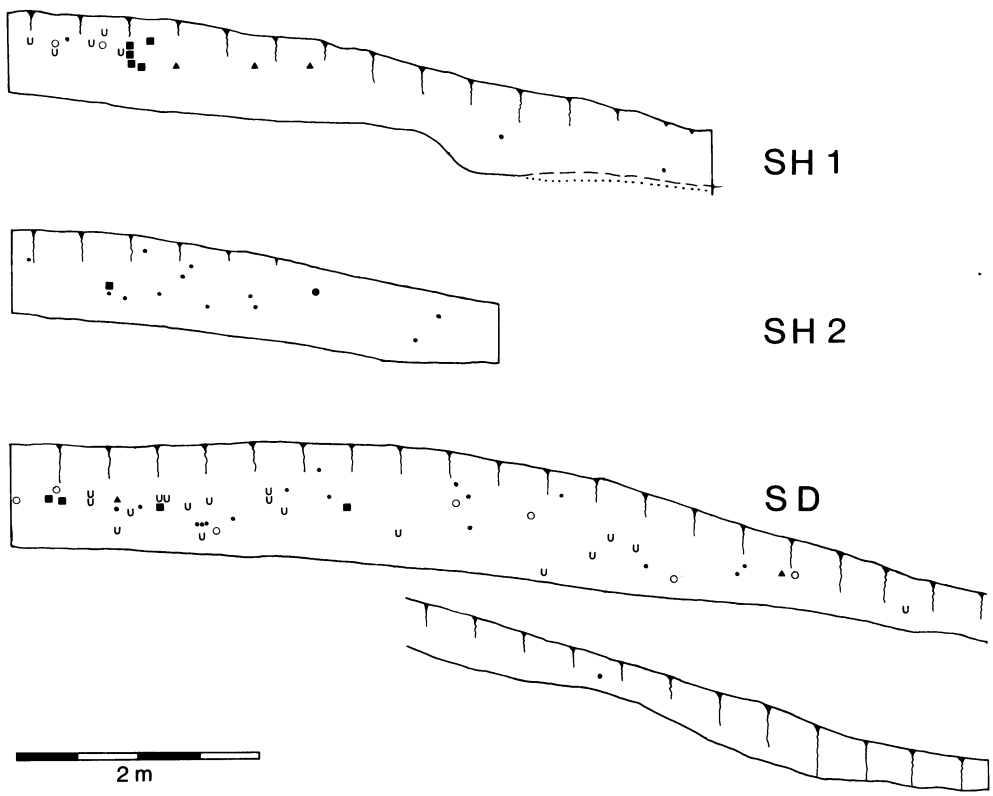

Figure 12 Profiles of trenches with location of finds: Stancombe Hatts Trenches 1 and 2; Stancombe Down. (above)*: pottery;* (right)*: flint*

indicates a consistently open environment during the build-up of the lynchet body and this evidence, together with the simple stratification, argues against the two phases of accumulation inferred from the profile of the present land surface.

Green Down trackway

The whole of the ancient fields on Green Down is now regularly ploughed and no surviving lynchets are known. In order to provide some dating evidence for this large expanse of fields, work was undertaken to locate ditches integrated with them. Such ditches, largely unaffected by ploughing, could be expected to occur at the boundaries of some fields or flanking trackways. One such ditch has already been located within the Green Down field systems at Folly Clump (SU 357 840) (Ford 1982).

A resistivity survey was done to locate flanking ditches associated with the long trackway north of Stancombe Hatts (SU 357 831). Six transects, spaced at 10m-intervals, were surveyed at right angles to the line of the track but failed to produce any convincing anomalies. Subsequently, a small (4 × 1m) trench was dug but failed to locate a ditch.

FINDS

Flint by Steve Ford (Table Mf1)

The full report is to be found in microfiche.

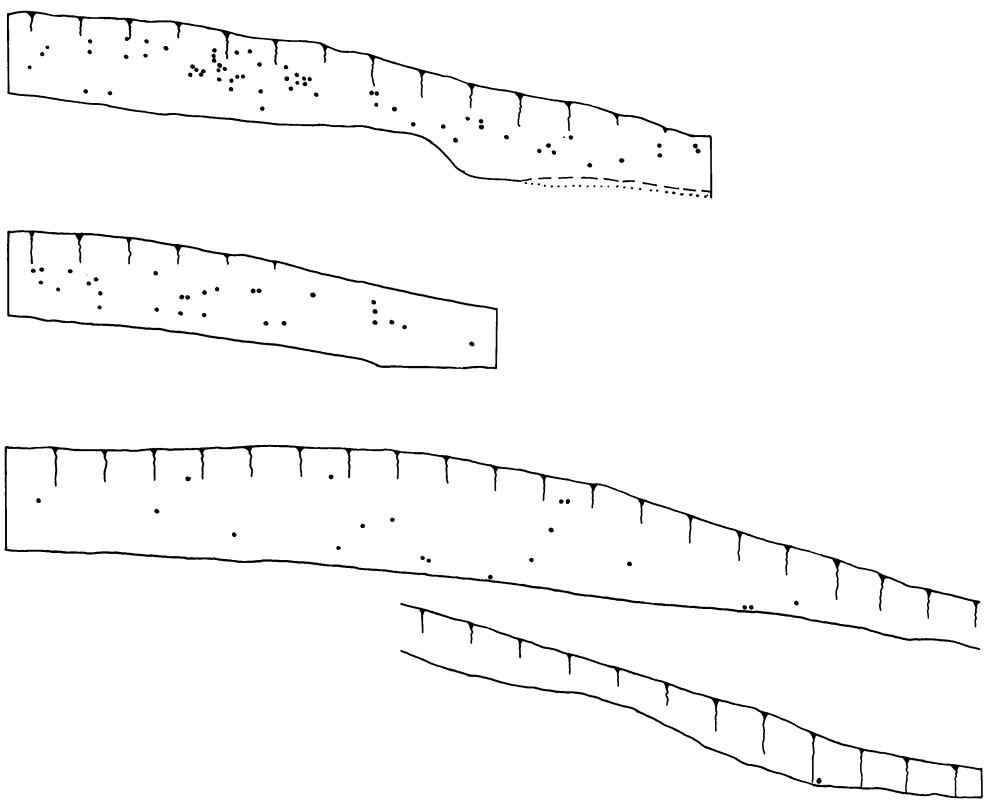

Figure 12 (continued)

Pottery by Vince Gaffney (Table Mf2)
The full report is to be found in microfiche.

Mollusca by Geoff Mees (Figs Mf13–14)
This is a brief summary of the full report which is to be found in microfiche.

Samples for snail analysis were taken from six trenches in four locations. Samples from three contemporary downland environments were also taken for comparative purposes.

With respect to the dating of the lynchets, the molluscan results were consistent with the view that they had formed in a single phase of relatively intense cultivation. Buried soils could plausibly be seen in three trenches: Eastbury Down Tr2, Whit Coombe Tr1, and Stancombe Down. All these were characterised by snail populations dominated by open country species, and it is likely that these areas resembled modern permanent grassland before they were cultivated.

The snail analyses gave no clue to the detailed nature of landuse during the period of cultivation. Indeed, it is probable that local conditions of climate or soil influence the snail populations at least as much as human activity once the land had been cleared and any pre-clearance snail fauna had been lost.

DISCUSSION

In presenting our results we have considered the dating evidence for the excavated lynchets. Our work indicates widespread Roman use of the Berkshire Downs field systems, with most, if not all, of the lynchets examined originating in Roman times. But the excavated sample was small, and we have to consider how reliably the evidence obtained can be extrapolated to the field systems as a whole.

The issue turns on the extent to which the excavated lynchets were major structural elements in blocks of fields with a coherent morphological pattern. The circumstances of lynchet survival and the predictability of the presence of dating evidence forced some deviation from the theoretical approach as in the case of KB1, NW1, and NW2. However, a consideration of aerial photographs and the ground-based surveys suggests that the elements chosen, by and large, met this requirement. A summary of the excavated lynchets is provided in Table 3.

The combination of excavated evidence and field morphologies suggests that the distinctive long, narrow, parallel-sided fields with or without subdivisions, exemplified at Knighton Bushes ('A', Fig 2) and Cranes Wood (Fig 7) are Roman in origin. Similarly elongated fields as on Stancombe Down (SH3), Eastbury Down, and Knighton Bushes (sarsen 'walls') also originate in Roman times. The more ubiquitous square or irregular shaped fields (Nutwood Tr2?) can also be of Roman date.

Some of the more distinctive field patterns have been observed and described elsewhere (Bowen 1961; Taylor 1975; Fowler 1981a). The elongated fields sometimes offset from a base line in particular are thought to be of Roman date (Bowen and Fowler 1966). The very elongated fields are also similar to the 'brickwork pattern' fields near Repton, Nottinghamshire, which are Late Iron Age or Roman in date (Riley 1980) (cf Allen and Fulford 1986). This latter pattern is not, though, restricted to the Roman period and generally similar plans occur in the Neolithic and Bronze Age. The similarity of plan of field systems separated by long periods of time may be a function of a process of colonisation of 'new' land (see below).

If this argument for dating is to be believed, a substantial proportion of the field plans on the Downs can be dated, with only small areas or individual lynchets conclusively of prehistoric date. This would seem to indicate that the impressions of the ancient downland provided by aerial photography are related to Roman use of this area. It would be rash to say that prehistoric fields and field systems are not present on the Downs, but their detection and study is not as straightforward as earlier studies had led us to believe.

Table 3 Excavated lynchets

(a) *Summary of excavated lynchets*

Site	*Field type*	*Date*	*Comments*
KB1	Irregular?	Roman	Adjacent to Roman site; Mesolithic finds
KB2		Roman?	
KB3	Elongated	Roman	Sarsen 'wall'
KB4			As for KB3
KB8			As for KB3
KB5	Elongated	Roman?	Sarsen wall, parallel to 'wall' in KB3, 4, and 8
KB6			As for KB5
KB9			As for KB5?
KB7			Negative evidence
WC1	Very elongated	Roman	
WC2			As for WC1
AW1	?	?	Rabbit warren?
AW2	Elongated	Roman	
CW	Very elongated	Roman	
ED1	Elongated	Prehistoric? Late Roman	Enlargement of squarer fields?
ED2			As for ED1
NW1		Roman	Natural feature?
NW2		Roman	LN or BA flint scatter in old land surface
SH1	Elongated	Roman	
SH2			As for SH1
SD	Elongated	Roman	Two phases?

(b) *Previously excavated lynchets*

Site	*Date*	*Comments*
Baydon	LBA?	Predates linear earthwork (Ford 1982) Coppington Down
	LIA/Roman	Postdates linear earthwork (Ford 1982)
Streatley Warren	Roman	(Mills 1948)
Streatley Warren	?	(Richards pers comm)
Waylands Smithy	IA/Roman	(Atkinson 1965)
Rams Hill	LBA, LIA/Roman	(Bradley and Ellison 1975)

A much greater amount of fieldwork is required before a comprehensive model of settlement pattern, social structure, and use of the landscape can be developed. It is hoped that the interim comments of Gaffney (pottery report, this paper, in fiche) will be expanded further on full publication of the Maddle Farm survey (Gaffney and Tingle 1989). A few general comments are, however, in order.

Fowler (1981a, 155) has discussed the implications of the prehistoric evidence for large-scale planned field systems. He believes that this evidence shows that the whole of the area to be cultivated was chosen at a single time and suggests two alternative models of how this was achieved. What is more important, however, is the emphasis on colonisation and clearance of previously non-arable tracts of land. This emphasis is plausible for the Bronze Age on a grand scale for Dartmoor (Fleming 1978) and can be extended to clearance for pastoral use as in the Irish Neolithic, at Behy/Glenulra (Caulfield 1983). If a similarity of plan indicates a similarity in the process of development, then

the Roman fields suggested here were laid out with little regard to the previous agricultural use of the landscape. The evidence from Whit Coombe Trench 2 (Knighton Bushes area) is perhaps relevant here. This trench dated a long field boundary but also produced a molluscan sequence which indicated a scrubby, or more likely, a well-grazed environment prior to lynchet formation. Clearly many more data are needed to document the onset of Roman use of the downland but it is certainly a possibility that the Late Iron Age landscape was not intensively used for arable cultivation.

Fleming (1985, table 5.1) has discussed the social and behavioural implications for planned field systems in prehistory. He has shown that communal effort in creating field systems is more economical of labour input than individual enterprises, but very elongated blocks are less economical than compact blocks. The long parallel boundaries (eg as at Knighton Bushes 'Y', Fig 2) could be one of the initial communal stages of subdividing a compact block of fields with only later, less regular subdivision being the responsibility of the individual owners/users. Hayes (1981) has shown that small differences in the size/shape of fields may correspond to individual farmsteads amongst the relatively uniform 'brickwork' field pattern at Repton, Nottinghamshire.

This paper has merely scratched the surface of the enormous potential of ancient field boundaries to provide a greater understanding of the development of the landscape in both physical and socio-economic terms. It has, we think, made an important contribution by clarifying some of the potential chronological complexity of the topic and, we hope, providing a more solid basis for future research.

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The date of the ancient fields on the Berkshire Downs

Mark Bowden, Steve Ford, and Geoff Mees

Berks Archaeol J, **74** (1991-3) M3:F1

Flint (Table Mf 1)

by Steve Ford

A large amount (n=1055) of struck flint was recovered from the excavations, which was not unexpected given the large quantities found by fieldwalking in the area (Tingle pers. comm.). The vast majority of it would not be out of place in later Neolithic or Bronze Age contexts, but it included only one more precisely datable object from this period- a barbed and tanged arrowhead from Whit Coombe 1. A small 'site' of Mesolithic date is probable at Knighton Bushes. For KB 1 the flint collection comprised 100 pieces with a further 12 spalls and dubious cores. This included a single oblique blunted microlith, 14 blade or blade-like flakes (narrow flakes) and 3 probable and possible blade cores. The flakes were not measured but approximately 17% were narrow, a characteristic of Mesolithic or earlier Neolithic assemblages (Ford forthcoming). Narrow flakes were also found in the other Knighton Bushes trenches as well as during fieldwalking in the adjacent field (Tingle pers. comm.).

A second 'site' may be represented by the dense concentration of flints in the lowest levels of Nutwood 2 for which a later Bronze Age date is suggested.

Pottery

by Vince Gaffney

663 sherds were recovered from the 21 trenches. A breakdown of the dating of the assemblage is shown in Table Mf2.

The problems of using pottery from lynchets have been commented on in the introduction. In the light of these conditions it must be acknowledged that a

degree of imprecision is implicit in the use of pottery from lynchets as well as uncertainty concerning the longevity of the use of the fields.

One of these problems, the abraded nature of the sherds, may be responsible for the small quantity of prehistoric pottery that was found. Only 5.6% of the total collection could be regarded as prehistoric. This minimum figure is a result of the difficulty of distinguishing small highly abraded sherds of flint gritted pottery, some of which might be either Prehistoric or Roman, in the absence of diagnostic rim forms. A number of the 133 (20.4%) sherds that defied dating might be ascribed to the Prehistoric period.

The imprecision of the dating of the pottery is most striking in the study of the Roman material, which makes up the bulk of the collection. 493 sherds (74%) were judged to be Roman but only 63 (12.6%) could be more accurately dated as a consequence of distinctive rim forms or fabrics. The conservatism of rural Berkshire pottery traditions also acts against the refinement of dating.

At first sight, therefore the precision of the chronology provided by such a collection and its utility for archaeological purposes would appear to be limited. However, by disregarding the results of individual trenches and grossing the pottery, it is likely that we are witnessing useful general trends in the pottery sequence. Whilst not denying the possibility of earlier small scale or less intensive agricultural practices the overwhelming preponderance of Roman pottery within the sample must indicate at the very least a change in the nature or intensity of land use during this period.

The relatively large quantity of early Roman pottery (1st-mid 3rd century) rather than later Roman (mid 3rd-early 5th century) can hardly be considered fortuitous and demands an explanation. There are no obvious reasons for such an imbalance on technological grounds. Pottery of the later period seems

as durable, on the whole, as earlier pottery and it is very unlikely that there should be a disproportionate number of plain body sherds discarded in the later period. We must conclude therefore that we are witnessing a real difference in the amount of pottery entering the off-site archaeological record. If we equate the presence of this pottery in the lynchets with manuring, it is logical to surmise that agricultural change is occurring during the early Roman period which finds its expression in the large scale manuring spreads now being associated with specific Roman settlements on the Downs (Gaffney and Tingle 1985) and presumably with the increase of lynchet formation.

This apparent change in agricultural intensity should not be seen in isolation from other social developments within lowland Roman Britain. It is likely that an unprecedented demand for agricultural produce did occur from the 1st century AD, and that this is probably linked with the existence of a standing army (Frere 1978, 260) and the development of urban centres (but see Jones (1982) for criticism of the effects of demand on agricultural production). The result of this demand on the Berkshire Downs could be reflected in an increasing dependency on manuring to maintain agricultural output and indirectly to the inclusion of settlement derived material in the lynchets. The extent to which new land was brought into this system must remain a matter of conjecture. Perhaps most of the land under discussion had been farmed at some point in the preceding four millennia. However, the scale, intensity and organisation of early Roman agriculture intimated by excavation of lynchets and fieldwalking does not appear to have an earlier parallel. The fact that the evidence for intensive manuring decreases in the later Roman period need not be evidence of decline in agricultural production in any negative sense. The continuing success of villas in the region argues against this, it may be that we are seeing a change

in agricultural emphasis on the Downs. Of the eight areas of lynchets sampled, Late Roman activity was present in five and early Roman in seven. There is little evidence therefore for a dramatic decrease of the area of land under cultivation, although we may suggest that a quantitative change in the intensity of land use had occurred.

Molluscan analysis

by Geoff Mees

Samples were collected from six trenches namely; Eastbury Down (Tr1 and Tr2), Ashdown-Weathercock (Tr1 and Tr2), Stancombe Down and Whit coombe (Tr2). Samples taken from the trenches located on flinty drift overlying chalk contained no snail shells.

The sample size was such that a sub-sample of 1.5 Kg. could be used for analysis. The samples were taken from 0.4x0.4 m. square column cut into the section once excavation was complete. The snails were extracted by washing the soil through a cascade of 2mm, 1mm and 0.5mm sieves. The retained material was dried and the snails picked out under a lens. A binocular microscope was used for identification. Only apices were counted. Species present but not represented by apices are indicated by + as are percentages less than 0.5%. Vallonia excentrica and V. costata were not reliably separated but the large majority were V. excentrica. The nomenclature follows Cameron and Redfern (1976).

Results

The results are presented in two forms:

(i) Histograms of the percentage of each species at each sample point with a schematic drawing of the column profile (Figs. Mf 13 and Mf14).

(ii) Tables of actual numbers present (Tables Mf4-9). Some tables also show the weight of material retained on the 2 mm. sieve to indicate the stoniness of the sample.

A set of pie diagrams showing the proportions of habitat specific species is with the site archive.

As briefly discussed in the main text, the stratigraphy of all trenches was remarkably similar and a typical sequence can be described as:

1) Humic and relatively stone free topsoil.

2) A narrow band of stones.

3) The lynchet body: A variable depth of material with infrequent stones. Towards the base redeposited Calcium carbonate was present.

4) Sometimes an increase in stoniness at the base of the lynchet body and very rarely, a buried soil.

Horizon 3 was interpreted as ploughwash accumulating at the field edge. Horizon 2, the worm sorted layer, is also thought to have derived from this ploughwash. This would suggest that the snail faunas would vary more between Horizons 1 and 2 than between 2 and 3 but mixing by rabbits and moles etc. and the downward worm sorting of more recent snails will blur this difference.

Increased stoniness towards the base of a profile might be due to erosion of the underlying chalk or to the survival of a worm sorted layer of an earlier soil profile. Stone free zones, which may represent buried soils (eg. Whit coombe Tr2), would also be expected to possess a distinct fauna.

Except at Ashdown-Weathercock, there was a bimodal distribution of the total numbers of snails. The first peak fell in the worm sorted Horizon 2, with numbers declining, sometimes very sharply, in the humic layers above. The second peak, lower down, could indicate a buried soil if it coincided with a stony layer (eg. Stancombe Down) or a stone free layer (Whit coombe). An

alternative explanation for the lower peak in snail populations might be the high numbers of snails in the earliest deposited ploughwash derived from a previously stable soil.

Irrespective of depth the species compositions in the various horizons at each site showed a strong family resemblance. The most consistent changes were an increase in the representation of Pupilla muscorum and Vertigo pygmaea in the uppermost humic horizon. On the other hand there were clear differences in the faunal characteristics between sites, with two patterns evident. First, Vallonia spp. dominant as at Stancombe Down and Eastbury Down (Tr1 and 2). Second, Vallonia, Pupilla and Helicella present in more equal proportions. This probably means that variations of microclimate, drainage and soil type are at least as important in determining the make up of the snail fauna as the type of land use once any tree cover has been cleared.

The two lynchets at Eastbury Down were interesting in this respect. They lay within 40m of each other in the same modern field and had a very similar surface appearance. In Tr1, the humic soil contained a reasonable number of snails (68/Kg) and the numbers lower down were also high. In contrast, the topsoil of Tr2 contained only 2/Kg and the numbers in the horizons below were also relatively small. Furthermore Tr1 showed the increase in Pupilla and Vertigo in the humic Horizon 1, whereas in Tr2 Pupilla and Vertigo decreased from Horizon 3 upwards.

For all trenches the populations were dominated by open country species irrespective of depth. Where substantial numbers of shade loving species occurred (eg. Eastbury Down Tr2 and Whit Coombe Tr2), the total composition was not unlike that of modern permanent grassland as exists at Ashdown and Stancombe Down. It seems therefore, that the lynchets were formed when an

already open environment was ploughed. There is some slight evidence that this pre-existing open environment had already been disturbed in some manner. A recent sample was taken from a grassy bank beside a track near Knighton Bushes which is unlikely to have been cultivated or grazed for a long time. This revealed a snail population with only 16% open country species with Vitraea spp (28%) and Carychium tridentatum (19%) predominant. On the other hand a grass track along the headland of a modern ploughed field gave a population of 88% open country species.

The bimodal distribution of total numbers and the slight changes in species composition within the ploughwash zone of the lynchets, support the view that there was only one episode of ploughing with no opportunity of any intermediate stable soils to form. This interpretation does not rule out the land having been periodically rested by fallowing, because the snail populations obviously change too slowly to show such episodes, especially given the mixing that would occur when cultivation was resumed. Indeed, if one accepts the argument that the large size of the lynchets shows that they cannot have been ploughed over frequently when field boundaries were shifted, and if the absence of Medieval pottery means the land was not cultivated at this time, one may conclude that the modern topsoils have been forming for perhaps as much as 1500 years with relatively little disturbance. Even so there is little change in the species compositions between a lynchet body and topsoil. Stable episodes of several hundred years (eg. between Bronze Age and Roman use of a field system) may not then be easily detectable in the molluscan sequence.

Whit Coombe

A thin, humic stone free layer at the base of the lynchet body was interpreted as

a buried soil. The snail population for this level had a high total number of specimens and a higher than average representation of shade loving species. There was also about 10% of large Pomatias elegans shells, a species which thrives in recently disturbed ground. Pupilla increased in the uppermost layers of the Horizon 3 (lynchet body) and may represent a more stable period followed by renewed ploughing. There is also a slight increase in numbers at 0.4m perhaps due to some mixing of material from the above levels.

Stancombe Down

Samples below 0.8 m., which came from a level with a visibly higher clay content, contained a rapidly diminishing number of snails. This portion of the profile probably represents an uncultivated subsoil. From 0.65-0.8m the ploughwash was more stony and included a greater number of snails and a higher proportion of shade loving species. This could represent part of a worm sorted stone line which originated as an uncultivated area on the very crest of the positive lynchet.

Eastbury Down

In Tr2 below 0.45 m. the snail populations were clearly different from those above, especially as stratigraphic and artefactual observations confirm this difference (see main text). The interpretation of this difference on the molluscan analysis alone is ambiguous. It may represent two phases of cultivation separated by a period without cultivation. Conversely, it may represent a single phase of accumulation overlying a deep buried soil.

A peak in the snail numbers was also seen near the base of Tr1. Here the differences in the population compared to higher up were not so distinctive,

though the presence of Vertigo pygmaea at 0.7-0.8 m. perhaps suggests that there was also a thin buried soil under the ploughwash.

Ashdown-Weathercock

Some doubt exists as to the origin and subsequent history of the earthworks trenched here (see main text). In particular, whereas the earthwork sampled by Tr2 appears to be a typical, if somewhat truncated lynchet, that sampled by Tr1 is more anomalous and could be wholly a rabbit warren. The snail populations, unlike the other trenches, were not bimodal and little variation with depth was observed in Tr2. The chalky basal deposits of Tr1 contained few snails.

TABLE Mf1 Flint summary

SITE	FLAKES	CORES*	SPALLS	IMPLEMENTS
KB1	80	5+3	9	6 Scrapers; 3 Irregularly retouched flakes; 1 Microlith; 3 Notched flakes; 1 Hammerstone; 1 Spurred flake
KB2	7	1+1	3	
KB3	20	1+2	3	2 Irregularly retouched flakes
KB4	24	3	5	
KB5	8			
KB6	20		2	
KB7	4		5	
KB8	2		1	1 Notched Blade
KB9	6		2	
WC1	44	2+3	5	1 Barbed and tanged arrowhead
WC2	56	3+1	15	
AW1	13	1	1	1 Scraper
AW2	2		1	
CW	115	3+2	27	1 Notched flake
ED1	107	1+2	8	
ED2	83	2+1	7	
NW1	47	2		2 Notched flakes; 1 Irregularly retouched flake
NW2	105	3	28	1 Notched flake; 1 Irregularly retouched flake
SH1	60		6	2 Scrapers; 1 Saw?; 1 Irregularly retouched flake
SH2	24	1+1	2	1 Notched flake
SD	19		2	1 Scraper; 1 Irregularly retouched flake
TOTAL	**846**	**28+16**	**132**	**33**

(* Cores + Dubious cores)

TABLE Mf2 Pottery summary

Site	Prehistoric	Early Roman	Later Roman	Undated Roman	Probable Roman	Undated	Total
KB1	2	3		59		1	65
KB2		2		9			11
KB3		1		2	2	1	6
KB4			1	9			10
KB5		1	2	7	1		11
KB6		1	1	22			24
KB7				3			3
KB8		1		3	1	2	7
KB9		3		11	2	5	21
WC1		4	2	48	4	1	59
WC2		8	1	53	1	6	69
AW1			2	3	3	4	12
AW2	1	3		20	2	9	35
CW	4			10	1	9	24
ED1	16	3	3	29	21	35	107
ED2	12	4		17	7	18	58
NW1		6		11	1	7	25
NW2		4		20	4	4	32
SH1	1	2		6	2	7	18
SH2		1	1	13			15
SD	1	3		16	7	24	51
TOTAL	**37**	**50**	**13**	**371**	**59**	**133**	**663**

Depth (Cm)	Vallonia spp.	Helicella itala	Pupilla muscorum	Vertigo pygmaea	Cepea	Limacidae	Cochlicopa spp.	Hygromia hispida	Hygromia striolata	Punctum pygmaeum	Vitrea spp.	Retinella spp.	Oxychilus spp.	Carychium tridentatum	Discus rotundatus	Clausiliidae	Pomatias elegans	Cecilioides acicula	Helicella caperata	Columella	Other Zonitidae	TOTAL No/Kg	WEIGHT (g) >2mm
5-10	170	30	46	11	1	4	1	8	4	5	1	1	12	6	-	1	2	-	-	-	-	202	120
10-12	229	40	148	37	-	3	6	2	1	9	13	8	7	11	-	8	5	2	-	-	-	353	270
12-16	157	100	123	13	-	1	22	4	1	1	5	7	8	1	-	13	2	5	-	-	-	309	660
16-20	134	78	94	9	1	-	7	-	-	1	1	4	4	-	-	4	1	12	-	-	-	234	620
20-24	73	53	45	4	-	-	8	3	2	1	2	5	2	-	-	3	1	2	-	-	-	136	600
24-28	45	50	28	3	2	-	2	3	-	1	-	2	1	-	-	-	3	4	-	-	-	96	460
28-30	8	31	16	1	-	-	5	1	-	-	-	1	-	-	-	2	-	2	-	-	-	45	480
30-33	18	33	5	-	-	-	1	-	-	-	-	1	3	-	-	-	-	1	-	-	-	41	470
33-37	4	25	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	480
37-40	4	16	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	17	390

Table Mf 4. Details of numbers of snail species per sample interval. Ashdown-Weathercock Trench 1

Depth (Cm)	Vallonia spp.	Helicella itala	Pupilla muscorum	Vertigo pygmaea	Cepea	Limacidae	Cochlicopa spp.	Hygromia hispida	Hygromia striolata	Punctum pygmaeum	Vitrea spp.	Retinella spp.	Oxychilus spp.	Carychium tridentatum	Discus rotundatus	Clausiliidae	Pomatias elegans	Ceciliioides acicula	Helicella caperata	Columella	Other Zonitidae	TOTAL No/Kg	WEIGHT (g) >2mm
5-10	106	28	76	26	4	3	2	3	–	5	–	1	3	3	–	5	9	–	–	–	–	183	30
10-14	189	25	123	54	4	–	4	5	–	10	–	4	2	5	–	3	12	–	–	–	–	293	30
14-20	170	27	165	60	–	1	4	7	–	14	7	–	2	5	–	12	17	–	–	–	–	327	30
20-23	240	123	214	12	5	4	13	27	–	1	–	7	1	–	–	23	17	–	–	–	–	458	880
23-25	188	105	73	12	4	3	5	9	–	1	3	3	5	–	–	1	18	–	–	1	–	287	760
25-29	95	80	42	4	4	2	2	2	–	–	1	–	9	–	–	4	15	–	–	–	–	176	620
29-33	67	57	42	2	2	–	4	3	–	–	–	–	–	1	–	3	16	–	–	–	–	131	510
33-37	52	42	24	1	–	2	4	–	–	–	–	–	4	–	–	2	12	–	–	–	–	95	490
37-40	25	57	21	–	1	2	3	1	–	1	–	2	–	–	–	3	10	–	–	–	–	84	670
40-43	39	42	13	4	2	–	3	2	–	–	–	–	6	1	–	2	9	–	–	–	–	82	760

Table Mf 5. Details of numbers of snail species per sample interval. Ashdown-Weathercock Trench 2

Depth (Cm)	Vallonia spp.	Helicella itala	Pupilla muscorum	Vertigo pygmaea	Cepea	Limacidae	Cochlicopa spp.	Hygromia hispida	Hygromia striolata	Punctum pygmaeum	Vitrea spp.	Retinella spp.	Oxychilus spp.	Carychium tridentatum	Discus rotundatus	Clausiliidae	Pomatias elegans	Ceciliioides acicula	Helicella caperata	Columella	Other Zonitidae	TOTAL No/Kg
22-24	6	42	71	3	-	-	-	10	-	-	-	-	1	-	-	-	4	-	-	-	-	91
24-26	81	46	127	-	-	-	-	32	-	2	-	-	-	1	-	1	25	-	-	-	-	210
26-30	48	44	115	-	-	-	-	25	-	1	-	-	-	-	-	1	11	-	-	-	-	163
30-33	58	35	64	-	-	-	-	17	-	-	-	-	-	-	-	-	12	-	-	-	-	124
33-36	47	44	48	-	-	-	-	11	-	-	-	-	-	-	-	-	12	-	-	-	-	108
36-40	41	25	35	-	-	-	-	12	-	-	-	-	-	-	-	-	9	-	-	-	-	81
40-43	40	35	35	-	-	-	-	21	-	-	-	-	-	-	-	-	28	-	-	-	-	106
43-48	43	21	29	-	-	-	-	20	-	-	-	-	-	-	-	-	15	-	-	-	-	95
48-52	40	29	17	-	-	-	-	15	-	-	-	-	-	-	-	-	22	-	-	-	-	82
52-56	26	39	25	-	-	-	-	26	-	-	-	-	-	-	-	-	14	-	-	-	-	87
56-59	44	32	39	-	-	-	-	20	-	-	-	-	-	-	-	-	19	-	-	-	-	103
59-63	48	32	27	1	-	-	-	25	-	-	-	-	-	-	-	1	19	-	-	-	-	102
63-68	49	34	39	-	-	-	1	23	-	-	-	-	-	-	-	2	18	-	-	-	-	109
68-73	85	30	35	-	-	-	2	2	-	1	-	-	-	1	-	-	28	-	-	-	-	119
73-80	202	82	79	-	+	-	21	9	-	6	2	-	9	7	1	8	91	-	-	-	8	350

Table Mf 6. Details of numbers of snail species per sample interval. Whit coombe Trench 2

Depth (Cm)	Vallonia spp.	Helicella itala	Pupilla muscorum	Vertigo pygmaea	Cepea	Limacidae	Cochlicopa spp.	Hygromia hispida	Hygromia striolata	Punctum pygmaeum	Vitrea spp.	Retinella spp.	Oxychilus spp.	Carychium tridentatum	Discus rotundatus	Clausiliidae	Pomatias elegans	Ceciliioides acicula	Helicella caperata	Columella	Other Zonitidae	TOTAL No/Kg
1–5	13	–	1	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	1	–	–	11
10–14	62	9	17	5	2	–	–	–	–	4	–	1	8	–	–	–	3	–	–	–	–	74
21–26	106	18	10	3	–	–	3	9	–	–	–	1	2	–	–	–	4	–	–	–	–	104
35–40	72	15	16	1	–	–	4	1	–	–	–	4	7	–	–	–	–	–	–	–	–	80
40–45	52	13	2	–	–	–	–	–	–	–	–	1	3	–	–	–	1	–	–	–	–	48
45–50	49	15	1	–	–	–	1	–	–	–	–	–	9	–	–	–	–	–	–	–	–	50
50–55	52	30	6	–	1	–	–	–	–	–	–	1	3	–	–	–	–	–	–	–	–	62
55–60	49	15	2	1	–	–	–	1	–	–	1	–	2	–	–	–	–	1	–	–	–	48
60–65	92	18	3	–	1	–	–	2	–	–	–	–	4	2	–	–	–	–	–	–	–	81
65–70	136	27	5	2	–	–	1	2	–	–	1	1	18	–	–	–	–	1	–	–	–	129
70–75	145	10	2	2	–	–	1	2	–	–	1	2	9	–	–	–	–	–	–	–	–	116
75–80	166	16	7	4	–	–	–	–	–	–	–	2	13	1	–	–	–	1	–	–	–	140
80–85	95	11	6	–	–	–	–	–	–	–	2	4	7	2	–	1	2	–	–	–	–	87
85–90	39	7	1	1	–	–	–	–	–	–	–	–	1	–	–	–	–	2	–	–	–	34
90–95	12	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11

Table Mf 7. Details of numbers of snail species per sample interval. Stancombe Down

Depth (Cm)	Vallonia spp.	Helicella itala	Pupilla muscorum	Vertigo pygmaea	Cepea	Limacidae	Cochlicopa spp.	Hygromia hispida	Hygromia striolata	Punctum pygmaeum	Vitrea spp.	Retinella spp.	Oxychilus spp.	Carychium tridentatum	Discus rotundatus	Clausiliidae	Pomatias elegans	Cecilioides acicula	Helicella caperata	Columella	Other Zonitidae	TOTAL No/Kg	WEIGHT (g) >2mm
4–16	123	8	20	8	1	–	–	6	–	1	–	–	15	–	–	–	1	–	–	–	–	68	–
16–20	144	2	33	14	2	–	–	–	–	1	–	1	6	–	–	–	–	5	–	–	–	139	–
20–29	144	18	62	6	2	–	10	15	–	1	–	1	5	1	–	3	2	2	–	–	–	203	111
29–34	171	34	16	–	2	–	3	1	–	–	–	4	13	–	–	–	1	–	–	–	–	163	368
34–38	129	18	16	–	1	–	5	2	–	–	–	4	7	–	–	1	4	–	–	–	–	124	286
38–42	113	14	8	–	–	–	2	2	–	–	–	2	6	–	–	2	9	1	–	–	–	106	241
42–46	93	20	13	–	–	–	2	1	–	1	–	1	3	1	1	1	7	–	–	–	–	94	278
46–52	87	13	22	–	1	–	2	–	–	–	–	–	4	–	1	–	6	–	–	–	–	91	308
52–55	100	20	17	–	2	–	4	1	–	–	–	1	2	–	–	3	6	–	–	–	–	103	294
55–60	120	14	15	–	1	–	4	–	–	–	–	–	2	–	2	–	5	–	–	–	–	109	273
60–65	118	27	29	–	1	–	4	–	–	–	–	2	3	–	–	1	2	–	–	–	–	125	273
65–69	110	19	23	–	3	–	6	1	–	–	–	–	1	1	1	3	3	–	–	–	–	114	263
69–71	135	16	34	–	–	–	10	–	–	–	–	–	2	–	3	4	7	–	–	–	–	145	304
71–76	147	18	27	–	1	–	12	–	–	–	–	1	7	–	1	3	9	–	–	–	–	151	370
76–81	113	6	8	–	1	–	2	–	–	1	–	1	4	1	1	–	7	–	–	–	–	96	473
81–85	112	8	6	–	–	–	2	–	–	–	–	–	3	1	–	–	2	–	–	–	–	89	457

Table Mf 8. Details of numbers of snail species per sample interval. Eastbury Down Trench 1

Depth (Cm)	Vallonia spp.	Helicella itala	Pupilla muscorum	Vertigo pygmaea	Cepea	Limacidae	Cochlicopa spp.	Hygromia hispida	Hygromia striolata	Punctum pygmaeum	Vitrea spp.	Retinella spp.	Oxychilus spp.	Carychium tridentatum	Discus rotundatus	Clausiliidae	Pomatias elegans	Cecilioides acicula	Helicella caperata	Columella	Other Zonitidae	TOTAL No/Kg	WEIGHT (g) >2mm
4-15	5	1	1	–	–	–	1	–	–	–	–	–	1	–	–	2	–	–	–	–	–	2	–
15-20	27	13	3	–	2	–	1	3	–	–	–	–	–	–	–	–	1	–	–	–	–	33	200
20-25	51	23	9	–	4	2	2	3	–	–	–	1	2	–	–	–	2	–	–	–	–	66	510
25-30	58	22	15	–	2	–	2	–	–	1	–	1	4	–	–	1	3	–	–	–	–	73	465
30-35	37	11	8	–	–	2	+	–	–	–	–	–	4	–	–	–	3	–	–	–	–	43	280
35-40	32	14	19	1	3	–	1	–	–	–	–	–	1	–	–	–	4	1	–	–	–	50	265
40-45	47	9	13	1	1	–	1	–	–	–	–	–	5	–	–	–	6	–	–	–	–	55	290
45-50	70	8	5	–	1	1	3	–	–	–	–	1	4	–	1	2	5	–	–	–	–	67	280
50-55	88	4	–	–	2	1	–	–	–	–	–	4	13	2	1	3	6	–	–	–	–	83	260
55-60	80	15	4	–	3	–	6	3	–	–	1	4	16	2	–	–	4	–	–	–	–	92	265
60-65	57	8	1	–	3	–	2	–	–	1	1	5	–	7	1	2	6	–	–	–	–	63	285
65-68	30	3	2	1	1	–	1	1	–	–	–	3	3	1	2	2	8	–	–	–	–	39	355

Table Mf 9. Details of numbers of snail species per sample interval. Eastbury Down Trench 2

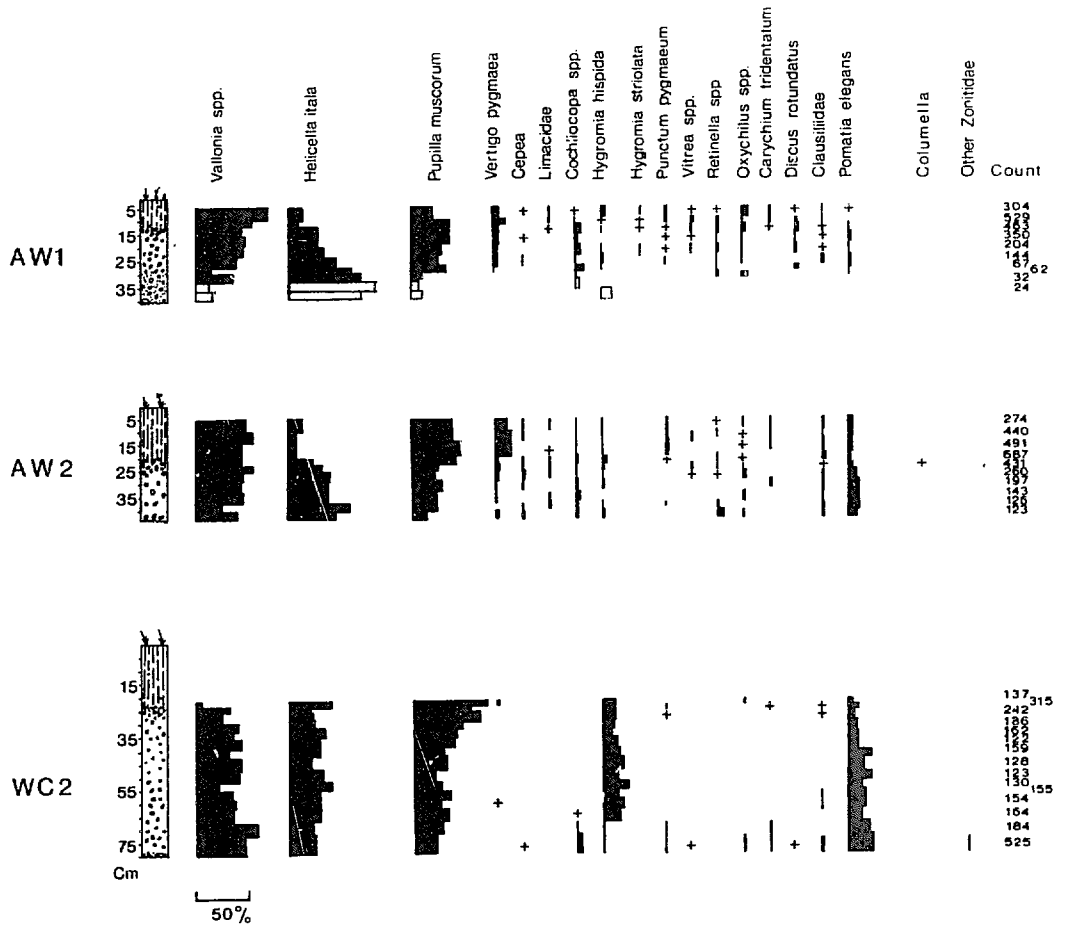

Figure Mf13 Molluscan analysis: histograms of Ashdown-Weathercock Trenches 1 and 2, Whit coombe Trench 2.

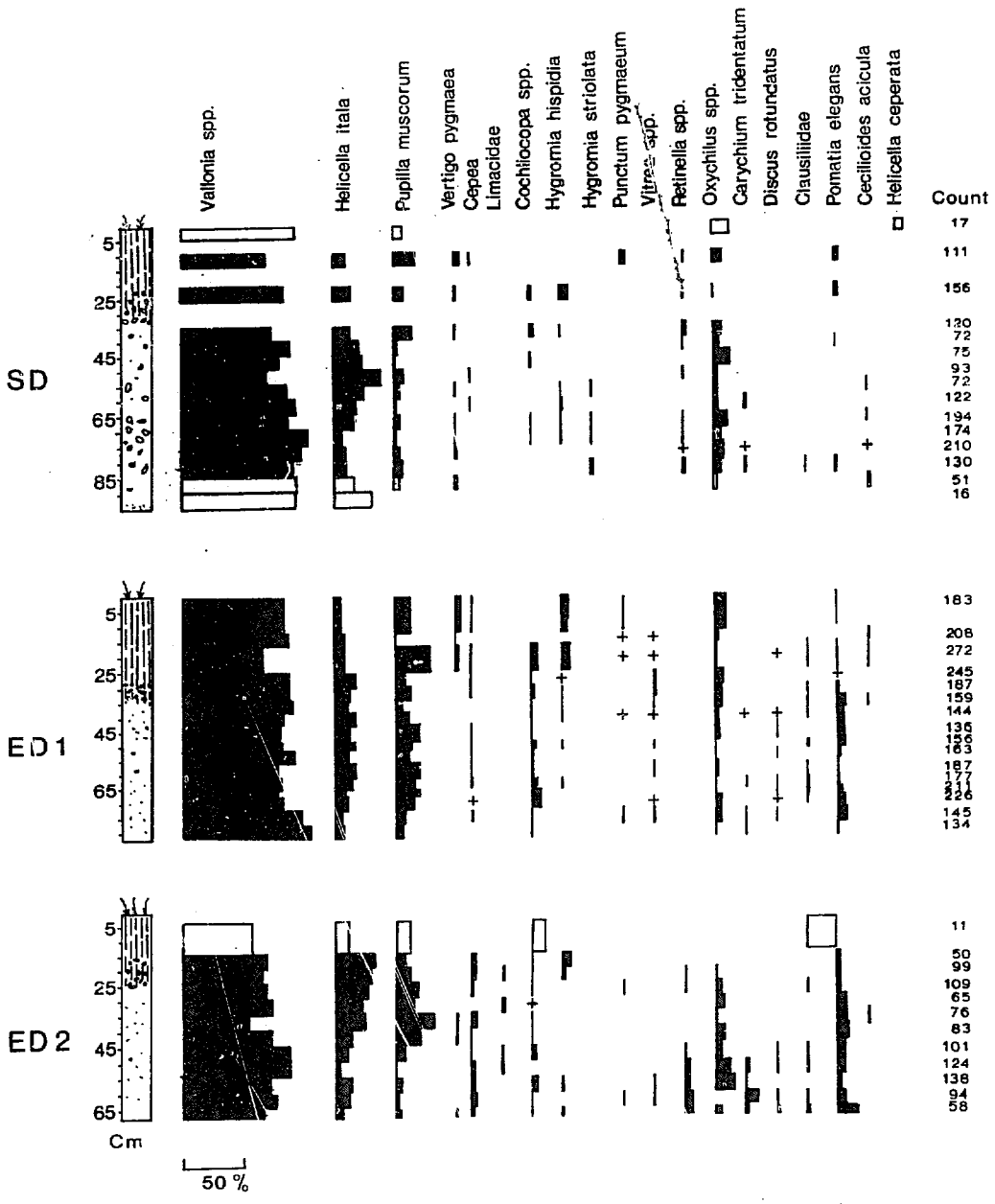

Figure Mf14 Molluscan analysis: histograms of Stancombe Down, Eastbury Down Trenches 1 and 2.