Berkshire Archæological Journal 71, 1981-2

LINEAR EARTHWORKS ON THE BERKSHIRE DOWNS

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with contributions by
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INTRODUCTION (Figs. 1 and 2)

This paper results from an earlier project concerned with the Berkshire Grims Ditch (Ford, 1982) and is a continuation of that work. The earlier study raised some new questions concerning the function and dating of linear earthworks and also indicated that cost-effective field methods could be applied more widely. The linear ditches described below have been considered in general accounts of prehistoric landscape history, but have received little specific study (e.g. Bradley and Ellison, 1975).

Two principal themes stand out. The first concerns general models for the reorganisation of the downland landscape during the Later Bronze Age. Earlier research had suggested that the building of linear earthworks marked a change towards a pastoral economy, whereas more recent studies would see the linear ditch system as representing the integration of arable and pasture in a mixed economy (Bradley, 1978). A second strand has a more local application. There is a certain similarity between the Medieval strip parishes on the Berkshire chalk and the pattern of prehistoric linear earthworks. This may suggest a similar need for access to the widest variety of resources (Bradley and Ellison, 1975).

As far as the Grims Ditch is concerned, evidence for reorganisation, or even for a primary function, is unconvincing; it seems to have been a major socio/political boundary (Ford, 1982). Its late date (8th-5th centuries BC) called into question the widely held view that linear earthworks in Wessex originated in the Middle Bronze Age. There are good reasons for supposing that certain linear earthworks were built at this early date, but some of the evidence employed in previous studies is no longer decisive. Consequently, this paper asks two questions posed by work on the Grims Ditch: what were the functions of the other linear earthworks in West Berkshire? and were they all of similar date?

DESCRIPTION

Most of the ditches have a V profile and are about 1 m deep. As the sections show, there is quite a range of variation. Two ditches (Hug Ditch and Aldworth-Streatley Grims Ditch) are about twice as large. Three types of linear ditch can be recognised:

a) Long linears exceeding 1.3 km, more or less aligned along ridges or the edges of steep slopes. This category is equivalent to Bowen's 'spinal linears' (Bowen, 1975).
b) Short linear earthworks intimately associated with Celtic Field blocks.
c) Short linear earthworks of variable re-

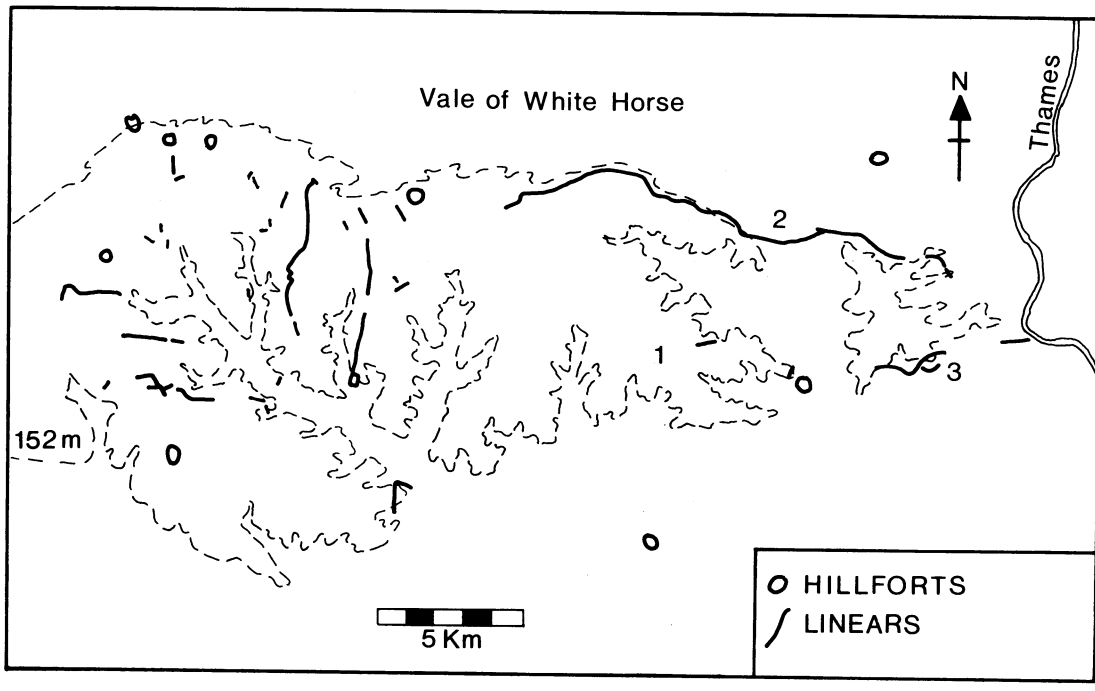

Fig. 1. Linear earthworks on the Berkshire Downs: general plan.

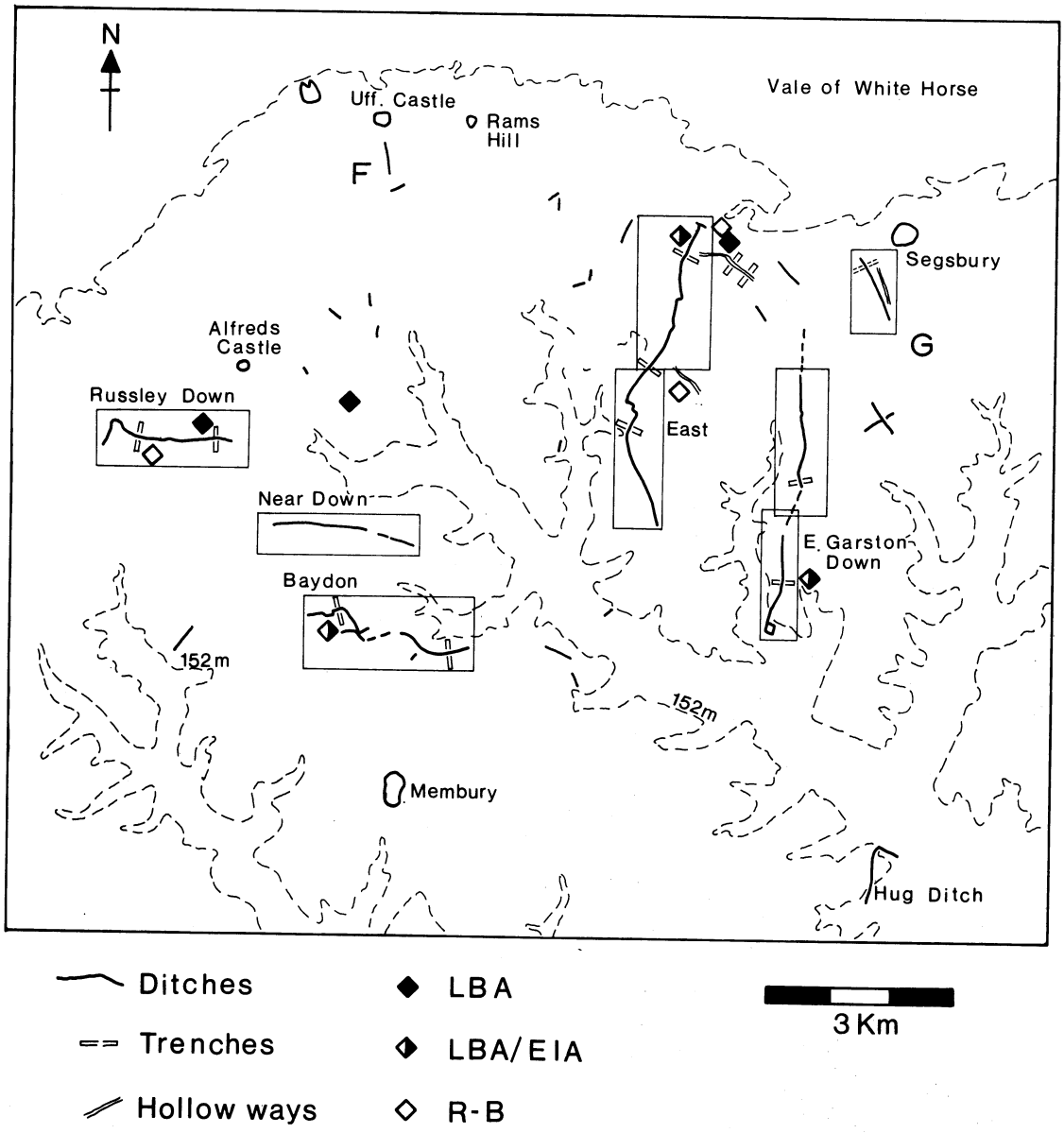

Fig. 2. West Berkshire: detailed locations of fieldwork.

lationship to the other monuments and topography. Particular earthworks occur in distinctive settings and have been given special names, such as cross ridge dykes.

The linear ditches have a number of other distinctive features, including a variety of kinks and very occasional gang junctions. One original gap or gang junction (now destroyed) was recorded by the Ordnance Survey, and another was found in excavation. The locations of these features are shown in fig. 9 (microfiche).

Unfortunately, no soil maps are available for the whole survey area. The detailed associations of the more southerly linear earthworks are not known, but field observation suggests some general conclusions. Most of the longer linear earthworks are located on flinty rendzinas of the Icknield series, although sometimes they cut across brown earths overlying chalky drift or clay with flints. Clay with flint is more widely distributed in the eastern part of the study area and a significant proportion of the East Garston ditch, Segsbury ditch and Hug Ditch are on this deposit. The Aldworth-Streatley ditch is located wholly on clay with flints. Smaller ditches exhibit a much wider range of associations.

In terms of land potential (agricultural land classification map sheet 158), all of the longer ditches are located on grade 3 soils, sometimes crossing small tracts of grade 2 soil and following the junction between soils of grades 3 and 4 (Fig. 10-microfiche). This patterning is probably the result of topography. The same applies to the shorter earthworks.

The only monuments directly associated with linear ditches are Celtic fields. There are no physical links between the linear earthworks and barrows or hillforts. Most of this evidence depends on aerial photography. Plots of the areas around each ditch are presented in figs. 11-13 (microfiche). The aerial photographs examined are those listed by Richards (1978, 7), excluding the 1948 RAF series and the Cambridge collection, but include a Department of the Environment 1:23 000 series (1966). There are four relationships between the linear ditches and Celtic Field blocks: linears may respect Celtic Fields; they may have systems aligned upon them; they may cut across Celtic Fields at an oblique angle, or Celtic Fields themselves may overlie linear earthworks.

The evidence for these relationships is very varied. Five cases are known where there is a direct association between Celtic Field blocks and linear ditches, but in only one example could the linear earthwork have cut across the fields. This is only shown in an indistinct aerial photograph and the exact relationship is not clear. Field systems on an oblique alignment to linear earthworks do not necessarily predate them. This point is demonstrated in fig. 12d (microfiche), where the field system has not been damaged by ploughing. All the other cases show field systems aligned on linear earthworks. There is less evidence that linear ditches respect Celtic Fields, although some of the earthworks do show rectilinear changes of alignment as if they had been following the edges of Celtic Field plots which no longer show up as earthworks. The example from East Ditch is quite well known (Crawford, 1953, 113) and at Baydon the linear ditch changed direction in order to follow the edge of a substantial positive lynchet. Finally, one or two possible linear earthworks are known from within Celtic Field blocks and may be overlain by the fields themselves. Examples are also known where linear ditches cut lynchets which are poorly integrated with the field blocks.

DESCRIPTION OF FIELDWORK

This consisted of fieldwalking, general field survey and excavation. As with the Grims

Ditch, fieldwalking was undertaken along both sides of the earthworks in order to locate nearby artefact scatters. Work at these locations could be expected to reveal material in stratigraphic relationship to the ditch, thus providing useful evidence of date. At some locations a random grab sample of material was recovered, but at others a systematic collection was based on a 10 m grid. The results of this systematic collection are presented in microfiche (fig. 19).

Following the successful use of narrow trenches across the Grims Ditch, a similar system was employed here. Because the only purpose of a trench beyond the ditch edges was to recover environmental samples and a section, in most cases this part of the excavation was reduced in width to 1 m. The width of the ditch sections varied between 1.5 and 2 m. After the first season it became clear that these narrow trenches were rather unsatisfactory, due to the small volume of ditch which could be examined. Consequently, three further trenches were dug to examine 4-5 m lengths of ditch. Two of these trenches were located near to previously excavated sites and examined only the ditch itself. Complete sections had already been recorded.

One trench across the East Ditch examined only a section of the bank. Two other trenches were dug either to recover environmental evidence or to confirm the presence of a ditch. All the other trenches were designed to recover dating evidence. In one instance, the problem of distinguishing between ditches and hollow ways in aerial photographs was tackled by using an auger. In all, thirteen trenches were dug. As the descriptions and details of each trench are fairly repetitive, they are published in microfiche.

FINDS

Flint

No flint was recovered from any context in sufficient quantity to be dated by metrical analysis. Even when items from different contexts were grouped together, they did not reach an adequate sample size (100 or more). Pottery provided much more helpful dating evidence.

Apart from a flaked axe from Green Down (349842) (see 'Berkshire Archæological Notes', this vol.), all the material would be in context in a Bronze Age or later assemblage. There was no evidence of blade manufacture or use, and implements characteristic of the Neolithic period were absent. One flint, scatter, apparently of late date, was located (279809), but without any associated pottery.

The presence of lithic material in ditches even where other evidence of settlement is lacking may be explained by the opportunist use of flint nodules revealed in digging the ditch.

Bone (identified by H. Carter)

Bones were recovered from most contexts where artefacts were found in any numbers. Species comprised cattle and sheep/goat with horse, pig, fox/dog, rabbit and possibly bird represented, some of the latter species from disturbed contexts. Articulated bones and metatarsals are rare, suggesting that these deposits did not result from butchery. The ditch may have been used for the deliberate disposal of food refuse. A detailed bone report is available in archive.

Pottery

Prehistoric and Roman pottery was recovered from four contexts:

1 Preliminary fieldwalking along the lines of the ditches.
2 Grab samples at possible sites.
3 Systematic total collection at four

locations, using a 10 m grid.
4 Excavation.

The distribution of items in categories 1 and 2 is presented in archive only. The locations of areas totally collected are shown in fiche. Contexts of excavated finds are also in fiche. The more diagnostic sherds are illustrated in figs. 3-5.

a) *Prehistoric* (fig. 3)

No detailed fabric analysis was undertaken. Most sherds were flint-gritted with variable proportions of other inclusions such as sand, grog, ochre and carbonised material. It was noted that the sherds from Baydon (see below) contained a higher proportion of sand inclusions than the rest. There was also one soft grog-tempered sherd with 'maggot' decoration (fig. 3:14), probably from a Collared Urn. In addition, several sherds, possibly from one vessel, were in a soft, heavily flint-gritted fabric. One of these pieces had an applied finger-impressed cordon (fig. 3:26). They are probably from a Deverel-Rimbury Barrel or Bucket Urn. Finally, one rim sherd was quite hard with many vesicles (fig. 3:23).

Date

Apart from a few distinctive sherds already mentioned, most of the diagnostic material can be paralled at sites such as Rams Hill (Bradley and Ellison, 1975) and seems to be of Late Bronze Age/Early Iron Age date. The decorated sherds are more closely datable and can be assigned to Barrett's Decorated Phase (1980b), which was current between the eighth and fifth centuries BC. No closely dated sherds were recovered from excavated contexts.

The date of the surface scatters adjacent to the excavated trenches is particularly relevant here. At Russley Down Middle site, eleven rims and about 160 other sherds were recovered. Apart from the piece of Collard Urn, only two of these may have possessed decoration. This consisted of a poorly applied cordon just below a rim (fig. 3:10), and another probable rim with a groove (fig. 3:4). Despite the small size of the sample, the rarity of decoration may be significant and this scatter could belong to Barrett's plain post-Deverel Rimbury tradition (11th-9th centuries BC).

At East Ditch Green Down site a much smaller sample of about 25 sherds was recovered, including a finger-impressed shoulder (fig. 3:25) and a fingernail-decorated rim (fig. 3:18). This material seems to belong to Barrett's later Decorated Tradition (8th-5th centuries BC).

At Baydon, the area intensively field-walked was subject to direct drilling and had not been ploughed recently. Consequently, sherds were small and only a general date in the Late Bronze Age/Early Iron Age can be suggested.

Another sample of about 50 sherds from the East Garston site included two decorated sherds characteristic of the Late Bronze Age/Early Iron Age (fig. 3:16 and 22). This decoration is well represented at All Cannings Cross (Cunnington, 1923) and in the assemblage stratified above the plain post-Deverel Rimbury tradition at Rams Hill. Again the scatter could belong to Barrett's Decorated Phase.

Finally, a sample of about 35 sherds was recovered from the Folly Clump site. Apart from a possible handle, no diagnostic material was found, but the fabric types suggest a similar date to the other material found in fieldwalking.

b) *Roman* (figs. 4 and 5) – L. Mepham

Detailed descriptions of the less diagnostic sherds from excavated contexts are presented in archive. With one exception, diagnostic sherds are considered along with the trench descriptions (microfiche). The material recovered from Aldworth-Streatley Grims Ditch, however, merited more detailed treatment.

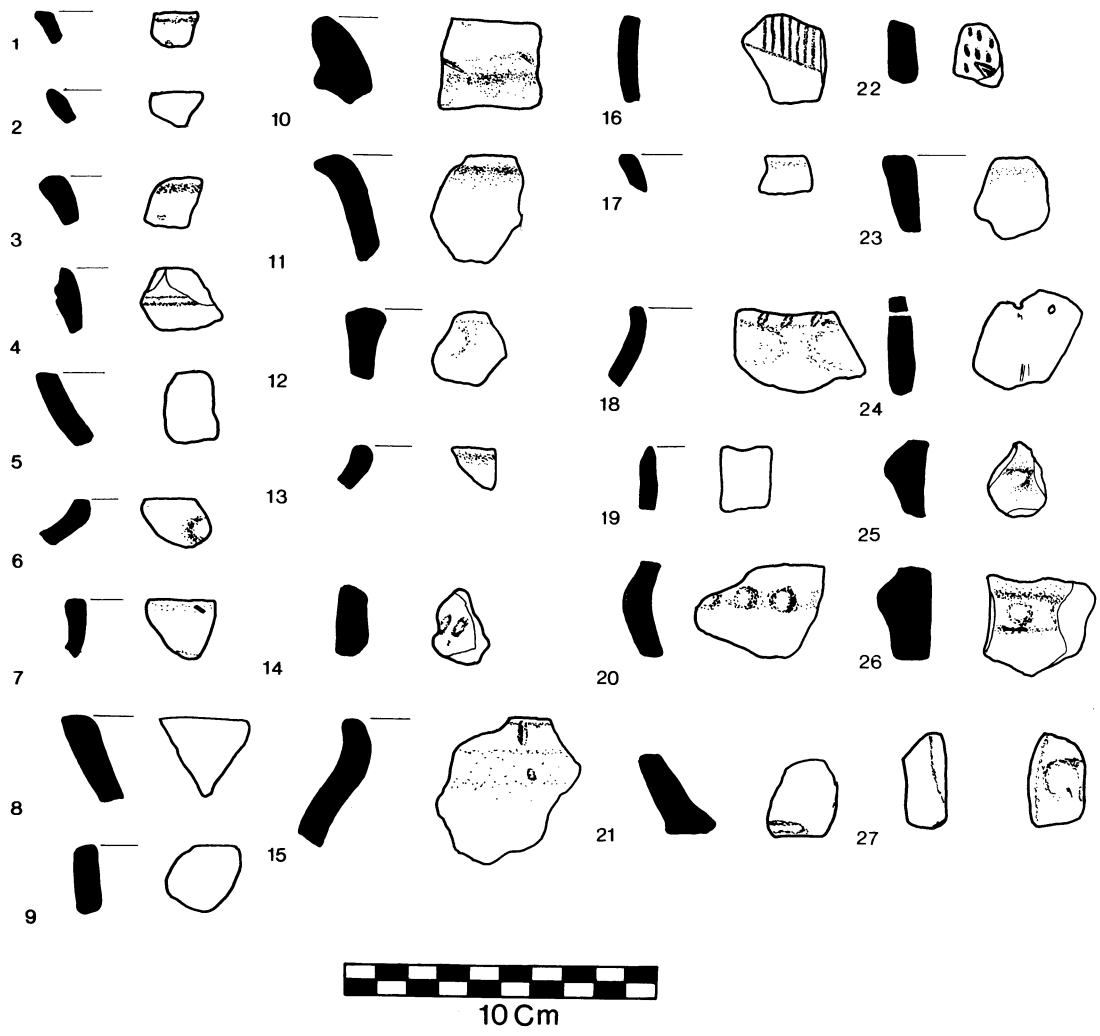

Fig. 3. Prehistoric pottery; Russley down Middle site; 1-7, 10-14. Baydon site; 8, 9, 21. East Ditch, Green down site; 18, 24, 25. East Ditch, Green down 2, L3 sp.1, 19. East Garston down site; 16, 17, 22, 23. Russley down west, SU 263810, 20, 27. East Garston down, SU 364783; 15, 26.

Aldworth-Streatley

The site as a whole did not produce many sherds which were closely datable. The only sherd of fine ware from the site, a small sherd from a beaker, probably of Lezoux ware, dated c.AD 43-70 in this country (Greene, 1978, 16) came from the topsoil.

Most of the coarse wares are sand-tempered; the vessels represented in these fabrics were wheel-thrown, and as such can be dated from c.AD 50 onwards. The smaller of the two ditches produced rim sherds of a flanged bowl (fig. 4:15), dated c.AD 270 onwards at Verulamium (Frere, 1972), and sherds of a poppyhead beaker with barbotine decoration (fig. 4:4), dated c.AD 105-30 at Verulamium (Frere, 1972, fig. 112, No. 428). Both of these vessels, however, came from the upper layers of the ditch fill. The lowest layer of the ditch, L12, produced a rim sherd of a bowl in a black sandy ware, burnished on the exterior and inside the rim (fig. 4:27). This can be tentatively dated to the latter half of the first century AD (M. Fulford, pers. comm.). The layer immediately above (L11) contained quite a large amount of hand-made flint-gritted ware. This type of fabric was used from pre-conquest times right through the Roman period and as such is virtually undatable.

The larger ditch contained even less datable material. The very lowest layers (L28 and L29) contained a few sherds of wheel-thrown sandy wares in reduced fabrics, again datable only to the post-conquest period. The layers immediately above (L27 and L30) produced a fair amount of ceramic building material, including a *tegula* fragment. This material is unlikely to have been used in such quantity for building before the second century AD. However, L27 also produced a sherd of Oxford ware: a small sherd of oxidised sandy ware with an impressed rosette decoration. The oxidised wares from the Oxfordshire kilns appear from the late first century AD, but only in small amounts. The industry really 'took off' in the second half of the third century AD, when much greater amounts are found (Young, 1977).

On the basis of the Roman pottery, then, the smaller of the two ditches at Aldworth has a *terminus ante quem* in the latter half of the first century AD; the larger ditch has a *terminus ante quem* in the later third century AD.

Two of the areas totally collected were intended specifically to recover Roman pottery, although Roman material was found at all locations. The Aldworth-Streatley site, in addition to the diagnostic excavated finds, produced a sherd of Oxford white ware mortarium of Young's type M19 (1977, 75), dated to c.AD 240-300 (fig. 4:14). At Russley West, no closely diagnostic material was recovered and only a tentative late Roman date is suggested. At Folly Clump only a grab sample was recovered. This produced a rim from a samian bowl, a sherd of Oxford ware with red colour coat (late third century AD onwards) and a sherd of grey sandy ware with acute lattice decoration. This style of decoration was used until c.AD 250, when obtuse latticing became more common.

Catalogue of illustrated sherds

Fig. 4

1. Rim sherd of narrow-necked jar with everted rim and cordon decoration. Light grey sandy fabric with darker grey exterior and moderate sand tempering. East Green 2, small find no. 6.
2. Rim sherd of jar with bead rim. Fine dense sandy fabric; grey to light grey with pink/buff exterior. Moderately soft, medium to large dark grey inclusions. Russley Down Middle 2, small find no. 2.
3. Rim sherd of ? bowl. Grey sandy fabric. Russley Down Middle 2, Layer 3.

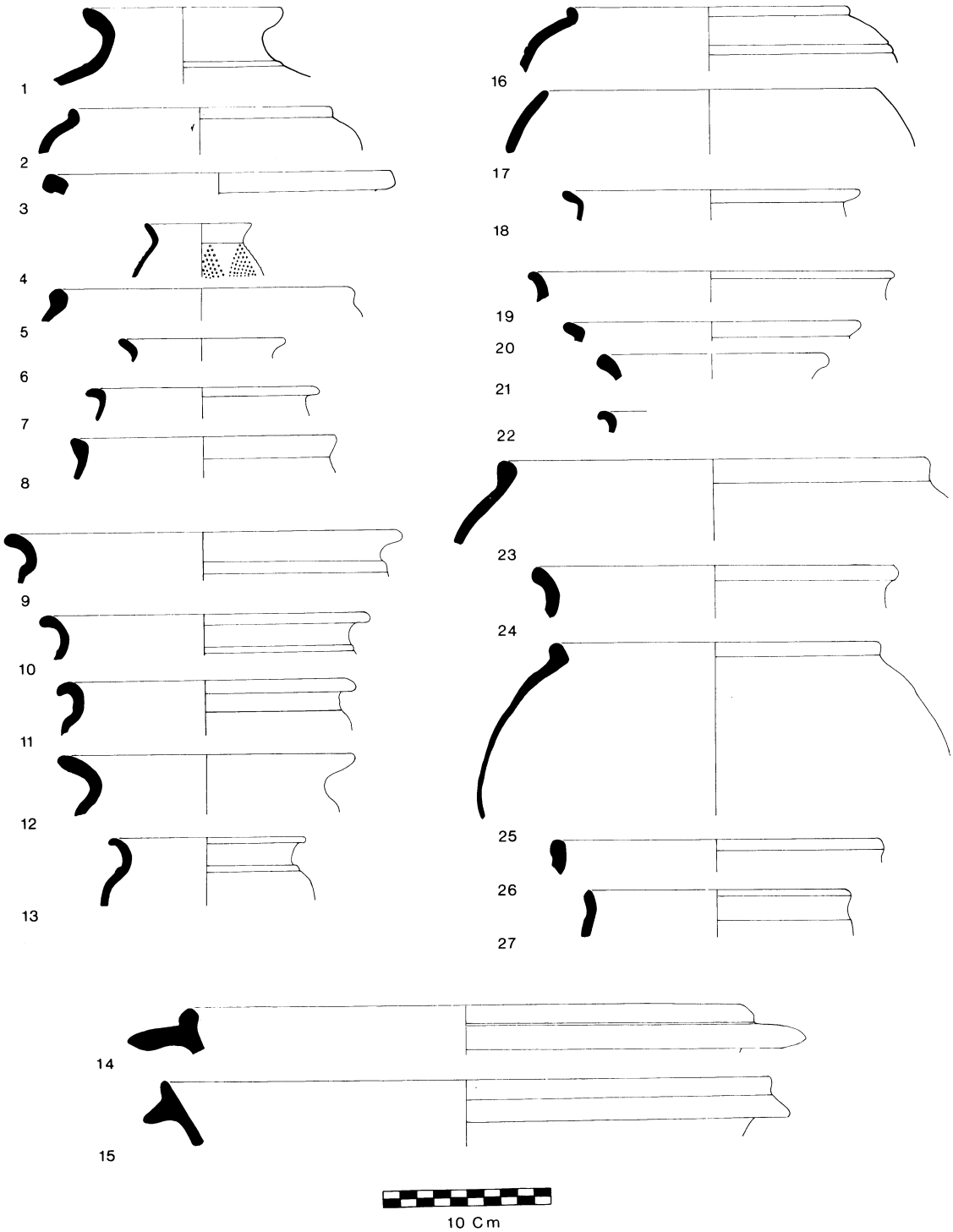

Fig. 4. Roman pottery (detailed captions in text).

4. Rim and body sherds of poppyhead beaker. Fine, moderately hard blue-grey sandy fabric. Decoration of barbotine dots arranged in rows in half-lozenge shapes. Found at Verulamium AD 60-160; best parallel dated AD 105-30 (Frere, 1972, fig. 112, no. 428). Aldworth-Streatley, Layer 5.
5. Rim sherd of jar with bead rim. Hard, coarse, brown/dark grey fabric with dark grey/black exterior. Abundant flint inclusions, small to medium, angular to subangular. Burnished on exterior. Aldworth-Streatley, Layer 5.
6. Rim sherds of small jar with everted rim. Hard sandy fabric; buff/pink core with patchy buff/grey exterior. A few large rounded brick red inclusions. Aldworth-Streatley, Layer 10.
7. Rim sherds of small jar or bowl with everted rim. Coarse, sandy fabric; pale grey/cream, slightly darker exterior. Moderate sand tempering and a few medium rounded dark grey inclusions. Aldworth-Streatley, Layer 10.
8. Rim sherd of jar. Same fabric as 5. Aldworth-Streatley, Layer 10.
9. Rim sherd of a bowl or jar with everted rim and cordon decoration. Hard sandy fabric; grey core, orange/buff margins and grey surfaces. Burnished on the inside of the rim. Aldworth-Streatley, Layer 3.
10. Rim sherd of bowl or jar with everted rim and cordon decoration. Same fabric as 9. Burnished on inside of rim. Aldworth-Streatley, Layer 3.
11. Rim sherd of bowl or jar with everted rim. Moderately soft sandy fabric; orange core, buff/grey surfaces. Burnished on inside of rim. Aldworth-Streatley, Layer 3.
12. Rim sherd of jar with everted rim. Same fabric as 11. Burnished on inside of rim. Aldworth-Streatley, Layer 3.
13. Rim sherd of small jar with everted rim and cordon decoration. Same fabric as 6. Aldworth-Streatley, Layer 4.
14. Rim sherd of mortarium. Moderately coarse sandy fabric with small to medium dark grey inclusions. Cream/buff fabric; probably Oxford white ware (Young, 1977, M19). Aldworth-Streatley total collection, square 14.
15. Rim sherds of flanged bowl. Hard sandy fabric, pink/orange with moderate sand tempering. Found at Verulamium from c.AD 270 onwards (Frere, 1972, e.g. fig. 132, no. 1101). Aldworth-Streatley, Layer 3.
16. Rim sherd of jar with bead rim and cordon decoration. Pink/buff sandy fabric, dark grey inclusions and sparse sand tempering. Russley Down Middle 1, L11.
17. Rim sherd of plain bowl. Relatively fine grey sandy fabric. Ewe East Ditch, Layer 3.
18. Rim sherd of bowl with everted rim. Grey sandy fabric, orange core. Aldworth-Streatley (fieldwalking): SU 56907908.
19. Rim sherd of bowl or jar. Hard, sandy fabric, coarse; brown/dark grey with dark grey/black exterior. Abundant flint inclusions, small to medium, angular to subangular. Burnished exterior and inside of rim. Aldworth-Streatley total collection, square 12.
20. Rim sherd of bowl or jar with everted rim. Fine grey sandy fabric. Aldworth-Streatley total collection, square 17.
21. Rim sherd of jar with everted rim. Oxidised sandy fabric with reduced surfaces. Aldworth-Streatley total collection, square 16.
22. Rim sherd of small jar with everted rim. Fine oxidised sandy fabric. Aldworth-Streatley total collection, square 20.
23. Rim sherds of large jar with bead rim. Same fabric as 5. Aldworth-Streatley, Layer 11.
24. Rim sherd of jar with everted rim. Same fabric as 26. Aldworth-Streatley, Layer 11.

25. Rim and body sherds of large jar with bead rim. Hard, sandy fabric; light grey core with patchy pale buff/orange surfaces. Moderate small to large flint inclusions. Aldworth-Streatley, Layer 11, small find no. 7.
26. Rim and body sherds of jar with bead rim. Hard, coarse fabric; orange/pink. Abundant flint inclusions. Smoothed exterior and inside of rim. Aldworth-Streatley, Layer 11, small find no. 9.
27. Rim of jar or bowl. Hard, sandy fabric; dark grey/black, with grey/brown interior. Abundant sand tempering. Partially burnished exterior. Dated AD 50-100. Aldworth-Streatley, Layer 12.

Fig. 5

1. Rim sherd of plain samian bowl. Folly Clump, general fieldwalking.
2. Rim sherd of jar with everted rim. Oxidised sandy fabric with dark grey surfaces. Folly Clump, SU 35548405.
3. Rim sherd of jar or bowl with everted rim. Grey sandy fabric. Folly Clump (general).
4. Rim sherd of jar or bowl with everted rim. Grey sandy fabric. Folly Clump (general).
5. Rim sherd of jar or bowl with everted rim. Grey sandy fabric. Folly Clump, SU 356840.
6. Rim sherd of bowl with moulded rim. Grey sandy fabric. Folly Clump (general).
7. Rim sherd of bowl with everted rim. Grey sandy fabric. Folly Clump (general).
8. Rim sherd of small jar with everted rim. Dark grey core, oxidised brown/red margins, dark grey exterior. Folly Clump 2 (high tertiary silts in ditch).
9. Rim sherd of narrow-necked jar with everted rim. Fine grey sandy fabric; burnished exterior. East Green 2, SU 364762.
10. Rim sherd of jar with bead rim. Grey sandy fabric. East Ditch (site).
11. Rim sherd of jar or bowl with everted thickened rim. Oxidised sandy fabric, grey core. Folly Clump, SU 356840.
12. Rim sherd of jar with everted rim and cordon decoration. Fine grey sandy fabric. Russley Down East, SU 280809.
13. Rim sherd of large storage jar with outturned bead rim. Soft pinky orange sandy fabric. Stancombe Down (D), SU 350820.
14. Rim sherd of storage jar with bead rim. Fabric as fig. 14, no. 2. East Ditch, SU 347834.

MOLLUSCAN ANALYSIS
Alison Pritchard

Samples for molluscan analysis were collected from the ditch sections of five sites on the Berkshire Downs. The samples could not be taken from the sections at vertical intervals because of the nature of the stratigraphy, and consequently they were taken from specific layers previously defined by the excavator.

Five samples were taken from Russley Down Middle Ditch, four from the linear ditch at Baydon, two from East Garston Down, four from Coppington Down, and three from Washmore Hill on East Garston Ditch. The eighteen samples, which varied in weight from 1.41 kg. to 3.90 kg., were processed according to the wet-sieving method suggested by Evans (1972, 44), using sieve mesh sizes of 2 mm., 1 mm., and 0.5 mm. All whole shells and apical fragments were counted and identified according to their species; the results are shown in Fig. 6.

The molluscan evidence from all five sites was extremely consistent, indicating that the local environment in each case was predominantly that of open calcareous grassland, from the date at which the ditches were dug until the present. Woodland and shade-loving species never represented more than 5.9% of the total mol-

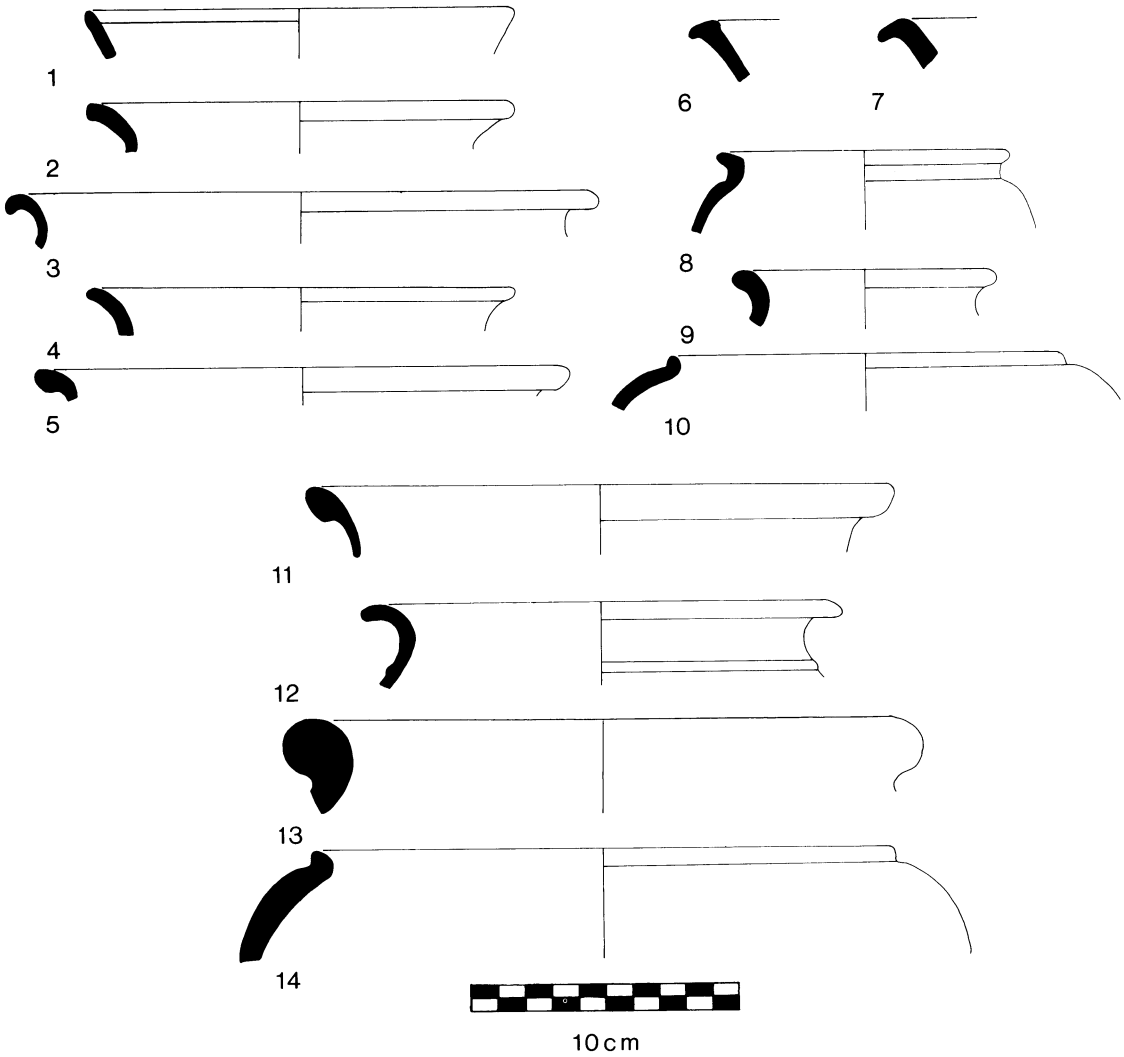

Fig. Roman pottery (detailed captions in text).

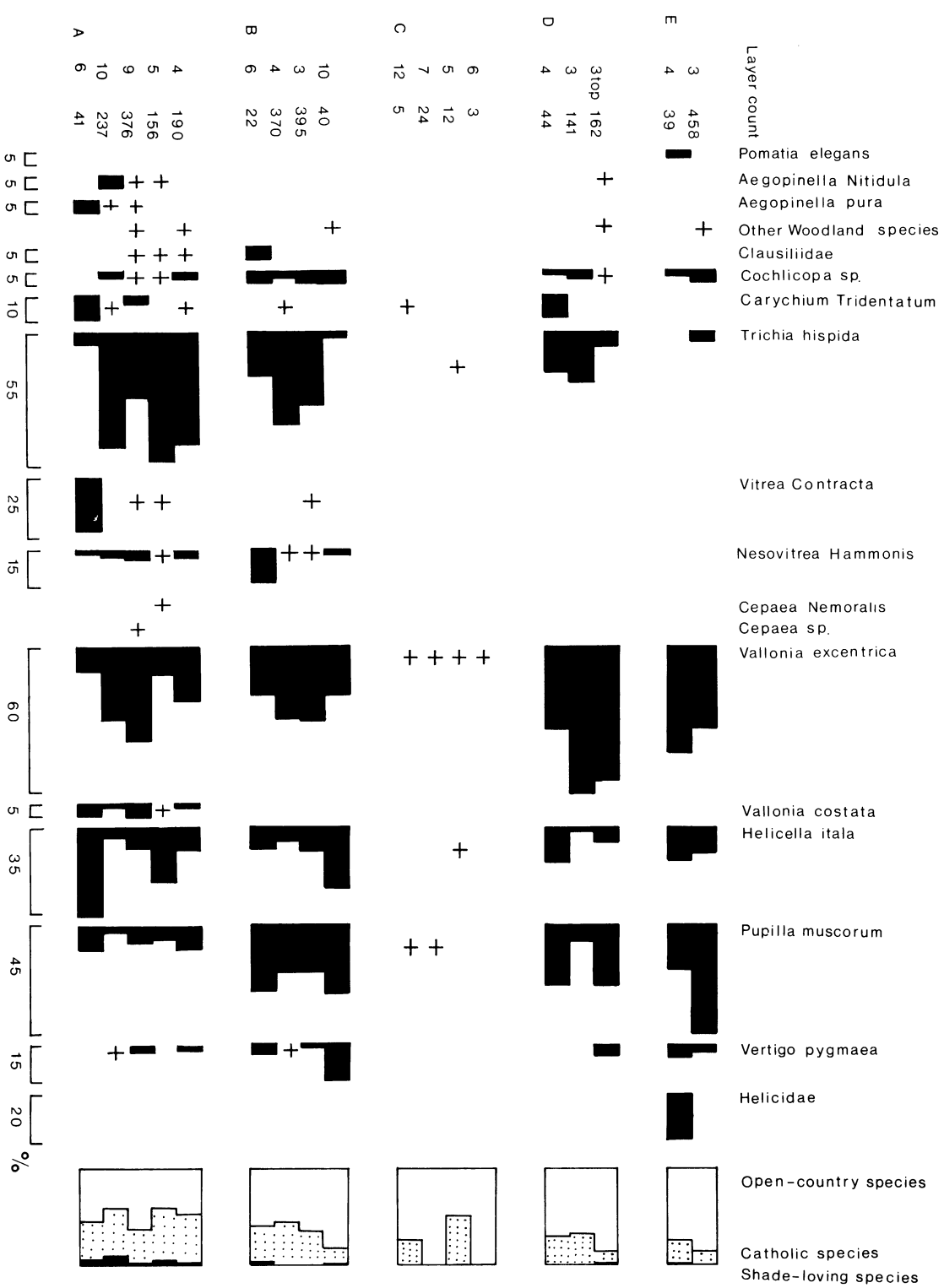

Fig. 6. Molluscan results; A) Russley down Middle 1, B) Baydon, C) Coppington down, D) East Garston ditch, Washmore hill, E) East Garston ditch, East Garston down.

luscan assemblage on any one site. By contrast, open country species never accounted for less than 40.4% of a particular assemblage, and in some cases even represented 100% of the assemblage. With the exception of Coppington Down, all the samples contained relatively abundant snail populations; the levels of fragmentation were extremely low on all the sites.

(a) *Russley Down Middle Ditch* (Fig. 6A)

Five samples were analysed from the site, representing the primary and secondary ditch silts (Layer 6), the stabilised secondary silts (Layer 10), the Roman plough-soil slip (Layer 9), and the post-Roman tertiary silts (Layers 5 and 4). Open country species constituted between 40.4% and 63.3% of the total assemblage. The primary and secondary silts were dominated by *Helicella itala*, a species which is typical of dry chalk grassland habitats, particularly those where the grass is kept short through grazing. The remaining layers are dominated by *Trichia hispida*, a damp-loving catholic species, and *Vallonia excentrica*, which is also characteristic of open chalk grassland. The presence of small numbers of *Pupilla muscorum*, *Vertigo pygmaea* and *Vallonia costata* is also indicative of dry exposed habitats such as chalk downland. *Carychium tridentatum* was present in very small numbers in all the layers except Layer 5; this fragile catholic species can only survive on soils where mechanical disturbance and intensive grazing are minimal.

(b) *Baydon Linear Ditch* (Fig. 6B)

Four samples were analysed: one each from the primary ditch silts (Layer 6), the secondary silts (Layer 4), the Roman plough-soil slip (Layer 3), and the buried land surface beneath the bank (Layer 10). Open country species account for between 57.0% and 87.5% of the total assemblage. All layers of the ditch fill were dominated by the open grassland species *Vallonia excentrica* and *Pupilla muscorum*, and the catholic species *Trichia hispida*. *Pupilla muscorum* is also often found on patches of dry soil bare of vegetation, such as sheep-grazed areas, but is generally absent from arable land, as it dislikes intensively farmed soils. The catholic *Cochlicopa* species, found in small numbers throughout the site, are commonly found in archæological deposits on the chalk downs.

(c) *East Garston Ditch: Washmore Hill* (Fig. 6D)

Three samples were analysed, from the primary silts (Layer 4), the secondary silts (Layer 3: base) and the tertiary silts (Layer 3, mid-top). Open country species constituted between 70.2% and 91.3% of the total assemblage. Throughout the sequence, the dominant species were again *Vallonia excentrica* and *Pupilla muscorum*, both of which are characteristic of chalk grassland. *Trichia hispida* was also relatively abundant at all levels on the site. The presence of the subterranean species *Cecilioides acicula* in the tertiary silt layer is unlikely to be relevant, as these frequently burrow as much as two metres deep into earlier deposits; Evans (1972, 168) suggests that they are an introduction of recent origin.

(d) *East Garston Down* (Fig. 6E)

Only two samples were analysed, one from the primary ditch silts (Layer 4) and one from the tertiary silts (Layer 3). Again, open country species dominated the record, ranging from 76.9% to 90.8% of the total assemblage. This is almost entirely comprised of *Vallonia excentrica* and *Pupilla muscorum*, with small numbers of *Helicella itala* and *Vertigo pygmaea*, all representative of open grassland.

(e) *Coppington Down* (Fig. 6C)

Four samples were analysed, taken from the old land surface (Layer 12), the primary fill (Layer 7), the secondary/

tertiary fill (Layer 5), and the first phase of lynchet-ploughing (Layer 6). Unlike the previous sites, Coppington produced a surprisingly small number of shells (44 in total). Open country species accounted for 50.0% to 100.0% of the total assemblage, comprising mainly *Vallonia excentrica* and *Pupilla muscorum*. It should be noted that *Pupilla muscorum* are not present in the first phase of lynchet-ploughing, probably due to the fact that this species is only found in soils which are not subject to mechanical disturbance.

Summary

The molluscan evidence from all five sites indicates that, from the period in which the ditches were dug until the present time, the environment has been predominantly open calcareous grassland throughout. The very small numbers of woodland snails present on all five sites can probably best be explained by the continuously damp nature of the ditch fills, which would provide a suitable environment for these species; but those present are so few that they are likely to have accidentally strayed from their woodland habitat some distance away, as woodland snails do not like to cross large tracts of open country. *Trichia hispida*, although a catholic species, is also more inclined to damp habitats, and would therefore be likely to colonise ditches where rainfall run-off accumulated.

Evans (1972, 286) has suggested that the chalk downlands of South-Eastern England were totally cleared of forest in the early Neolithic, and as the molluscan assemblages show no sign of major forest clearance (i.e. a noticeable shift from woodland to open country species), this supports the suggestion that the ditch fills are at least of post-Neolithic date; no forest regeneration occurred on the chalk after the Neolithic clearance.

With the exception of Coppington Down, all the sites showed that the primary silt layers contained extremely low numbers of snails in proportion to the rest of the layers on each site. This may be explained by the fact that primary ditch silts only take a very short time to form (1 - 5 years has been suggested – M. Bowden, pers. comm.), in which case there would be little time for new snail populations to colonise the layer before the deposition of secondary silts occurred.

In terms of probable land use, in the immediate environment of the five ditches, there is some variation. At Baydon, Washmore Hill and East Garston Down, the continual presence of *Pupilla muscorum* (a species which is typical of short-turf grassland, but does not like arable land) suggests that the local environment was probably used for pasture land or for very light, unintensive cultivation. In contrast, the ditches at Russley Down and Coppington Down contain assemblages which suggest a tendency towards arable agriculture; *Pupilla muscorum* only occurs in small quantities, but *Vallonia excentrica*, which is common on open arable land and can survive soil disturbances well, is present in large numbers. However, the high numbers of *Vallonia excentrica* only occur during and after the formation of the secondary silt layers, which indicates that the onset on arable agriculture probably did not occur, until the ditch had been established for some time.

DISCUSSION

The dating evidence presented in the descriptions of the excavations is of uneven quality and reliability. With due regard to the problems of residuality and the small size of the excavated samples, the Aldworth-Streatley Grims Ditch is well dated to c.50 BC-AD 300. We can suggest a *terminus ante quem* for some of the other earthworks. Negative evidence is also

important, but occasionally it depends on the recovery of only one or two sherds of Roman pottery. At some locations greater lengths of ditch were examined, in order to increase the acceptability of such evidence. With the exception of the morphologically distinct Aldworth-Streatley Grims Ditch, no other trenches produced Roman pottery from primary contexts. This also applies to the Berkshire Grims Ditch. Fig. 7 provides a summary of this dating evidence. It shows that the most likely date for these earthworks is in the Late Bronze Age/Early Iron Age.

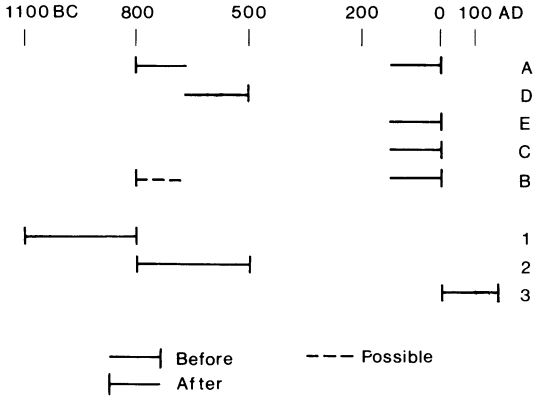

Fig. 7. Summary of dating evidence; A) Russley down ditch, B) Baydon ditch, C) East Garston ditch, D) East Ditch, E) Coppington ditch, 1) Beedon ditch, 2) Berks. Grims ditch, 3) Aldworth-Streatley Grims ditch.

The functions of linear earthworks have been discussed on a number of occasions and the evidence need not be repeated in detail (Bowen, 1975, 1978; Fowler, 1981; Ford, 1982; Crawford, 1953; Bradley, 1978). These earlier studies contained two main interpretations. The first is that linear earthworks possessed an economic function and were used to define tracts of agricultural land, their construction perhaps indicating the reorganisation or rationalisation of resources. The second idea is that these earthworks were fairly major socio-political boundaries. In summary, field evidence for reorganisation of the landscape is associated with the provision of enclosed pasture and consists of these linear earthworks, which cut through Celtic Field blocks. Other linear earthworks seem to separate areas of arable and pasture, or to enclose tracts of uncultivated land. On the other hand, the great length of some monuments argues against a purely economic function. Nor would this account for the very short but massive double ditch systems. A wider territorial rôle does seem possible in these cases.

The evidence from the Berkshire Downs sheds new light on these issues. It suggests that some linear ditches certainly were being used to divide arable from pasture, but this does not occur in every case and this relationship may change within the course of a single earthwork. Linear ditches may put particular field blocks out of use, but in Berkshire the evidence is neither common nor convincing. Similarly, where linear earthworks encountered existing boundaries, they continued to respect these divisions.

The length of the longer linear earthworks would imply the existence of a farming unit larger than those seen on the Downs today. Long boundaries such as those on Dartmoor (Fleming, 1978) may divide upland pasture from arable land, but this arrangement has not been recognised on the Berkshire Downs. Similarly, the large areas of enclosed pasture identified by Bowen (1975) elsewhere in Wessex do not occur here.

Turning to the excavated evidence, data relevant to both pre- and post- construction environments is rarely available from the same trench. There is no sign of a consistent change in land use immediately following the construction of these earthworks. The evidence of land snails clearly

shows that the environment was open throughout the period represented by the ditch silts. This also applies to the Grims Ditch. Molluscan and stratigraphic evidence suggests a grassland environment immediately after the earthworks were built, but later land use was more varied. Some ditches continued in a grassland setting, but now others were adjacent to cultivated land. Arable land use, however, seems to be a Roman feature on these sites.

So far the different earthworks have been treated separately. In fact, one of their most striking characteristics is their relationship to the local topography. It can be seen in fig. 2 that these earthworks define a series of valley-based territories, whose boundaries follow the ridges overlooking the steepest ground. The pattern is not perfect. Two ridges possess only short linear earthworks as their northern extremity (fig. 2, F and G) and one is without any earthwork but may have been so distinctive that no boundary ditch was necessary. The exceptionally long Grims Ditch follows the eastern part of the escarpment.

Chronological imprecision means that the exact origins of these earthworks will always be subject to doubt. However, the modern use of some ancient boundaries (e.g. Berkshire Grims Ditch: fig. 8) implies that territorial units are often resistant to change. The uniform layout of these earthworks suggests that at some stage in later prehistory they may have functioned together. If so, three tiers of territorial division may be apparent. The Grims Ditch itself could represent a major boundary between communities in the Vale of the White Horse and those on the Berkshire Downs (Ford, 1982). The distinctive nature of the western part of the escarpment may not have required definition by an earthwork, unlike the less topographically distinct eastern section. The physical presence of hillforts may have been sufficient to emphasise the boundary in the west (R. Bradley, pers. comm.). Interestingly, the large unenclosed site at Churn adjacent to the Grims Ditch (Ford, 1982) may have fulfilled some of the same functions as those defended sites. In fig. 2 the long linear earthworks define smaller territories in a less contrasting topographical setting. They could represent subdivision of a larger territory on the Berkshire Downs. Finally, the smaller linear ditches could define the land of more local communities.

Bronze Age territories based on valleys have been claimed on Dartmoor and in North Yorkshire. On Dartmoor, Fleming (1978) recognises three types of boundary (reaves): contour reaves separating upland pasture used in common arable areas on lower ground; long reaves following watersheds and dividing the area up into distinct valley territories; and parallel reaves subdividing the latter zone where topographical features could not be employed as boundaries. Fleming suggests that rivers were used. The long reaves following watersheds are similar to the longer linear earthworks in fig. 2, but the detailed subdivision of Dartmoor has no counterpart in Berkshire, although the coaxial field systems of the downland are vaguely reminiscent of the parallel reaves.

Spratt (1982, 174) has observed a different arrangement in North Yorkshire. Major territories are defined initially by a series of round barrows located along watersheds and later augmented by linear earthworks. These territories were subdivided to provide each 'estate' with both lowland arable and upland pasture. This use of watersheds to define a major valley territory is similar to the pattern in Berkshire, but differences in local topography and the character of the agricultural landscape mean that more detailed similarities are absent.

The location of the Berkshire hillforts can now be considered. Although they are

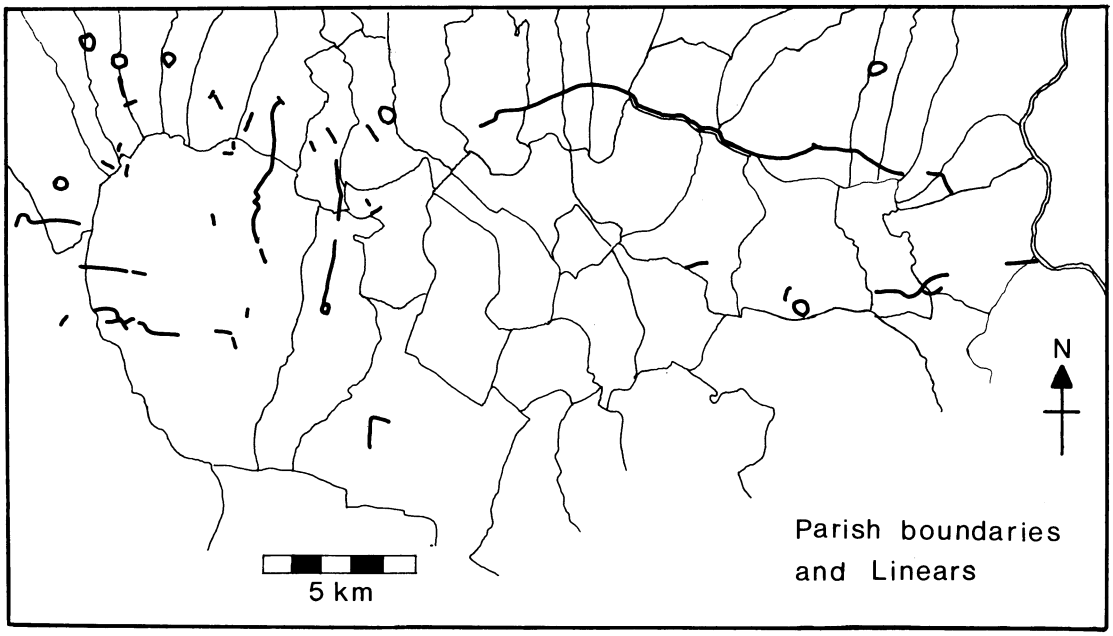

Fig. 8. Parish boundaries and linear earthworks.

sometimes considered as 'Central Places', it is just as likely that some of these sites were built on boundaries. The hillforts of Uffington Castle, Hardwell Camp, Rams Hill and Segsbury overlook the Vale of the White Horse (fig. 1). They are therefore located at the junction of the two major territories separated by the Grims Ditch, but not at the edges of the lesser territories mapped in fig. 2.

In comparison with the linear earthworks in the rest of Wessex, the territorial pattern described above is fairly easy to observe. This is partly a result of a favourable topography, but another factor could be the shorter period during which linear earthworks were being built. This is suggested by their unexpectedly later date. This leaves one question still unanswered. On p.17 an attempt was made to explain the breakdown of the territorial pattern in the vicinity of Lambourn Seven Barrows and the area immediately to their west. This barrow cemetery is unusual in being situated on a valley floor and the area around it may have remained of special significance during the Later Bronze Age (Bradley and Ellison, 1975, 193). Analogy with later territorial arrangements suggests that the detailed layout of the linear ditches is the result of piecemeal expansion from the latter area. An analogous situation may occur in the Medieval period. Lambourn is an unusually large parish with a number of smaller strip parishes radiating out from its edges (fig. 8). It has been suggested that Lambourn was an early Royal estate and that the other parishes represent later land divisions (Gelling, 1971-74, 810). The two patterns are strikingly similar.

There remains a need for fieldwork concerned specifically with linear earthworks. In particular, we must investigate their exact relationship with other types of

monument and look for more precise dating evidence. Some progress may be made by more detailed settlement studies. For example, the systematic location of 'sites' undertaken by the Maddle Farm Project in part of the study area is beginning to provide a solid data base for more detailed research. The present paper has introduced some new information, but it is unlikely to be the last word on this problem.

ACKNOWLEDGEMENTS

I would like to express my thanks to the following for their assistance during the course of this project. The landowners, estate managers and farmers for permission to excavate and fieldwalk; Reading University for the loan of equipment; P. Chadwick of Berkshire County Council, and the National Monuments Record for access to aerial photographs; G. Astill, C. Bowen, H. Carter, B. Eagles, M. Fulford, L. Mepham for miscellaneous help; G. Olejnik, A. Pritchard, D. Richards, R. Walker, C. Watts, A. White, R. Entwistle, G. Bryant, C. Graham-Kerr, E. Wilde for doing the hard work and finally R. Bradley for his encouragement and constructive comments.

Note: The finds and archive are deposited at Newbury Museum.

Appendix: Contents of microfiche

E) Russley west, Flint and Roman pottery.

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The publication of this report has been greatly aided by grants from the Council for British Archæology and the Berkshire Archæological Trust Ltd.

Microfiche pages

N.B. The figure following the name of each trench indicates the length of ditch excavated.

Russley Down West (1·5 m) fig. 14a

Layer	Description	Interpretation
10	Loose angular chalk (8 cm) in pale yellow/ brown chalk wash. Some smaller chalk and rare flint nodules (15 cm), finer towards sides.	primary ditch silts
4	Pale brown silt with occasional subangular chalk lumps (4 cm); few nodules (4 cm). Recalcification deposits.	secondary ditch silts turfline(?)
8	subangular/rounded chalk lumps (2-4 cm), nodules (4 cm), recalcification deposits and pale brown silt. Merges with 4.	ploughsoil slip
6	Light brown silt with some chalk flecks. Stone-free except for two large (30 x 10 cm) sarsen blocks.	tertiary silts
7	Indistinct line of chalk flecks	worm-sorted horizon?
2	Dark brown humic stone-free soil	tertiary silts

The stratigraphy is straightforward, with ploughsoil containing Roman pottery overlying a turfline providing a pre-Roman date for the ditch. This ploughslip originated from uphill of the ditch, indicating that the bank was located on the downhill side. There is no evidence for the ultimate end of the bank or for negative lynchets downhill.

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
1	17	2			1
2 (sp. 1)	1			1?	
2/6	1				
3	1				1
6 (sp. 2)/8	1	1			4
6/8 U/S	1				1
4/10	1				

Russley Down Middle 1 (2 m) fig. 14b

Layer	Description	Interpretation
6	Angular chalk lumps (10 cm) with smaller chalk, finer towards edges and top, with pale brown silt.	primary and secondary silts
10	Pale brown silt with chalk flecks and recalcification deposits. Stone-free.	stabilised secondary silts turfline(?)
11	As for 10.	as for 10
9	Many rounded chalk lumps (3-4 cm), loosely packed with a little light brown silt. Recalcification deposits.	ploughsoil slip

5	Brown silt with some rounded chalk (2 cm)	
3	Dark brown silt, stone-free. Merges into 5.	tertiary silts
2	Many angular chalk lumps (7 cm), with much small chalk (1 cm) and a little brown silt	pushed-in bank (verbal record)
12	Angular chalk block (10 cm) with some orange-brown silt and topsoil.	weathered natural

Layer	Flint flakes	Flint cores	Flint implements	Pottery prehistoric	Pottery Roman
1	8		1 notch?		4
2	1				
3 (sp. 1)	1				
3 (sr. 2)				4	3
3 (sp. 3)	2				1
3 (sp. 4)					
4/5	10				
5				2	1 + 1 rim
10/11	1				

Russley Down Middle 2 (4 m) fig. 15b

Layer	Description	Interpretation
6	Angular chalk lumps (10 cm) with a little orange silt. Finer towards sides.	primary silts
5	Brown humic soil with few subangular chalk lumps (3 cm) and smaller pieces.	secondary silts with ploughslip towards top?
4	Thin line of subangular chalk lumps (4 cm); occasional sarsen pieces.	worm-sorted stone line
2	Much subangular chalk (5 cm) mixed with topsoil.	Pushed-in bank

Again, the stratigraphy is straightforward with Roman ploughslip originating uphill of the ditch, and no negative lynchet on the downhill side. The bank was pushed back into the ditch in the 1950s. Despite the adjacent Late Bronze Age site and the excavation of 6 m of the ditch, only seven prehistoric sherds were recovered during both excavations and only two from the lower layers. In contrast, over 60 sherds of Roman pottery were recovered from the ploughslip layers and above. 49 sherds came from th same vessel. The upper part of this jar was burnished and the lower parts decorated with obtuse latticing. It is best dated after c.AD 250 (Gillam,1970). Other diagnostic sherds of Oxford ware can be dated from the late third century AD. The only convincing explanation for the lack of prehistoric pottery in the ditch is that this site had gone out of use before the ditch was dug, presumably under pasture or woodland.

Layer	Flint flakes	Flint cores	Flint other implements	Pottery prehistoric	Pottery Roman
1	5			1?	
2	2				
3	2		1 scraper?		1 + 1 rim
5/6	2		1 scraper		50 + 1 rim
6	1				

Baydon (1·5 m) fig. 17a

Layer	Description	Interpretation
6	Subangular chalk (4 cm) with pale brown silt, finer towards edges. Occasional flint nodules (10 cm) and recalcification deposits. Finer and darker at top (?).	primary silts
4	Light brown silt with occasional chalk flecks	secondary silts/ stable turf?
3	Much rounded chalk (2 cm), occasionally 5 cm. Some small flint nodules (4 cm) and brown silt. As for 4, merges into flinty matrix in ditch centre.	ploughsoil slip?
5	Large loose flint nodules (10 cm) with dark humic soil	
2	Dark brown stone-free humic soil. Becomes paler with depth.	tertiary silts
7	Brown silt with some subangular chalk (5 cm), rare nodules (10 cm) and recalcification deposits.	soil buried by lynchet build-up
8	Similar to 7, except darker, more chalky and with many roots.	ploughsoil in lynchet
10	Orange-brown silt with much small chalk (1 cm), occasional subangular lumps (3 cm), some nodules (3 cm) and recalcification deposits.	buried land surface
12	Much subangular chalk (5 cm) with a little orange silt. Rare flint nodules (3 cm).	bank
13	Similar to 12 except smaller chalk (2 cm) and more topsoil and roots.	bank
9	Orange-brown silt with much small chalk (1 cm) and flint nodules (5-10 cm). Several ruts showing as black humic stone-free cuts.	disturbed bank and old land surface

There are stratigraphic grounds for believing that the ditch is either cut through the positive element of a pre-existing lynchet, or is following a gap between a positive lynchet and its associated negative element. There are several observations which support this view. First, it is difficult to explain why the positive lynchet accumulated so far from the edge of the ditch if it post-dates the ditch. Secondly, there is a marked step in the natural preserved under the bank reminiscent of a negative lynchet. The height of the natural under the bank uphill of the step is the same as that under the positive lynchet. This indicates that the ditch is not cut through a negative lynchet. Finally, the bank is

uncharacteristically larger than that normally expected for a ditch of this size. Parts of the bank may include positive lynchet material. The distance of the positive lynchet from the negative one under the bank and the dissimilarity between L9 and L8 would favour the interpretation that the ditch is following a gap between the lynchets. A single sherd of prehistoric pottery was recovered from the base of the lynchet (L7), providing a terminus post quem. Higher parts of the lynchet (L8) accumulated during the Roman period and Roman pottery reached the ditch perhaps in ploughslip.

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
1	5				
2	6				1 + 1 base
3	5				
4	6				9
5	5				
6 (sp. 1)	1				
6 (sp. 2)	2				
7	4			1	
8	19				4
9	7	2			
10	2				

Coppington Down (1·5 m) fig. 14c

Layer	Description	Interpretation
7	Light brown clayey silt with much subangular chalk (2 cm), occasionally 5 cm, some small flint.	primary ditch silts
5	Brown silty clay with some chalk flecks (less than 1 cm). Occasional large flints up to 5 cm. Much small (2 cm) rounded chalk at base.	secondary/tertiary (i.e. slow) ditch silting
11	Dark brown silt with many large nodules (10 cm).	weathered ditch lip, including some of old land surface
6	Similar to 3 but with some weathered chalk and recalcification deposits.	first phase lynchet; ploughing
4	Brown silty clay, few nodules (5 cm) and rare chalk flecks.	first phase - stable grass on ditch side
3	Brown silty clay with many nodules (5-8 cm). Some chalk flecks.	second phase lynchet - ploughing
2	Brown silty clay, darker than 4. Few nodules (5 cm), some chalk flecks (1 cm).	second phase lynchet - grass
9	Dark brown/black silty clay, stone-free, many roots.	tertiary ditch silts
12	orange/brown silty clay with many nodules (5 cm), occasionally 10 cm, occasional chalk flecks.	buried land surface
15	angular/subangular chalk lumps (5 cm), some nodules (10 cm), much small chalk (1 cm) and dark brown clayey silt.	bank
13	Orange/brown silty clay with rare chalk flecks.	periglacial stripe

This ditch has not been cut through a pre-existing lynchet. There is no evidence to suggest this. The heights of the natural beneath the bank and positive lynchet and the profile as a whole show that no negative lynchet is present. A previous boundary may have existed only as a positive lynchet, but there is no sign of any truncation of the lynchet, and the thickness of the relatively well-preserved buried soil beneath the bank is incompatible with a positive lynchet build-up. A more likely explanation is that the positive lynchet accumulated subsequent to the construction of the ditch. Roman pottery from the base of the positive lynchet and also from the layers which merge with the tertiary silts of the ditch provide a terminus post quem for the lynchet build-up. Strictly speaking, the ditch is undated, but as the lynchet build-up is likely to be Roman in date, a pre-Roman date for the ditch is likely.

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
1	4				
2/6					2
2					1
3/4					2
2/4/5					1
4/6	2				5
5		1			
7	1	1			
10	1				
12	3				
15	4				
16	3				

East Garston Down 1 (2 m) fig. 18b

Layer	Description	Interpretation
4	Brown silt with subangular chalk (4 cm), some small nodules (3 cm) and recalcification deposits.	primary silts
10	Light brown silt with much subangular chalk (4 cm); indistinct boundaries.	primary/secondary silts
9	Brown silt with much small chalk (1 cm), occasionally 3 cm. Occasional nodules (5 cm), recalcification deposits.	secondary silts
8	As for 9 but darker	as for 9

3	Large, loosely packed nodules (10 cm), occasionally 30 cm. Same soil as 2.	tertiary silts
2	Dark brown humic soil, occasional chalk flecks and small nodule fragments (1 cm). More flint towards base.	tertiary silts
6	Much subangular chalk (3 cm) with a dark brown humic soil. Many roots and nodules (5 cm), occasionally 10 cm.	weathered natural
7	As for 6, with larger nodules (30 cm) and chalk (5 cm).	as for 6
12	As for 6	as for 6
5	Brown silt with much flint (5 cm) and small rounded chalk (1 cm), many roots and possibly more chalk towards top.	remnants of bank and buried land surface

The trench was located across an unploughed part of the ditch, but with Deverel Rimbury, Late Bronze Age/Early Iron Age and Roman pottery in the adjacent arable. Despite this the bank was poorly preserved and failed to protect any old land surface buried beneath. A small positive lynchet uphill of the ditch is coincident with the modern fence and no negative lynchet occurred immediately downhill of the bank. However, located 6 m further downhill is a small positive lynchet overlooking the steepest part of the dry valley. This may represent a limit of cultivation some time prior to the construction of the ditch. No prehistoric pottery and only two Roman sherds from the tertiary silts were found. Only a tentative pre-Roman date for construction can be suggested.

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
2 (sp. 1)	4				
2 (sp. 2)	3	1			1
2 (sp. 3)	4				
3	3				1
4	1				
5 (sp. 1)	7				
5 (sp. 2)	5				
7	2				

East Gerston Ditch : Washmore Hill (5 m) fig. 15a

Layer	Description	Interpretation
4	Much subangular chalk with a matrix of brown silty clay.	primary silts
3	Brown compact silty clay with some small chalk flecks (1 cm), occasionally 3 cm. Occasional flint nodules (10 cm), more so at base.	secondary and tertiary silts
2	Much subangular chalk (4 cm), occasional flint cobbles (5 cm). Compact brown silty clay.	denuded bank

The trench is located close to the edge of a clay-with-flints patch overlying the chalk. Consequently, the higher parts of the ditch are filled with clayey layers with little obvious stratigraphy, except where the bank has been pushed back into the ditch fairly recently. There are no indications of lynchets on either side of the ditch. One possible but undiagnostic prehistoric sherd came from the very top of the primary silts with Roman pot coming from the tertiary/secondary silts. Only a pre-Roman date can be suggested for construction.

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
1	4				6 + 1 rim
2 (sp. 2)					1
3 (sp. 1)	4		1 hollow scraper		1
3 (sp. 2)	2	1			4
3 U/S	2				2
3/4	2			1?	
4	1				

East Ditch: Green Down 1 (2 m) fig. 16a

Layer	Description	Interpretation
6	Pale yellow silt with subangular chalk (2 cm) and recalcification deposits.	primary silts
5	Orange/brown silt with small chalk (2 cm), occasionally 4 cm, some nodules (5 cm), occasionally 10 cm.	secondary silts
4	Orange/brown stone-free silt.	stable secondary silts, turf line
3	Dark brown silt with much rounded chalk (3 cm), occasionally 5 cm.	pushed-in bank
2	Orange-grey clay with a little chalk (2 cm). Some large non-local nodules (10 cm).	infilling of ditch

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
1/2	11	1		1	
2/3 U/S	1				
3 (sp. 1)	12				
3 (sp. 2)	1				
3/4	2				
5 (sp. 1)	21				
5 (sp. 2)	17	2 (1 freg,			
5 (sp. 3)	9	2		1	
6 (sp. 1)	1				
6 (sp. 2)	1				

East Ditch: Green Down 2 (5 m) fig. 15c

Layer	Description	Interpretation
	Off-white chalky silt with much subangular chalk.(3 cm).	primary silts
3	Light brown compact silt with occasional chalk lumps (13 cm). Less chalk than 2. Much recalcification deposits. Indistinct boundaries.	secondary silts?
2	Brown humic soil with much small rounded chalk (1 cm). Occasional nodules (5 cm); recalcification deposits at base. Less chalk than 4.	tertiary silts - disturbed by roots?
1	Topsoil, dark, stone-free and very fibrous	

Few layers are apparent in the Green Down sections, and it is thought that the relatively homogeneous tertiary silts and fibrous noture of the topsoil indicate disturbance by roots, e.g. of gorse (C. Bowen, pers. comm.). A layer of non-local clay may be infilling of the ditch for the creation of a gallop. The least expected feature to be recovered was a probable gang junction in Green Down 2. The segment of ditch to the south (towards Green Down 1) had partly cut the primary silts in Green Down 2 and produced a vertical face in the natural chalk.

This event took place before tertiary silts had accumulated in Green Down 2.

Green Down 1 provided tentative evidence for a pre-Late Bronze Age/Early Iron Age date of construction as a single prehistoric sherd and 68 flints were found, but only above the primary silts. A larger sample of ditch (Green Down 2) was dug to test this evidence. A further seven prehistoric sherds, 20 Roman sherds and 88 flints were found, but again only at the base of the tertiary silts and above. If the ditch had been constructed after the origin of the prehistoric material had ceased to function, then a situation as at Russley Down (Middle) would have been expected. Prehistoric material may have entered the ditch due to Roman activity, but the volume of finds tends to imply that these finds are not residual. On this basis the pottery, which belongs to Barrett's Decorated post-Deverel Rimbury Phase (8th-5th centuries BC), provides a terminus ante quem for the construction of the ditch.

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
1	7				
2 (sp. 1)	43			1	7
2 (sp. 2)	30		1 scraper	2	1 + 1 rim
2 (sp. 3)	8	1			1 rim
2 (sp. 4)/4	4	1			
2 (3d finds)				3 + 1 rim	8 + 2 rims

East Ditch: Ewe Hill (bank only) (1 m) fig. 16c

Layer	Description	Interpretation
2	Pale orange silt with much small chalk (1 cm) and some nodules (3 cm).	disturbed old land surface
6	Light brown humic soil with much small rounded chalk (2 cm).	disturbed bank
3	Dark brown humic soil with some flint (3 cm) and small rounded chalk (2 cm).	topsoil (worm-sorted under pasture - long standing) maybe a little lyncheting

This trench was dug to determine the state of preservation of any buried soil beneath the bank. As can be seen, the bank was poorly preserved and a sealed old land surface did not occur. From a profile across the surface of the ditch it appears that there is a positive lynchet on the uphill side of the ditch. A possible negative lynchet below the edge of the bank contained a sherd of Roman pottery.

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
1/3	3				1 rim
6	2				

East Ditch: Wormhill Bottom (2 m) fig. 16b

Layer	Description	Interpretation
9	Pale yellow silt with much small chalk (1 cm) and large flint nodules (10 cm). Recalcification deposits; finer towards edges.	primary silts
8	Pale orange silt with much chalk (1 cm), small nodule pieces (3 cm) and recalcification deposits.	secondary silts
7	Pale orange silt with some chalk (1 cm) and flint (3 cm).	stable secondary silts - turfline?
6	Large flint nodules (10 cm) with a little orange silt, some small chalk (1 cm) and recalcification deposits.	ploughslip (coarse element)
5	Pale brown silt with a little chalk (2 cm) and rare nodules (3 cm).	recent ploughslip
4	Brown humic silt with some small chalk (2 cm) and more flint (3 cm) at base. More compact than 2.	tertiary silts (c.20 years accumulation)
3	Brown humic soil with much small chalk (2 cm), occasionally 5 cm.	pushed-in bank (1975)
2	Dark brown humic soil with some small chalk (3 cm), occasional large nodules (10 cm), many roots.	tertiary silts

The stratigraphic sequence is straightforward and reflects stability until modern ploughing (1950s) occurred uphill of the ditch. The bank was pushed into the

ditch in the late 1970s. Apart from a few flint flakes the only other find was of barbed wire, which indicated the modern origin of the ploughslip (L6). A slight step below the edge of where the bank originally stood maybe a negative lynchet, but is more likely to be a result of differential weathering of this area compared to the protected natural beneath the bank.

Layer	Flint			Pottery	
	flakes	cores	other implements	prehistoric	Roman
2/3/4	8	1			
5	5				
7	1				
12	6				

Aldworth-Streatley: small ditch (1 m) Fig. 18a

Layer	Description	Interpretation
12	Brown clayey silt lighter than 11, with large flint nodules (15 cm), some charcoal. Sides and base orange clay with brown mottles, charcoal but no stones.	primary and secondary silts
11	Brown clayey silt with much charcoal and many large nodules (15 cm). More nodules at northern edge. Charcoal lens. Nodules finer and denser to sides.	tertiary silts, occupation debris
10	Orange clay with yellow mottles and moderate density of nodules (10 cm).	tertiary silts. Occupation debris
5	Brown silty clay with charcoal, stone-free.	tertiary silts. Occupation debris
3	Dark brown clayey silt with large flint nodules (10 cm) and charcoal.	tertiary silts. Occupation debris
4	Similar to 3 but paler. Indistinct boundaries.	tertiary silts. Occupation debris

Large ditch

28	Brown clay more or less stone free. Occasional charcoal flecks. Some manganese pan. Difficult to distinguish from natural.	primary silts/weathered natural
29	Similar to 28 - over cut?	primary silts/weathered natural
27	Many flint nodules (10 cm), occasionally 30 cm. Orange/brown clay matrix with some charcoal.	secondary silts
30	Dark brown silty clay similar to 27 except for manganese pan. Some small flint (5 cm).	tertiary silts
26	Brown clay with charcoal flecks and charcoal lens. Some nodules (10 cm).	tertiary silts
31	Dense patch of small nodules (2 cm) and manganese pan.	
32	Pale orange silty clay with some nodules (10 cm). Smaller and denser nodules to base.	modern ploughslip? denuded bank?
2	Similar to 32.	modern ploughslip? denuded bank?
19	Brown silty clay with rare nodule (5 cm). Many charcoal flecks. More stony to north.	old land surface
8	Orange/red clay similar to natural. Some nodules (1 cm and 10 cm). Charcoal flecks and manganese pan.	bank
6	Light brown/yellow silty clay with moderate density of nodules (5 cm), some charcoal.	
F3	yellow silty clay with some flint nodules (5 cm)	base of posthole?

The small ditch revealed a fairly straightforward silting sequence. The base of L12 (primary silts) produced three undiagnostic sherds, but a sherd tentatively dated to the later 1st century AD was found higher up. Layers 10 and 11 produced a large volume of pottery, presumably as a result of adjacent occupation, but contained no closely diagnostic pieces. Layers 5 and 3 produced sherds of 2nd and 3rd century date. The ditch therefore pre-dates the 2nd century AD and possibly pre-dates the late 1st century AD. The most interesting and least expected discovery was a possible wall, located towards the north lip of the ditch. The flint nodules making up the 'wall' were densely packed and well laid but with no traces of mortar, facing stones, foundation trench or foundation course. The base of the 'wall' lay on the side of the ditch and as such rested at an oblique angle with the ditch layers intermixed. Hence the evidence for a wall, stone clearance or ditch infilling is contradictory. Perhaps a multiple explanation is possible with a line of cleared stones in the ditch being used as the foundation for a proper wall.

The distribution of surface collected finds (fig.19) was originally thought to be contained by the bank of the larger ditch. From the excavation, this pattern can be seen to be a result of the small ditch and the wall.

The stratigraphy of the larger ditch is in itself straightforward, except for the difficulty in determining one side of the ditch. However, when the bank and buried land surface are also considered, complications arise. The bank (L8) protects a buried land surface (L19) and the latter is possibly cut by the ditch. Despite the site being located on level ground, the bedrock and buried land surface slope towards the ditch. Two explanations for this are possible. Either the ditch has cut a very localised depression in the natural, perhaps indicating the position of a chalk solution hollow beneath the clay cap; or it may have cut some other form of man-made feature, such as a hollow way or another ditch. To take the case of a pre-existing ditch first, the weathered slope indicates that any accompanying bank on the south side of the ditch must have been placed at least 5 m away. Weathering of the top edge of a ditch usually produces a convex profile which may, depending on ditch depth, extend up to 2 m away. The sloping bedrock here is not significantly convex and extends for 5 m. As such, it may not be the

result of a pre-existing ditch. Such a profile could be the result of a hollow way (see, for example, Folly Clump). Numbers of examples are known where silted-up ditches become hollow ways (Crawford, 1953), and there is no reason why a hollow way could not change its function and become a boundary emphasised by a ditch.

Only three small sherds came from the old land surface (L19) and none were diagnostic or well stratified. From the base of the ditch, L28 produced fragments of a bronze bowl of Late Iron Age or Roman date. From Layers 28 and 29 towards the ditch lip a few wheel-thrown Roman sherds were found. Building material and sherds of Oxford ware came from L27. The building material is unlikely to have been in use before the 2nd century AD, and although the pottery may date to the late 1st century, it is more probably of 2nd or early 3rd century in date.

It is not possible stratigraphically to determine the sequence of construction between the two ditches.

Folly Clump: Hollow way (fig. 17b)

Two trenches, initially 1 m wide were put across a suspected linear earthwork upon which a Celtic Field block seemed to be aligned. However, excavation proved that the feature observed from the air was in fact a hollow way (see, for example, Churn 2: Ford, 1982). Field observations indicate that the hollow way is following a pre-existing gap between two field blocks (C. Bowen, pers. comm.). Folly Clump West produced a second surprise in the form of a small ditch on the same alignment as the hollow way and field system. A 4 m length of this ditch was examined. This ditch was not recorded on the aerial photograph which revealed the hollow way; it was partly eroded and overlain by the hollow way itself. It seems to have been part of the field system and may originally have helped to guide usage of the hollow way. The small ditch is undated except for the fact that it had almost silted up by the time that late Roman pottery had entered the top layers.

Folly Clump: West (fig. 17c)

Layer	Description	Interpretation
2	Brown silt, more or less stone-free, except for lines of rounded chalk pieces (2 cm).	tertiary silt of hollow way
4	Pale brown silt with few stones.	tertiary silt
5	Light brown silt with much subangular chalk (5 cm).	secondary silts (erosion of side of ditch)
6	Compact brown clayey silt with few stones.	primary silt(?)

RUSSLEY DOWN MIDDLE DITCH MOLLUSCAN ASSEMBLAGE

	Layer 6	Layer 10	Layer 9	Layer 5	Layer 4	
Family Zonitidae						
Aegopinella Nitidula	-	13	3	3	-	
Aegopinella Pura	2	1	-	-	-	W
Family Valloniidae						O
Acanthinula Aculeata	-	-	-	-	1	O
Family Clausiliidae						D
Cochlodina Laminata	-	-	-	-	1	L
Clausilia Bidentata	-	-	-	2	2	A
Macrogastra Rolphii	-	-	1	-	-	N
Family Pupillidae						D
Lauria Cylindracea	-	-	1	-	-	
Family Zonitidae						
Vitrea Contracta	9	-	1	1	-	
Nesovitrea Hammonis	1	8	16	1	5	C
Family Helicidae						A
Trichia Hispida	2	111	103	83	88	T
Cepaea Nemoralis	-	-	-	1	-	H
Cepaea species	-	-	1	-	-	O
Family Ellobidae						L
Carychium Tridentatum	4	1	11	-	3	I
Family Cochlicopidae						C
Cochlicopa Lubrica	-	6	5	1	4	
Cochlicopa species	-	-	-	1	2	
Family Valloniidae						
Vallonia Costata	2	5	21	-	2	
Vallonia Excentrica	4	71	145	19	43	
Family Helicidae						U
Helicella Itala	15	10	32	34	17	P
Family Vertiginidae						E
Vertigo Pygmaea	-	3	11	-	4	N
Family Pupillidae						
Pupilla Muscorum	2	8	25	10	18	
TOTAL SNAILS	41	237	376	156	190	

HUSSLEY DOWN MIDDLE DITCH

Percentage Frequency of Ecological Groups in Assemblage

Ecological Group	Layer 6	Layer 10	Layer 9	Layer 5	Layer 4
WOODLAND	4•9	5•9	1•3	3•2	2•1
CATHOLIC	39•0	53•2	36•5	56•4	53•7
OPEN COUNTRY	56•1	40•9	62•2	40•4	44•2

BAYDON LINEAR DITCH MOLLUSCAN ASSEMBLAGE

	Layer 6	Layer 4	Layer 3	Layer 10	
Family Endodontidae					
Discus Rotundatus	-	-	-	1	
Family Clausiliidae					WOODLAND
Clausilia Bidentata	1	-	-	-	
Family Zonitidae					
Vitrea Contracta	-	-	1	-	
Nesovitrea Hammonis	3	4	5	1	
Family Helicidae					
Trichia Hispida	4	142	120	1	CATHOLIC
Family Ellobiidae					
Carychium Tridentatum	-	1	-	-	
Family Cochlicopidae					
Cochlicopa Lubrica	-	7	18	1	
Cochlicopa species	1	5	-	1	
Family Valloniidae					
Vallonia Excentrica	4	112	122	8	
Family Helicidae					
Helicella Itala	2	21	40	10	
Family Vertiginidae					OPEN
Vertigo Pygmaea	1	5	9	6	
Family Pupillidae					
Pupilla Muscorum	6	73	80	11	
TOTAL SNAILS	22	370	395	40	

Percentage Frequency of Ecological Groups in Assemblage

Ecological Group	Layer 6	Layer 4	Layer 3	Layer 10
WOODLAND	4•5	-	-	2•5
CATHOLIC	36•4	43•0	36•5	10•0
OPEN COUNTRY	59•1	57•0	63•5	87•5

COPPINGTON DOWN MOLLUSCAN ASSEMBLAGE

	Layer 12	Layer 7	Layer 5	Layer 6	
Family Helicidae					
Trichia Hispida	-	-	6	-	CATHOLIC
Family Ellobiidae					
Carychium Tridentatum	1	-	-	-	
Family Valloniidae					
Vallonia Excentrica	2	15	5	3	
Family Helicidae					
Helicella Itala	-	-	1	-	OPEN
Family Pupillidae					
Pupilla Muscorum	2	9	-	-	
TOTAL SNAILS	5	24	12	3	

Percentage Frequency of Ecological Groups in Assemblage

Ecological Group	Layer 12	Layer 7	Layer 5	Layer 6
WOODLAND	-	-	-	-
CATHOLIC	20·0	-	50·0	-
OPEN COUNTRY	80·0	100·0	50·0	100·0

EAST GARSTON DOWN MOLLUSCAN ASSEMBLAGE

	Layer 4	Layer 3	
Family Oxychilus			
Oxychilus Cellarius	-	2	WOODLAND
Family Pomatiidae			
Pomatias Elegans	1	-	
Family Helicidae			
Trichia Hispida	-	18	
Helicidae species	7	-	CATHOLIC
Family Cochlicopidae			
Cochlicopa species	1	22	
Family Valloniidae			
Vallonia Excentrica	16	151	
Family Helicidae			
Helicella Itala	5	46	OPEN COUNTRY
Family Vertiginidae			
Vertigo Pygmaea	2	11	
Family Pupillidae			
Pupilla Muscorum	7	207	
Family Ferussaciidae			
Ceciloides Acicula	-	1	SUBTERRANEAN
TOTAL SNAILS	39	458	

Percentage Frequency of Ecological Groups in Assemblage

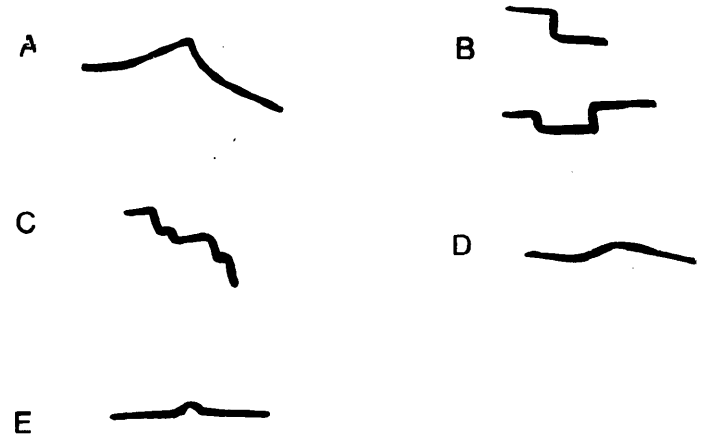
Ecological Group	Layer 4	Layer 3
WOODLAND	2·6	0·4
CATHOLIC	20·5	8·8
OPEN COUNTRY	76·9	90·8

EAST GARSTON DITCH: WASHMORE HILL MOLLUSCAN ASSEMBLAGE

	Layer 4	Layer 3(base)	Layer 3(mid-top)	
Family Zonitidae				WOODLAND
Aegopinella Nitidula	-	-	1	
Family Oxychilus				
Oxychilus Cellarius	-	-	1	
Family Helicidae				CATHOLIC
Trichia Hispida	7	37	10	
Family Cochlicopidae				
Cochlicopa species	1	5	2	
Family Ellobiidae				
Carychium Tridentatum	4	-	-	
Family Valloniidae				
Vallonia Excentrica	15	86	89	
Family Helicidae				
Helicella Itala	6	3	9	OPEN
Family Vertiginidae				
Vertigo Pygmaea	-	-	6	
Family Pupillidae				
Pupilla Muscorum	11	10	41	
Family Perussaciidae				
Ceciloides Acicula	-	-	3	SUBTERRANEAN
TOTAL SNAILS	44	141	162	

Percentage Frequency of Ecological Groups in Assemblage

Ecological Group	Layer 4	Layer 3(base)	Layer 3(mid-top)
WOODLAND	-	-	1·2
CATHOLIC	27·3	29·8	7·5
OPEN COUNTRY	72·7	70·2	91·3



Linear Earthwork Kinks

not to scale

A single rectilinear

East Ditch SU 348833

B double rectilinear

East Ditch 342822 , Haydon Ditch 273782, East Garston Ditch 366817

C Multiple rectilinear

East Ditch 359814

D Sub rectilinear

Russley Down Ditch 266810

E Small U shaped

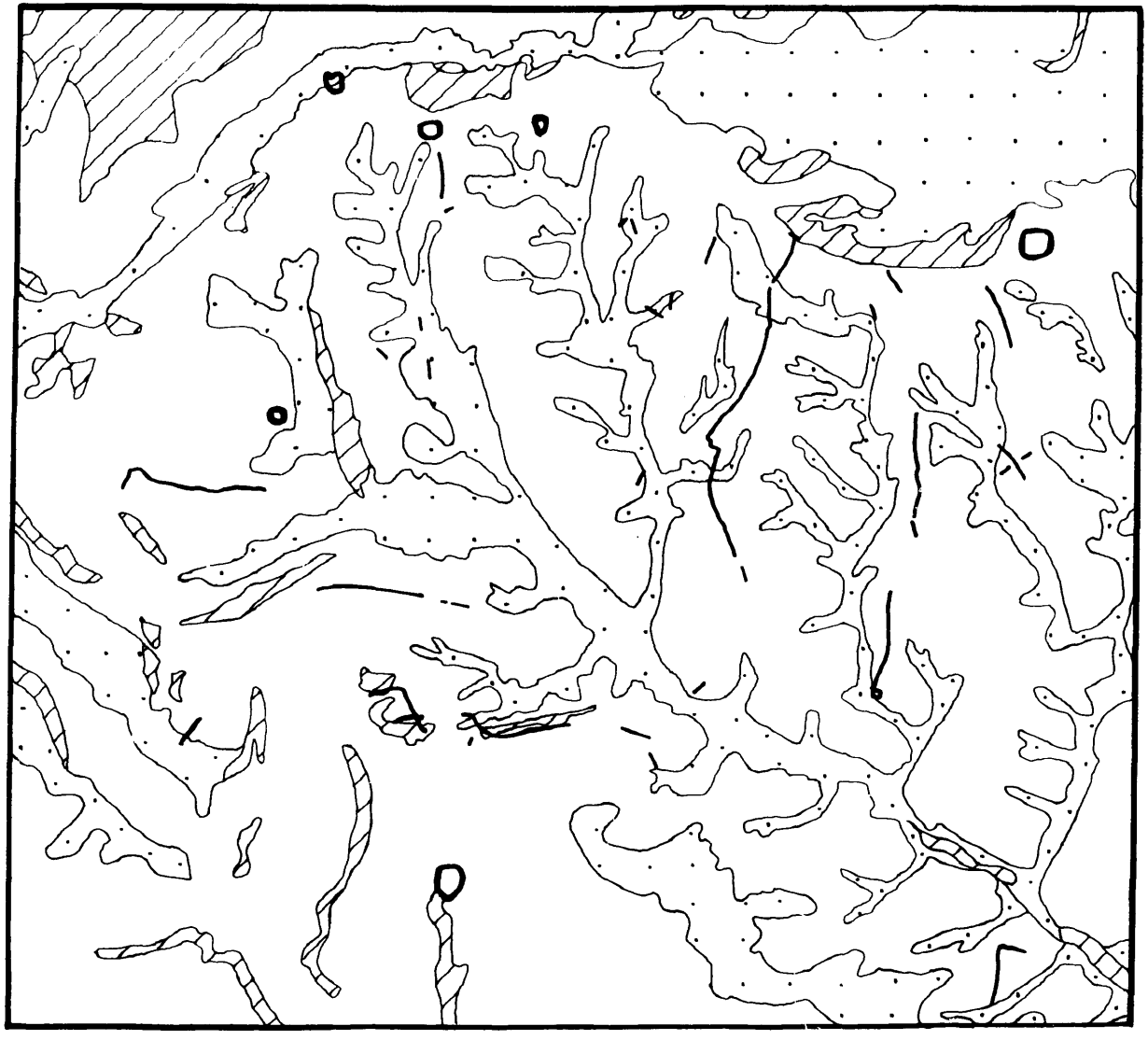
East Ditch 346826, East Garston Ditch 366839

Gang junctions

Possible Gang junction or original gap : East Ditch 359810 . Gang junction East Ditch, Green Down 2

Fig. 9

Soil Potential



N

Grade 2

4 and 5

3

Fig. 10

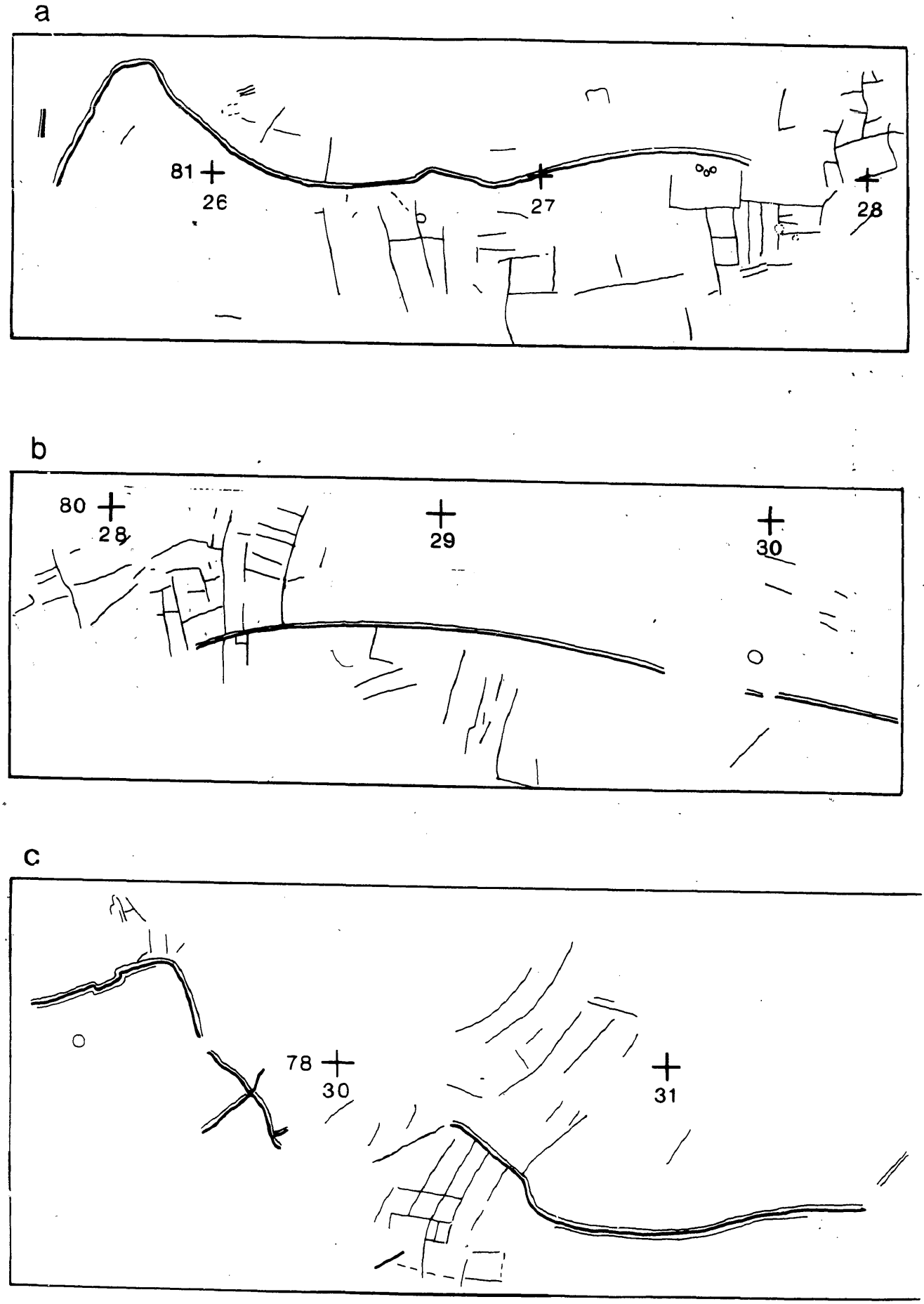


Fig. 11

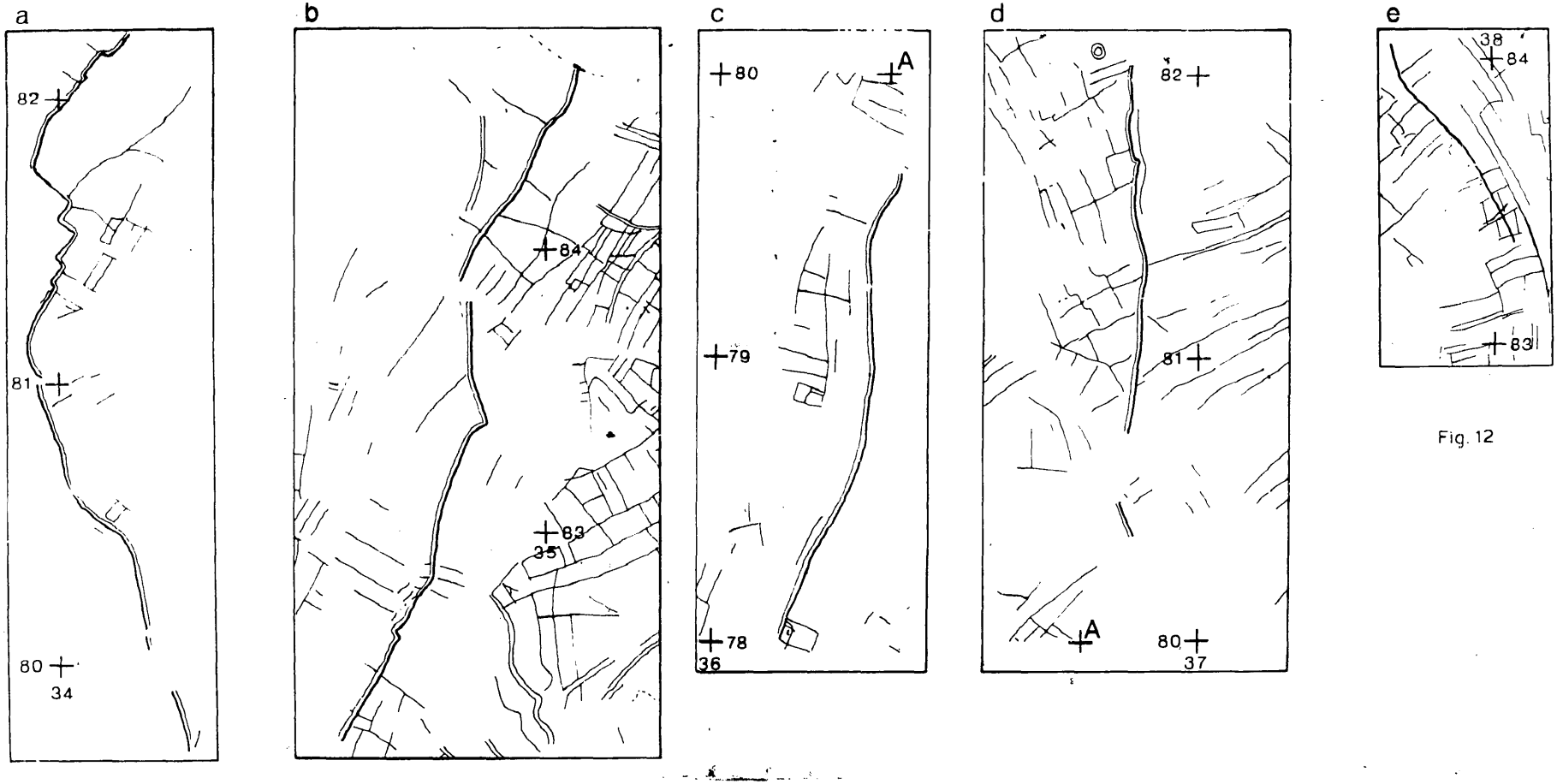


Fig. 12

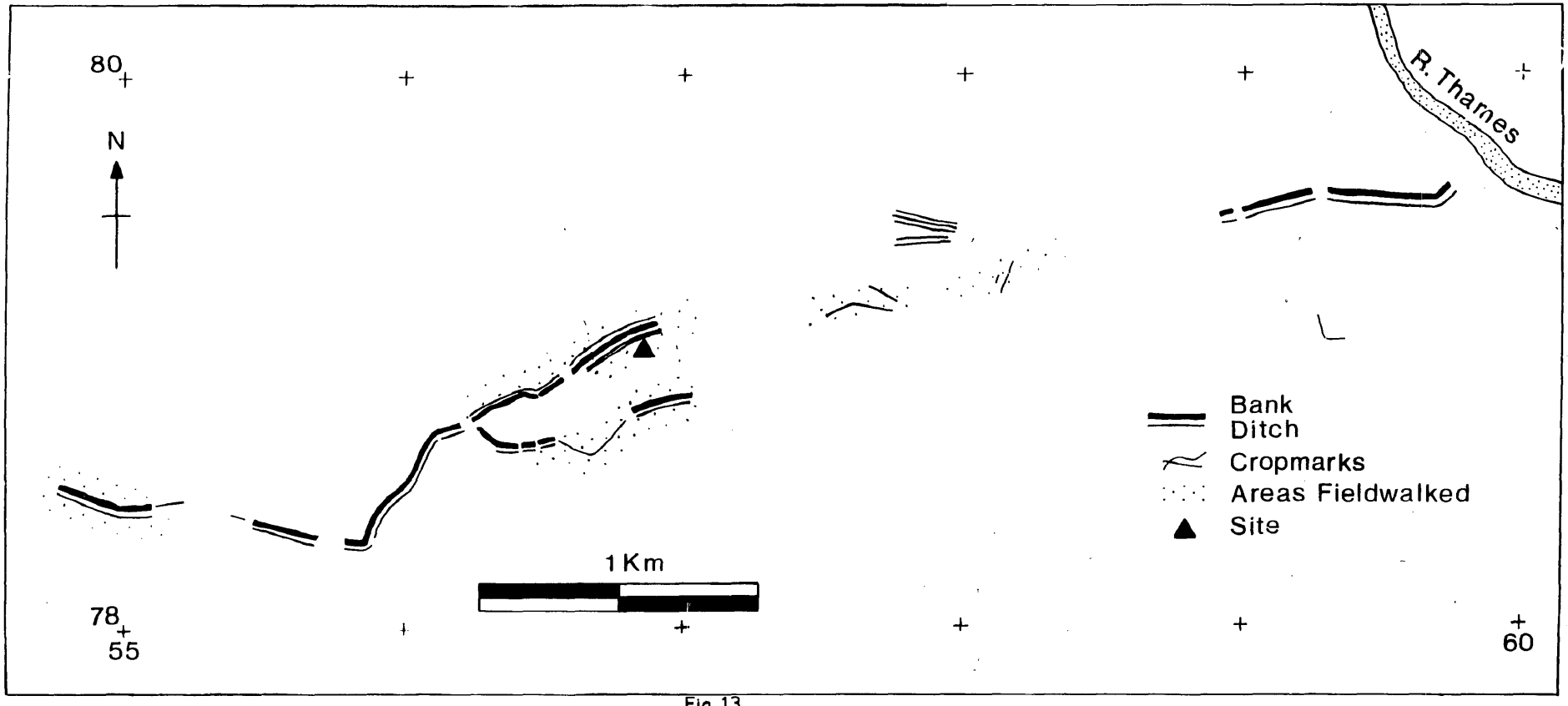

80
N
R. Thames
Bank
Ditch
Cropmarks
Areas Fieldwalked
Site
1 Km
78
55
60

Fig. 13

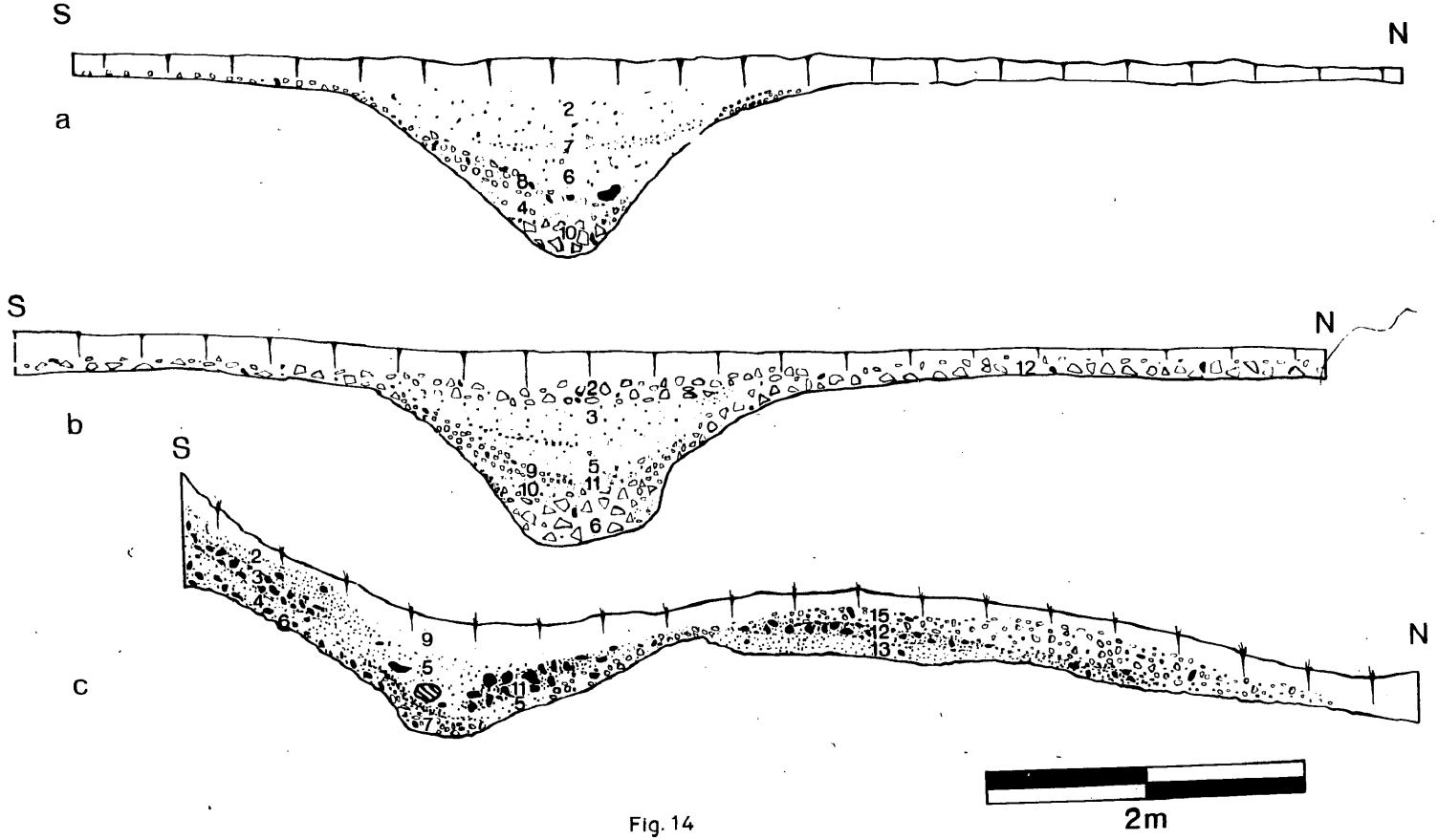


Fig. 14

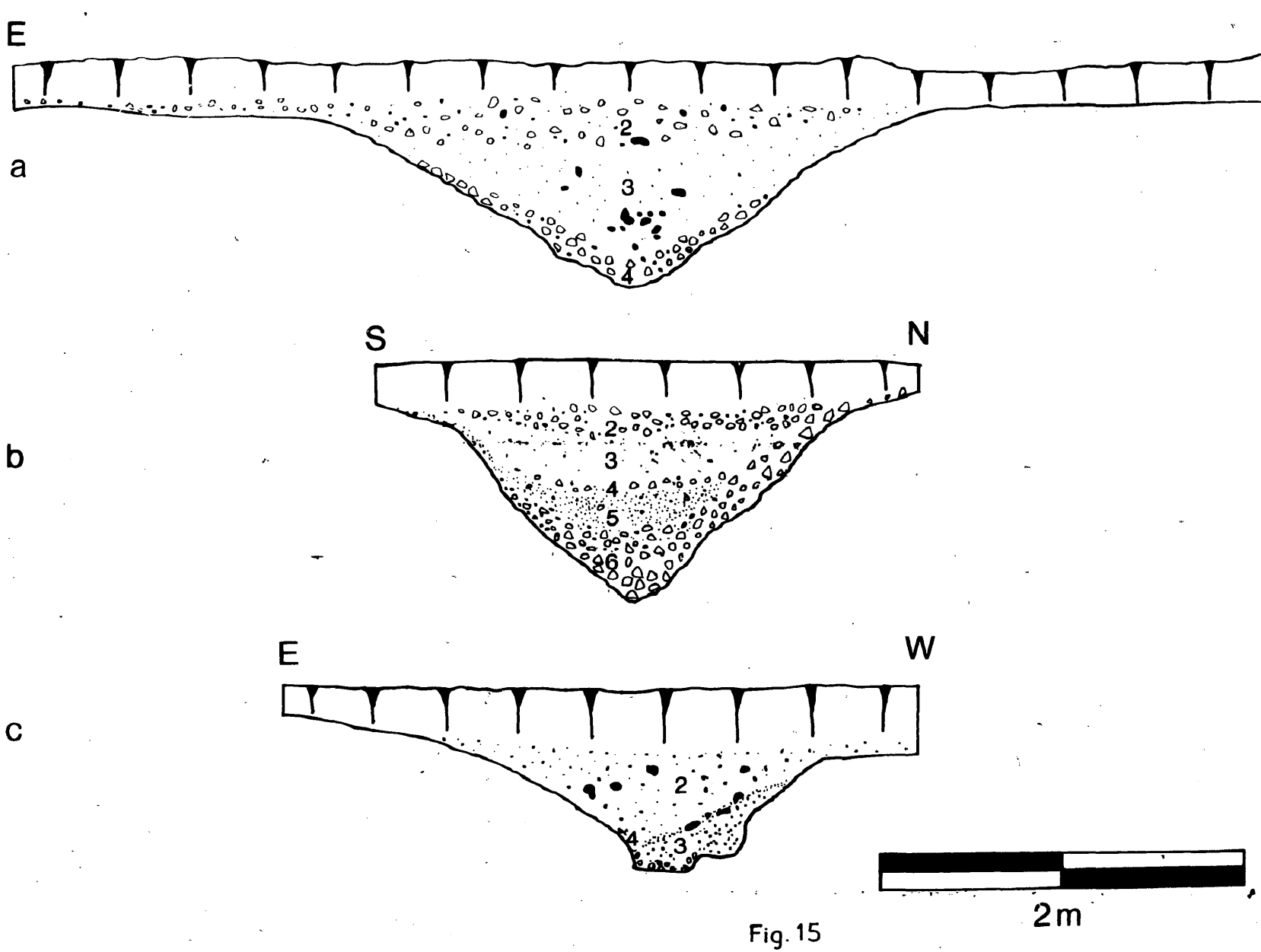


Fig. 15

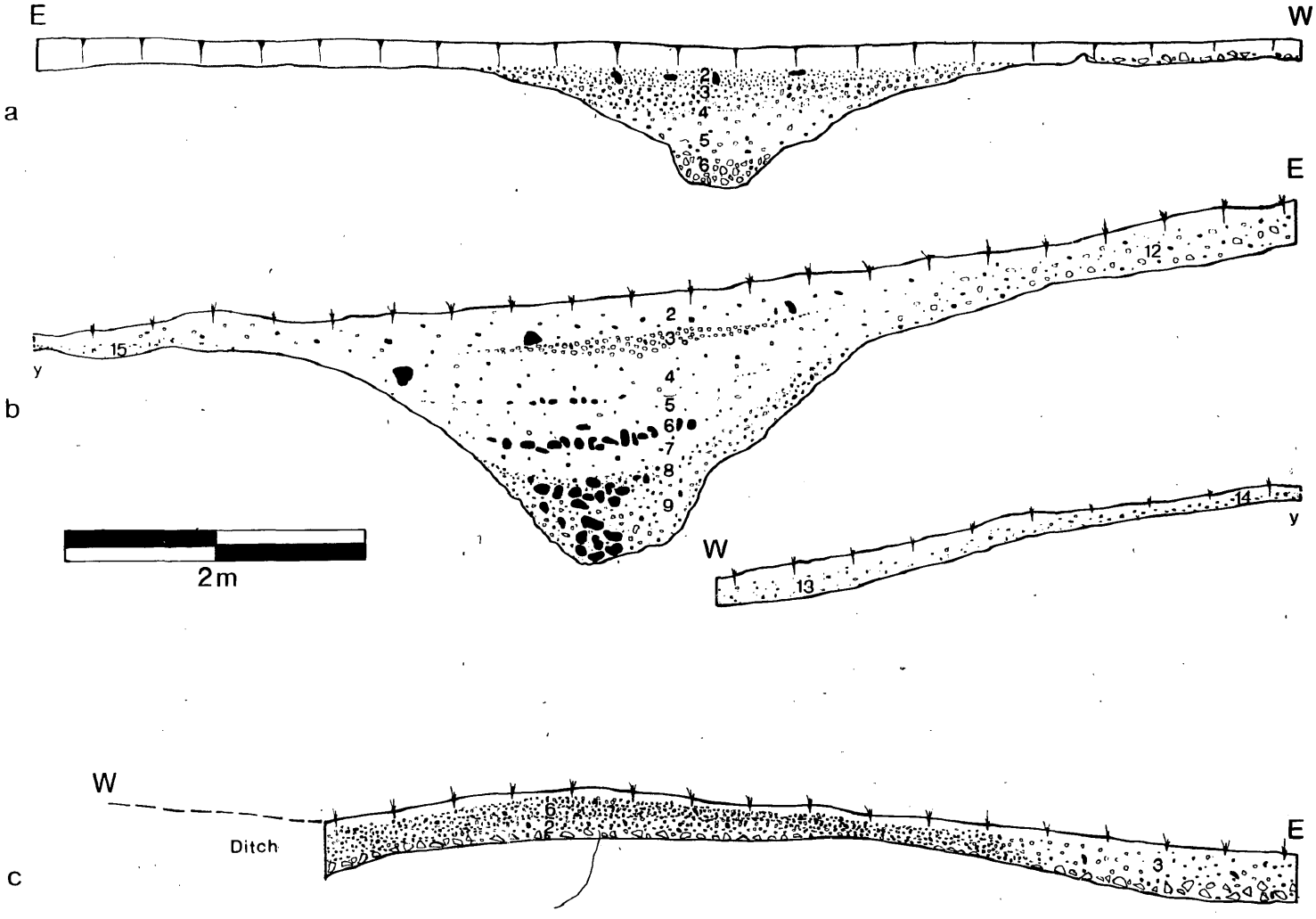
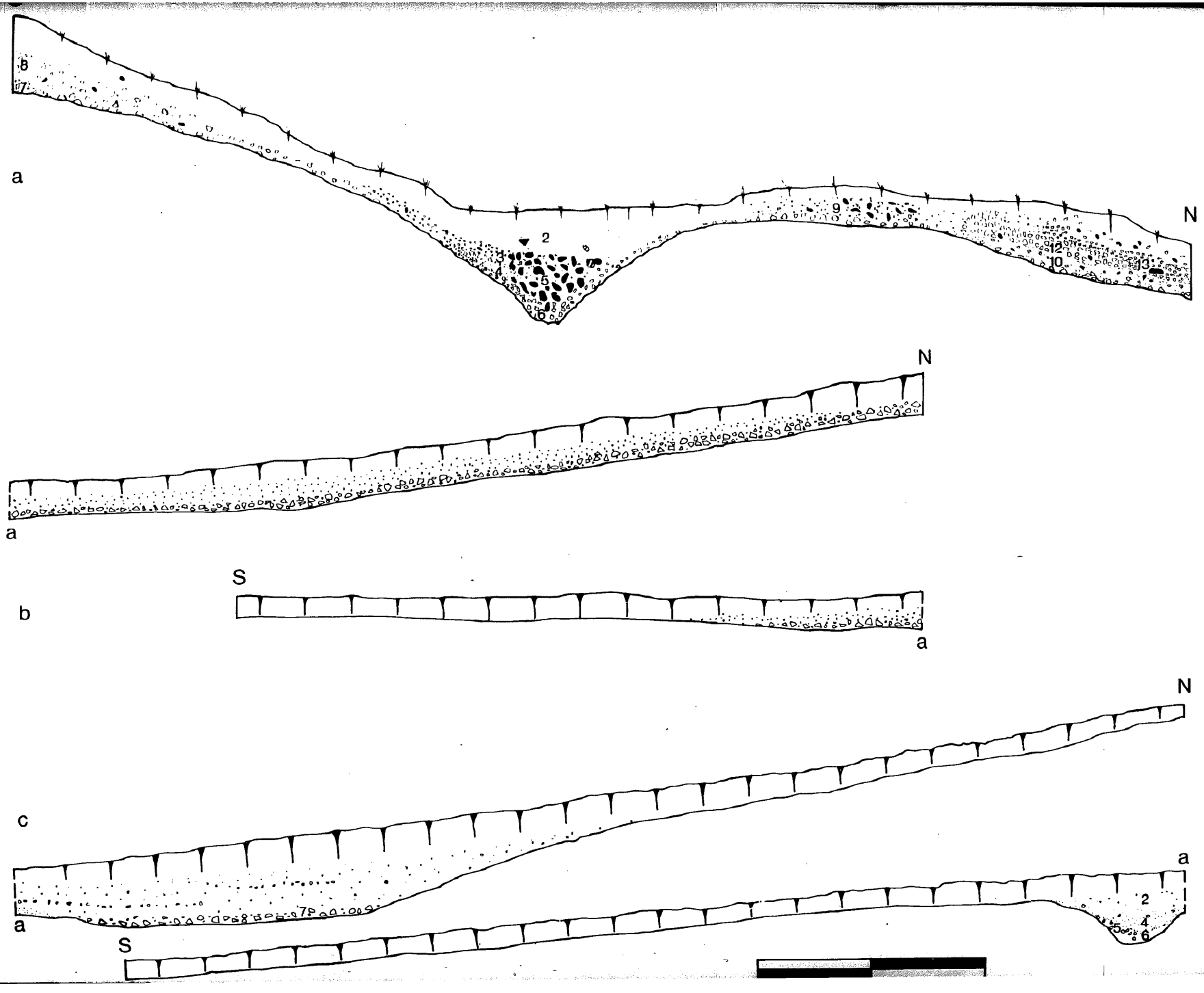


Fig. 16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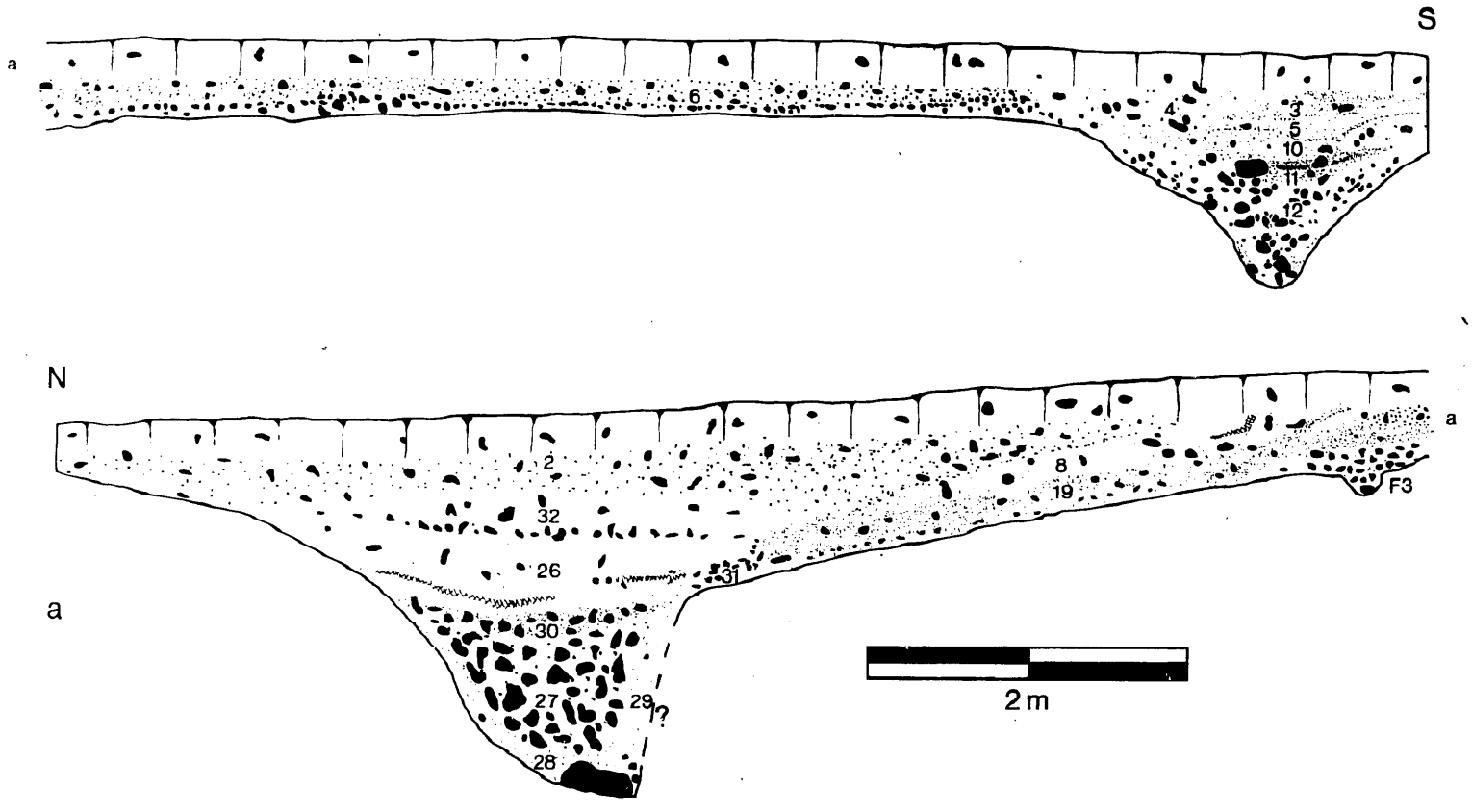
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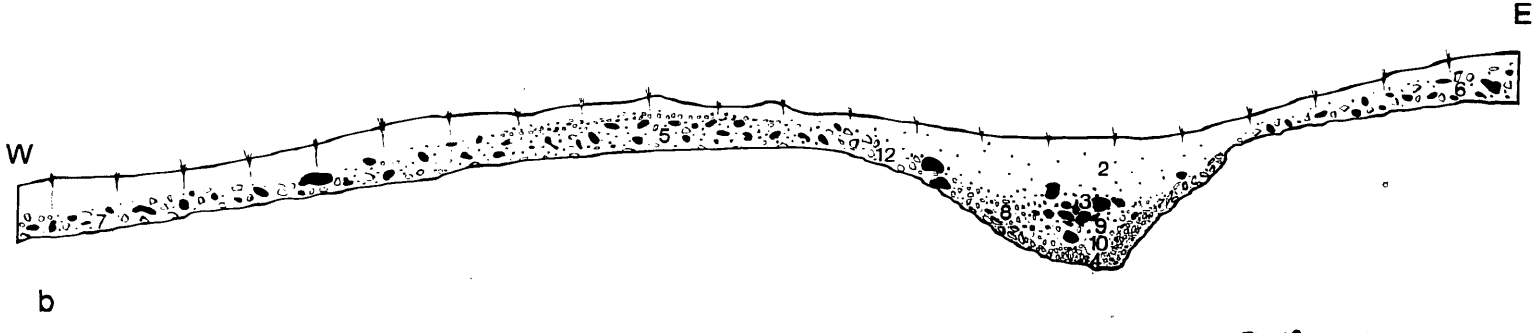
E
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Fig.18

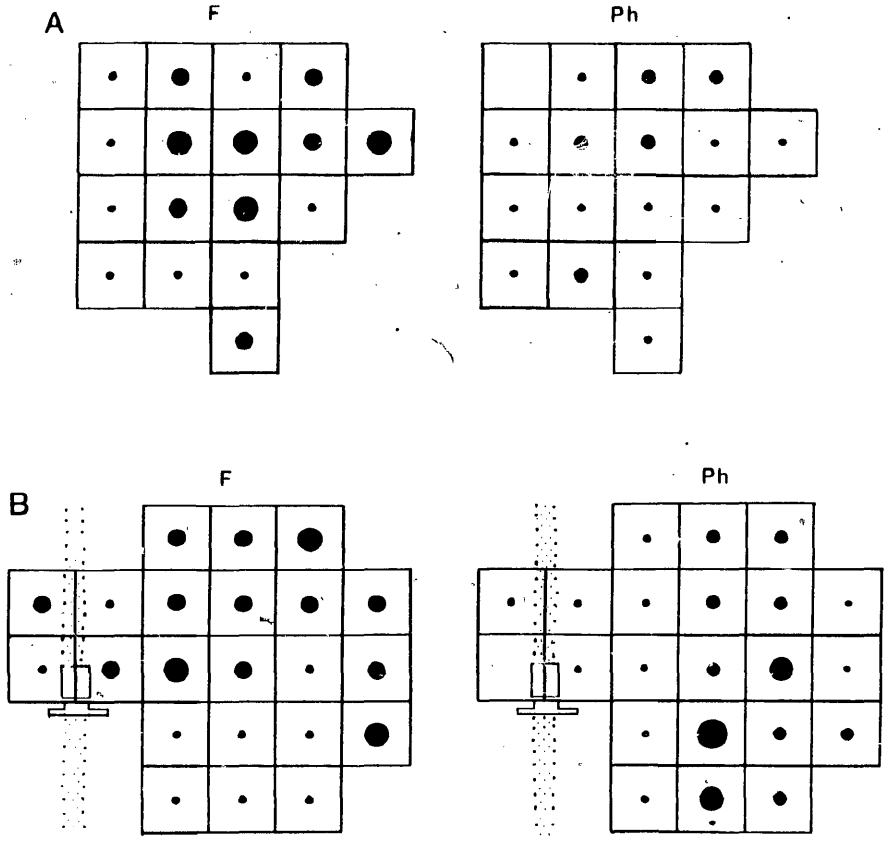

FIG 19

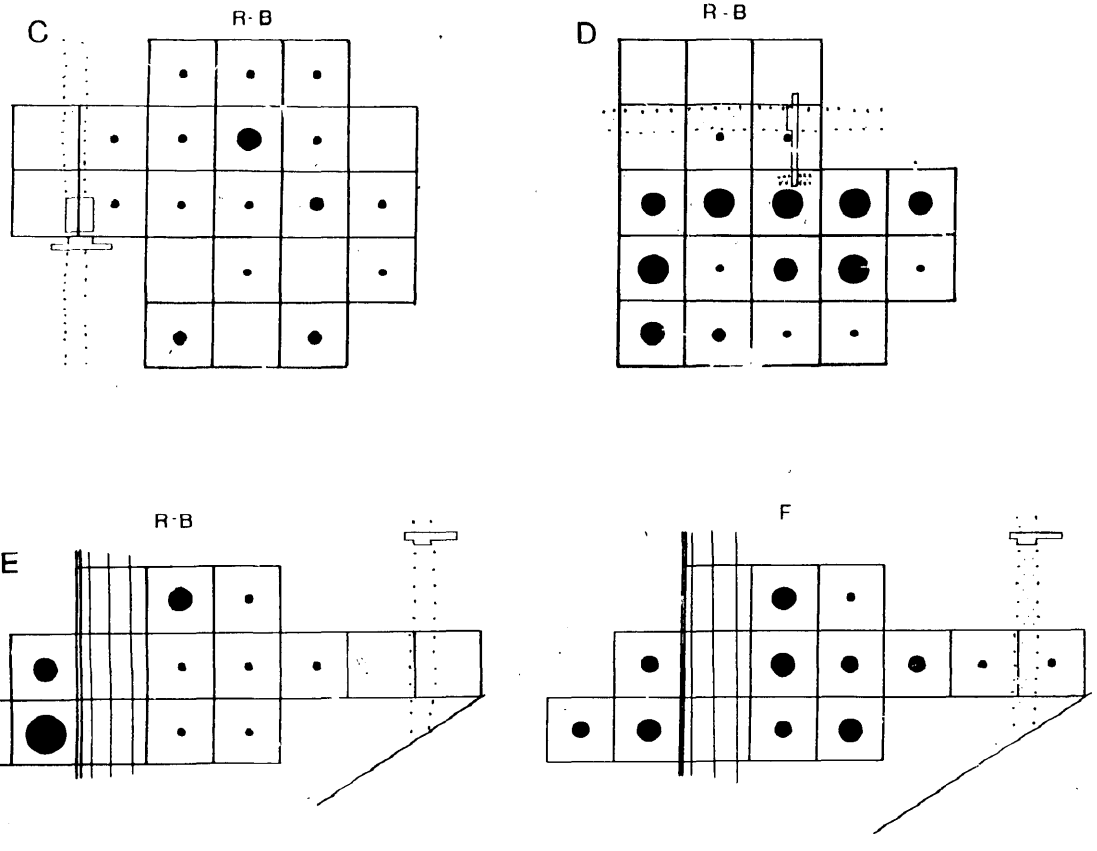
C
R-B
D
R-B
E
R-B
F
FLINT
1-3
4-6
7+
POTTERY
1-25g
26-50
51-75
76-100
101+
Ditch

Fig. 19