# GRIM'S DITCH, IVINGHOE

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*The excavation in 1982 of part of Grim's Ditch in Ivinghoe is described and a drawing of the section is published. Soil and molluscan analyses of samples taken through the deepest part of the ditch suggest that the ditch was dug in open arable country or on the borders of arable and grassland. A long period of extensive grassland is envisaged, followed by renewed cultivation, probably in Iron Age times. Comparison is made with similar samples taken in a nearby coombe in Pitstone. The possible purpose and date of the ditch are discussed and a tentative relationship between historic parishes and prehistoric agrarian management is suggested.*

The excavation during 1980 of a section of ditch (Dyke V) forming part of the Chiltern Grim's Ditch complex was described in Volume 23 of the *Records* (Davis, 1981). Mention was then made of evidence for another larger ditch running roughly parallel and higher up the hillside, some 36 m to the south: this second ditch was referred to as Dyke VI (Fig. 1).

In August 1982, a section was cut through Dyke VI (SP 9540 1534) by members of the Pitstone Local History Society. The ditch proved to be far more substantial than Dyke V, being 6.35 m wide and 2.90 m deep from the present ground surface, compared with 2.50 m and 1.30 m respectively for the ditch previously investigated. Despite the difference in scale, however, the profiles of the two ditches were similar. Fig. 2 shows the section of Dyke VI which, like Dyke V, had been cut in solid chalk.

A column of 29 samples for molluscan analysis was taken from the north face of the ditch section at its deepest point. Comparison could then be made with results obtained from previous work done on ploughwash deposits and buried soils in a coombe below Pitstone Hill, less than 1.0 km to the south-west of Dyke VI (Evans, 1966; Evans and Valentine, 1974) (see Fig. 1).

The stratigraphy of the ditch fill was as follows (layer nos. in parentheses):

| Depth below surface (cm) | |
|---|---|
| 0-20 | Modern ploughsoil (1). Greyish brown (10YR 5/2) chalky loam with small chalk lumps throughout. |
| 20-90 | Ploughwash (2). As modern ploughsoil but pale brown to light yellowish brown (10YR 6/3-6/4). |
| 90-110 | Ploughwash (2). As above but with more coarse chalk. Pale brown to brown (10YR 6/3-5/3). |
| 110-153 | Ploughwash (4 and 5). As above but with some less stony zones. |
| 153-180 | Buried soil (6). Brown (10YR 5/3) chalky loam, generally stone-free. |
| 180-190 | Stone zone with old pea-grit (earthworm burrows) (8). Tailing off in the centre, thicker towards the edges. |
| 190-195 | Buried soil (no individual layer no., part of 8). Pale brown (10YR 6/3) chalky loam, generally stone-free. |
| 195-203 | Coarse chalk rubble (part of 8). |
| 203-240 | Secondary fill (9). Fine, very pale brown (10YR 7/3) loam. |
| 240-290 | Primary fill (10). Variably coarse to medium chalk rubble. |

All Munsell colour formulae are of moist samples. The weights of stones (mostly chalk) greater than 2.00 mm per 0.75 kg are plotted in Fig. 4.

A further soil report on two samples of sedimentary fill was kindly provided by Dr Myra Shackley of the University of Leicester. In addition to confirming the general stratigraphy shown above, she pointed out that the loose angular chalk shatter one might expect to

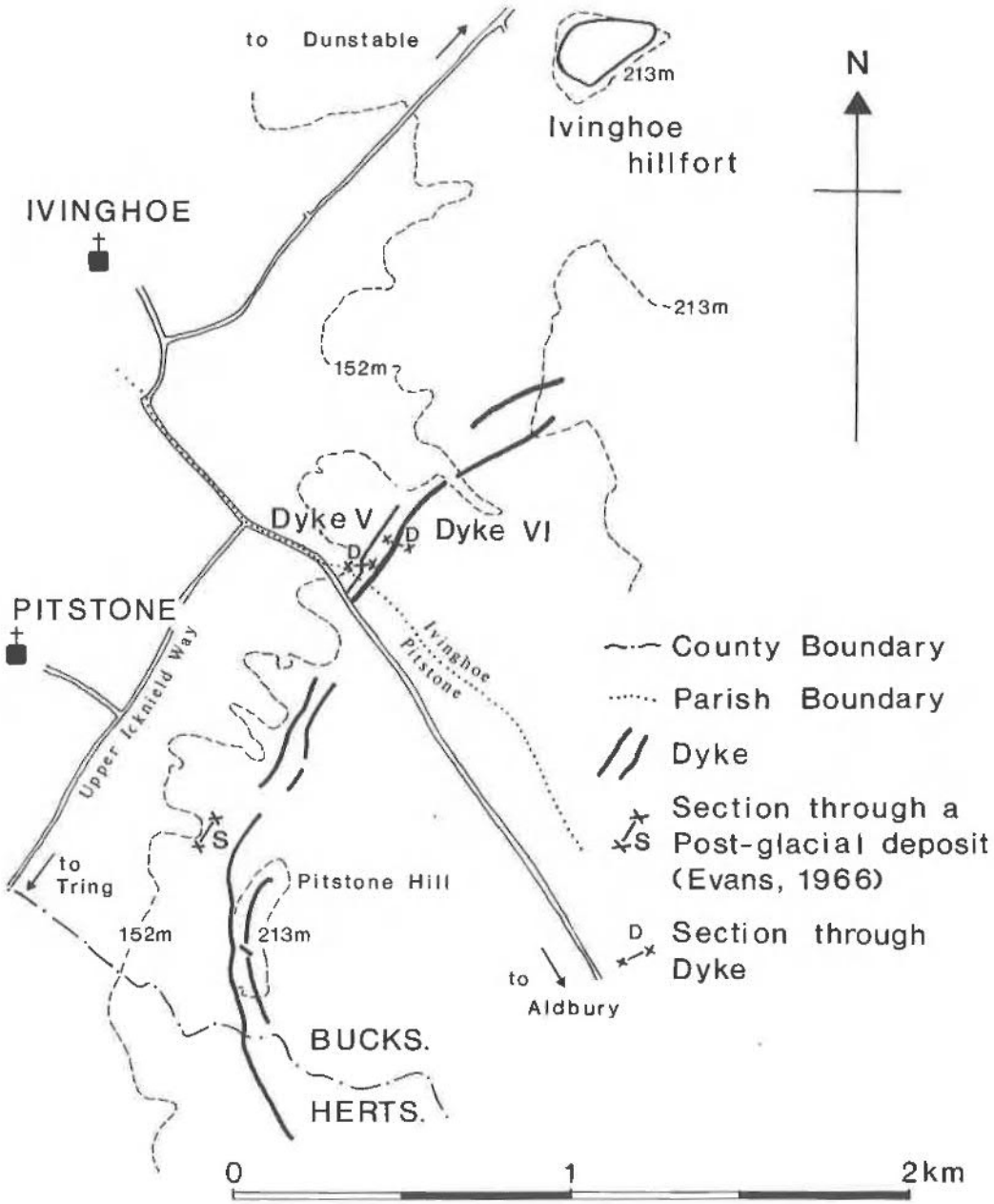


Fig. 1. Grim's Ditch between Aldbury and Ivinghoe.

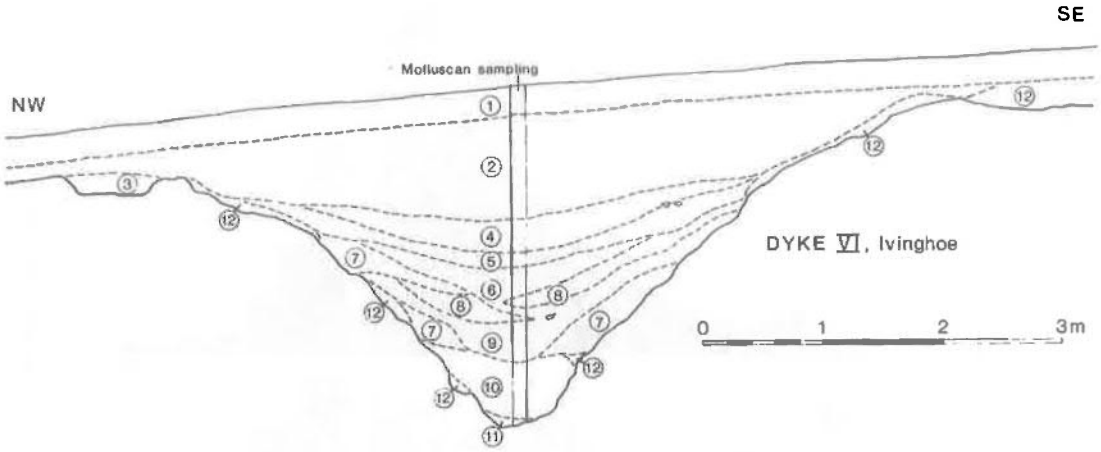


Fig. 2. Dyke VI, Ivinghoe: section.
Key: 1, Modern ploughsoil. 2, Ploughwash. 3, Chalk fragments. 4 and 5, Ploughwash, less stony. 6, Buried soil. 7, Friable, little chalk. 8, Stone zone with coarse chalk rubble below, containing buried soil. 9, Secondary fill. 10, Primary fill. 11, Impacted weathered chalk. 12, Loose weathered chalk.

find in the bottom of the ditch was not present, and suggested that it might have been cleared out in the early years after its construction. She also noted that the base of the ditch (11) contained impacted chalk fragments.

Each sample taken for molluscan analysis weighed 0.75 kg (air dry). All shells greater than 0.5 mm were extracted and counted as described in Evans (1972). Two diagrams illustrating the results have been prepared. One shows the counts per 0.75 kg (Fig. 3) and is fairly detailed with most species shown individually. The second (Fig. 4) illustrates the relative abundance of the major groups.

Several comments need to be made about the various species and groups. The Zonitidae include *Oxychilus cellarius* (and possibly a few *O. alliarius* and *O. helveticus*), *Aegopinella nitidula* and *Vitrea* (mostly *V. contracta* but a few *V. crystallina*). The Clausiliidae are mainly *Clausilia bidentata* with a few *Cochlodina laminata*; all are worn apices, residual from an earlier fauna not otherwise present. The same applies to *Pomatias elegans*. On the other hand some of the *Cepaea* shells are quite large and this genus (either *C. nemoralis* or *C. hortensis*) was probably living close by. The Limacidae (internal shells of slugs) are interesting in that there are two size groups. A few of the shells are large and clearly adult (probably *Deroceras reticulatum*). But most are very small and probably juvenile. The Helicellidae (other than *H. itala*) are difficult to identify but certainly include one or more of the species introduced into Britain in historic times, viz. *Cernuella virgata* and *Candidula intersecta*. The *Pupilla* shells are very variable both in colour and size. White (as opposed to the more normal pink/brown) shells constitute up to 20% in some assemblages. Variation in height is almost 30%. It is possible that this variation represents seasonal differences, the larger shells being of Autumn/Winter/Spring generations, the smaller of Spring/Summer generations. *Cecilioides acicula* is a burrowing species and the shells are probably mostly modern. The 'ova', or molluscan eggs, are all of the same size and form, and those that contained shells were of *Cecilioides*.

Several vertebrate bones and teeth were extracted from the molluscan samples. These were examined by Terry O'Connor. The

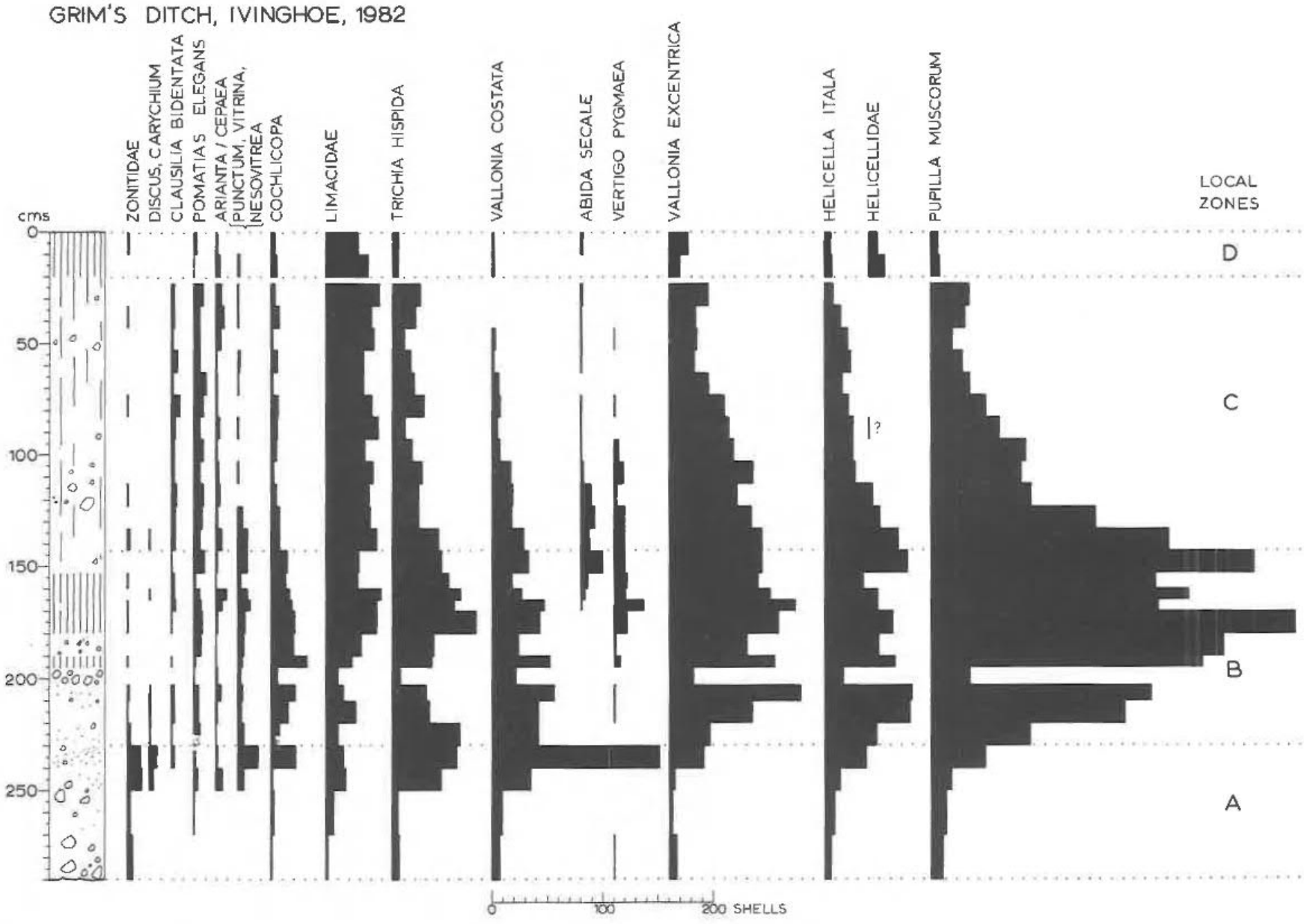


Fig. 3. Molluscan diagram, counts per 0.75 kg. *Clausilia bidentata* includes a single *Ena montana* apex at 53-63 cm.

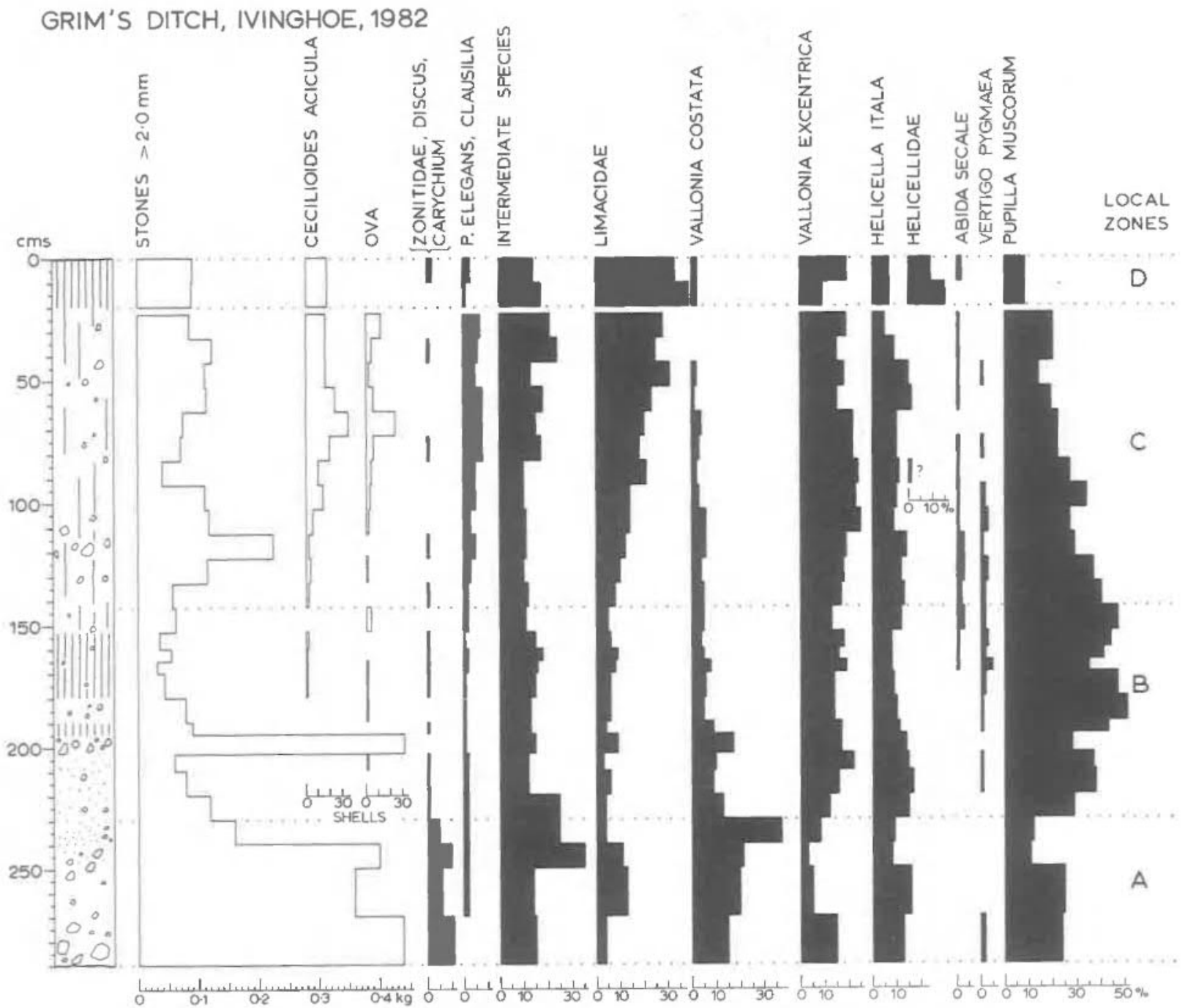


Fig. 4. Molluscan diagram, percentage values (excluding *Cecilioides* and ova). 'Intermediate species' include *Arianta/Cepaea*, the *Punctum* group, *Cochlicopa* and *Trichia*.

material was very fragmentary but the following were identified:

small birds: several bones
cf. *Arvicola terrestris* (water vole): 1 incisor fragment
*Apodemus* sp. (mouse): 4 molar teeth
vole: 1 bone and 1 tooth fragment
shrew: 1 tooth fragment
several indeterminate fragments.

The material was distributed throughout the deposits from 10 to 240 cm. The single shrew tooth was present at 230-240 cm, perhaps significantly in the zone with the richest molluscan fauna.

The molluscan succession has been divided into four zones, A to D, A being the lowest in the fill (Figs. 3 and 4). These are of local significance only, reflecting the various events in the infilling of the ditch. However, the composition of the assemblages is also a reflection of the availability of species in the surrounding area, and certain deductions can therefore be made about the wider environment. This is especially so with the assemblages from the buried soil complex (153-195 cm) because the long period of quiescence in the infilling which this represents would have allowed all available species that were compatible with the ditch environment to have become established.

*Zone A (230-290 cm)*. Characteristic groups are Zonitidae, *Discus* and *Carychium* (the main shade-loving species, see diagram) and *Vallonia costata*. *Vallonia excentrica* and *Pupilla* are low relative to their later abundance. This assemblage reflects the special conditions in the earliest stages of infilling—surface instability but with some shade and moisture. *Vitrea* (in the Zonitidae) and *Vallonia costata* are especially characteristic of this kind of environment.

*Zone B (143-230 cm)*. Zonitidae, *Discus* and *Carychium* are virtually absent; *Vallonia excentrica* is in excess of *V. costata*; *Pupilla* is high. This assemblage reflects very open conditions with no tree or shrub growth. In the main buried soil (153-170 cm) the slight peaks of *V. excentrica* and *Vertigo pygmaea* and the decline of *Pupilla* probably reflect very stable grassland, with no broken ground. *Abida secale* appears here for the first time. This is the period of maximum molluscan abundance.

*Zone C (20-143 cm)*. In relative terms, *Vallonia excentrica* and *Helicella itala* maintain their abundance; the limacid slugs increase; *Pupilla* shows a steady decline; *Vallonia costata* becomes virtually absent. There is a general decline of all groups except the Limacidae. This is an impoverished assemblage resulting from the increasingly unstable (and probably nutrient poor) surface conditions brought on by ploughing.

*Zone D (0-20 cm)*. The assemblage is similar to the upper part of zone C but with even lower numbers. Helicellidae other than *H. itala* appear for the first time.

The assemblages throughout are of open-country type. The few shade-loving species in zone A (max. 11%) suggest the nearby presence of bushes, but these are unlikely to be more than might be found along a field edge. The virtual absence of shade-loving species in the rest of the succession, especially in the lower part of zone B (the slow secondary fill) where they would be expected (and in which position they often occur in ditch infillings) argues for fairly widespread open country. Indeed it could be suggested that the drop in shade-loving species at 230 cm was the result of an environmental change not solely confined to the ditch itself but taking place beyond its bounds. Perhaps the construction of the earthwork was associated with the throwing open of arable fields, and the destruction of their edge communities of plants and animals, connected with the creation of pasture land.

Analysis of the ploughwash and buried soils at Pitstone referred to at the commencement of the paper had shown that rich woodland assemblages were there succeeded by open-country assemblages. Two major phases of open country were recognised, an earlier (phase A) with *Vallonia costata* and *V. excentrica* present in equal abundance, and a later (phase B) with *V. excentrica* predomi-

nant. On the basis of included pottery sherds the bulk of the accumulation was assigned to the Iron Age. It is likely that the succession at Grim's Ditch is equivalent to the later part of phase A and most of phase B at Pitstone. The correspondence is very close. It may be proposed that the ploughwash in the upper part of the Grim's Ditch infilling is of Iron Age date, at least in part.

A possible Iron Age rim found in the chalk rubble layer within the buried soil complex (180-190 cm) of Dyke VI underlines the correlation between the deposits at Ivinghoe and Pitstone.

Speculation on the origins and purpose of the Chiltern Grim's Ditch has continued spasmodically throughout the present century, and various conflicting theories have been discussed by Dyer (Dyer and Hales, 1962; Dyer, 1963). Dyer's dating of the dyke(s) to the Iron Age, based in part on evidence that on Pitstone Hill the ditch had been cut by a hollow-way which subsequently carried a Roman road, is substantially underlined by the recent work, the original excavation being perhaps earlier than he had proposed. Sherds of what may be Iron Age pottery have now been found within the ditch sections at nearly all the excavations of Grim's Ditch in the Chilterns: i.e. at Hastoe (Davis, 1981, 23); at Northchurch (information from J. Hunn); and now in Dyke VI in Ivinghoe.

The precise purpose of the dyke remains obscure. It has been established that the earthwork could not have been fortified and it has been suggested by Dyer that it represented the western boundary of Catuvellaunian territory.

The concept of the dyke as a tribal boundary, undefended and therefore presumably undisputed, raises the question: why should a boundary delineating such a large area be established well above the spring line, which occurs in the Pitstone/Ivinghoe area at the junction of chalk and gault clay just below the modern Upper Icknield Way and some 38 m below Grim's Ditch—a water level presumably never exceeded in post-glacial times? Settlements above the spring line have, since the Roman occupation, relied extensively on deep wells or, occasionally, on shallow springs fed from clay basins on the high ground; stock on the hilltops has been watered from man-made dew-ponds in the clay-with-flints glacial deposits. The Iron Age settlement near the Pitstone coombe deposits (Evans, 1966) was, in fact, on the northern or downhill side of the dykes, nearer to a good water supply at Cowhill Spring.

An alternative is to consider the dyke as a pastoral feature, perhaps dividing high grazing from ploughland at a lower level. Long linear boundaries of this kind are now recognised as part of planned landscapes dating back to the second millennium BC.

In historic times, land division on the Chiltern scarp (as in some other upland areas) has consisted of long, thin parishes running at right angles to the contours, each having its successive share of an area of low-lying land on the heavy gault clay; of a fertile belt (the Icknield loam belt) at about the spring-line level; of downland grazing and of woodland and common at or near the highest point. These woodlands and high commons are grouped together and may at some time have been jointly managed (Fig. 5)

Mention has been made (Davis, 1981, 27, 31) of an apparent realignment of Dyke V and a possible nearby adjustment of the line of Dyke VI at or about the Ivinghoe/Pitstone parish boundary. Examination of the Wendover/Northchurch route of Grim's Ditch on 1:2500 OS maps shows that many changes of direction occur, some of which are due to abrupt alterations in land profile. It may be seen, however, that there are other seeming correlations between the crossing of old parish boundaries and the alignment of the route of the dyke, although this is now often hard to detect on the ground. For example, there is a possible change of direction on the Aston Clinton/Buckland boundary (SP 908 079); a second realignment on the Buckland/Drayton Beauchamp boundary (SP 914 083); a third on the Drayton Beauchamp/Tring boundary (SP

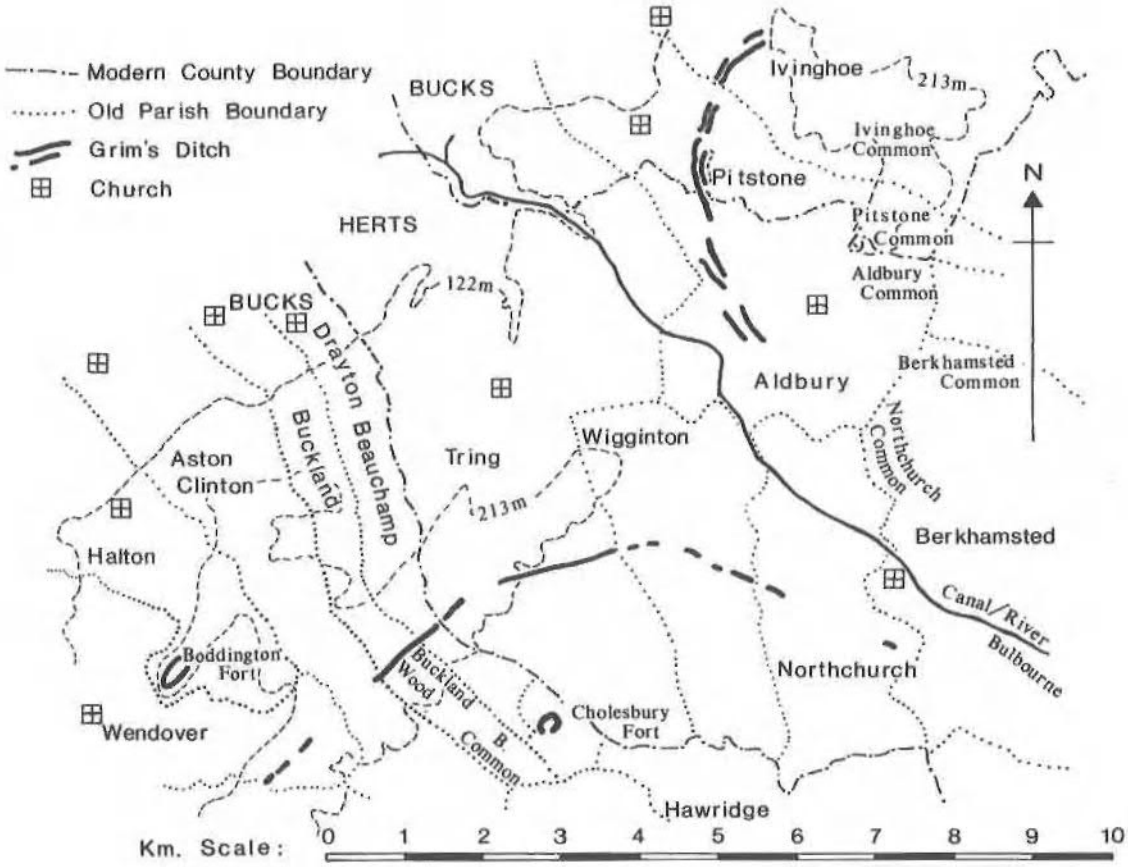


Fig. 5. Sketch-map of Chiltern scarp parishes: Grim's Ditch in relation to parish boundaries and commons.

916 086) and perhaps another on the Wigginton/Northchurch boundary at SP 956 090.

To avoid confusion, it should be noted that the approximate route of Grim's Ditch was adopted as the modern parish boundary between Drayton Beauchamp, Buckland and Aston Clinton on the north, and Cholesbury and St Leonards to the south, the latter parish now containing both Buckland Wood and Buckland Common.

It is not a new concept that a prehistoric territorial pattern may correspond in some part with the parish pattern as it was before the boundary changes of the last hundred years. Some form of forced or voluntary co-operation might be envisaged whereby gang labour from adjacent estates was used to produce a significant communal landmark—a dyke which defined an area of woods, commons and high grazing land newly created in part from old arable. Such a change in agrarian practice might reflect a shift of cereal production from the high land onto the potentially more productive Icknield loam belt. This higher land might have been administered in common, one estate with its neighbours, compared with lower land still to be managed perhaps in severalty: the need for shared resources available by 'rights' rather than by ownership has been discussed elsewhere (Fowler, 1983, 83).

The old parish map (Fig. 5) of the two adjacent areas containing excavated sections of the dyke—i.e. Wendover/Northchurch and Aldbury/Ivinghoe—shows the relationship between parish churches near the spring line, the route of the visible and/or recorded Grim's Ditch and areas of high grazing land, commons and woods. In the Wendover/Northchurch arc the land embraced by the dyke is not necessarily the highest. Boddington fort, like that at Ivinghoe, lies outside and to the north of the dyke and the slope of the land here is from NW to SE down towards Cholesbury fort: the visible bank, however, remains consistently to the north of the ditch. Historically, much common grazing for sheep and swine lay within the sweep of the dyke, cattle being frequently raised in the Vale.

A third stretch of designated Grim's Ditch to the south-west of Wendover is unlike the two previously mentioned, in its position behind the scarp parishes and in its direct but sharply angular route. Its purpose and even its date may perhaps have been somewhat different from those dealt with in this paper.

If large-scale organisation of land resources is envisaged, how was this managed and from where? The focus of the parishes in the Wendover/Northchurch group lies in the vicinity of Cholesbury fort, already considered by Dyer as a possible centre of local activity. On the basis of the pottery recovered during a limited excavation in 1932, Professor C. F. C. Hawkes suggested an occupational peak in the middle of the first century BC (Hawkes, 1933). Other forts in the area, at Boddington and at Ivinghoe, lay outside and to the north of the sweep of Grim's Ditch.

Within the Aldbury-Ivinghoe arc, the commons and woodland of those two parishes and of Pitstone again lie together, this time on the high ground of Ashridge. A major part of Aldbury parish is enclosed in this arc, including the modern site of the village, although this does not necessarily invalidate the theory of shared resources. To the south of Pitstone Hill, Dyer suggested the possible existence of a system of 'Celtic' fields. If so, such fields, perhaps Bronze Age in origin, would have predated the Ditch (Fowler, 1983, 190); linear dykes appear to ignore the early small fields, representing an agrarian reorganisation which threw them into disuse.

Finally, it may be asked why the dyke apparently existed only within the scarp parishes: the answer may be that estates in the heart of the Chilterns, like the modern parishes there, had their centres in comparatively narrow valleys, so that each was compactly provided with high- and low-lying land—something that is impossible on the Chiltern edge.

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In conclusion, from the evidence provided by the molluscan analysis of Grim's Ditch in Ivinghoe (Dyke VI), the following sequence of events may be proposed in that particular area:

(1) The ditch was dug in open country with only a very few trees or bushes. This may have been in arable land or perhaps along the boundary of arable and pasture.

(2) After a short phase when shade-loving molluscs colonised the ditch, grassland developed. This was probably a lengthy episode, extending in area well beyond the bounds of the ditch. It could have coincided with the establishment of a large tract of upland grazing. If the parallel ditch, Dyke V, had been built contemporaneously with or before Dyke VI, the area between the two is unlikely to have been cultivated but could also have been used for grazing, or for the movement or reorganisation of stock.

(3) Renewed cultivation, probably in Iron Age times, caused the ultimate destruction of part of the bank and the infilling of the ditch. A rising population in the late Iron Age might have resulted in the need to bring back into cultivation some of the lower uplands.

Whereas the ditches of both Dyke V and Dyke VI have been filled in right across the Pitstone/Ivinghoe field (National Trust Field), the bank of Dyke VI still remains in the Pitstone part of the field, where it forms the

field boundary. Both ditch and bank are still in existence (much reduced in scale) on higher ground in both parishes, on Pitstone Hill and on Steps Hill, Ivinghoe. Future work could usefully concentrate on investigating the buried surfaces beneath the bank of Dyke VI to see if the pre-bank environment could be more clearly defined. The re-sectioning of Dyke V so that sampling for molluscan analysis could be carried out might show whether the two parallel dykes were contemporary or, if not, which was the earlier.

Finds within the ditch of Dyke VI, kindly examined by Michael Farley, consisted of: a calcined flint pebble (10); a rim-tip sherd with fine-grain quartz temper, of possible Iron Age date; an oyster shell (8); charcoal (5); a flake, some cortex remaining, with edge damage; a non-cortical flake; and a sherd containing fine rounded quartz with occasional grog or sandstone temper (4); a quartzite pebble; a non-cortical flake; a flint-tempered sherd; and a fragmentary sherd with angular quartz temper (2). The figures in parentheses indicate the layer numbers shown in Fig. 2. All the sherds were from non-wheel-thrown vessels and all are small and featureless apart from that in the stone zone of layer (8), which could be Iron Age.

Figs. 1, 2 and 5 were drawn by Simon Smithson.

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