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THE STUMBLE, ESSEX (BLACKWATER SITE 28): CARBONISED NEOLITHIC PLANT REMAINS

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Summary

This report on 352 samples from neolithic contents supercedes while incorporating some data from AM Lab Report 157/88. Crops represented, in order of abundance, are _Triticum dicoccum_, _Hordeum_ sp var _nudum_, _Triticum aestivum s.l._, _Linum sp._ and _Triticum monococcum_. There is a restricted weed flora dominated by large-seeded taxa. _Corylus_ nutshells are almost as frequent as cereal remains and rosaceous fruits (mainly _P. spinosa_) are also common. Other woodland taxa include _Stellaria graminea_, _Moehringia trinervia_, _Tilia_ sp, _Quercus_ sp and _Solanum dulcamara_. Unidentified rhizome and root fragments are common. Results from this, at present the most extensively sampled English neolithic site, indicate an economy based partly on agriculture, partly on foraging. The spatial distribution of macrofossils is examined and some activity areas distinguished.

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Carbonised plant remains and other macrofossils

Introduction

Systematic survey and selective excavation on exposed areas of the neolithic palaeosol began during the 1986 season. It was decided at an early stage that, despite the practical problems posed by the intertidal location of the site, extensive sampling in order to retrieve palaeoeconomic and ecological information would be necessary. The site clearly provided an opportunity to obtain assemblages of neolithic macrofossils in which problems of later contamination (which bedevil neolithic samples from multi-period terrestrial sites) could be discounted. It was also hoped that studying the spatial distribution of macrofossils across the exposed palaeosol would provide information on 'activity areas'. To this end 112 bulk samples were collected from the palaeosol and features excavated at site 28A and in the following year a further 90 samples were taken from the adjacent sites 28B and 28E. Also in 1987 shallow late neolithic features were sampled at Site 28D. The samples produced exceptionally rich assemblages of neolithic plant remains and some burnt bone and teeth, and the results from 28A were summarised an an interim report (Murphy 1989). It was apparent, however, that the areas excavated were simply too small for informative interpretations of spatial distributions to be made. Equally it was clear that larger-scale area excavation was impractical. Consequently in 1988 a grid of trial pits was dug across the whole area of the exposed neolithic land surface, designated Area J, initially to define the extent of settlement activity. Samples were collected from the palaeosol in these trial pits. These samples provided an opportunity to see whether the excavated sites, at areas of high artefact concentrations, corresponded with nuclei of activities associated with food processing, preparation and consumption, or whether activities of this type also took place within those areas of the palaeosol which were artefactually blank. During the same season intensive sampling, as at sites A, B, D and E was continued at the excavation of site C and at one of the burnt flint mounds (Ct 231).

In this report the results from area J will be presented first to give an overall picture of the distribution of macrofossils across the site. Secondly results from the three sites A, B and E are given, together with a detailed description of plant macrofossils from Site A. The material from this site is typical of the remaining sites, though a few types of macrofossil not represented at site A are described in the appropriate sections. This is followed by the results from Sites C and D, and finally by a full synthesis and discussion of results from Site 28 as a whole.

Methods

Sampling and processing of deposits from intertidal sites present a number of unusual problems, and it is thus useful to describe the methods used in some detail.

Samples were collected on a 1 x 1 m grid from the palaeosol and from excavated features. Sample size was limited by practical considerations, in particular the weight of soil which could be transported from the site (initially on foot over extensive mud-flats, and subsequently by boat). Samples nominally of 5 kg (dry weight) were taken from the palaeosol, (through variations in lithology, and excavators' perceptions of weight resulted in dry weights of c 3-10 kg) and samples of varying weights from the fills of excavated features, depending on the size of the feature. On-site processing was not possible because the clay loam matrix of the deposits would not disaggregate readily.

On the basis of trial processing (Wilkinson and Murphy 1987, 71-3), the following methods were adopted:

(i) the samples, consisting of waterlogged clay loam, were stored in an unheated outbuilding with the bags open, allowing very slow drying;

(ii) after weighing, the dry samples were immersed in fresh water over a 0.5 mm mesh and wet-sieved when they had disaggregated (usually in a few minutes);

(iii) the material retained on the mesh (sand, shells of modern burrowing estuarine molluscs and plant detritus, with carbonised plant remains, bone and artefacts) was transported to the laboratory without drying;

(iv) after wet-sieving and washing with fresh water on a 6 mm mesh (to remove large shells, as well as artefacts, bone and large charcoal fragments), carbonised plant material was separated by flotation/washover with a 0.5 mm collecting mesh. The non-floating residues were wet-sieved on a 0.5 mm mesh. The 'flots' and residues were washed thoroughly to remove as much salt as possible;

(v) the residues were re-floated, because they still contained some charred material;

(vi) the dried 'flot' fractions, which consisted of mats of modern plant detritus with carbonised plant material, were gently broken down manually, before sorting under a binocular microscope at low magnification. After drying, some of the material had surface deposits of salt crystals, despite several stages of immersion in fresh water. It is possible that efflorescence of salt will cause fragmentation in the long term, but re-wetting the dried flots for a further washing would also be destructive;

(vii) finally, the residues were sorted for bone and small artefacts, without magnification. The weights of burnt bone fragments, charcoal and hazel nut shell fragments in the samples were also recorded. The quantities of hazel-nut shell recovered were, however, so small (except at Site D) that weighing was omitted in the case of samples from the 1988 season (Sites C and J).

Contamination

It was clear, during sorting, that the samples contained a mixture of carbonised plant macrofossils, burnt bone fragments and small artefacts, with intrusive biological material. The latter included foraminiferans, hydrozoans, mollusc shells, crustacean and insect remains, small fish bones and plant detritus (roots, stems, leaf fragments and seeds - mostly of halophytes such as Suaeda maritima, Plantago maritima, Triglochin maritima, Aster tripolium and Ruppia sp.) This intrusive material is likely to have been introduced into the neolithic deposits by the activities of burrowing organisms in two phases: firstly when the site was submerged in the early 2nd millenium B.C., and again, recently, since sedimentary cover was largely removed by erosion. There is no practicable way of separating macrofossils belonging to these two phases of estuarine conditions but none of them is of any relevance to the neolithic site and they can therefore be ignored. Obviously there is scarcely any possibility that any carbonised plant material or mammal bone has been introduced since the site was submerged by rising sea-level. One of the many advantages that this site has over dry-land sites is that the possibility of such contamination can be ignored - something that is not the case where neolithic settlement features occur within a multi-period, dry-land site.

The samples also contained a few uncarbonised fruits and seeds of terrestrial taxa (eg Rubus, Fragaria, Sambucus). It is not unusual to find some macrofossils of terrestrial plants in estuarine sediments so these might merely be contaminants introduced into the palaeosol by the same processes as seeds of halophytes. However during the first season there seemed a possibility that these durable fruits and seeds might be related to late neolithic activity as the palaeosol began to be waterlogged. The distribution of uncarbonised seeds of these taxa was therefore noted at Site 28A. A low density, fairly uniform, scatter across the site was recorded which seems to imply that these macrofossils of terrestrial taxa are, indeed, intrusive.

Site 28J

Trial pits in this area were dug on a 20 x 20 m grid pattern. In some cases it was impossible to dig down to the palaeosol, due to deep deposits of overlying sediment. In others the palaeosol was either truncated or poorly defined. For these reasons the grid is incomplete, though wherever possible samples were collected from the palaeosol. These samples were processed using the standard methods outlined above. The results are given in Appendix A.

Plant remains from these samples are sparse and usually poorly preserved. Taxa and plant elements present will not be described, but differ in no significant respects from the material from Site A. (see below).

The main feature of interest about this sample grid is the overall spatial distribution of macrofossils (Figs. 1-5). Fig. 1 shows the locations of trial pits: in some cases these deviate from the grid because it was necessary to re-locate them slightly to avoid creek fills, deep recent unconsolidated sediment etc.

Charcoal is present in every sample from the palaeosol in area J, but normally at low densities, under 0.1g of charcoal > 2 mm per kg of soil. There are a few localised concentrations mostly in the general vicinity of Sites A/B/E, C and G. These distributions probably represent concentrations of activity around these sites, which are indicated by artefact concentrations and higher charcoal densities. There was at least some neolithic activity, at one time or another, over the entire area. (Fig. 2).

Fragments of hazel nutshell and sloe fruitstones show a distribution concentrated in the area between and around Sites A/B/E and C, but with occasional fragments right across the area (Fig. 3). The distribution could reflect domestic activity around the excavated sites and small-scale peripheral activity in other areas. The distributions of cereals and burnt bone (Fig. 4) are much more concentrated around the excavated sites A/B/E and C and are clearly related to domestic food preparation at these sites.

These results indicate that the artefact concentrations investigated at Sites A/B/E, C and D/G/H really are associated with generally higher densities of macrofossils and represent foci of food preparation activities. Nevertheless the presence of charcoal everywhere and the wide distribution of nutshell and fruitstone fragments shows that the entire area was utilised for 'non-settlement' activities, though not necessarily continuously.

Site 28A

Samples were taken from the palaeosol during the second and third trowelling passes in the usual 1 x 1 m grid pattern (Samples 1-50 and 51-100 respectively). Sampling was inadvertently omitted from a few grid squares. In addition thirteen samples were taken from excavated contexts (pits, post-holes, gulleys etc). Plant remains extracted are listed in Appendix B and the results are summarised in Table 2.(p. 24-25)

The carbonised cereals

(i) Wheats (Triticum spp.)

Most grains in these samples were in a poor state of preservation, deformed, and with porous or abraded surfaces. Many could not be identified even to genus and others, though certainly of Triticum sp., were too distorted or fragmentary to be identified to species. However, of the better-preserved specimens, almost all were of T. dicoccum-type. There was a range of forms (Fig. 6 (a-f)). Typical emmer-type grains from two-grained spikelets had rounded or blunt apices, straight or slightly concave ventral surfaces, fairly rounded, often asymmetrical cross-sections, and maximum widths half-way up the grain or above. One specimen (Fig. 6 (c)) retained its apical brush of hairs and had fragments of inflorescence bracts fused to its surface. There were a few drop-shaped grains (Fig. 6 (b); cf. van Zeist 1968, 52). Grains with convex ventral surfaces, possibly from single-grained spikelets, also occurred.

Samples 1 and 9 produced two very battered grains which were thicker than broad and had rather curved, convex ventral surfaces and ridged dorsal sides. Their apices were damaged, but they appeared to have been rather pointed (Fig. 6 (g)). They are tentatively identified as einkorn, _Triticum_ cf. _monococcum_. A deformed grain from sample 4 showed features mimicking a hexaploid, free-threshing wheat, but no definite bread wheat-type grains were seen.

The wheat spikelet fragments consisted of spikelet forks, glume bases, detached rachis internodes and 'spikelet bases'. This last term refers to forks that had lost all or almost all trace of their internodes and the outer surfaces of their glume bases: the most fragmented examples were barely recognisable as cereal chaff and none of these 'spikelet bases' could be specifically determined with any confidence. The relatively small proportion of better-preserved wheat chaff has been identified with reference to unpublished criteria devised by Dr G.C. Hillman and to Jacomet's (1987) guide. The morphological criteria used in identification were as follows: presence/absence of nerves on the outer surface of rachis internodes (to detect any hexaploid wheats present); angle between glume faces on spikelet (viewed from above); angle between glumes on spikelet (viewed from front); prominence of primary and secondary keels and degree of tertiary nerve development on outer glume faces; angles between glume faces on either side of primary and secondary keels; distance between top of rachis internode scar and base of glume insertion; and relative width of rachis internode scar. The degree of precision in identification (e.g. _Triticum sp., T. cf. dicoccum_) is related mainly to the numbers of these features surviving on each specimen.

Measurements have not been used as a basis for identification, in part because of the poor state of preservation of the material. Rather few of the spikelet forks remained undeformed or retained the outer surface of their glumes, for example. The only dimension fairly consistently determinable was the width of detached glume bases, since these are often well-preserved. Jacomet (1987, 62) gives width ranges for einkorn of 0.45-0.9 mm and for emmer of 0.7-1.1 mm. However, in these samples, there were some very slender bases (less than 0.6 mm), with distinctively emmer-type morphology. Consequently the distribution of glume widths in this case is not likely to give a reliable separation.

Some of the best-preserved material is illustrated in Fig. 7. Spikelet forks of emmer (T. dicoccum) are shown in Fig. 7 (a-d). They show wide angles between the glumes and the internode scars are generally narrow. On many specimens the internode scar was obscured by scraps of tissue remaining from the internode. Fig 7 (e) illustrates a terminal spikelet fork of emmer. This has no ascending internode scar and the glumes are roughly symmetrical. The specimen shown is illustrated at an oblique angle: the crack in the glume makes it appear rather wide. The fork shown in Fig. 7 (f) is thought to be of einkorn (T. monococcum), from near the base of the ear. The surviving glume ascends almost vertically; it is narrow and has prominent primary and secondary keels, partly broken away, though (as in most cases) the outer glume face is rather abraded and damaged. Some of the spikelet forks (e.g. in sample 9 and from a post-hole fill, context 138) had wide internode scars. The example from sample 9 was simply too poorly-preserved to be identified specifically (the glumes were almost completely broken off), and the specimens from 138, though showing this einkorn-type feature, had emmer-type glumes set at an angle when viewed from above. They are assumed to be extreme forms of emmer.

Almost all the identifiable detached glume bases were of emmer. A typical example is shown in Fig. 7 (g). It has quite a prominent primary keel, the secondary keel is marked mainly by an obtuse angle on the glume face, and the tertiary nerves are visible, though rather faint. The glume faces on either side of the primary keel are at an acute angle. There were a few much more robust emmer glume bases with strongly-developed keels and tertiary nerves (Fig. 7(h)). In context 138 there were some extremely narrow and badly-distorted glume bases, perhaps from immature ears. The slender glume base illustrated in Fig. 7 (i) shows very faint traces of tertiary nerves, and has the faces of its glumes on either side of the primary keel set at just under 90°.

Intact rachis internodes were very rare. The detached examples from 138 mostly had damaged outer faces, but none of them showed nerves on these abaxial surfaces (Fig. 7 (j)).

In summary, features of the grains and spikelet fragments indicate that emmer (T. dicoccum) was the main wheat in these samples. There was a small proportion of einkorn (T. monococcum), but the material is thought to be too poorly preserved to give an exact figure. No evidence for the presence of hexaploid wheats was seen.

(ii) Barley (Hordeum sp.)

Grains of barley were uncommon and the few specimens present were either under-developed or poorly-preserved (Fig. 6 (h-i)). Presumably a 6-row form is represented, but all the grains in these samples are, or were, symmetrical (the grain shown in Fig. 6 (i) is deformed). The rounded profiles of these grains and, in some specimens, the presence of a central groove on the dorsal surface and a narrow ridge in the ventral furrow establish the presence of naked barley (var. nudum). No barley rachis fragments were seen.

(iii) Grass/cereal culm

Context 138 produced some quite large fragments of charred grass or cereal culm with a few nodes. The fragments were up to 10.5 mm in length and 1.4 mm in diameter, but generally less. There was also a single node from sample 60.

The weed flora

Carbonised fruits and seeds of weeds were uncommon, but in the samples from the palaeosol and most of the features Vicia/Lathyrus sp(p). and Galium aparine were the two most frequent taxa. The former were represented mainly by badly damaged, separated cotyledons with some whole seeds which, however, did not retain well-preserved intact hila. Nutlets of Rumex sp(p). and Polygonum aviculare, seeds of Chenopodiaceae and small caryopses of Gramineae occurred in a few samples.

The assemblage from context 138 was different. As noted below, this post-hole seems to have contained a proportion of crop-cleaning waste, including weed seeds. In order of abundance, these were of Rumex sp(p)., Gramineae (at least three species), Chenopodium album, Polygonum cf. aviculare, Polygonum sp(p)., Vicia/Lathyrus sp(p), Stellaria graminea and indeterminate Caryophyllaceae. However, the total weed 'seed' assemblage from this sample only comprised 39 identified specimens.

Nuts, fruits etc

Fragments of carbonised hazel-nut shell (Corylus avellana) were amongst the commonest macrofossils, though the density of fragments in the soil was very low. No intact nuts were recovered, apart from one almost complete immature nut, 6 mm in length. As mentioned above, weights of fragments in each sample were recorded.

Fragmentary fruitstones of sloe (Prunus spinosa) came from 15 samples. Most fragments were very small and were identifiable only from the rough surface of the endocarp; tentative identifications refer to abraded fragments. The most complete example, from sample 50, retained its prominent dorsal ridge. Context 164 produced a fruitstone of hawthorn (Crataegus monogyna), 5.0 x 3.7 mm in size. The fruitstone of Rubus sp. from sample 90 was in a poor state of preservation: only traces of the endocarp with its coarsely reticulate surface survived on the finely striated internal tissue. A few samples contained small enrolled fragments of tissue thought to be epidermis of apple (Malus sylvestris). Two immature fruits of Tilia sp. came from samples 52 and 89. Both were sub-spherical with pentagonal symmetry (Plate 3e).

Sample 40 produced two carbonised oak leaf galls (Neuroterus sp.) kindly identified by Dr. Mark Robinson (Plate 3b).

Carbonised tubers, rhizomes, roots and stem fragments

Fragments of vegetative plant material occurred frequently in these samples. The specimens were divided into nine main categories and examples of each type were shown to Jonathan Hather (Institute of Archaeology, University of London), to whom I am in indebted for many of the comments below.

1. Swollen basal internodes of Gramineae (Samples 10, 24, 52, 54, 61, 66, 75, context 164 and unlocated sample f). These pyriform or bulbous swollen basal internodes varied considerably in size (length approx. 3.0-5.4 mm; width 0.9-3.1 mm) and shape, depending partly on their original positions at the stem base, examples of lower internodes being rather rounded, the upper more elongate (cf. Hubbard 1968, 234). Epidermal cells are visible on the outer surfaces of most specimens (Plate 1 (a)) and many of them are fractured longitudinally, showing parenchyma on the fractured surfaces in radial longitudinal section (RLS; Plate 1 (b-c)). They are similar to swollen basal internodes of the onion couch. Arrhenatherum elatius (L.) Beauv. ex J. & C. Presl. var. bulbosum (Willd.) Spenner.

2. Other Gramineae stem fragments with short internodes (context 164). A fragment from this context, approx. 3 mm in length, comprises one whole and two incomplete internodes. It is longitudinally fractured and in RLS a central area of parenchyma, with fibre and vessel tissue at the periphery is visible. The very short length of the internodes implies an underground or basal stem section. (The presence of aerial grass/cereal stem nodes and fragments in context 138 and sample 60 has been noted above; see also Plate 1 (d)).

3. Monocotyledonous internodes with strong longitudinal ribs (sample 99). The specimen consists of two conjoined short internodes up to approx. 2 mm in width. There are faint traces of epidermal tissue on the ribs. In transverse section (TS), most of the cell structure has been reduced to amorphous carbon, though small lumina (probably of fibre cells) are visible in the 'rib' areas (Plate 1 (e)).

4. Section of dicotyledonous fleshy tap-root (Sample 2). The specimen is an incomplete disc, comprising a transverse section across a root, approx. 5 mm in diameter, and about 1.5 mm thick. It is not clear why it has fractured in this way (longitudinal rather than transverse fracturing would probably be expected), though there is the possibility that it was cut before carbonisation. In TS, a radial pattern of linear cavities, very characteristic of degraded xylem parenchyma, can be seen, but the outermost thin band of tissue does not have such cavities and probably consists of degraded phloem and epidermis (Plate 1 (f) Plate 2 (a)). A second fragment (from sample 44) shows similar degraded tissue with radial cavities, but is attenuated to a point at one end (Plate 2 (b)).

5. Central xylem and fibre 'cores' of ?roots (samples 1, 3, 16, 25, 31, 35, 51, 52, 57, 70, 79, 92 and 95). These specimens consist of small 'twig-like' fragments 0.4-2.0mm in diameter, irregularly curving, sometimes 'branched' and with numerous small side 'shoots' (plate 2(c)). In relation to the main axis, these diverge at all angles, suggesting the material is from roots rather than aerial stems. Their surfaces appear to consist of fibre tissue and they are thought to represent the central vascular and fibrous cores of roots that have lost their periderm, phloem and associated parenchyma. Specimens examined in TS show only solid masses of amorphous carbon. One specimen from 51 partly retains its outer tissues, represented by a sheath of porous and vesicular carbon.

6. Rhizome fragments with prominent circular root scars (Samples 8, 10, 30, 34, 39, 40, 45, 62, 84, 85, 91). A typical example is illustrated in Plate 2 (d). Characteristic features are the short internode length, rather irregular longitudinal ribbing on the internode, and conspicuous circular root scars, some of which have hollow centres, whilst others have small central projections. The specimens are very irregular in width and often rather flattened. Traces of epidermal tissue are visible on some specimens.

7. ?Rhizomatous fragments of ill-defined form Small and/or abraded fragments believed to be rhizomatous because of the short internode lengths and apparent root scars.

8. ?Inflorescence axis (Sample 82). Flattened short length of stem with numerous small shoots diverging at acute angles from stem axis (Plate 2 (e)).

9. Stem/rhizome with whorls of ?shoot or root bases at nodes (Samples 62, 75, 85). These are quite robust lengths of stem, 2.0-2.6 mm in diameter, with short internodes at which there are whorls of small circular scars. There are also large circular scars on the internodes at intervals (Plate 2 (f).

Some of these categories of vegetative plant material are quite distinctive, whilst others share features and may indeed have come from different parts of the below-ground structures of the same species of plant. With the exception of the *Arrhenatherum*-type swollen basal internodes none of the specimens are, at present, closely identifiable.

Site 28B

At this site sixty-four samples were taken from the palaeosol in a 1 x 1 m grid pattern, (omitting the south-east corner of the excavation where there was a large clay-filled feature, 183) together with eighteen samples from post-holes, pits and gulleys. The palaeosol samples were collected during the third trowelling pass. The methods used for extraction were identical to those employed at Site 28A, and the samples contained a similar range of recent contaminants. Plant remains extracted are listed in Appendix C, and the results are summarised in Table 2.

The carbonised cereals

The samples from this site contained, in general, lower densities of cereal remains with a higher proportion of unidentifiable or only partly identifiable material than at Site 28A. Nevertheless the results closely resemble those from 28A. Almost all the cereal remains identifiable to genus are of wheats (*Triticum* sp). The only wheat specifically determinable is emmer (*Triticum dicoccum*), which is represented by grains, spikelet forks and glume bases. The morphological descriptions given for Site 28A apply equally to well-preserved specimens from 28B. Naked barley (*Hordeum* sp) is represented by poorly preserved and fragmentary grains from only four contexts. Two samples produced cereal or grass culm fragments and nodes.

The 'weed' flora

As at Site 28A the two most frequent taxa are *Vicia/Lathyrus* sp(p) and *Galium aparine/Galium* sp. *Vicia/Lathyrus* are again represented by poorly preserved separated cotyledons and whole seeds which generally do not show well-preserved intact hilums. However, one seed from grid square 160 is about 1.9 mm in diameter with a damaged oblong hilum around 1.5-1.6 mm in length: it may be of *Vicia tetrasperma*. The wide range of cotyledon sizes (up to *c* 3.5 mm) indicates the presence of more than one species.

The generic identification to *Galium* sp. refers to fruit fragments, but in all probability these are all of *G. aparine.*

Additional taxa not noted at Site 28A are *Stellaria media*-type, *Moehringia trinervia* (Plate 3f), *Veronica hederifolia*, an indeterminate umbellifer and *Scirpus* sp. Small-seeded Caryophyllaceae are fairly frequent, but most specimens have lost their rows of marginal papillae.

Nuts, fruits etc.

Fragments of hazel-nut shell (Corylus avellana occur in over 96% of samples, but again the quantities of shell fragments are rather low. Amongst the rosaceous fruits, fragments of sloe fruitstones (Prunus spinosa) are most frequent but fruitstones of Rubus sp and a tentatively identified apple seed (Malus sp) also occur (Plate 3g). Two samples produced immature cupules of oak (Quercus sp) whilst an abraded fragment probably from a mature acorn cupule came from a third (Plate 3a). A specimen tentatively identified as an oak leaf gall (Neuroterus sp) came from context 197.

Carbonised tubers, rhizomes, roots and stem fragments

Vegetative plant material occurs frequently in these samples. The classification of the material into nine main types of specimens, used at Site 28A, is also employed in Appendix C for material from 28B. The material includes swollen basal internodes of Gramineae (cf Arrhenatherum elatius var bulbosum), a dicotyledonous fleshy tap root fragment, central xylem and fibre 'cores' of roots, and various rhizomatous fragments probably from monocotyledonous plants. As at site 28A there is a high proportion of fragments which are abraded or have ill-defined morphology.

Site 28E

Plant remains were extracted from eight samples from the palaeosol using the same methods as at sites 28A and B. Specimens extracted are listed in Appendix D. The range of taxa and density of material is very similar to the results from these other two sites.

Spatial distribution of macrofossils at sites 28 A and B

By sampling the palaeosol in a grid pattern it is possible to examine the distribution of macrofossils across the excavated area and thereby to detect any concentrations which might be related to activity areas. During the 1986 season, at site 28A, samples were taken at two levels, during the second and third trowelling passes. It was found that the lower level of sampling produced more coherent patterns, and therefore in 1987 samples were collected only during the third pass. Plans showing distributions of charcoal, burnt bone, cereal grains, wheat glume bases, Corylus nutshell fragments, vegetative plant material and edible fruits at this level are shown in figs. 9-15.

1. <u>Charcoal</u> - Concentrations of charcoal (g of fragments > 2mm/kg of soil) occur in the north-eastern area of site A, and in the south-west and central northern areas of site B. The site A concentration correlates well with artefact densities. Being very durable in the soil the charcoal may well relate to more than one phase of activity. The distribution does not clearly relate to patterns of post-holes and other features.

2. <u>Burnt bone fragments</u> - Bone fragments (g of fragments > 2mm/kg of soil) are comparatively abundant in the central area of the site and absent or uncommon to the north-west, south-west and north-east. The main concentration lies within, and to the south-east of, the central group of dug features.

3. <u>Cereal remains</u> - Cereal grains are, overall, more abundant than what glume bases, but both categories of cereal remains show a similar distribution pattern. Samples with more than one grain or glume base per kg of soil occur mainly in a diagonal strip across the site within, and to the south-east of, the feature alignments found during excavation. The highest densities of cereal remains, at the third trowelling pass level were in the north-western area of site 28A, with the maximum density in the palaeosol in sample 60 (12.5 grains/kg; 8.38 glumes/kg). The proximity of the post-hole, context 138, which had the highest density of cereal remains at the site (13 grains/kg; 97 glumes/kg) is worth noting. The distribution implies a focus of cereal processing in this part of the site.

4. <u>Corylus nutshell fragments</u> - Nutshell fragments were present in virtually every sample and the quantities (g frags > 0.5mm/kg of soil) were so low that it is perhaps doubtful whether the observed density variations are of real significance. Nevertheless a concentration in the central area of the site is perhaps detectable.

5. <u>Roots, rhizomes, tubers etc</u>. - No clear pattern is discernible.

6. <u>Carbonised fruitstones of sloe and bramble</u> - The distribution of these macrofossils seems to be largely complementary to that of cereal remains. Fruitstones are virtually absent in the area of highest cereal density.

Conclusions - At least three categories of material (bone fragments, cereal grains, wheat glume bases) show highest densities associated with the main concentrations of post-holes and other features in the central area of Sites A/B. If these features do indeed define a structure it may be suggested that burnt food waste (cereal and bone) was trampled into the palaeosol at low densities mainly within it. The distributions of charcoal, hazel nut-shell fragments, rosaceous fruits and vegetative plant material are more diffuse with a number of localised concentrations perhaps relating to more than one phase of activity.

It has to be concluded, however, that these apparent concentrations are not well-defined. Sites A and B do clearly represent a concentration of material within area J but detection of finer-scale spatial variation within the excavated area is less clear, presumably because of multi-phase activity.

Site 28C

This site was excavated and sampled during the final session in 1988. As at sites A and B the palaeosol was sampled in a $1m^2$ grid pattern. The entire area was sampled during the second trowelling pass but only the eastern half of the excavation was sampled during the third pass. Densities of carbonised plant material, and the range of taxa present, were found to be fairly consistent across the site and it was therefore not thought to be necessary to examine all samples: instead alternate samples were examined in a 'chess-board' pattern. This gave 34 samples from the second pass and 17 from the third. 18 samples were taken from 264, the black fill of the extensive feature 263 and 28 samples from other contexts (pits, gulleys etc.) Methods used were the same as at the earlier excavations and a similar range of recent contaminants was present. Full lists of identifications are given in Appendix E and the results are summarised in Table 2.

The carbonised cereals

The cereal remains from this site are, overall, fairly similar to those from Sites A and B. There is a high proportion of fragmentary and deformed indeterminate cereal grains. The better-preserved grains in the samples from Site C are all of *Triticum* spp., with *Triticum dicoccum*-type grains predominating amongst those specifically attributable. There are, however, a few short grains of free-threshing hexaploid type (*Triticum aestivum* s.l.) in samples from 239, Ct 264 (7294 and 7295) and Ct. 274. (Fig 16 a-b). The wheat spikelet fragments identified to species are all of emmer (*Triticum dicoccum*) but again there are many incomplete damaged spikelet fragments or specimens showing ill-defined morphology (e.g. some very slender terminal spikelet forks) which are not specifically identifiable. Apart from the grains of *T. aestivum* s.l. illustration is unnecessary since the other cereal remains from Site C show no morphological features unrepresented at Site A.

Flax (*Linum* sp)

Damaged seeds of a species of flax came from three samples, from 362 and Contexts 309 and 317 (Fig 16 c-e). None of them is complete, so overall dimensions cannot be determined, but the seed from Ct. 309 must have been approximately 3.1 mm in length. Epidermal cell patterning survives on their surfaces but is partly obscured by tarry exudations.

The 'weed' flora

The range of weed taxa in samples from Site C resembles those from Sites A and B, although fruits and seeds of weeds are markedly less frequent than at the two earlier excavations. Poorly preserved seeds and isolated cotyledons of Vicia/Lathyrus spp predominate, as at Sites A and B. Two additional taxa are Polygonum convolvulus and Thlaspi arvense.

Nuts, fruits and other 'woodland' taxa

Fragments of hazel nutshell (Corylus avellana) occurred in almost 95% of samples but the fragments never represent more than one nut per sample. Amongst the rosaceous fruits endocarp fragments of Prunus spinosa (sloe) were found in over 70% of samples, and some of these have tarry porous residues representing remnants of mesocarp adhering. Angular fruitstone fragments, possibly of rose (Rosa sp), seed fragments with striated fibrous surfaces perhaps of apple (Malus sp) and a single fruitstone of hawthorn (Crataegus monogyna) are also present. Several samples produced fragments of what appears to be charred mesocarp tissue with trace of epidermis from a soft fruit, both these show no clear features which would permit identification. As at site A immature Tilia fruits occur at low frequencies. An additional taxon not seen in previous samples, is Solanum dulcamara (woody nightshade). Well preserved seeds from Ct 264 are flat, with a maximum dimension of 2mm, and show a characteristic sinuous reticulation on their surfaces; others have lost all surface detail, but on general size and shape characteristics are tentatively attributed to this species.

Roots, tubers, rhizomes etc.

Compared to sites A and B carbonised vegetative plant material of this type is much less frequent but includes a similar, but more restricted range of forms, principally swollen basal internodes of Gramineae and rhizomatous fragments with large circular root scars.

Carbonised dung?

Fragments of amorphous charred material including fragments of probably monocotyledonous plant stems and leaves were found in samples from the palaeosol in the western part of the excavation (356, 367, 371, 377). Definite identification of this material is not possible, but it has the appearance of charred herbivore dung.

Spatial distribution of macrofossils at site C.

Charcoal fragments are ubiquitous at site C, fragments >2 mm occurring at densities in the palaesol comparable to, but slightly lower than, those at sites A and B (Fig 18). The highest densities in the palaeosol are in the central and north-eastern area of the trench at the second pass trowelling level. These charcoal concentrations correspond to the underlying pits, some of which contain very high charcoal densities (eg contexts 266, 270, 272 and 304, which have densities in the range 0.95 - 1.69 g/kg of soil).

Virtually all samples from the palaeosol (except 379) contain whole or fragmentary cereal grains, but at low densities: almost always under 1 grain per kg. of soil. It is not thought that plotting these low densities in plan would show any significant patterns. The distribution of wheat glume bases is shown in Fig 19. No sample contains more than one glume per kg. of soil. At the level of the second pass the main concentration of glume bases lies in the eastern half of the trench. Samples from the third pass (not illustrated) contained still fewer glume bases, almost entirely confined to the extreme north-eastern corner. Corylus nutshell fragments are widely distributed at low densities. Fragments of rosaceous fruitstones occur sporadically with no marked concentrations, as do fragments of rhizomatous material. Plotting the distributions of these macrofossils would serve no useful purpose.

The samples from Site C differed from almost all other samples in including not only burnt (white-grey-black) bone fragments and teeth but also brown unburnt bone fragments. The distribution of burnt and unburnt bone in the palaeosol (second pass) is shown in Fig 20. Quantities were too small for weighings to be worthwhile. Bone is absent from peripheral samples to the west and south and unburnt bone is concentrated close to the centre of the excavation. Most of the features (pits, gulleys etc) which produced unburnt bone (265, 269, 271, 273, 296, 298, 303, 314, 326, 322) are located in this central area. Presumably sufficient bone was deposited in their fills to modify the soil microenvironment so that unburnt bone survives here and rarely elsewhere.

In summary the macrofossil distributions in the palaeosol at Site C are directly related to the locations of underlying pits etc.

Site 28D

In this area the six samples examined came from shallow depressions and possible post-holes associated with late neolithic pottery. Specimens were extracted by the same methods as at the other sites, and are listed in Appendix F.

Plant remains

None of the samples examined produced any remains of cereals or other cultivated plants. They have a high mean charcoal concentration (1.47g/kg of soil; range 0.53 - 2.93g/kg) compared to pits, post-holes and other dug features at site 28B (0.57g/kg of soil; range 0.01 - 4.63g/kg). Fragments of hazel nutshell (*Corylus avellana*) are consistently present, and in the depression 209 occurred at an exceptionally high density (0.50g of fragments/kg of soil). Apple seeds (*Malus sylvestris*) and fragments of endocarp tissue, with its distinctive cellular patterning (Plate 3 c-d), are common. Fragments of epidermal tissue are also present: these include very wrinkled scraps of epidermis with attached internal parenchymatous tissue and also flat or enrolled epidermal fragments; both types could be from dried fruits, but no definite identifications have been made. Other plant remains include rhizomatous fragments and swollen basal internodes of Gramineae.

Ct 231 (Burnt flint mound)

Three samples from subsidiary contexts (279, 287 and 288) were collected. The samples consisted largely of heat-shattered flint fragments with relatively abundant charcoal and a small proportion of mineral soil. Carbonised plant remains extracted are listed in Appendix G.

Discussion

The first point to be considered in discussing the carbonised plant remains from Site 28 is their dating. Two radiocarbon dates were obtained from carbonised cereal grains, two from hazel nutshell fragments and one from twigs (Table 1), but dating in most cases has to be by means of associated artefacts.

Site	Context	Material	Uncalibrated date (BP)
C	Ct. 266	*T. dicoccum*-type grains	4675 ± 70 (Ox A 2299)
C	Ct. 270	*C. avellana* nutshell	4780 ± 70 (Ox A 2298)
A	Ct. 138	*T. dicoccum*-type grains	4020 ± 70 (Ox A 1914)
D	Ct. 215	*C. avellana* nutshell	4060 ± 80 (Ox A 1915)
-	Ct. 231	Twigs	3885 ± 70 (Ox A 2297)

Table 1: Radiocarbon dates

Although much of the pottery from the site is of early-middle neolithic date, some grooved ware and beaker pottery has also been recovered: artefactual material from Site D is exclusively late neolithic. These results seem to indicate repeated, but presumably not continuous, small-scale activity within the area of palaeosol exposed right through the neolithic (cf. Healy 1988, 108-110).

Samples from the trial pits in area J show that this activity has resulted in a low density scatter of charcoal in the palaeosol across the entire site with concentrations in the vicinity of the densest artefact scatters. Fruitstones of sloe and hazel nutshells show a wide distribution but carbonised weed seeds, burnt bone fragments and particularly cereal remains are most frequent in samples from trial pits close to sites A/B/E and C (see above: Figs 1-5). This repeated use of the entire area throughout the neolithic means that any sample from the palaeosol might include carbonised plant material relating to more than one phase of activity, though obviously most plant material from the excavated sites is likely to be contemporary with the associated high densities of artefacts. Material from excavated features (pits, post-holes etc.) is more certainly of one phase within the neolithic, but even in these features some admixture of 'background' material cannot be entirely excluded. Single-phase sites and/or radiocarbon-dated specimens are thus particularly important.

Two areas in particular do seem to be single-phase: Site C, with early-middle neolithic artefacts and uncalibrated radiocarbon dates of 4780 and 4675 BP and Site D with its late neolithic ceramics and radiocarbon date of 4060 BP. It can safely be assumed that virtually all the plant material from these two sites is related to a single phase of activity. The results from Sites A/B/E are less consistent: the pottery is mostly early-middle neolithic but emmer-type grains gave a date of 4020 BP. It is likely that both early and late neolithic plant material is present in these samples. Material from samples in area J is essentially undateable in practical terms.

Despite problems of dating, the samples from the three main excavated areas (Sites A, B and C) are remarkably consistent in their overall composition, as summarised in Table 2. (Site D, discussed separately below, is different and seems to represent a specialised activity area). At the other three sites, however, cereal remains are present in the majority of samples (87-98%); emmer is consistently the main cereal; the range of weed taxa is restricted with large-seeded forms predominating; hazel nutshell fragments are very common (85-96% frequency); rosaceous fruits, mainly sloe fruitstones occur quite consistently but at lower frequencies; and finally root and rhizome fragments are common. The main differences between sample groups from these three sites are: the presence or absence of 'minor' cultivars (<u>Triticum monococcum</u> (einkorn), <u>Triticum aestivum s.l.</u>, (free-threshing wheat), <u>Hordeum</u> sp. var <u>nudum</u> (naked barley), <u>Linum</u> sp. (flax); the markedly lower freqencies of weed seeds at Site C; the presence or absence of macrofossils from certain woodland taxa;and the somewhat lower freqencies of root/rhizome fragments at Site C. Differences between sample groups involving taxa which are, in any case, uncommon clearly need not be significant. Considering these characteristics of sample composition it is hard to see any clear qualitative differences between the assemblages from the three sites, even though the available evidence indicates that the material from site C is exclusively or very largely, early - middle neolithic whilst the material from sites A/B/E includes at least some late neolithic cereals and other plant material. On these grounds <u>it is impossible to define any significant differences between early and late neolithic plant food production and foraging.</u> For this reason the plant material from sites A/B/E and C will be discussed together, below.

	SITE A		SITE B		SITE C	
	Frequency	% Frequency	Frequency	% Frequency	Frequency	% Frequency
1. Cultivated crops/possible crops						
Triticum dicoccum - type (emmer: grains)	47	42.0%	21	25.6%	21	21.6%
Triticum dicoccum Schübl (emmer; spikelet fragments)	28(+5)	29.5%	10	12.2%	21	21.6%
Triticum cf. monococcum L.(einkorn: grains)	(2)	1.8%	-	-	-	-
Triticum monococcum L. (einkorn: spikelet fragments)	1(+1)	1.8%	-	-	-	-
Triticum aestivum s.l (free-threshing hexaploid: grains)	-	-	-	-	4	4.1%
Triticum sp(p) (indeterminate wheat(s): grains and fragments)	65	58.0%	43	52.4%	57	58.8%
Triticum sp(p) (indeterminate wheat(s): spikelet fragments)	50	44.6%	32	39.0%	38	39.2%
Hordeum sp(p) var nudum (naked barley: grains)	4(+2)	5.4%	2(+2)	4.9%	-	-
Indeterminate cereal(s) (grains and fragments)	105	93.8%	72	87.8%	95	97.9%
Cereal/grass (culm fragments and nodes)	3	2.7%	2	2.4%	-	-
Linum sp (flax : seeds)	-	-	-	-	3	3.1%
2. Weeds, wetland plants etc (fruit/seeds)						
Thlaspi arvense L. (field penny cress)	-	-	-	-	1	1.0%
Stellaria media - type (chickweed)	-	-	1	1.2%	-	-
Caryophyllaceae indet. (chickweed family)	1	0.9%	5	6.1%	-	-
Chenopodium album L. (fat-hen)	1	0.9%	4	4.9%	-	-
Chenopodiaceae indet (fat-hen family)	2	1.8%	1	1.2%	1	1.0%
Vicia/Lathyrus sp(p) (vetches/tares)	42(+1)	38.4%	47	57.3%	14(+1)	9.6%
Leguminosae indet (medick/clover)	-	-	3	3.7%	-	-
Umbelliferae indet (cow-parsley family)	-	-	1	1.2%	-	-
Rumex sp(p) (docks)	4	3.6%	2	2.4%	1	1.0%
Polygonum aviculare agg (knotgrass)	1(+1)	1.8%	2	2.4%	-	-
Polygonum convolvulus L (black bindweed)	-	-	-	-	3	3.1%
Polygonum sp(p)	2	1.8%	-	-	-	-
Polygonaceae indet. (dock family)	-	-	3	3.7%	1	1.0%
Veronica hederifolia L (ivy-leaved speedwell)	-	-	6	7.3%	1(+1)	2.1%
Galium aparine L (cleavers)	13	11.6%	19	23.2%	2	2.1%
Galium sp	-	-	7	8.5%	1	1.0%
Scirpus/Schoenoplectus sp (bulrush)	-	-	2	2.4%	-	-
Gramineae indet (grasses)	8	7.1%	4(+1)	6.1%	1	1.0%

cont/d..

		SITE A		SITE B		SITE C	
		Frequency	% Frequency	Frequency	% Frequency	Frequency	% Frequency
3. Woodland and scrub taxa							
Stellaria graminea L.	(lesser stitchwort: seeds)	1	0.9%	-	-	-	-
Moehringia trinervia (L) Clarv.	(three-veiend sandwort: seeds)	-	-	2	2.4%	-	-
Rubus sp	(? bramble: fruitstones)	1	0.9%	2	2.4%	-	-
cf. *Rosa* sp	(? rose: fruitstone fragments)	-	-	-	-	(1)	1.0%
Prunus spinosa L	(sloe; fruitstones and fragments)	10(+5)	13.4%	11(+4)	18.3%	6(+1)	7.2%
Crataegus monogyna Jacq.	(hawthorn: fruitstones)	1	0.9%	-	-	1	1.0%
Malus sp	(apple: seeds and fragments)	-	-	(1)	1.2%	(3)	3.1%
Malus sp	(apple: epidermal fragments)	(4)	3.6%	-	-	-	-
Tilia sp	(lime: immature fruits)	2	1.8%	-	-	2	2.1%
Corylus avellana L	(hazel: nutshell fragments)	95	84.8%	79	96.3%	92	94.8%
Quercus sp	(oak: cupule fragments)	-	-	2(+1)	3.7%	-	-
Solanum dulcamara L	(woody nightshade: seeds)	-	-	-	-	2(+6)	8.2%
4. Roots, rhizomes, tubers etc.							
Gramineae	(swollen basal internodes - grass stem 'tubers')	9	8.0%	4	4.9%	5	5.2%
Dicotyledon	(fleshy tap-root fragments)	2	1.8%	1	1.2%	-	-
Other root/rhizome fragments		29(+9)	33.9%	34	41.5%	12(+5)	17.5%
Total number of samples		112		82		97	

Table 2: Frequencies of taxa and plant elements from Sites A, B and C

In every sample examined which produced specifically identifiable material emmer (Triticum dicoccum) is either the main or only cereal: emmer-type grains or spikelet fragments occur in up to 42% of samples at Site A, 26% at Site B and 22% at Site C. Indeterminate wheat grains and spikelet fragments (most of which are probably of emmer) occur at higher frequencies at all three sites. Einkorn (Triticum monococcum) is restricted to site A, where it occurs in no more than 2% of samples. Elsewhere, this crop has been reported as impressions on pottery from Windmill Hill at low frequencies (Helbaek 1952,224-5) and a carbonised glume base from Hazleton chambered tomb is tentatively attributed to this species (Moffett et al 1989) but nowhere in Britain does it seem to be common. Free-threshing hexaploid wheat grains (Triticum aestivum s.l) were found in 4% of samples from site C. There is a single grain impression from Maiden Castle (Helbaek, ibid) and several reports of carbonised grains from neolithic contexts in lowland Britain (Moffett, et al 1989). Naked barley (Hordeum sp var nudum) occurs in about 5% of samples from sites A and B. It has also been reported from other British sites as impressions and carbonised grains, sometimes in association with hulled barley. The range of cereal crops from The Stumble is thus comparable with those from other sites. Interpreting these results in terms of production is clearly difficult but they are not inconsistent with the view that at this site emmer was the main crop and the other cereals may simply represent contaminants of batches of emmer.

Some indication of the cereal processing activities taking place on site is given by sample composition, in terms of the relative proportions of grain and glumes (calculated as loose glume bases + (spikelet forks + spikelet bases) x2). Sample composition is summarised in Fig. 21. The cluster of samples containing less than ten grains or five glume bases is arbitrarily omitted for the sake of clarity. In samples composed mainly of two-grained wheat spikelets a 1:1 grain-to-glume ratio would be expected. However, of the 45 samples included in Fig. 21 32 have a higher ratio, with an excess of grains over glumes. A further 10 contain a slight excess of glumes and only one sample, from Site A Context 138), contains a significant excess of glumes. Its grain to glume ratio is about 1:7.5 and the sample also produced culm fragments and a relatively large number of weed seeds. The material from this context seems to represent crop cleaning waste, and the presence of culm fragments, albeit in small quantities, does perhaps indicate that the earlier stages of crop processing were taking place, implying production in the vicinity (cf Hillman 1984,33). This sample is, however, atypical.

Most samples from the sites seem to represent a background scatter produced during small-scale domestic activities such as spikelet parching and grain roasting. The fragments of inflorescence bracts fused to a grain from Site A, 59, certainly imply carbonisation in the spikelet.

The only other domesticated crop represented in these samples is flax (Linum sp), three seeds of which came from Site C. Helbaek (1952, 199) reports impressions of two seeds, c 4mm long, from Windmill Hill which he attributes to L. usitatissimum. The carbonised seeds from Site C are incomplete but one of them may have originally been c 3.1mm long. Charred seeds do not appear to have been reported from other British neolithic sites but this is perhaps not surprising when it is considered that it was necessary to process 352 samples from sites A,B,C,D,E and J and Ct. 231 to produce the few seeds recovered and sampling has never been on this scale elsewhere. There is no way of determining whether the flax was grown as a fibre crop or an oil crop, but both are possible.

The weed and wetland taxa identified in samples from Sites A,B and C are listed in Table 2. To these should be added a seed of Plantago major L (plantain) and nutlets of Carex sp from Site J. The range of taxa is obviously very limited. Assuming that most of these fruits and seeds are from crop weeds it is probable that many or most species represented originally arrived as contaminants of seed corn, though the weed flora would have been supplemented by ruderals already growing locally. It seems probable that the arable plots at The Stumble were isolated from those of other settlements by woodland and there may have been little or no exchange of cereals between neolithic communities.Consequently there would have been much less opportunity for the spread of weeds than in later periods and floras were consequently impoverished.

The two commonest weed taxa (Vicia/Lathyrus sp(p). and Galium aparine) both comprise climbing or scrambling plants which would have ascended cereal culms. Their seeds/fruits could easily have been accidentally collected during harvesting, particularly if this involved ear collection by plucking or cutting. Furthermore, the large propagules of these plants would have been less easy to remove from the harvested crop than those of smaller-seeded weeds. In general, semi-cleaned crop products tend to include a high proportion of weed seeds in approximately the same size category as the crop itself (Jones forthcoming). It therefore seems that the composition of the weed seed assemblages in these samples has been influenced mainly by the growth habit of the weed plants and the limitations of crop cleaning by sieving or winnowing. The two wetland taxa (Carex sp, Scirpus/Schoenoplectus sp.) may represent some collection of material for litter, bedding or thatching.

Woodland plants are well-represented in these samples, and include herbs, shrubs and trees (Table 2). Pollen analysis of the palaeosol outside the settlement area, to the north, indicates a local deciduous woodland type dominated by Tilia (lime) with Quercus (oak) and Corylus (hazel) of some importance. Ulmus (elm) and Alnus (alder) were also recorded at low frequencies. Pinus values are high but may include re-worked Tertiary pollen or may result from differential preservation. (Scaife, forthcoming). A soil monolith from adjacent to Site C has also been analysed for pollen but unfortunately Andrew Evans found that the profile was devoid of pollen (Evans 1990).

Amongst the carbonised macrofossils fragments of hazel nutshell (Corylus avellana) are extremely common, occurring in 85-96% of samples at Sites A,B and C. However the quantities of nutshell recovered are extremely small, never representing more than one nut per sample and usually much less. It is possible that this species is over-represented in terms of frequency, compared with cereals, since its nutshells are woody and would readily have become carbonised. Once carbonised, even small fragments would be durable and could easily have become dispersed across the site. Nevertheless, the high frequency of nutshell fragments does perhaps imply that hazel-nuts formed a significant component of the diet. There are good grounds for thinking that neolithic communities were capable of managing woodlands to produce specific products, such as the hazel rods used in the construction of the Somerset Levels trackways (Morgan 1988, and references therein), and it is quite possible that in this case local woods were managed so as to provide suitable conditions for the flowering and nut production of hazel as suggested by Dimbleby (1967, 35 and 146).

Of the rosaceous fruits likely to have been available in nearby woods, Prunus spinosa (sloe) is the most abundant species in these samples. This again may in part be related to the durability of its fruitstones. Fragments came from 7-18% of samples and some fruitstones have charred residues of mesocarp tissue attached. Other taxa include Rubus sp(p) (bramble etc), Malus sp. (presumably crab-apple), Crataegus monogyna (hawthorn) and probably Rosa sp (rose). Fragments of plant tissue thought to be charred mesocarp and epidermis from soft fruits are present, but cannot be identified.

The macrofossils of woodland plants so far discussed all probably represent charred debris from human food but others may be debris from domestic hearths or localised woodland clearances. These include seeds of the woodland herbs Stellaria graminea (lesser stitchwort) and Moehringia trinervia (three-veined sandwort), immature oak cupules and fragments (Quercus sp.) and seeds of Solanum dulcamara (woody nightshade). The occasional immature fruits of Tilia sp (lime) may have a similar origin, but they might perhaps be related to the collection of lime boughs in summer for use as animal fodder. It has been suggested that the nutritious leaves of this tree were a favoured fodder in prehistory (cf. Tinsley 1981,238).

The final category of macrofossils from Sites A,B and C comprises charred roots, rhizomes and 'tubers', which occur in more than 40% of samples at Site B. The types of material present have been described above. Unfortunately close identification has not been possible but the association of this vegetative plant material with undoubted food plants suggests that some, or all, of it was intended for consumption. Plant organs of these types contain a high proportion of parenchymatous tissue and, hence, of water. It seems probable that such material is more likely to explode or fragment during carbonisation than are cereal grains or nutshells. Consequently vegetative plant material is likely to be seriously under-represented as carbonised macrofossils. Nevertheless it may well have provided a significant proportion of the plant foods in the neolithic diet.

The results from Site D require separate consideration. The samples came from a series of shallow features associated with grooved ware and beaker pottery. As noted above they contain a higher mean density of charcoal and hazel nutshell fragments than samples from other sites, relatively abundant seeds and endocarp ('core') fragments of apples with some epidermal and parenchymatous tissue which might also be of apples and some rhizomatous material. In the samples examined there are no cereal remains. Cereal grains from Site A gave a radiocarbon date (4020 $\pm$ 70 BP: OxA 1914) near-contemporary with that from nutshells from Site D (4060 $\pm$ 80 BP: OxA 1915) so obviously this does not indicate a cessation of cereal consumption at this time. Rather, Site D must represent some kind of specialised activity area. One characteristic of Site D, the abundance of heat-shattered flint fragments, seems to link it with the 'burnt flint mounds' at Site 28. However the only one of these to be extensively sampled, context 231, produced no definite food remains, just wood charcoal with rare rhizome fragments, so the function(s) of Site D may have differed from that of the 'burnt flint mounds'. The evidence, such as it is, seems to suggest that Site D was associated with the collection of woodland plant foods either for immediate consumption or for drying/roasting prior to transportation to the main settlement area. Evidence for dried apples in the Neolithic is discussed by Monk (1988) but there is no obvious way of determining whether the remains of crab-apples from Site D represent charred food refuse or accidental charring during drying with artificial heat for winter storage. Burnt bone fragments also came from the Site D samples and these, too, could be related to either cooking or the drying or smoking of meat.

The radiocarbon date of 3885 ± 70 BP (OxA 2297) on a charred twig from the burnt flint mound Ct 231 indicates that this, and presumably other similar, features relate to a final phase of activity at the site during the earliest stages of the Thames III transgression. The beginning of this transgression is dated by Devoy (1979) to 3850 BP.

The high density of carbonised plant remains in the deposits at this site is very marked. By contrast, neolithic features on the adjacent gravel terraces of the Blackwater contain very little material. For example, from 17 neolithic pits at the site of Lofts Farm, about 1.5 km north of the estuary, samples totalling approximately 292 litres were collected and processed. Only five of these contexts produced 'seed remains': two indeterminate cereal grains, one indeterminate grass caryopsis, fragments of hazel-nut shell and a scrap of *Prunus* sp. endocarp (Murphy 1988). On the evidence available, this seems to be typical of neolithic features in East Anglia. Why, then, do the samples from The Stumble contain so much more material? One possibility is that there was a real economic difference between, say, the Lofts Farm site and The Stumble, cereal production being more important at the latter. However, one would have expected that the mainly light gravel-based soils of the river terraces would have been better-suited to neolithic agriculture than the clay-based soils around The Stumble. Furthermore, this suggestion does not account for the abundance of *Corylus* nutshells and rhizomatous material at The Stumble.

Another possible explanation may be sought in terms of taphonomy. The only 'features' available for sampling at Lofts Farm were large pits, since the site had been truncated by ploughing. It is possible that these pits were backfilled rapidly so that few plant remains became incorporated into their fills. The palaeosol and postholes at The Stumble were obviously contexts that were 'open' for extended periods, providing ample opportunity for the incorporation of plant remains. This explanation falls down, however, in the case of the pits from Site C which closely resembled those at Lofts Farm but produced much higher densities of plant material.

This seems to leave only preservational factors as an explanation. Carbonised plant material is undoubtedly very durable, but within a soil or unsealed shallow archaeological deposits it is subject to the same processes of weathering as any mineral component. Cycles of wetting and drying, freezing and thawing operating over millennia must eventually result in the fragmentation and loss of carbonised plant material. By contrast, since they were sealed by estuarine sediments in the early second millennium bc, the deposits at The Stumble have provided a very constant preservational environment, permanently waterlogged and not subject to freezing.

Moffett et al. (1989) list and discuss neolithic material from a number of sites in England and Wales. It is notable that virtually all the material has come from pits at truncated settlement sites or from ditches associated with ritual or ceremonial structures and that at almost every one of these sites densities of plant material are low compared to later prehistoric sites. This is particularly true of earlier neolithic sites: the only really substantial assemblage listed in Moffett et al's Table 1 came from the buried soil beneath Hazleton chambered tomb, Gloucestershire. Clearly much more work needs to be done on all types of neolithic deposit but the results available at present seem to suggest that buried soils and surface-intact sites are often more productive than pits at truncated sites. Such sites, whether buried by natural sediments (estuarine deposits, peats, blown sand, colluvium) or artificial earthworks merit detailed study in future.

In summary, the samples from The Stumble are thought to provide a picture of a neolithic plant economy based in part on the production of cereals, mainly emmer, and in part on the collection of wild plant foodstuffs, including fruits, nuts, roots, rhizomes and tubers. There are real problems in making any quantitative assessment of the relative importance of cultivated and wild foods, for the different types of foodstuff differ both in terms of cellular structure and in the ways in which they might be prepared for consumption. These factors have probably resulted in differential preservation of the various categories of material. Nevertheless, the very marked contrast between the assemblages from these samples and those from later prehistoric sites in the same area, (cf. Murphy 1988), which are composed almost entirely of cereal remains, does seem to establish a substantial reliance in the Neolithic on wild plant foods. This result is quite consistent with the general pattern for British neolithic sites discussed by Moffett *et al*. (*ibid.*), who conclude the available data indicate that "throughout the Neolithic the landscape was not being exploited to its full agricultural potential over much of England and Wales". Discussing the earlier Neolithic, Williams (1989) considers that initially cereal cultivation could have fitted well into established hunter-gathering economies without necessarily affecting the subsistence base fundamentally. It now seems that plant-food collecting, far from being rapidly replaced by crop production, remained economically important right through the Neolithic at many sites, including The Stumble.

Acknowledgements

I am most grateful to all members of the excavation team, and to Sandy Gray and Val Williams in particular, for their ardous work in the collecting, transporting and initial processing of the samples. Jon Hather, Glynis Jones and Mark Robinson kindly advised me on problems of identification. My thanks are also due to Steve Bennett (School of Environmental Sciences, University of East Anglia) for allowing me to make use of a scanning electron microscope and for his help in its operation. The work here described has been supported by grants from the Historic Buildings and Monuments Commission for England (English Heritage).

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List of Figures

Fig 1.

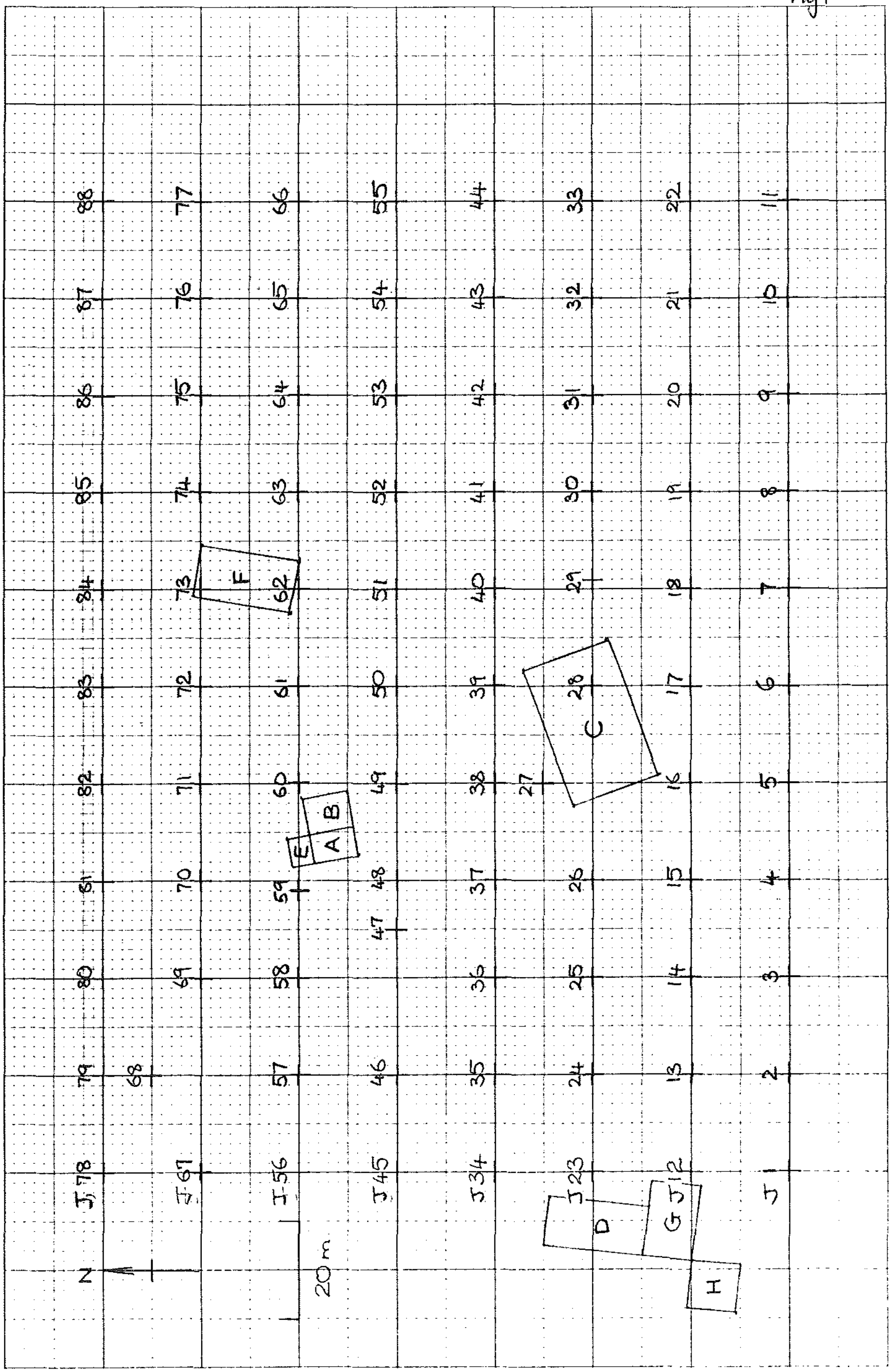
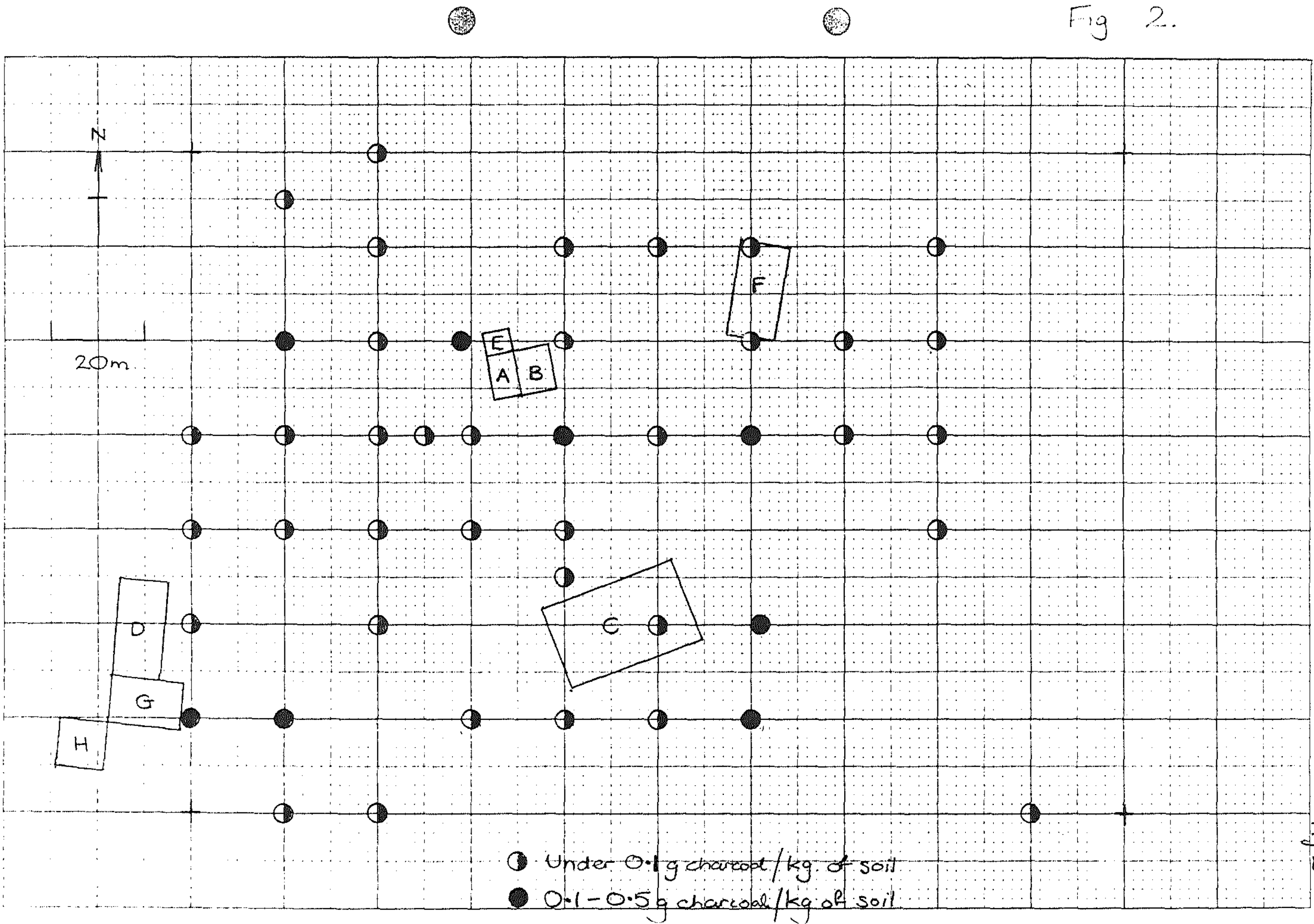


Fig 2.


N
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Under 0·1 g charcoal/kg. of soil
0·1 – 0·5 g charcoal/kg of soil

Fig 2

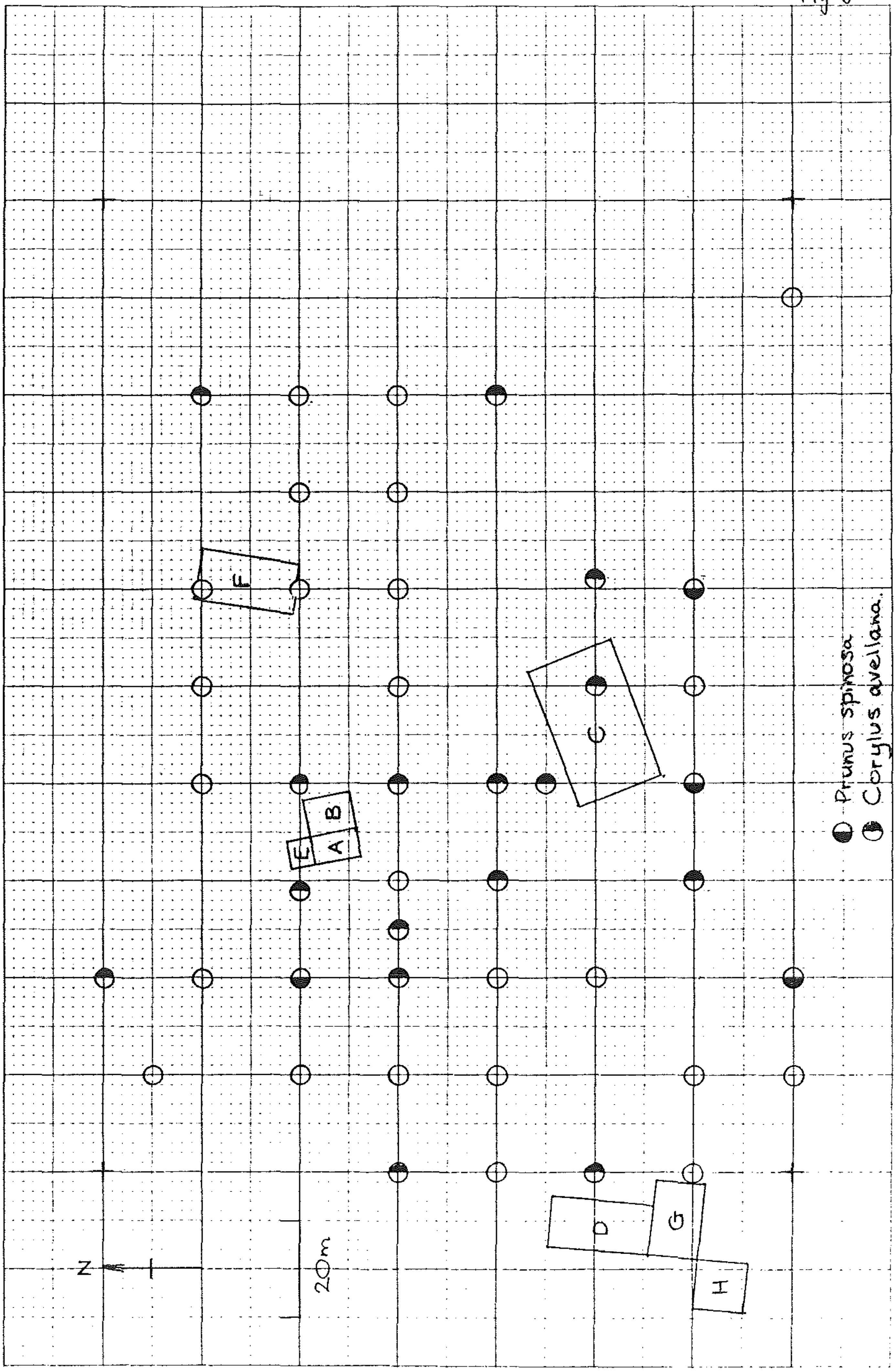
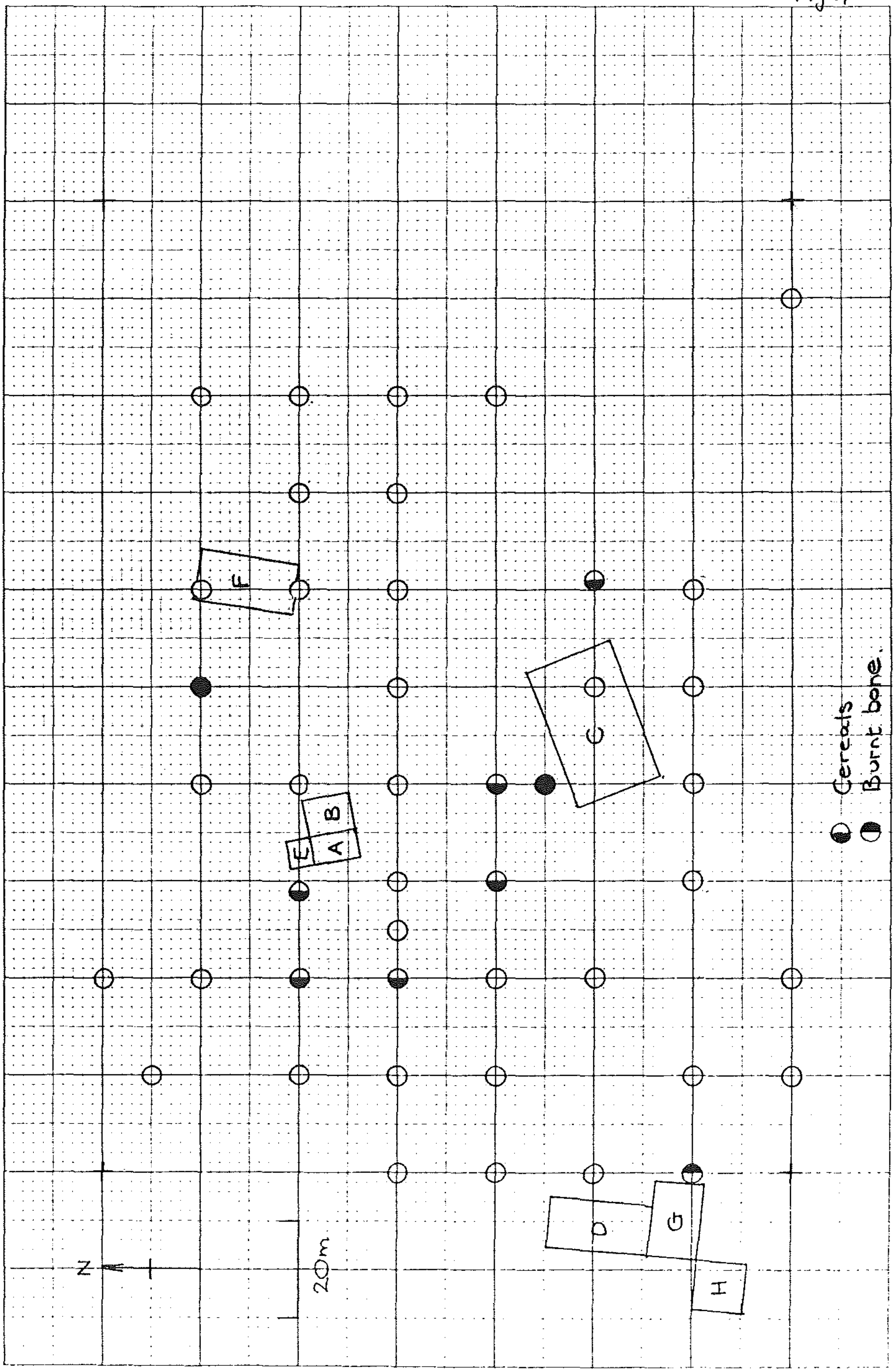


Fig 3.

Fig 4

Fig 4.



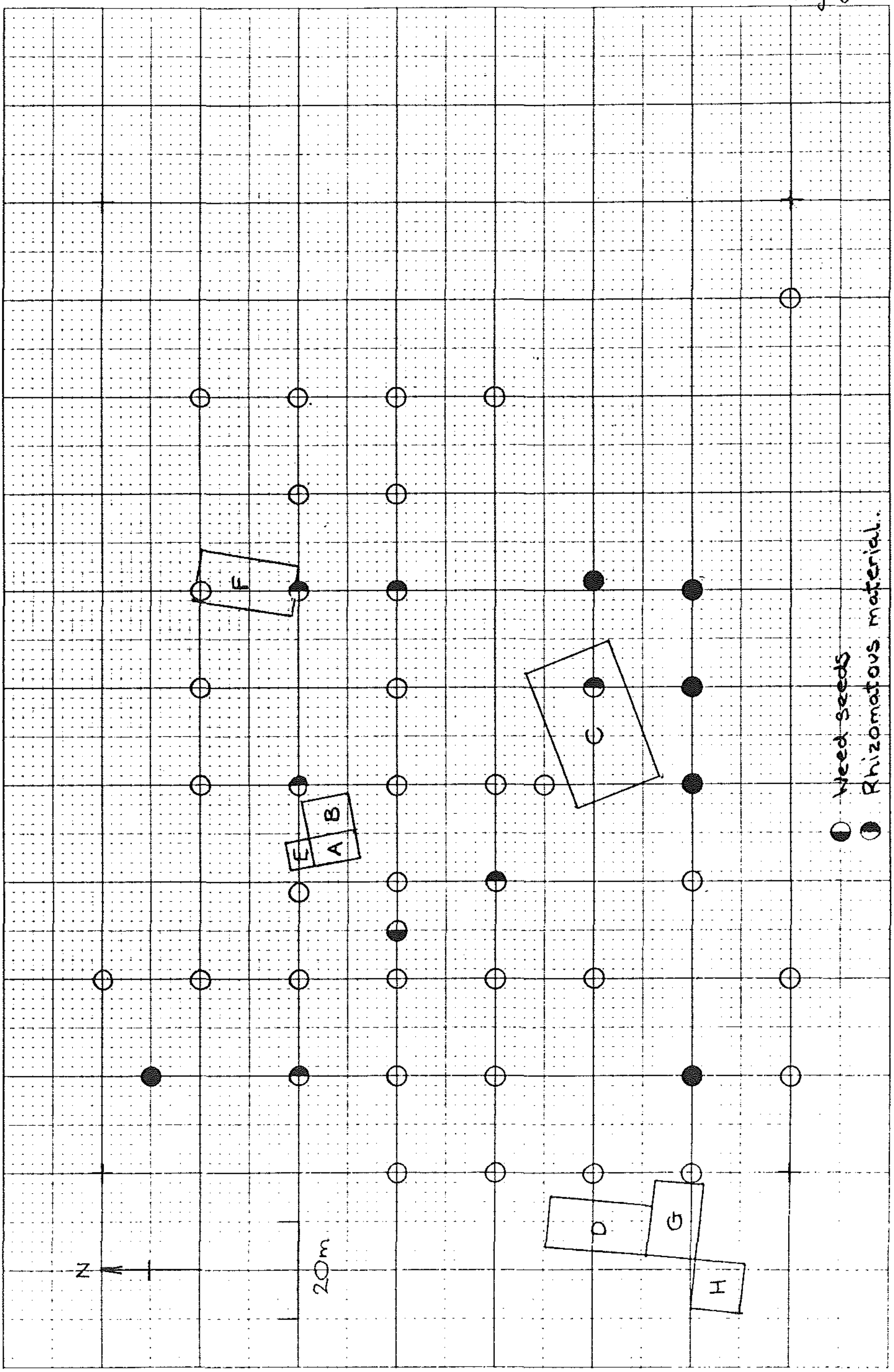


Fig 5.

Fig 6

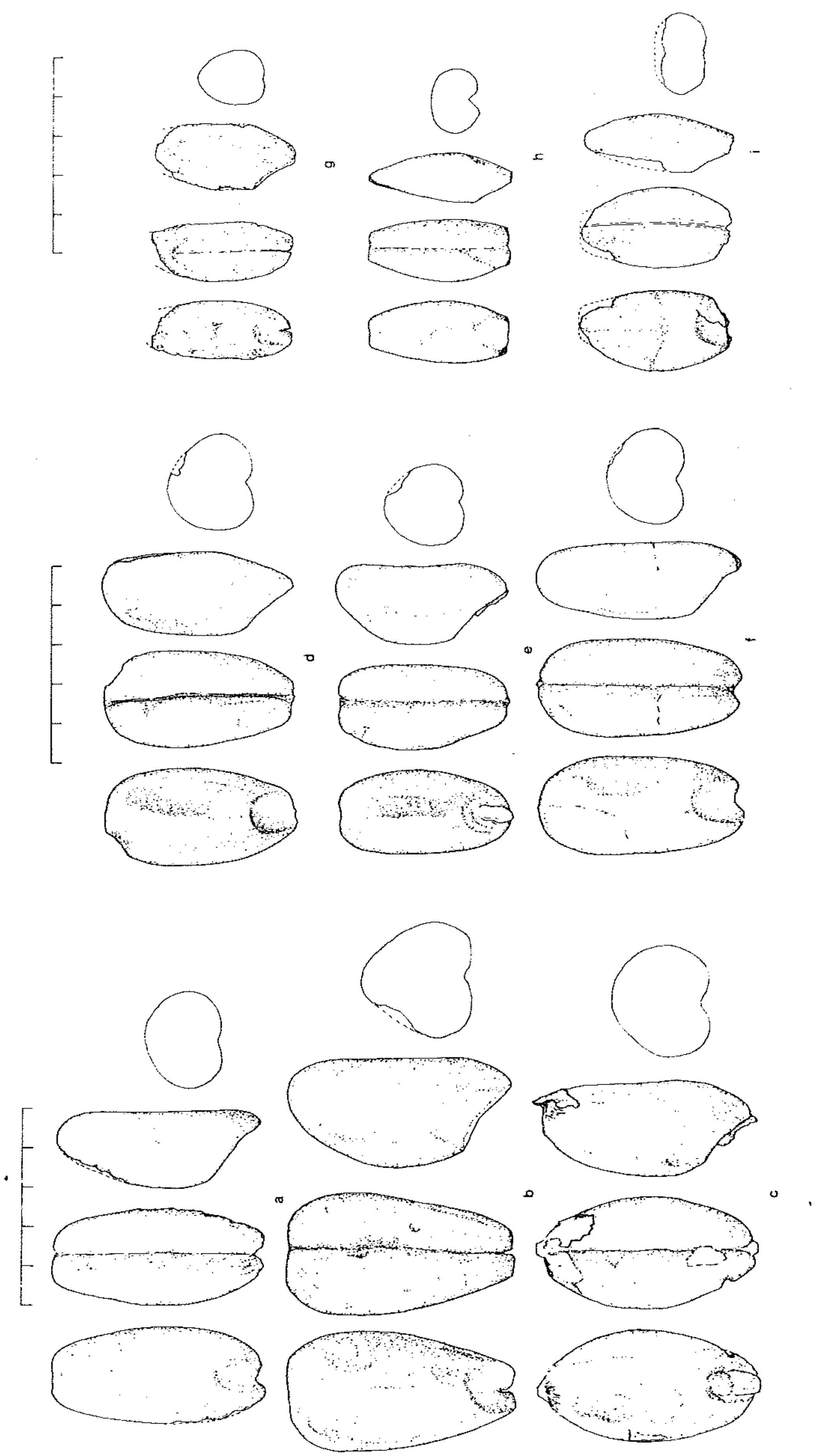


Fig 7

Fig 7.

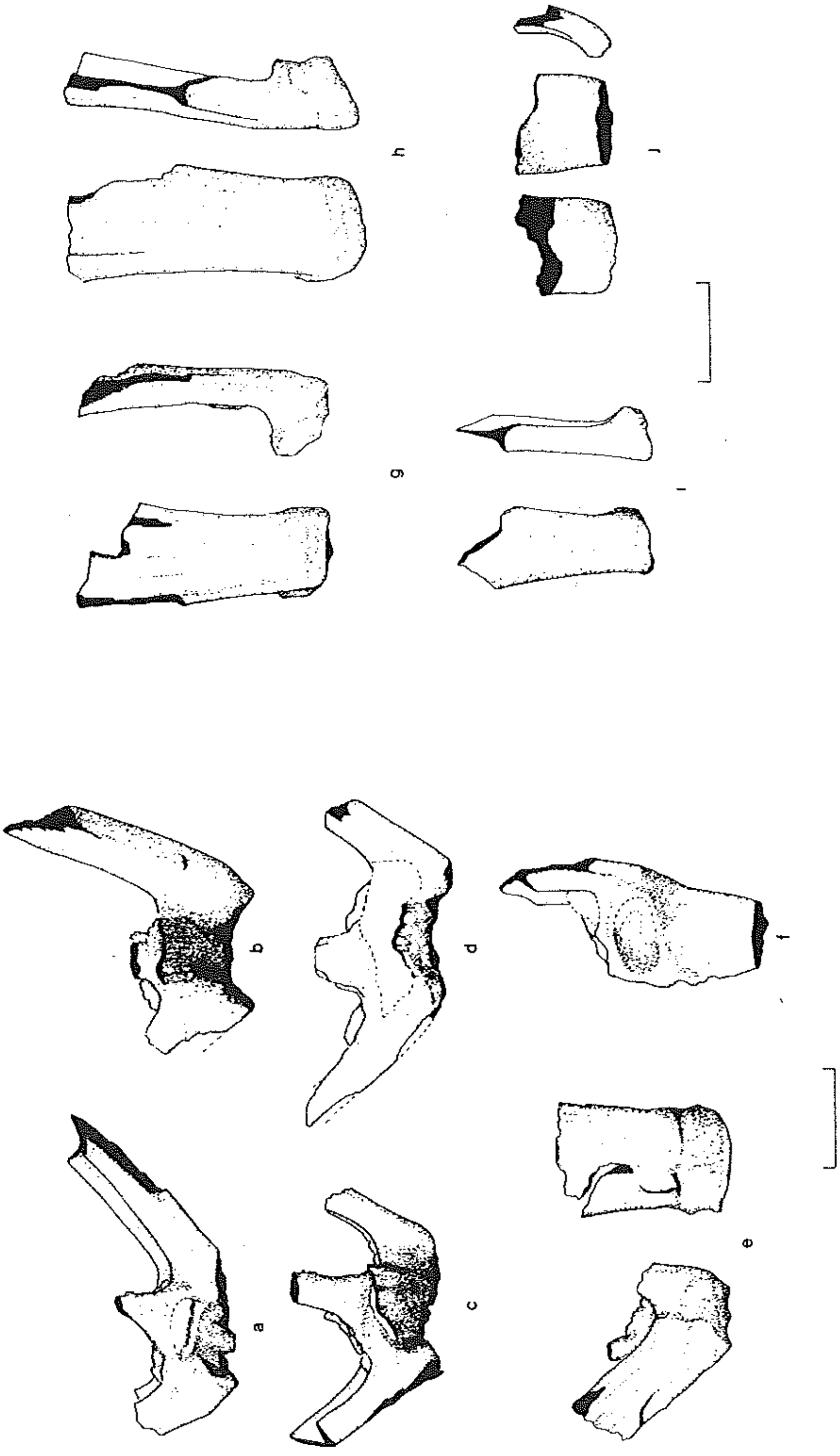


Fig 8

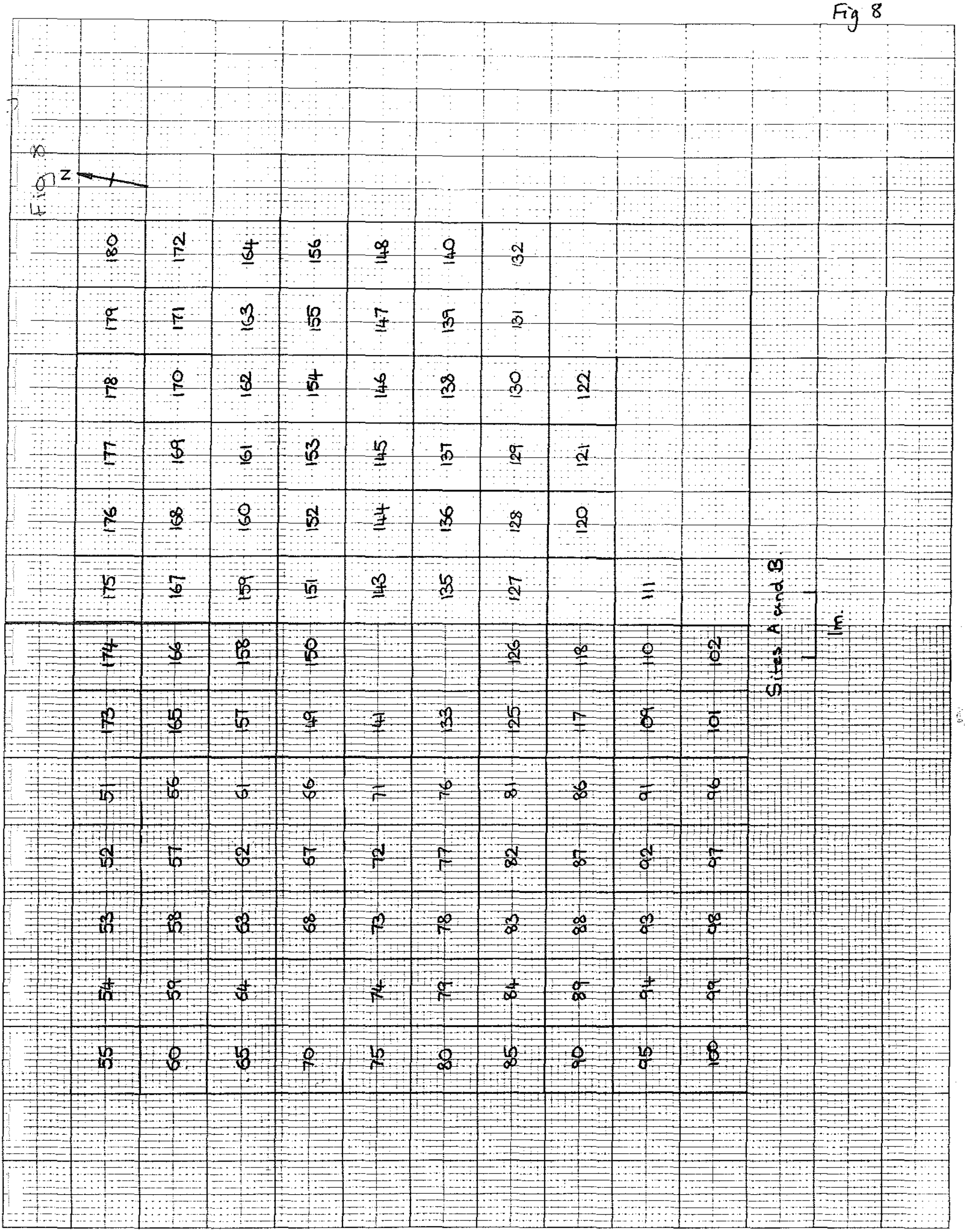


Fig 8
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Sites A and B
1m.

Fig 9 Sites A and B: Charcoal (>2mm)

○ Less than 0·1g/kg of soil

◑ 0·1 – 0·5 g/kg

◕ 0·5 – 1·0 g/kg

● > 1·0 g/kg

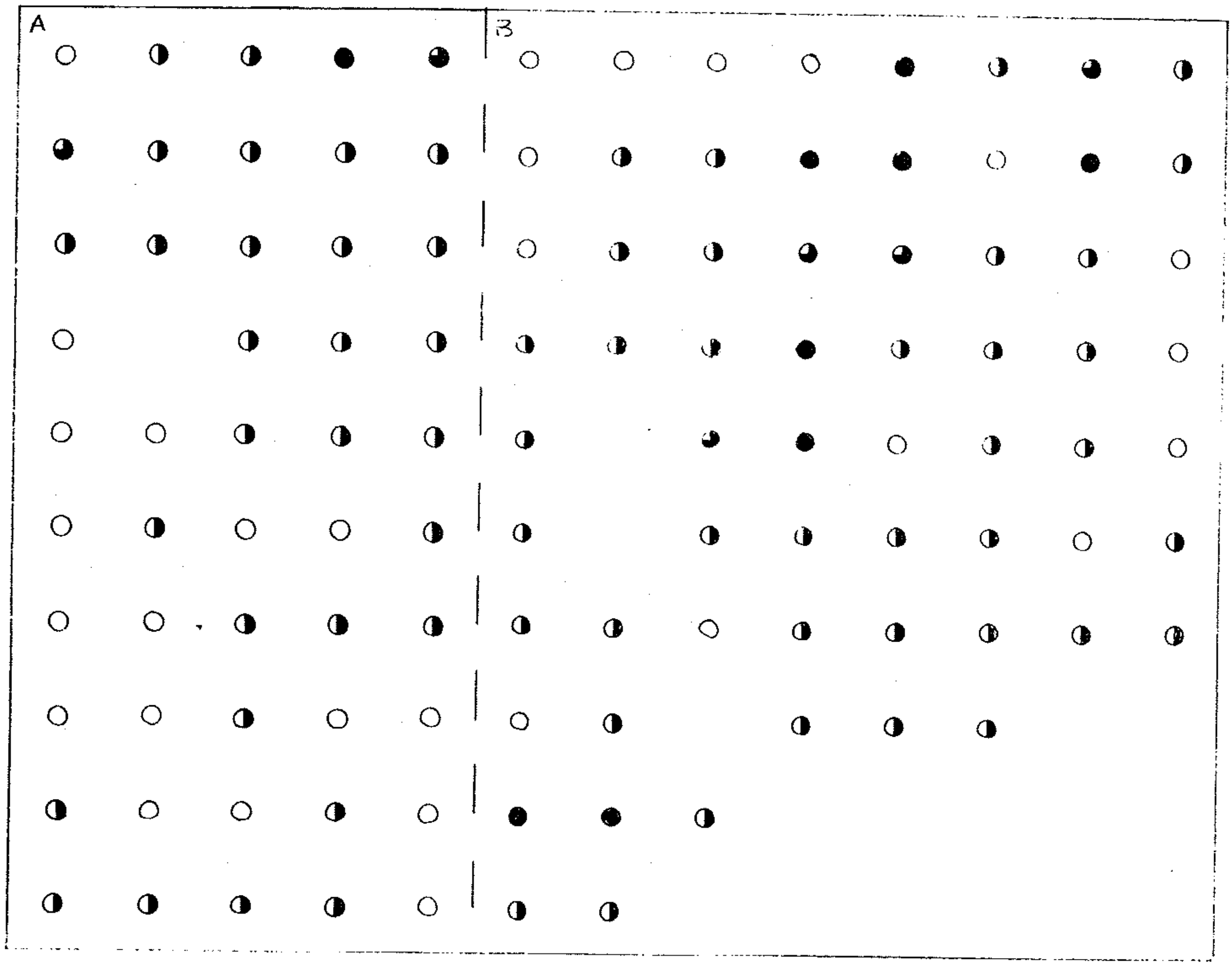

Fig 10 Sites A and B: Bone fragments (>2mm)

- ○ No bone retrieved
- ◔ Less than 0·1g/kg of soil
- ◑ 0·1 – 1·0 g/kg
- ◕ 1·0 – 5·0 g/kg
- ● 5·0 – 10·0 g/kg

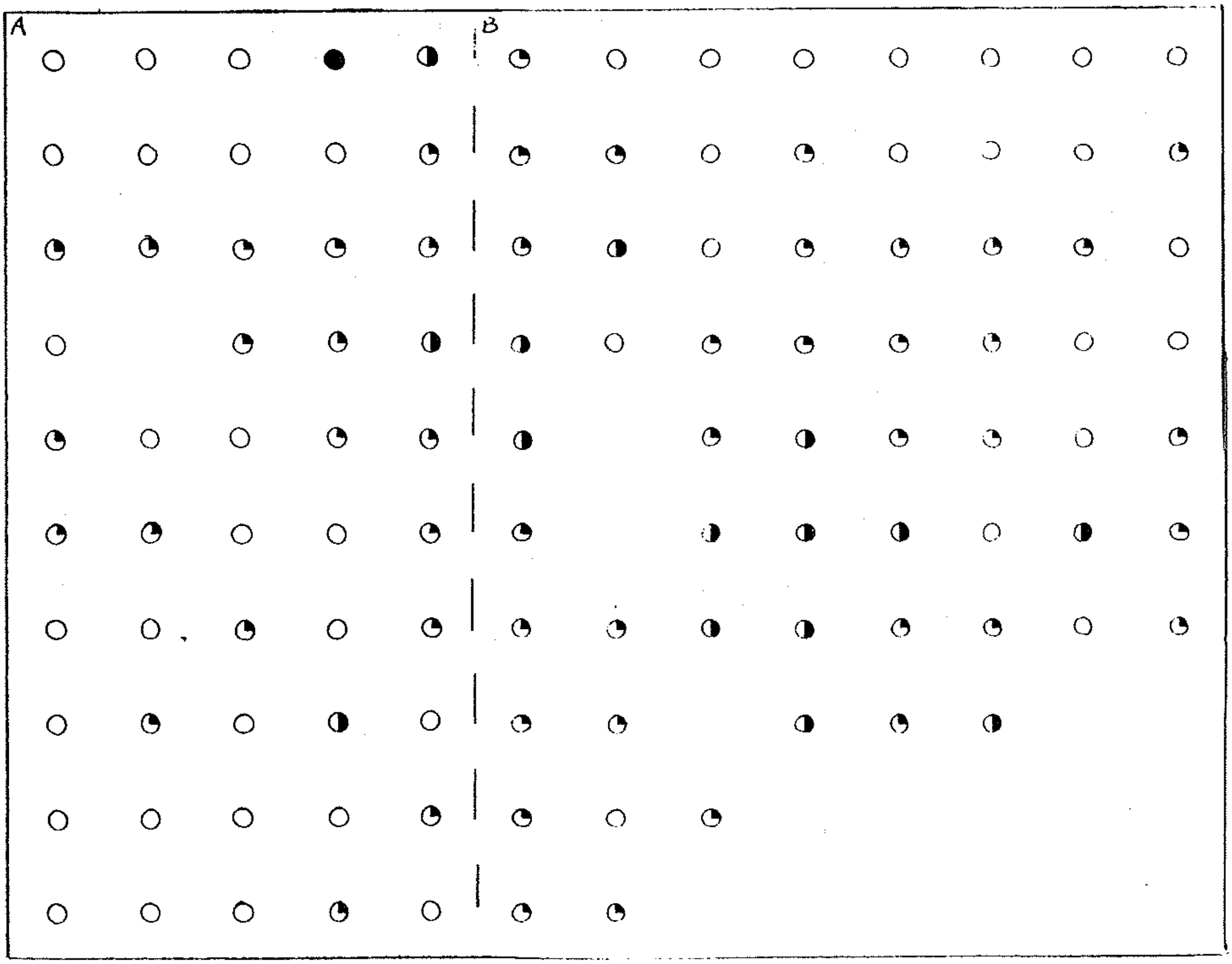

Fig 11 . Sites A and B . Cereal grains.

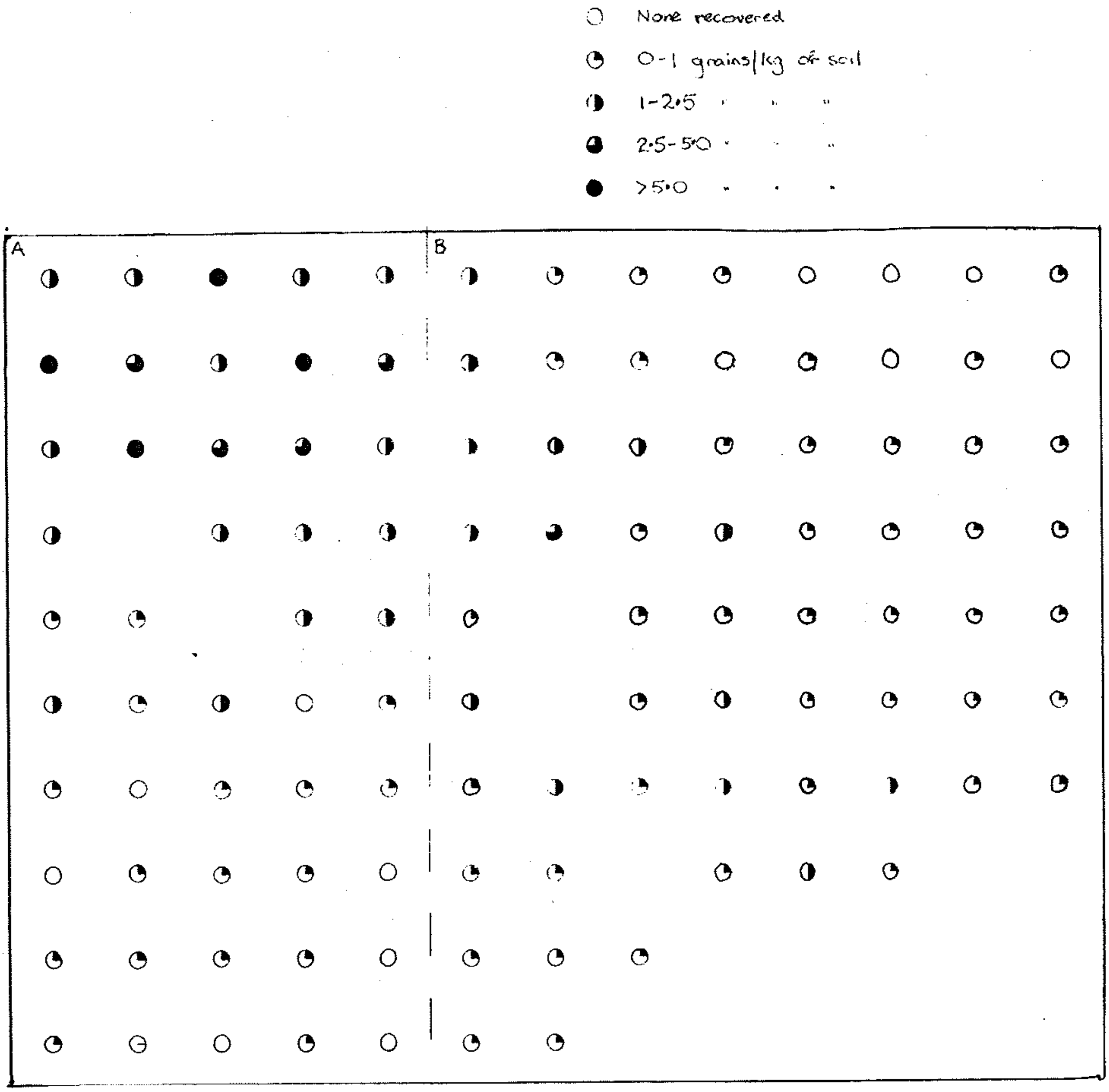

Fig 12 · Sites A and B : Wheat glume bases

○ None recovered

◔ 0-1 glumes/kg of soil

◑ 1-2·5 " "

◕ 2·5-5·0 " "

● >5·0 " "

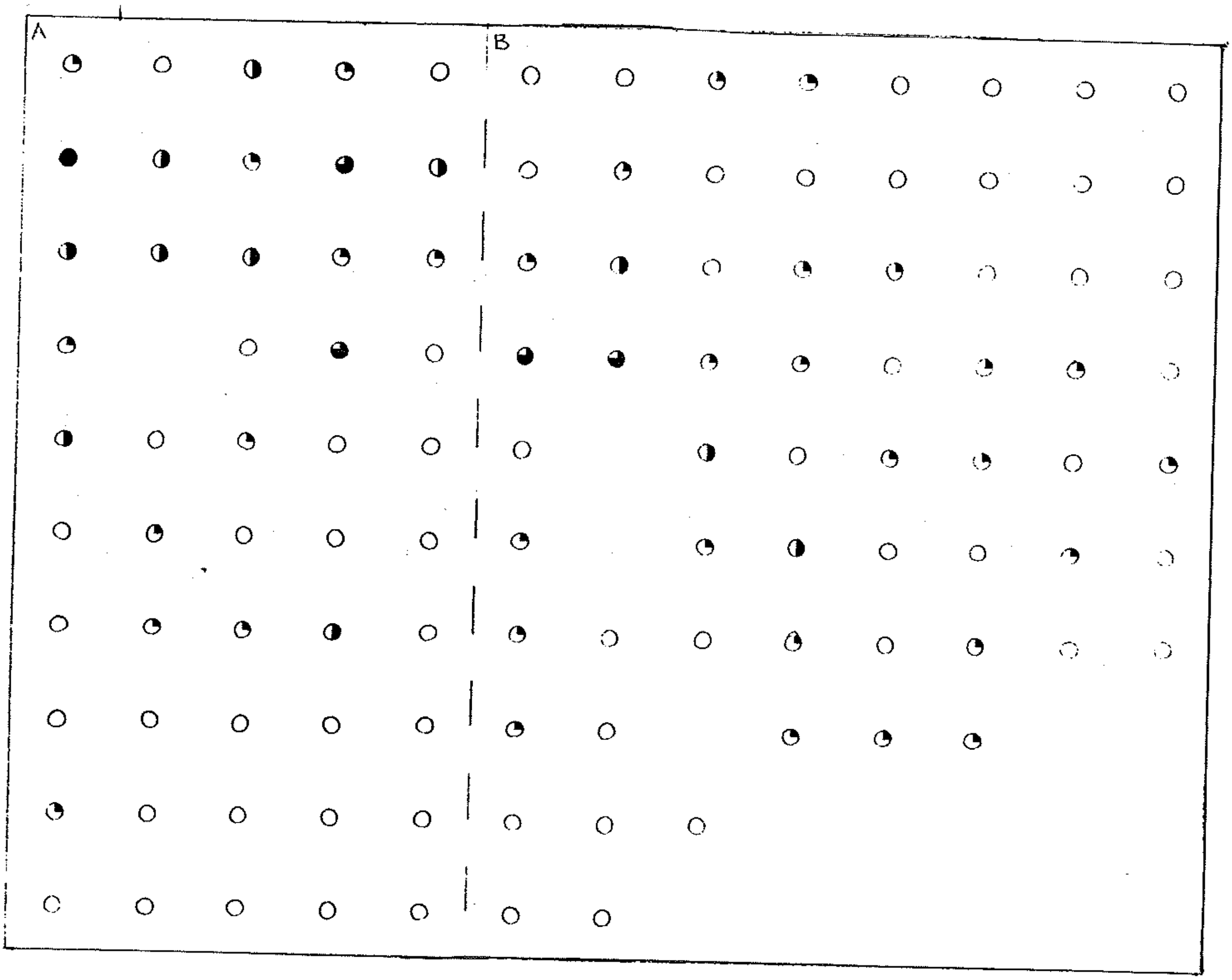

Fig 13 : Sites A, B and E. *Corylus* (hazel) nuts

○ None recovered

◑ Under 0·01 g/kg of soil

● Above 0·01 g/kg

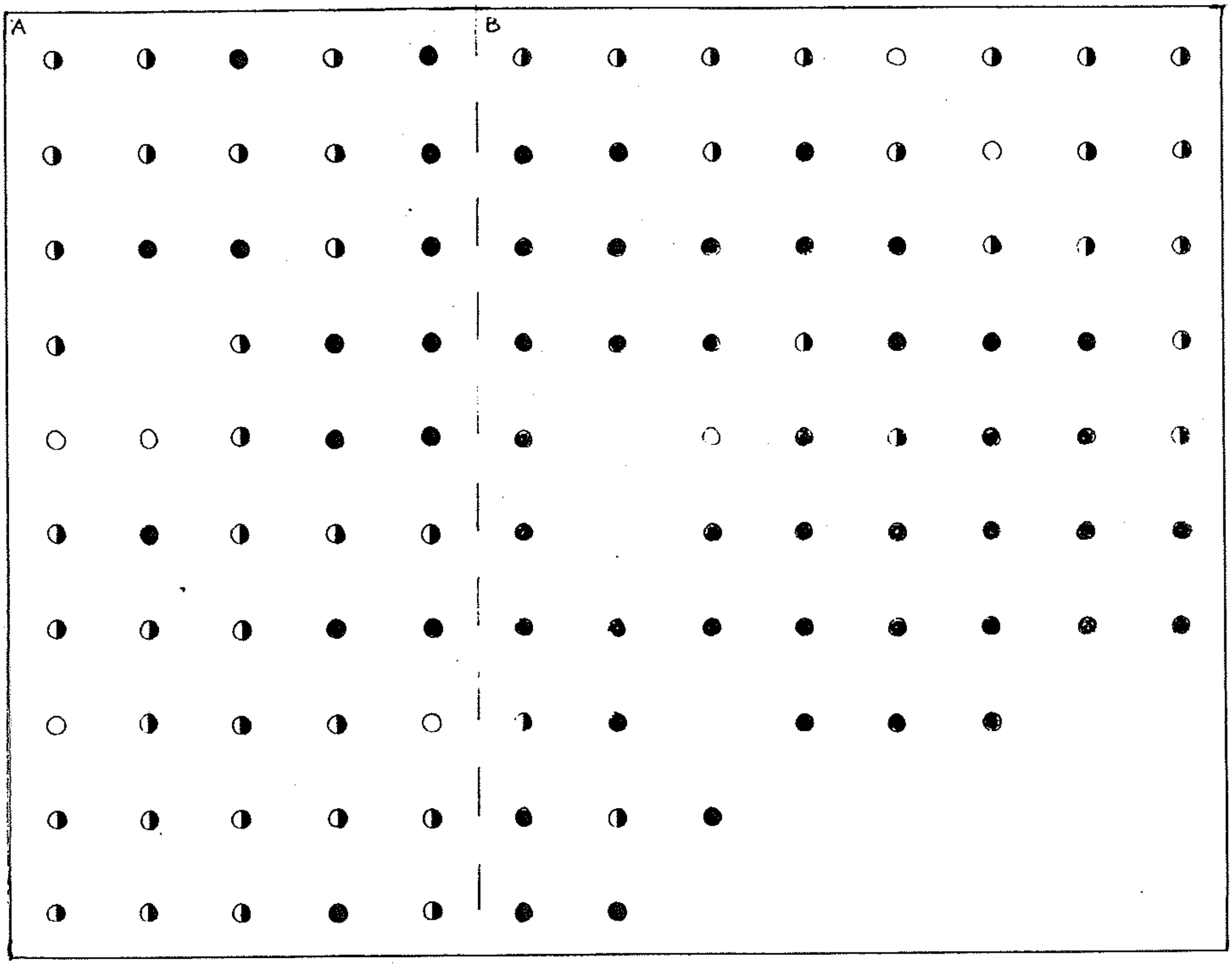

Fig 14 Sites A and B : Roots, rhizomes, tubers

● Present

○ Absent.

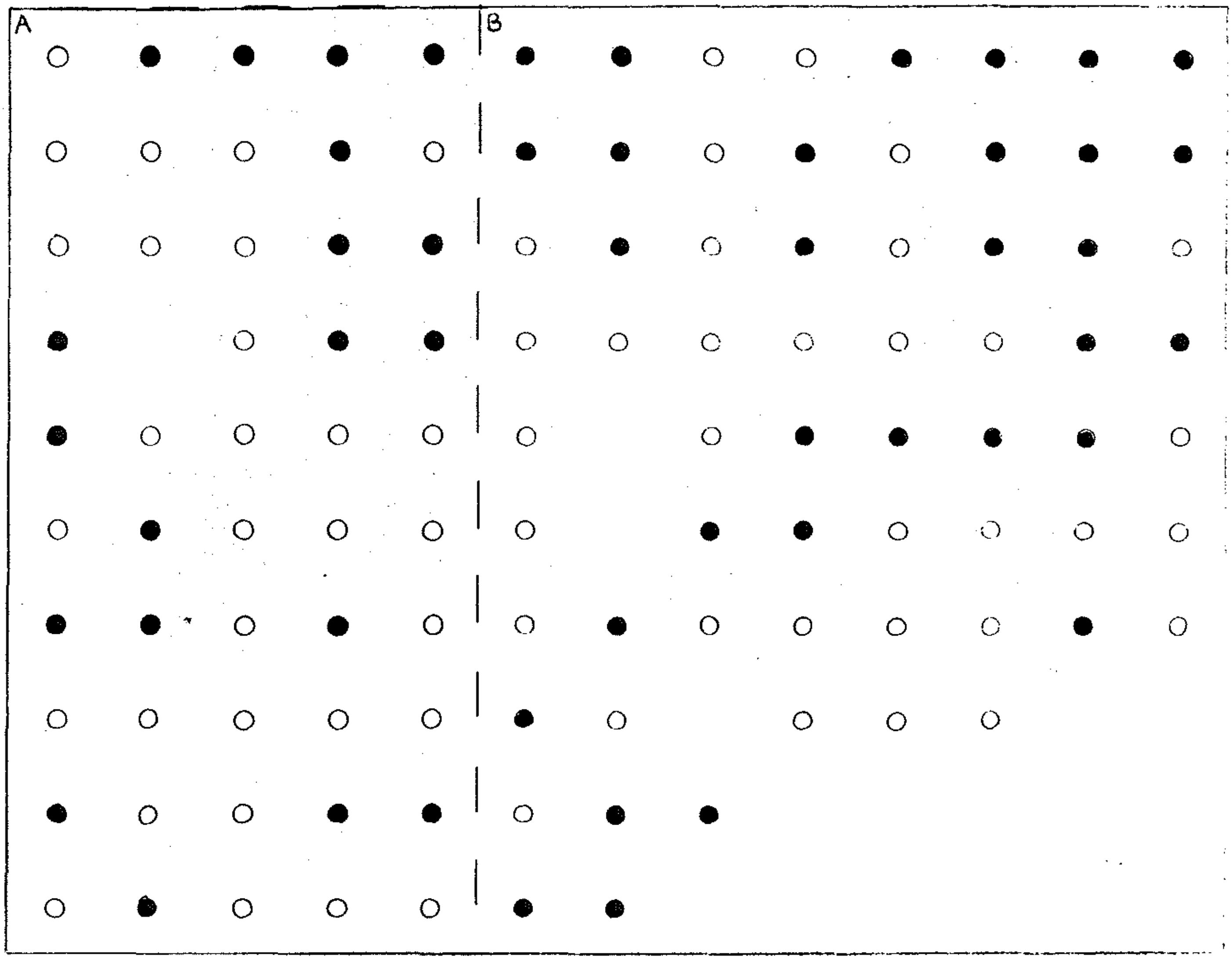

Fig 15: Sites A, and B:
<u>Prunus spinosa</u> (sloe) and Rubus fruticosus (bramble)

● Present

○ Absent.

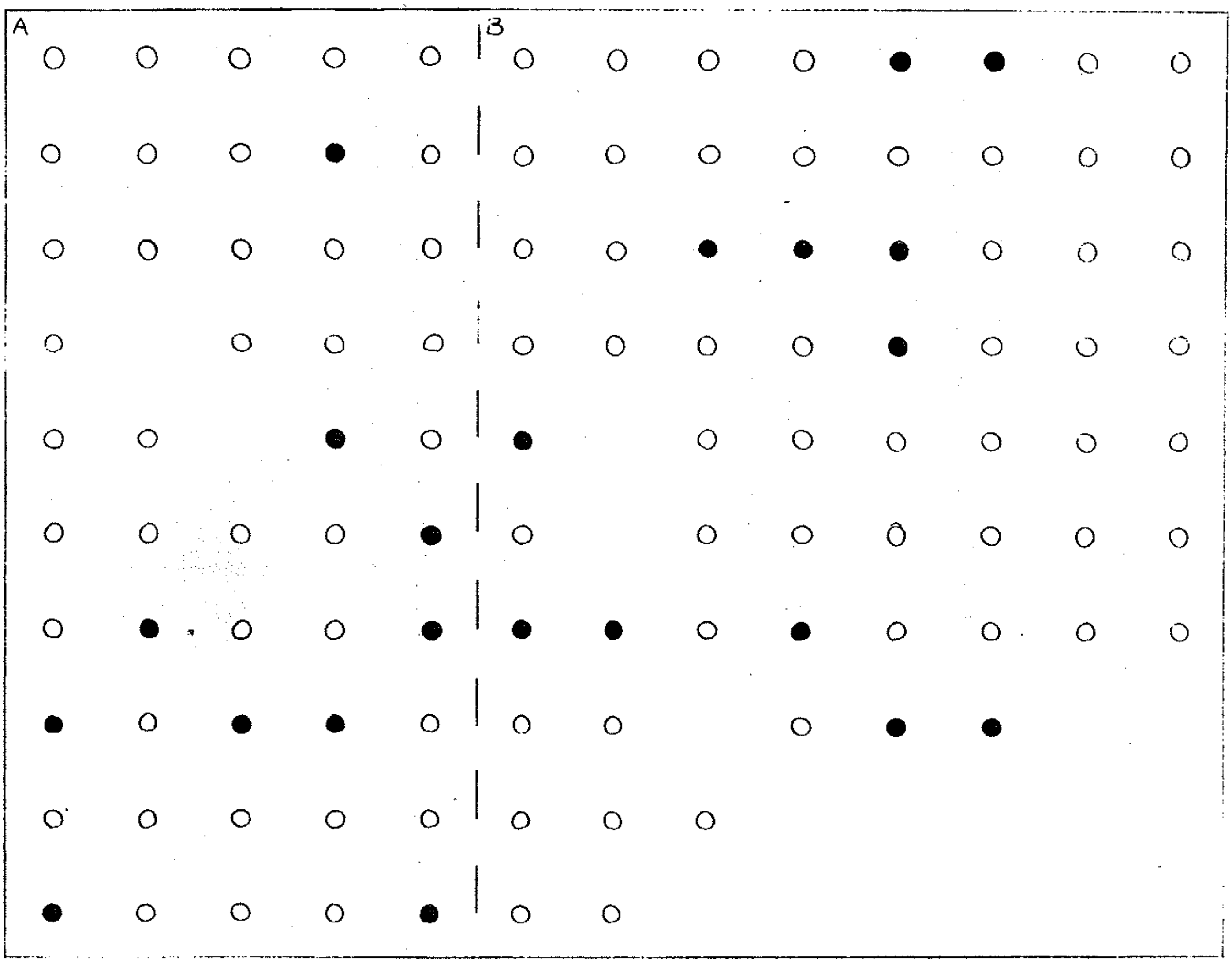

Fig 16

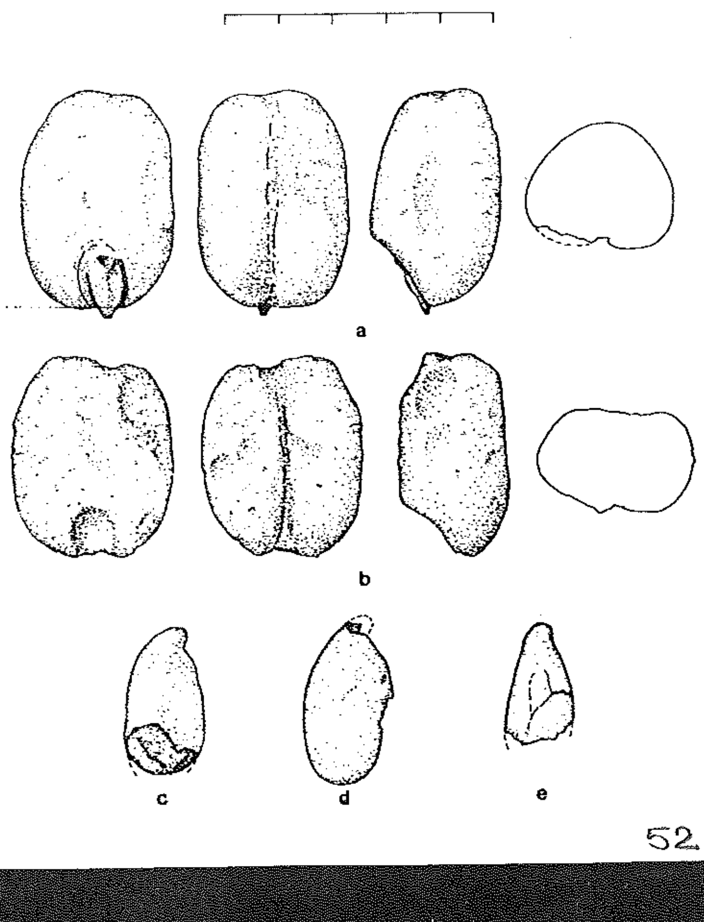

Fig 17

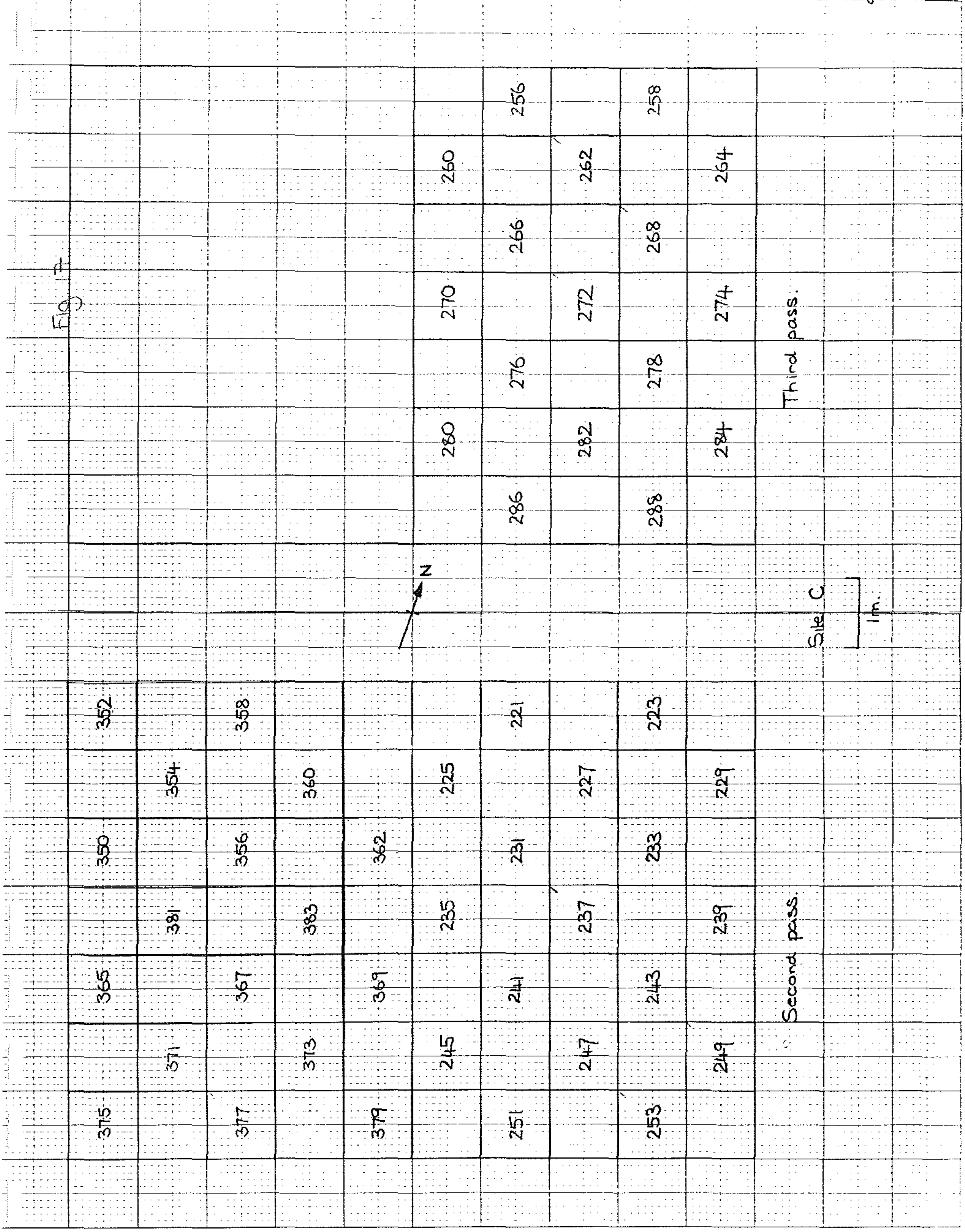
Fig 17
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Second pass.

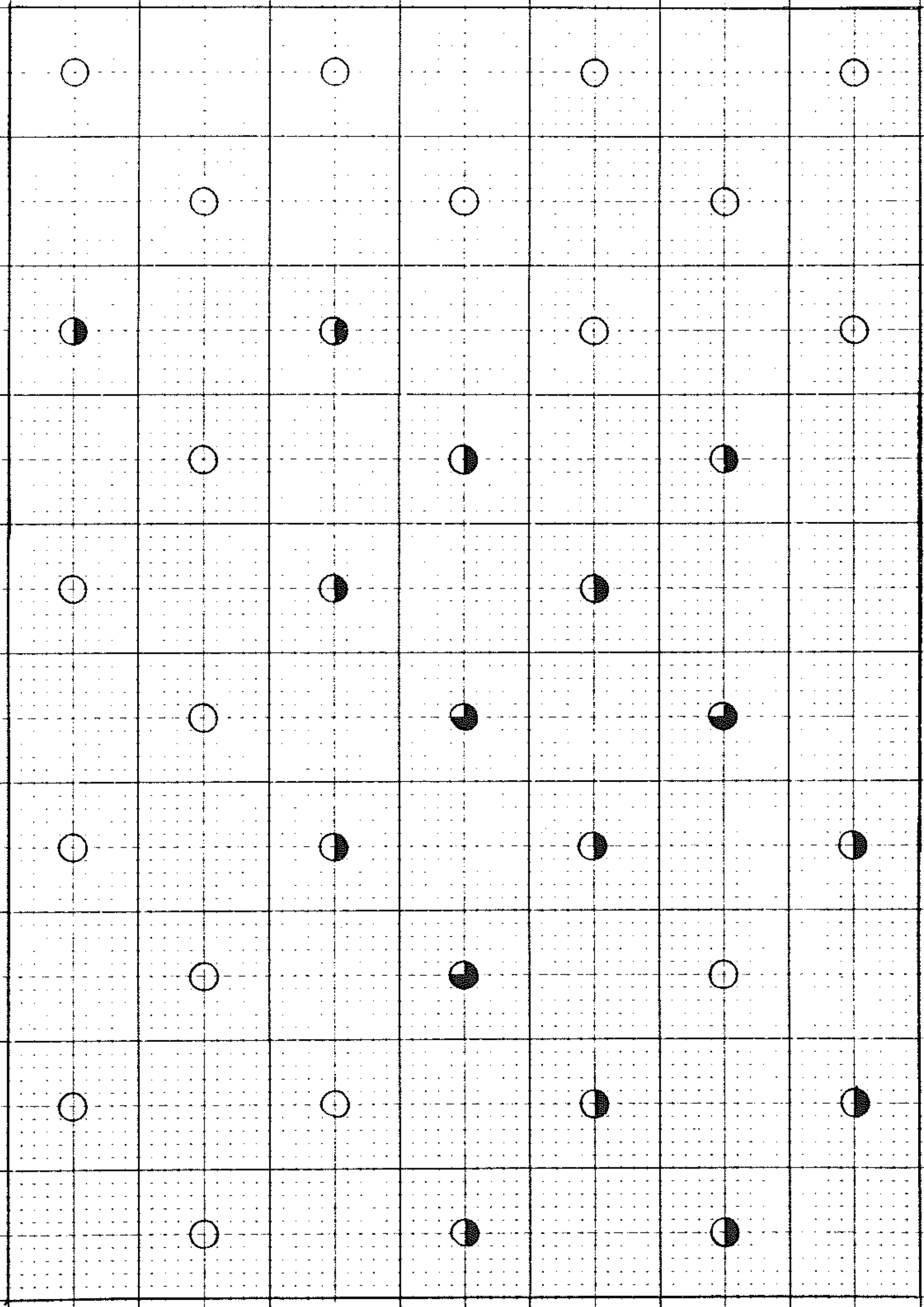


Fig 18 Site C (second pass) Charcoal > 2 mm

○ Less than 0.1g / kg of soil
◐ 0.1 – 0.5g / kg
◕ 0.5 – 1.0g / kg

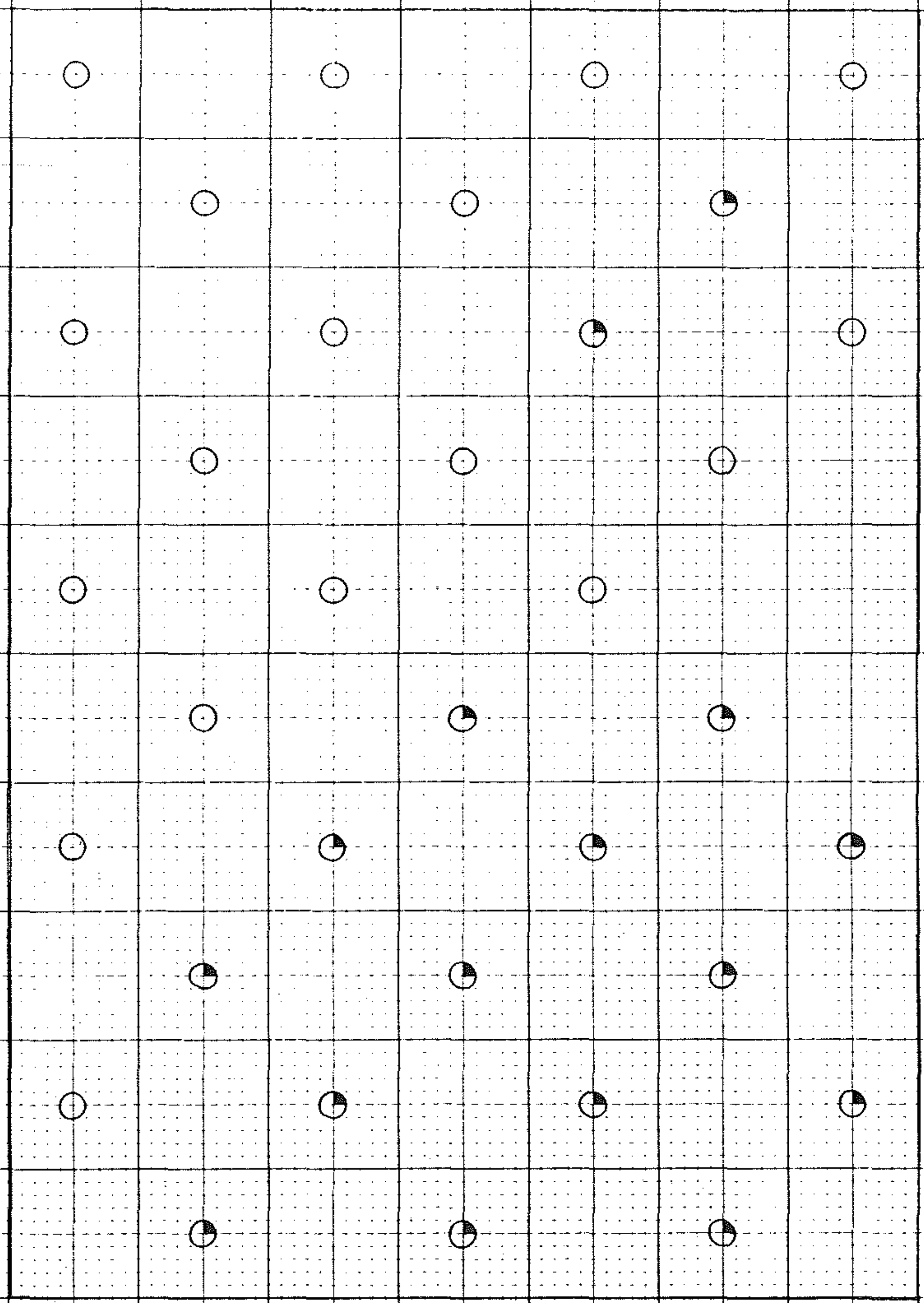


Fig 19 Site C (second pass): Wheat glume bases

None recovered

0-1 glumes/kg of soil

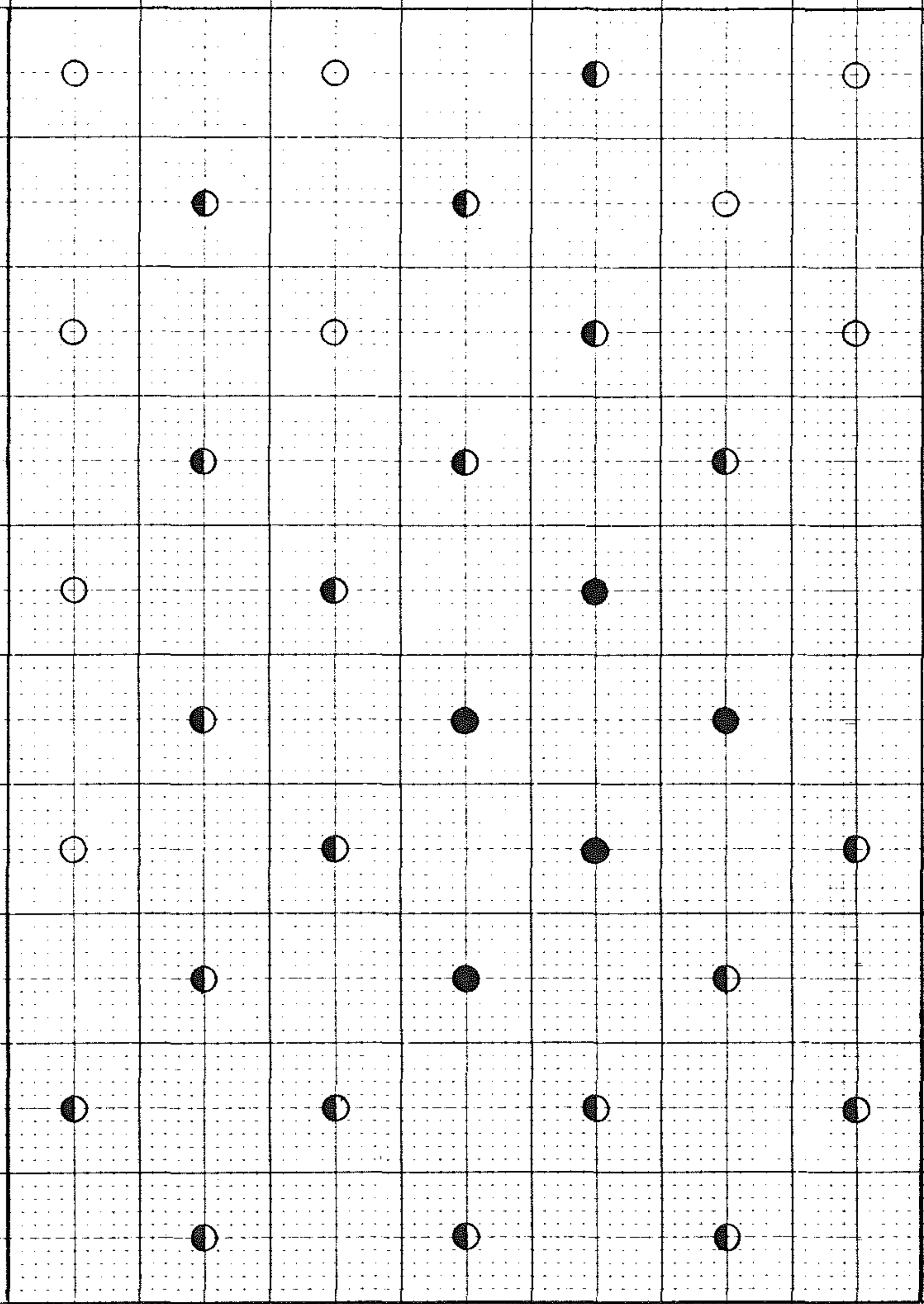


Fig 20: Site C Bone fragments.

◐ Burnt bone

◑ Unburnt bone

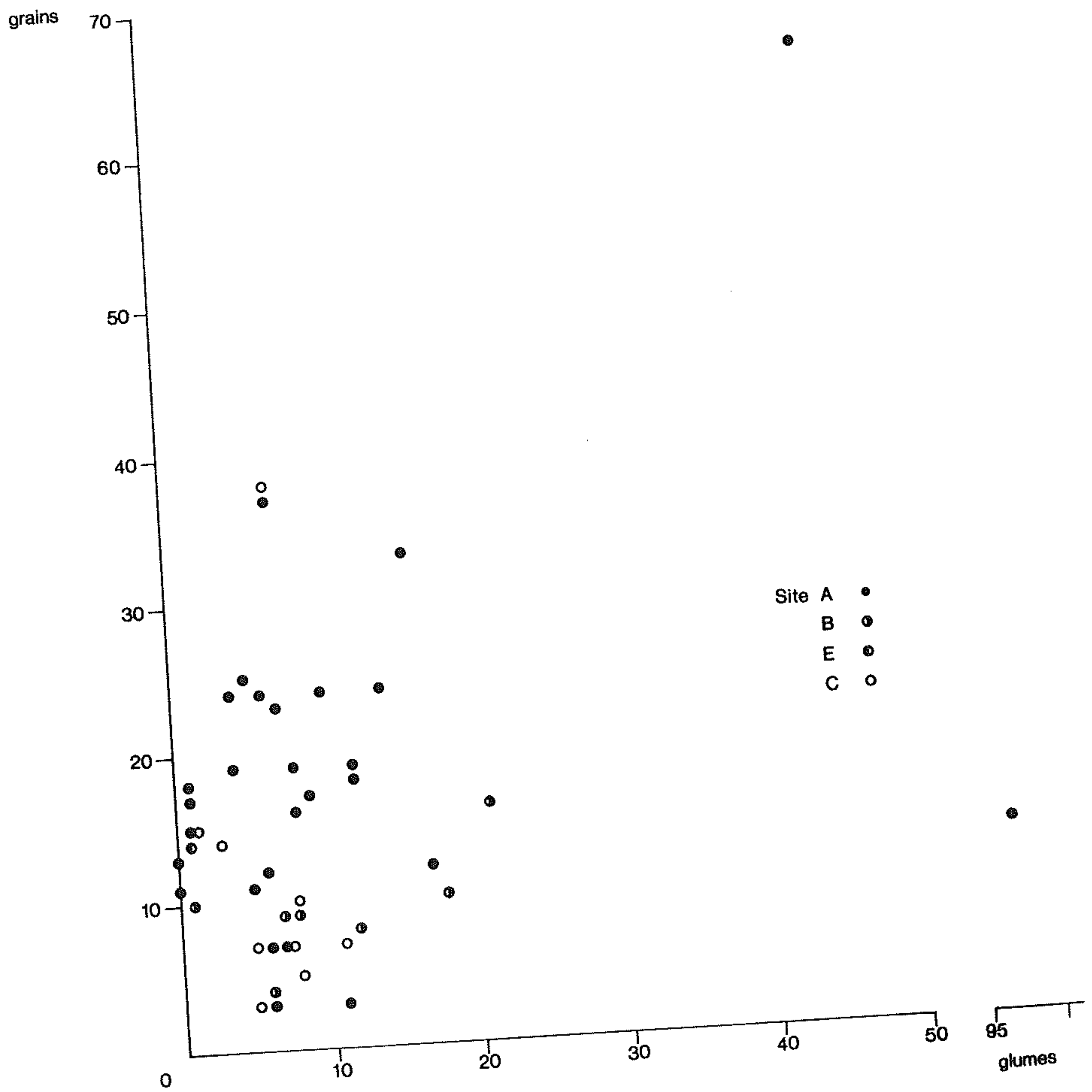


Fig 21

LIST OF PLATES

Plate 1. Scanning electron micrographs of plant remains from Site 28A: (a) Swollen basal internode of Gramineae, Arrhenatherum elatius var. bulbosum-type. Exterior surface showing epidermal cells (from sample 54); (b), as (a) - fractured radial longitudinal section (apex at bottom right; from sample 61); (c) detail of specimen illustrated in (b), showing parenchyma cells; (d) grass/cereal aerial culm node (from context 138); (e) monocotyledonous basal internodes with strong longitudinal ribs (from sample 99); (f) dicotyledonous fleshy tap-root in transverse section (from sample 2).

Plate 2. Scanning electron micrographs of plant remains from Site 28A: (a) detail of specimen in Plate 1 (f), showing central area of degraded xylem parenchyma with linear radial cavities and outer band of phloem and epidermis; (b) dicotyledonous fleshy tap-root, tapering at one end (from sample 44); (c) central xylem and fibre 'core' of ?root (from sample 52); (d) rhizomatous fragment with prominent circular root-scars (from sample 8); (e) ?inflorescence axis (from sample 82); (f) rhizomatous fragment with whorls of small root scars and large circular root scars on the internodes (from sample 75).

Plate 3. Scanning electron micrographs of macrofossils from woodland taxa.

(a) Quercus sp. Immature oak cupule. Site 28B 168. Width 4.1 mm.

(b) Neuroterus sp. Oak leaf gall. Site 28A 40. Width 2.0 mm.

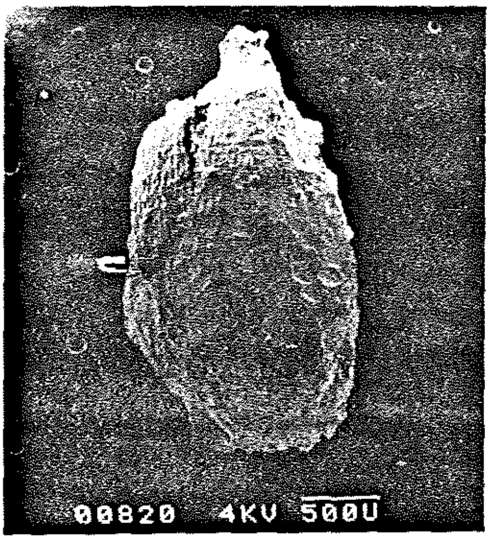
(c) Malus sp. Apple seed. Site 28D Ct 215. Surviving length 4.1 mm.

(d) Malus sp. Apple endocarp fragment. Site 28D Ct 208. Surviving length. 3.5 mm.

(e) Tilia sp. Immature lime fruit. Site 28A 89. Length 1.1 mm.

(f) Moehringia trinervia Seed. Site 28B Ct 203. Length 0.8 mm.

(g) Rubus fruticosus Bramble Fruitstone. Site 28B Ct 221. Length 2.0 mm.



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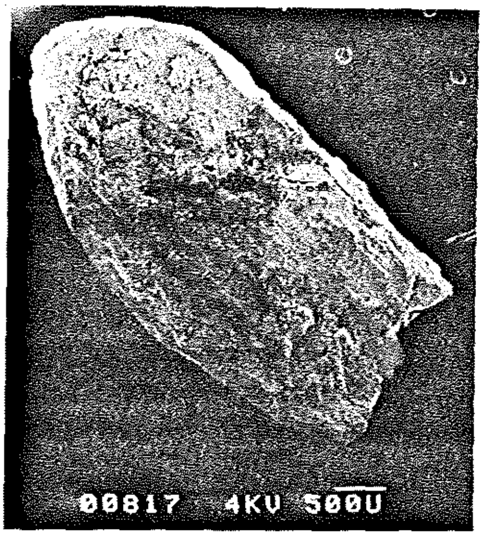

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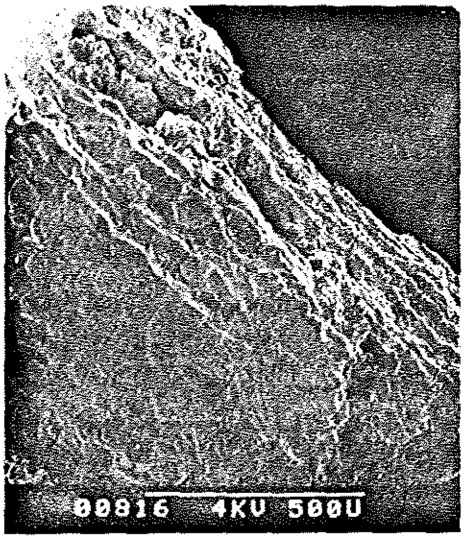

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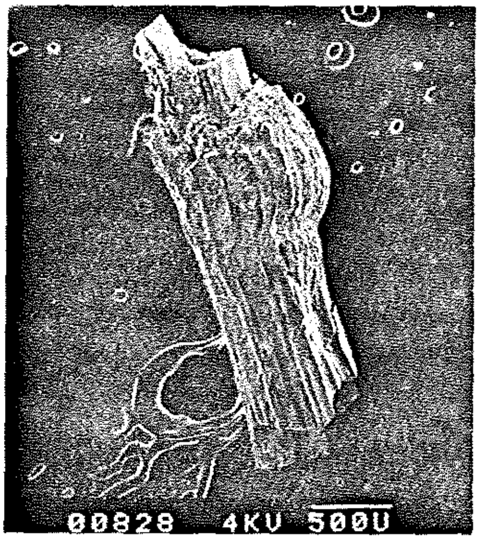

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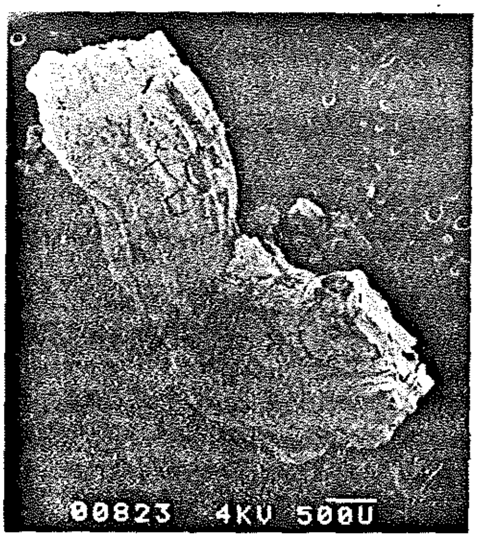

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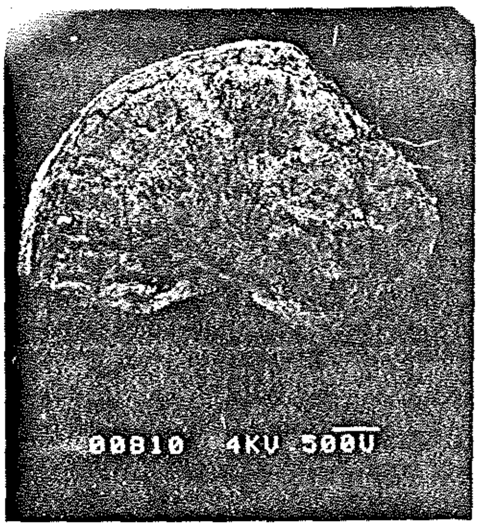

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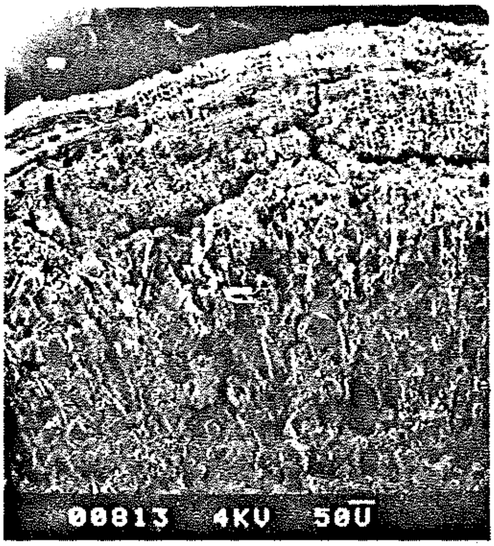
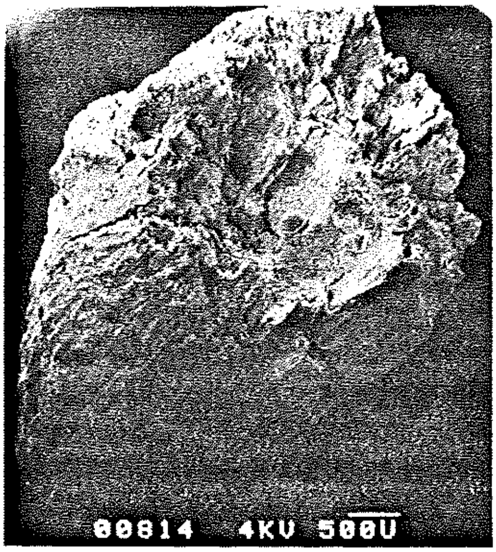
Plate 1



A



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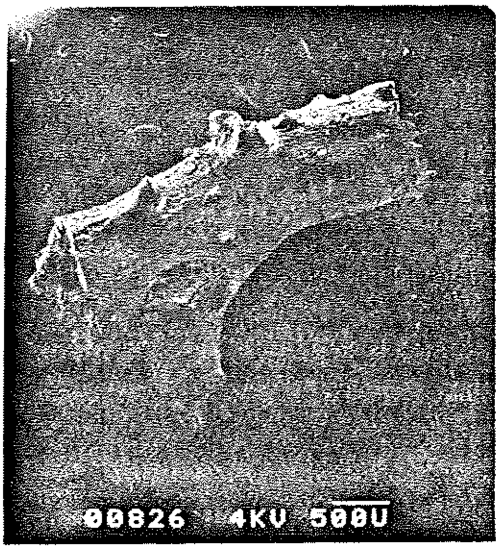

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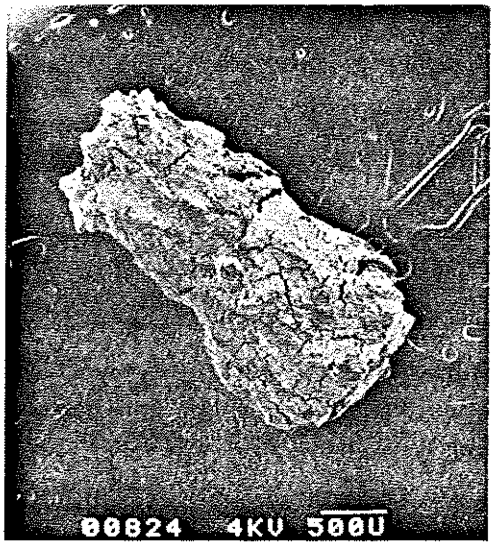

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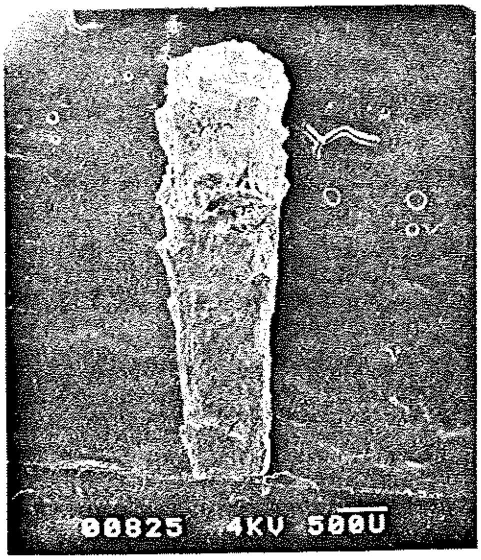

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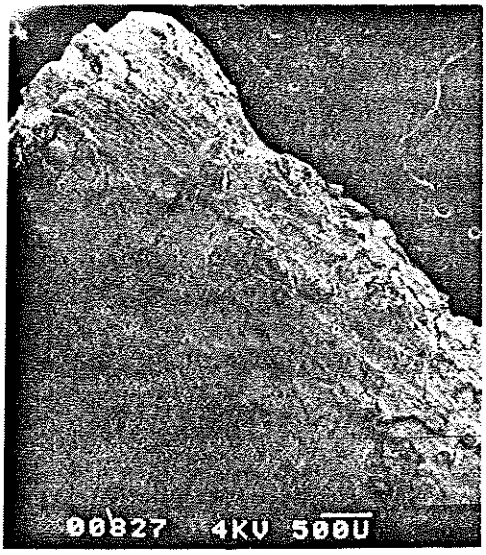

F

Plate 2

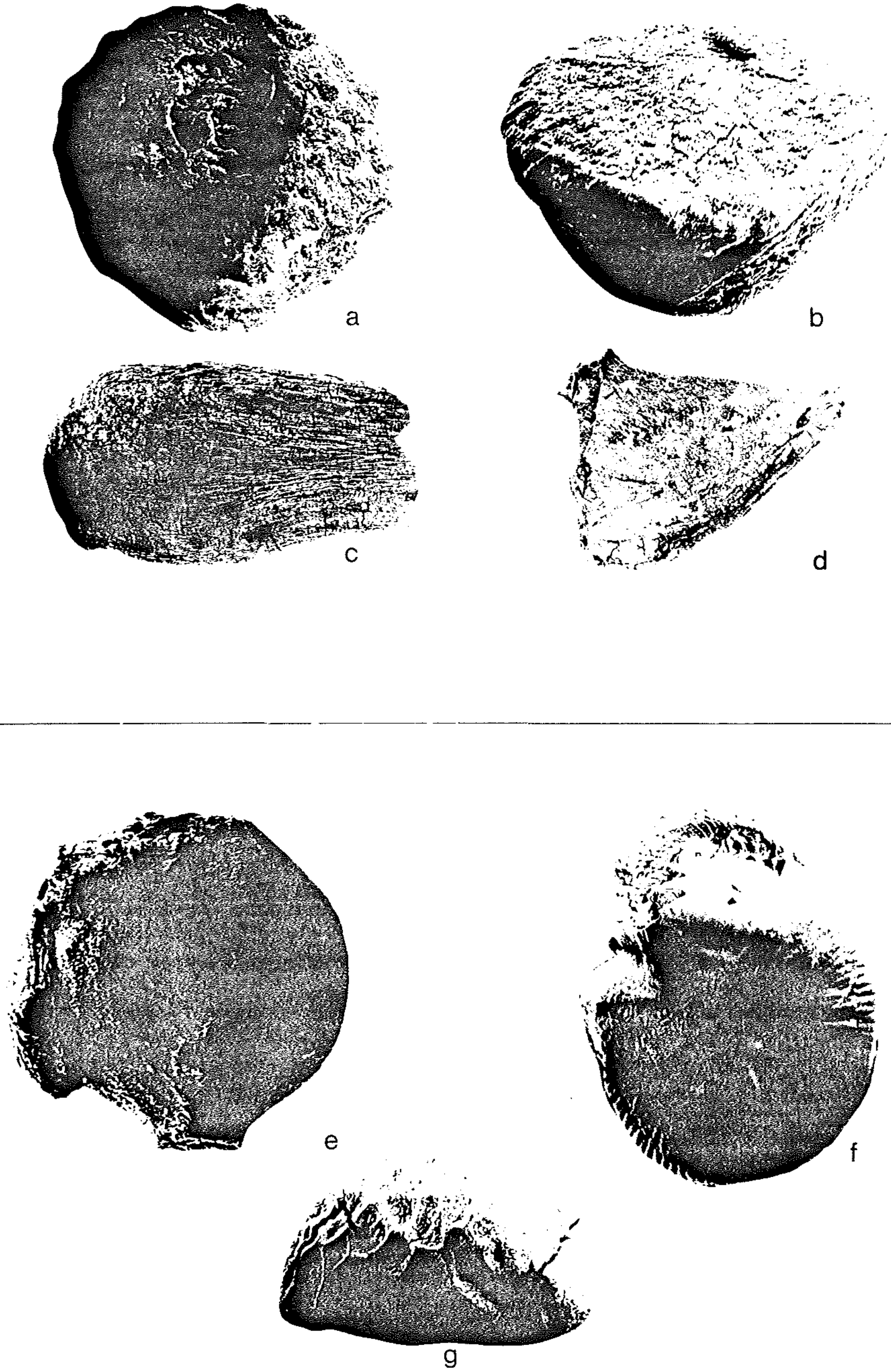

Plate 3.

Appendix A: <u>Catalogue of plant macrofossils from Site 28 Area J (1988 Season).</u>

For details of abbreviations, methods of counting and weighing see catalogue for Site 28A. *Corylus* nutshell fragments from Area J were not weighed, but never comprised more than one nutshell per sample.

Note: p.62 does not exist

J1.	No sample : old land surface poorly defined.	
J2.	310. 3.65 kg.	
	Charcoal 0.004 g.	
J3.	311. 3.7 kg.	
	<u>Prunus spinosa</u> (frag)	+
	Indet	2
	Charcoal	0.30 g.
J4-J9.	No samples : augering showed old land surface truncated beneath estuarine clay 93-120 cm thick.	
J10.	328. 4.6 kg.	
	cf. <u>Galium aparine</u> (frag) 1	
	Charcoal	0.16 g.
J11.	No sample.	
J12.	305. 5.4 kg.	
	Burnt bone frag.	+
	Charcoal	0.57 g.
J13.	309. 5.35 kg.	
	<u>Plantago major</u>	1
	Stem fragment	1
	Rhizome fragments (Type 6)	5
	Root/rhizome fragment	1
	Charcoal	0.66 g.
J14.	No sample : augering showed head surface beneath estuarine clay 55 cm thick.	
J15.	312. 9 kg.	
	<u>Corylus avellana</u> (frag)	+
	Charcoal	0.15 g.

J16. 313. 10.3 kg.

Vicia/Lathyrus co (+ frags).	17
Vicia/Lathyrus s	2
Galium aparine	1
Prunus spinosa (frags)	+
Indet	2
Rhizome frags. (Type 6)	2
Rhizome frags.	2
Charcoal	0.24 g.

J.17. 314. 7.5 kg.

Vicia/Lathyrus co	15
Gramineae indet	1
Rhizome frags. (Type 6)	1
Rhizome frags.	2
Indet	2
Charcoal	0.25 g.

J18. 315. 7.75 kg. (fraction under 2 mm 25% sorted).

Moehringia trinervia	3 + 8 cf (degraded)
Atriplex sp.	2
Chenopodiaceae	11
Rumex sp.	1
cf. _Solanum dulcamara_	1
Galium aparine	1
Carex sp.	4
Gramineae	2
Prunus spinosa	
(endocarp with mesocarp)	+
Indet seeds etc.	10
Root/rhizome frags.	3
Stem frags.	+
Charcoal (twiggy)	2.78 g.

J19. No sample : augering showed 'head' surface beneath 70 cm of estuarine clay.

J20. No sample : augering showed 'Lower Peat'; beneath _c_. 90 cm of estuarine clay.

J21-22.	No samples.	
J23.	303. 5 kg.	
	Corylus avellana	+
	Charcoal	0.13 g.
J24.	No sample.	
J25.	300. 6.5 kg.	
	Charcoal	0.05 g.
J26.	No sample.	
J27.	(+ 10m N). 347. 5 kg.	
	Cereal frags.	+
	Triticum sp.	1
	Corylus avellana	+
	Charcoal	0.16 g.
	Burnt bone frag.	+
J28.	304. 5.5 kg.	
	Corylus avellana	+
	Root/rhizome frag.	+
	Charcoal	0.09 g.
J29.	(+ 2m E). 308. 5.25 kg.	
	Cereal frags.	+
	Triticum sp.	1
	Chenopodiaceae	3
	Polygonum sp.	1
	cf. Gramineae	1
	Indet	4
	Corylus avellana	+
	Gramineae (swollen basal internode) 1 frag.	
	Rhizome frags. (Type 6)	10
	Rhizome frags.	6
	Charcoal	1.49 g.
J30-J33.	No samples : augering showed estuarine clay 100-120+ cm thick.	

J34.	306. 4.75 kg.	
	Charcoal	0.04 g.
J35.	316. 9.15 kg.	
	Charcoal	0.04 g.
J36.	320. 4.2 kg.	
	Indet	1
	Charcoal	0.02 g.
J37.	325. 6.5 kg.	
	Cereal frag.	+
	Gramineae (swollen basal internode)	1
	Corylus avellana	+
	Charcoal	0.21 g.
J38.	329. 7.45 kg.	
	Cereal frags.	+
	Triticum sp. (spb)	1
	Corylus avellana	+
	Charcoal	0.53 g.
J39-41.	No samples.	
J42.	343. 6.75 kg.	
	Corylus avellana	+
	Charcoal	0.57 g.
J43-44.	No samples.	
J45.	307. 5.1 kg.	
	Corylus avellana	+
	Charcoal	0.20 g.
J46.	317. 4.1 kg.	
	Charcoal	0.03 g.

J47. 321. 8.25 kg.

	Cereal frag.	+
	Indet	1
	<u>Corylus avellana</u>	+
	Charcoal	0.07 g.

J47. (+10m E). 336. 7.8 kg.

	<u>Vicia/Lathyrus</u> spp.	1s + 1co
	<u>Corylus avellana</u>	+
	Charcoal	0.25 g.

J48. 326. 4.75 kg.

	Charcoal	0.06 g.

J49. 330. 7.3 kg.

	<u>Corylus avellana</u>	+
	Charcoal	2.33 g.

J50. 333. 5.9 kg.

	Indet	1
	Charcoal	0.25 g.

J51. 338. 7.3 kg.

	cf. <u>Vicia/Lathyrus</u> spp.	2 co fr.
	Indet	1
	cf. <u>Prunus spinosa</u>	+
	Rhizome frags. (Type 6)	10
	Rhizome frags.	6
	Charcoal	1.05 g.

J52. 341. 5.35 kg.

	Charcoal	0.16 g.

J53. 344. 8.05 kg

	Indet	2
	Charcoal	0.05 g.

J54-55. No samples.

J56.	No samples : augering showed gravel surface beneath 70 cm. of estuarine clay.	
J57.	318. 7.0 kg.	
	Rhizome frag (Type 6)	1
	Rhizome frag.	1
	Charcoal	0.82 g.
J58	322. 7.75 kg.	
	Cereal frags.	+
	<u>Prunus spinosa</u>	+
	Charcoal	0.47 g.
J59.	(+2m W) 327. 7.5 kg.	
	Cereal frags.	+
	Cereal indet	2
	<u>Triticum</u> sp.	3
	<u>Corylus avellana</u>	+
	indet	1
	Charcoal	0.85 g.
J60.	331. 7.55 kg.	
	<u>Corylus avellana</u>	+
	Rhizome frag.	1
	Charcoal	0.46 g.
J61.	No sample.	
J62.	339. 5.55 kg.	
	cf. <u>Corylus avellana</u>	+
	Gramineae (swollen basal internode)	1
	Charcoal	0.11 g.
J63.	342. 6.6 kg.	
	Charcoal	0.04 g.
J64.	345. 7.8 kg.	
	Charcoal	0.33 g.

J65-66.	No samples.		
J67.	No sample : augering showed gravel beneath 72 cm. of estuarine clay.		
J68.	(+10m N). 319. 9.1 kg.		
	<u>Vicia/Lathyrus</u> spp.	1 co.	
	Rhizome frags.	4	
	Charcoal	0.05 g.	
J69.	323. 3.75 kg.		
	Charcoal	0.005 g.	
J70.	No sample.		
J71.	332. 5.3 kg.		
	Stem frag.	+	
	Charcoal	0.01 g.	
J72.	335. 3.9 kg.		
	Cereal indet	1	
	?Mesocarp fruit tissue	+	
	Charcoal	0.08 g.	
	Burnt bone	+	
J73.	340. 4.5 kg.		
	Charcoal	0.09 g.	
J74.	No sample.		
J75.	346. 6.35 kg.		
	<u>Corylus avellana</u>	+	
	?Root/rhizome frag.	1	
	Charcoal	0.06 g.	
J76-77.	No sample.		

J78-79. No samples : augering showed head or sandy gravelly clay beneath 40-70 cm of estuarine clay.

J80. 324. 5.15 kg.

Corylus avellana	+
Charcoal	0.40 g.

J81-88. No samples. Old land surface either truncated or eroded away in creek beds in this area.

Appendix B: Catalogue of plant macrofossils from Site 28A (1986 season)

Taxa are represented by fruits or seeds unless otherwise indicated

Abbreviations: co - cotyledon; fr/frag - fragment; gb - glume base; ri - rachis internode; s - seed; spb - spikelet base (fork with no surviving trace of internode and glume bases badly damaged); spf - spikelet fork (usually with no internode); u/c - uncarbonised.

Notes:

a) Cereal frags. Small grain fragments comprising less than half a grain without the embryo area.

b) Cereal indet. Badly deformed whole grains or grain fragments with embryo area.

c) Corylus avellana. Weight (in grams) of fragments >0.5mm.

d) Charcoal. Weight (in grams) of fragments >2mm.

e) Vegetative plant material. 'Type 1-9' refers to the categories of material described in the text.

f) The presence of uncarbonised seeds of terrestrial taxa is noted, but these are probably intrusive.

1.	3.5kg	
	Cereal indet	2
	Cereal frags	+
	Triticum cf. monococcum-type	1
	Triticum dicoccum-type	1
	Triticum sp. (spb)	2
	Triticum dicoccum (gb)	1
	Corylus avellana	0.03g.
	Root frag (Type 5)	1
	Charcoal	1.94g
2.	4.25kg.	
	Cereal frags	+
	Triticum sp.	1
	Root fr. (Type 4)	1
	Charcoal (wt not recorded)	
3.	3.55kg	
	Cereal frags	++
	Cereal indet	9
	Triticum sp.	2
	Triticum dicoccum-type	14
	Triticum sp. (spb)	1
	T. cf. dicoccum (spf)	1
	T. dicoccum (gb)	1
	Corylus avellana	0.05g.
	cf. Prunus spinosa (frag)	+
	Gramineae indet	1

	Root fr. (Type 5)	1
	Charcoal	1.33g.
4.	3.05kg	
	Cereal frags	++
	Cereal indet	3
	Triticum sp	9
	Triticum dicoccum-type	4
	Triticum sp.	1 (deformed)
	Triticum sp. (ri)	1
	Triticum sp. (gb)	1
	Vicia/Lathyrus sp co fr	1
	Corylus avellana	0.02g
	Bud	1
	Rhizome fr (?)	1 (abraded)
	Charcoal	0.84g
5.	2.8kg	
	Cereal frags	+
	Cereal indet	10
	Triticum sp.	2
	Triticum dicoccum-type	7
	Triticum sp. (spb)	3
	Triticum sp. (spf)	1
	Triticum dicoccum (gb)	3
	Triticum sp. (gb fr)	1
	Corylus avellana	0.04g.
	Vicia/Lathyrus sp. (co)	1
	Rumex sp.	1
	Charcoal	0.89g
6.	2.85kg	
	Cereal frags	+
	Cereal indet	4
	Triticum dicoccum-type	3
	Triticum sp. (gb)	3
	Corylus avellana	0.09g
	Charcoal	0.86g
7.	2.8kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp.	1
	Triticum dicoccum-type	1
	Vicia/Lathyrus sp.	1s + 1co
	Corylus avellana	0.05g
	Rhizome fr (?)	1 (v. abraded)
	Indet	2
	Rubus fruticosus (u/c)	2
	Charcoal	0.36g
8.	3.85kg	
	Cereal frags	+
	Cereal indet	10
	Triticum sp.	5
	Triticum dicoccum-type	4
	Triticum sp. (spb)	1
	Triticum sp. (gb)	2

	Corylus avellana	0.02g
	Vicia/Lathyrus sp. co	2
	Galium aparine (fr)	1
	Rhizome frag (Type 6)	1
	Indet stem frag	1
	Rubus fruticosus (u/c)	1
	Charcoal	0.37g
9.	3.65kg	
	Cereal frags	++
	Cereal indet	17
	Triticum sp.	1
	Triticum dicoccum-type	5
	Triticum cf monococcum-type	1
	Triticum sp (spb)	4
	Triticum sp.(spf)	1
	Triticum sp. (gb)	3
	Triticum dicoccum (gb)	1
	Corylus avellana	0.02g
	cf Malus-type (epidermis)	+
	Indet	1
	Charcoal	1.24g
10.	3.85kg	
	Cereal frags	+
	Cereal indet	15
	Triticum sp.	14
	Triticum dicoccum-type	8
	Triticum sp. (spf)	1
	Triticum cf. dicoccum (spf)	1
	Triticum sp. (gb)	3
	Corylus avellana	0.02g
	Rhizome fr. (Type 6)	2
	Gramineae (swollen basal internode)	1
	cf.Vicia/Lathyrus sp (co)	1 (?)
	Charcoal	0.99g
11.	3.1kg	
	Cereal frags	+
	Cereal indet	6
	Triticum sp.	2
	Triticum dicoccum-type	2
	Triticum sp. (spb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	0.04g
	Cereal/large grass	1 fr
	Root/rhizome frag (?)	1 (poorly preserved)
	Charcoal	0.69g
13.	3.1kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp.	2
	Triticum dicoccum-type	2
	Triticum sp. (gb)	1
	Corylus avellana	0.02g
	Vicia/Lathyrus sp. (co)	1
	Indet (mushroom-shaped obj)	1

	Charcoal	0.61g
14.	2.9kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp. (gb)	1
	Triticum cf. *dicoccum* (gb)	1
	Corylus avellana	0.01g
	Indet	1
	Charcoal	0.72g
15.	3.2kg	
	Cereal frags	+
	Cereal indet	12
	Triticum sp.	5
	Triticum dicoccum-type	1
	Triticum cf. *monococcum* (spf)	1
	Triticum dicoccum (spf)	1
	Triticum sp. (spf)	2
	Triticum sp. (gb)	2
	Triticum dicoccum (gb)	2
	Corylus avellana	0.01g
	Gramineae indet (frag)	1
	Charcoal	0.99g
16.	3.9kg	
	Cereal frags	+
	Cereal indet	7
	Triticum sp.	1
	Triticum sp. (spb)	1
	Corylus avellana	0.03g
	Galium aparine	3
	Gramineae indet	1
	Bud	1
	Root fragments (Type 5)	3
	Indet	1
	Charcoal	3.67g
18.	4.7kg	
	Cereal frags	+
	Cereal indet	10
	Triticum sp.	1
	Corylus avellana	0.01g
	Charcoal	0.76g
20.	4.5kg	
	(Gypsum crystals)	
	Cereal frags	+
	Cereal indet	20
	Triticum sp.	2
	Triticum dicoccum-type	2
	Triticum sp. (gb)	3
	Triticum dicoccum (gb)	1
	Corylus avellana	0.01g
	Galium aparine	1
	Charcoal	0.39g
21.	3kg	

	Cereal frags	+
	Cereal indet	2
	Triticum dicoccum-type	1
	Hordeum sp. var. _nudum_	1
	Corylus avellana	0.03g
	Sambucus nigra (u/c)	1
	Charcoal	0.57g
22.	3.75kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp.	3
	Corylus avellana	0.05g
	Charcoal	0.47g
23.	3.63kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp.	1
	Triticum dicoccum-type	2
	Triticum sp. (gb)	1
	Triticum dicoccum (gb)	2
	Triticum sp. (spb)	1
	Triticum sp. (spf)	1
	Corylus avellana	0.005g
	Prunus spinosa (fr)	+
	c.f. _Malus_ (epidermis)	+
	Indet	1
	Charcoal	1.18g
24.	3.75kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp.	3
	Triticum dicoccum (gb)	1
	Corylus avellana	0.02g
	Galium aparine	1
	Vicia/Lathyrus sp. (co)	2
	Gramineae (swollen basal internode)	1
	Sambucus nigra u/c	1
	Fragaria vesca u/c	1
	Cirsium sp. u/c	1
	Charcoal	0.66g
25.	3.75kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp.	7
	Triticum dicoccum-type	5 (v.well preserved)
	Triticum dicoccum (gb)	1
	Corylus avellana	0.06g
	Root frags (Type 5)	1 (+1)
	Indet	1
	Charcoal	0.66g
26.	2.75kg	
	Cereal frags	+
	Cereal indet	1

	Triticum sp.	2
	Corylus avellana	0.02g
	Charcoal	0.20g
27.	3.15kg	
	Cereal frags	+
	Montia fontana subsp. *chondrosperma* (u/c)	1
	Charcoal	0.02g
28.	3.56kg	
	Cereal frags	+
	Triticum sp.	1
	Corylus avellana	0.05g
	Root/rhizome frags (?)	1 (abraded)
	Charcoal	0.85g
29.	3.95kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp.	6
	Triticum sp. (gb)	1
	Triticum sp. (spb)	1
	Bud	1
	Vicia/Lathyrus sp.	1
	Charcoal	0.23g
30.	3.7kg	
	Cereal frags	+
	Triticum sp.	2
	Triticum sp. (gb)	1
	Triticum dicoccum (spf)	1
	Corylus avellana	0.02g
	Rhizome frag (Type 6)	1
	Indet	1
	Charcoal	0.11g
31.	4kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp.	2
	cf.*Hordeum* sp. var *nudum*	1
	Triticum sp. (gb)	1
	Corylus avellana	0.04g
	Prunus spinosa	+
	Vicia/Lathyrus sp. (co)	2
	Root fr. (Type 5)	1
	Indet	3
	Charcoal	0.96g
32.	3.8kg	
	Cereal frags	+
	Cereal indet	1
	Triticum dicoccum-type	2
	Corylus avellana	0.01g
	Indet	1
	Sambucus nigra (u/c)	1
	Charcoal	0.76g

34.	3.45kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp. (gb)	1
	Corylus avellana	0.02g
	Prunus spinosa	+
	Rhizome frag (Type 6)	1
	Bud	1
	Indet	2
	Charcoal	0.34g
35.	4.3kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp. (gb)	1
	Corylus avellana	0.003g
	Vicia/Lathyrus sp. (co)	3
	Root fr (Type 5)	1
	Indet	5
	Charcoal	0.29g
36.	2.5kg	
	Charcoal	0.005g
37.	4.25kg	
	Cereal frags	+
	Vicia/Lathyrus sp.	2s + 1co
	Indet	2
	Charcoal	0.62g
38.	4.2kg	
	Cereal frags	+
	Cereal indet	1
	Corylus avellana	0.04g
	Vicia/Lathyrus sp. (co)	1
	cf. _Malus_ (epidermis)	+
	Indet	1
	Charcoal	0.37g
39.	3.75kg	
	Cereal frags	+
	Charred bark fragments	+
	Buds	6
	Vicia/Lathyrus sp.	3s + 6co
	(?) Leguminosae indet (large seed)	1
	Rhizome frags (Type 6)	5
	? Rhizome frags	5
	Moncot stem node	1
	Indet stem fr	1
	Indet	2
	Rubus fruticosus (u/c)	1
	Charcoal	0.84g
40.	3.75kg	
	Cereal frags	+
	Corylus avellana	0.01g
	Vicia/Lathyrus spp.	4s + 6co

	Buds	2	
	Gramineae indet	2	
	Indet	5 + 2	
	Indet stem fr.	1	
	Root/Rhizome frag (Type 6)	1	
	<u>Sambucus nigra</u> (u/c)	1	
	Charcoal	2.71g	
41.	4.25kg		
	Cereal frgs	+	
	<u>Corylus avellana</u>	0.03g	
	<u>Rubus fruticosus</u> (u/c)	1	
	Charcoal	0.40g	
42.	4.1kg		
	Cereal frags	+	
	Cereal indet	1	
	Charcoal	0.11g	
44.	4.1kg		
	Cereal frags	+	
	<u>Triticum dicoccum</u>-type	1	(well preserved)
	Bark frags	+	
	Buds	2	
	Root/rhizome frags (?)	1	(abraded)
	Root fragment (?)	1	
	<u>Sambucus nigra</u> (u/c)	1	
	Charcoal	0.74g	
45.	4.6kg		
	Cereal frags	+	
	Cereal indet	1	
	Bark frags	+	
	<u>Vicia/Lathyrus</u> sp.	5s + 6co	
	Gramineae indet	1	
	Stem frag	+	
	Rhizome frags	4	
	Rhizome frag (Type 6)	1	
	Indet	1	
	Charcoal	4.56g	
47.	4.35kg		
	Cereal frag	+	
	Cereal indet	1	
	<u>Corylus avellana</u>	0.005g	
	<u>Vicia/Lathyrus</u> sp. (co)	1	
	Charcoal	0.32g	
48.	4.3kg		
	<u>Corylus avellana</u>	0.01g	
	Indet	3	
	Charcoal	0.47g	
49.	3.9kg		
	cf. <u>Vicia/Lathyrus</u> sp.	1	
	Charcoal	0.27g	

50. 4.2kg

<u>Prunus spinosa</u>	1
Indet	2
<u>Sambucus nigra</u> (u/c)	3
Charcoal	0.84g

51. 3.5kg

Cereal frags	+
Cereal indet	3
<u>Triticum</u> sp.	1
<u>Corylus avellana</u>	0.04g
Bark fragments	
Catkin fragments	
Root frags (Type 5)	3
Indet	1
Charcoal	2.71g

52. 3.65kg

Cereal frags	+
Cereal indet	4
<u>Triticum</u> sp.	1
<u>Triticum</u> sp. (spb)	1
<u>Triticum</u> sp. (gb)	1
<u>Corylus avellana</u>	0.01g
<u>Vicia/Lathyrus</u> sp.	1
<u>Tilia</u> sp. (immature fruit)	1
Root frags (Type 5)	2
Gramineae (swollen basal internode)	1
Indet	1
Charcoal	18.6g

53. 4.25kg

Cereal frags	++
Cereal indet	16
<u>Triticum</u> sp.	2
<u>Triticum dicoccum</u>-type	6
<u>Hordeum</u> sp. (var nudum)	1 frag
<u>Triticum</u> sp. (spb)	3
<u>Triticum</u> sp. (gb)	4
<u>Corylus avellana</u>	0.08g
Stem node (?)	1 abraded
Indet	3
Charcoal	0.72g

54. 4.75kg

Cereal frags	+
Cereal indet	5
<u>Triticum</u> sp.	1
<u>Corylus avellana</u>	0.01g
<u>Galium aparine</u>	1 + 1 fr
<u>Vicia/Lathyrus</u> sp.	1 co
Gramineae	1
Gramineae (swollen basal internode)	1
Indet	1
Charcoal	0.66g

55. 4.45kg

Cereal frags	+

	Cereal indet	5
	Triticum sp.	2
	Triticum dicoccum-type	1
	Triticum sp. (gb)	2
	Corylus avellana	0.03g
	Charcoal	0.21g
56.	5.35kg	
	Cereal frags	+
	Cereal indet	13
	Triticum sp.	4
	cf. *Hordeum* sp.	1 frag
	Triticum sp. (spb)	2
	Triticum cf. *dicoccum* (spf)	2
	Triticum cf. *dicoccum* (gb)	1
	Corylus avellana	0.09g
	Indet	4
	Charcoal	0.98g
57.	5.5kg	
	Cereal frags	+
	Cereal indet	19
	Triticum sp.	6
	Triticum dicoccum-type	8
	Triticum sp. (spb)	3
	Triticum cf. *dicoccum* (spf)	2
	Triticum sp. (gb)	4
	Triticum cf. *dicoccum* (gb)	2
	Corylus avellana	0.04g
	Galium aparine	1 frag
	Polygonum aviculare	1
	Prunus spinosa	1 frag
	Root frag (Type 5)	1
	Indet	2
	Charcoal	1.76g
58.	5.25kg	
	Cereal frags	+
	Cereal indet	7
	Triticum sp.	1
	Triticum dicoccum-type	1
	Triticum sp. (spf)	1
	Triticum sp. (gb)	2
	Corylus avellana	0.02g
	? Bark fragment	1
	Indet	1
	Charcoal	0.91g
59.	5.0kg	
	Cereal frags	+
	Cereal indet	12
	Triticum sp.	4
	Triticum dicoccum-type	7 (some well pres.)
	Triticum sp. (spb)	2
	Triticum dicoccum (spf)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	0.02g
	Galium aparine	1

	Vicia/Lathyrus sp.	1s + 1co
	Charcoal	1.04g
60.	5.25kg	
	Cereal frags	+++
	Cereal indet	43
	Triticum sp.	7
	Triticum dicoccum-type	16)
	Triticum sp. (spf)	4) some well-
	Triticum dicoccum (spf)	9) preserved
	Triticum sp. (gb)	9) specimens
	Triticum dicoccum (gb)	8)
	Triticum cf. _dicoccum_ (gb)	1)
	Corylus avellana	0.05g
	Vicia/Lathyrus sp.	1s + 1 frag
	Rumex sp.	1
	Gramineae indet	1
	Gramineae indet (cn)	1
	Indet	2
	Charcoal	4.21g
61.	5.2kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp.	2
	Triticum dicoccum-type	1
	Triticum sp. (gb)	1
	Triticum dicoccum (gb)	2
	Corylus avellana	0.10g
	Root/rhizome frag	1 (abraded scrap)
	Gramineae (swollen basal internode)	1
	Indet	1
	Charcoal	1.49g
62.	5.1kg	
	Cereal frags	+
	Cereal indet	14
	Triticum sp.	4
	Triticum sp. (gb)	1
	Corylus avellana	0.03g
	Galium aparine	1
	Gramineae indet	1
	Bud	1
	Rhizome frag (Type 6?)	1
	Stem/rhizome frags (Type 9)	1
	Rhizome frag?	1
	Sambucus nigra (u/c)	1
	Indet	2
	Charcoal	0.91g
63.	4.2kg	
	Cereal frags	+
	Cereal indet	9
	Triticum sp.	5
	Triticum dicoccum-type	5
	Triticum sp. (spb)	1
	Triticum sp. (spf)	1
	Triticum sp. (gb)	2

	Triticum dicoccum (gb)	2
	Corylus avellana	0.07g
	Charcoal	1.58g
64.	4.05kg	
	Cereal frags	+
	Cereal indet	15
	Triticum sp.	4
	Triticum dicoccum-type	5
	Triticum sp. (spb)	1
	Triticum dicoccum (spf)	1
	Triticum sp. (gb)	2
	Corylus avellana	0.05g
	Galium aparine	1
	Vicia/Lathyrus sp.	1co
	Indet	2
	Charcoal	0.94g
65.	4.8kg	
	Cereal frags	+
	Cereal indet	10
	Triticum dicoccum-type	2
	Triticum sp. (spb)	1
	Triticum sp. (gb)	2
	Triticum dicoccum (gb)	2
	Corylus avellana	0.04g
	Indet	1
	Charcoal	0.76g
66.	5.75kg	
	Cereal frags	+
	Cereal indet	6
	Triticum sp.	1
	Corylus avellana	0.09g
	Gramineae (swollen basal internode)	1
	? Root/rhizome frags	2
	Indet	1
	Charcoal	2.50g
67.	5.25kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp.	5
	Triticum dicoccum-type	3
	Triticum sp. (spb)	3
	Triticum dicoccum (spf)	2
	Triticum sp. (gb)	4
	Triticum dicoccum (gb)	3
	Corylus avellana	0.07g
	Vicia/Lathyrus sp.	1 co
	Root/rhizome frag?	1 (abraded)
	Indet	1
	Charcoal	1.17g
68.	4.8kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp.	2

	Corylus avellana	0.04g
	Vicia/Lathyrus sp.	2 co
	Indet	3
	Charcoal	1.18g
70.	5.25kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp.	2
	Triticum dicoccum-type	1
	Triticum dicoccum (spf	1
	Triticum dicoccum (gb)	1
	Corylus avellana	0.01g
	Root frag (Type 5)	1
	Indet	1
	Charcoal	0.21g
71.	4.35kg NB. Fraction less than 2mm spilt	
	Cereal frags	+
	Cereal indet	2
	Triticum sp.	2
	Triticum dicoccum-type	3
	Corylus avellana	0.06g
	Charcoal	0.90g
72.	5kg	
	Cereal frags	+
	Triticum sp.	1
	Triticum dicoccum-type	5
	Hordeum sp. var. nudum	1
	Corylus avellana	0.07g
	cf. Prunus spinosa frags (abraded)	+
	? Bark fragment	1
	Rubus fruticosus (u/c)	1
	Indet	2
	Charcoal	1.49g
73.	4.5kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp.	1
	Triticum sp. spf.	1
	Triticum dicoccum gb	1
	Corylus avellana	0.02g
	Vicia/Lathyrus sp.	1s + 1co
	Charcoal	0.77g
74.	5.1kg	
	Cereal frags	+
	Cereal indet	3
	Vicia/Lathyrus sp.	2 co
	Rubus fruticosus (u/c)	1
	Indet	2
	Charcoal	0.005g
75.	5.5kg	
	Cereal frags	+
	Cereal indet	3

	Triticum sp. (spb)	1
	Triticum dicoccum (spf)	1
	Triticum sp. (gb)	7
	Gramineae (swollen basal internode)	1
	Stem frag. (Type 9)	1
	Indet	4
	Charcoal	0.10g
76.	4.7kg	
	Cereal frags	+
	Cereal indet	1
	Corylus avellana	0.01g
	cf. Prunus spinosa (abraded frag)	+
	Charcoal	0.76g
77.	4.4kg	
	Cereal frag	+
	Corylus avellana	0.01g
	Mineralised woody stem frags	+
	Indet	1
	Charcoal	0.06g
78.	5.12kg	
	Gypsum crystals	
	Cereal frags	+
	Cereal indet	6
	Triticum sp.	1
	Triticum dicoccum-type	1 (well pres.)
	Corylus avellana	0.02g
	Vicia/Lathyrus sp.	1s + 2co
	Sambucus nigra (u/c)	1
	Indet	1
	Charcoal	0.24g
79.	6.0kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp.	1
	Triticum sp. (gb)	2
	Corylus avellana	0.10g
	Vicia/Lathyrus sp.	2co
	Root frag (Type 5)	1
	Indet	3
	Charcoal	0.74g
80.	5.35kg	
	Cereal frags	+
	Cereal indet	9
	Triticum sp.	3
	Triticum dicoccum-type	1
	Corylus avellana	0.02g
	Bud	1
	Indet	3
	Charcoal	0.17g
81.	5.15kg	
	Cereal frags	+
	Cereal indet	2

	Triticum sp.	1
	Triticum dicoccum-type	1 (well pres.)
	Corylus avellana	0.08g
	Prunus spinosa (frags)	+
	Indet	1
	Charcoal	1.90g
82.	5.25kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp.	2
	Triticum sp. (spb)	3
	Corylus avellana	0.06g
	Inflorescence stalk (?)	1
	Indet	2
	Charcoal	0.85g
83.	4.8kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp.	1
	Triticum sp. (gb)	2
	Triticum sp. (spb)	1
	Corylus avellana	0.01g
	Indet	2
	Charcoal	0.55g
84.	4.6kg	
	Cereal frags	+
	Triticum dicoccum gb	2
	Corylus avellana	0.01g
	Prunus spinosa (frags)	+
	Vicia/Lathyrus sp.	1s + 2co
	Buds	3
	Rubus fruticosus (u/c)	1
	Sambucus nigra (u/c)	1
	Rhizome frag (Type 6)	1
	Rhizome frags (?)	2
	Indet	3
	Charcoal	0.28g
85.	5.2kg	
	Gypsum crystals	
	Cereal frags	+
	Cereal indet	3
	Triticum sp.	1
	Corylus avellana	0.05g
	Vicia/Lathyrus sp.	2s + 6co
	Bud	1
	Thorn	1 frag
	? Bark frag	+
	Rhizome frag (Type 6)	1
	Stem/Rhizome frags (Type 9)	2
	Rhizome frags(?)	2
	Rubus fruticosus (u/c)	1 + frags
	Indet	1
	Charcoal	0.17g

86. 4.7kg	
Vicia/Lathyrus sp.	1 co
Charcoal	0.16g
87. 5kg	
Triticum dicoccum-type	2
cf. _Prunus spinosa_ (frag)	+
Corylus avellana	0.02g
Charcoal	0.10g
88. 5kg	
Cereal frags	+
Cereal indet	1
Triticum dicoccum-type	1
Corylus avellana	0.04g
Rubus fruticosus (u/c)	1
Prunus spinosa (frag)	+
Charcoal	0.89g
89. 5.25kg	
Cereal frags	+
Cereal indet	1
Hordeum sp. var _nudum_	1
Corylus avellana	0.01g
Tilia sp. (immature fruit)	1
Sambucus nigra (u/c)	2
Charcoal	0.44g
90. 4.7kg	
Cereal frags	+
Rubus fruticosus (c)	1
Stem fr.	+
Bark frag	1
Sambucus nigra (u/c)	1
Charcoal	0.15g
91. 4.08kg	
Cereal frags	+
Corylus avellana	0.04g
Rhizome frags (Type 6)	3
Charcoal	0.36g
92. 4.45kg	
Cereal frags	+
Cereal indet	1
Corylus avellana	0.02g
Root frag (Type 5)	1
Charcoal	0.49g
93. 4.65kg	
Cereal frags	+
Cereal indet	1
Triticum sp.	1
Corylus avellana	0.01g
Charcoal	0.22g
94. 5.1kg	
Cereal frags	+

	Cereal indet	1
	Triticum sp.	1
	Corylus avellana	0.005g
	Galium aparine	1
	Vicia/Lathyrus sp.	1co
	Charcoal	0.33g
95.	5.0kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp. (gb)	1
	Corylus avellana	0.01g
	Vicia/Lathyrus sp.	3 co.
	Root frag (Type 5)	1
	Indet.	1
	Charcoal	1.29g
96.	4.6kg	
	Corylus avellana	0.03g
	cf.*Prunus spinosa* (abraded frags)	+
	Vicia/Lathyrus sp.	1 co
	Charcoal	0.38g
97.	4.25kg	
	Cereal frags	+
	Triticum dicoccum-type	1
	Vicia/Lathyrus sp.	1s + 1co
	Corylus avellana	0.10g
	Charcoal	1.27g
98.	4.1kg	
	Cereal frags	+
	Indet	1
	Corylus avellana	0.03g
	Charcoal	0.57g
99.	5.5kg	
	Cereal frags	+
	Corylus avellana	0.005g
	Monocot short ribbed internodes (Type 3)	2
	Vicia/Lathyrus sp.	1 co
	Rubus fruticosus (u/c)	1
	Charcoal	0.69g
100.	5.3kg	
	Cereal frags	+
	Cereal indet	1
	Corylus avellana	0.02g
	Prunus spinosa	1 fr.
	Rubus fruticosus (u/c)	1
	Indet.	12
	Charcoal	1.09g.

Ct.	138 1kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp.	1
	Triticum dicoccum-type	8
	Triticum sp. (spb)	14
	Triticum dicoccum (spf)	8 (includes one terminal spikelet)
	Triticum sp.	1 (fork from lower part of ear)
	Triticum sp. (gb)	24 including under-developed + frags
	Triticum dicoccum (gb)	26
	Triticum cf. *dicoccum* (gb)	1 (broad, strongly veined)
	Triticum cf. *dicoccum* (ri)	4 + 1cf.
	Cereal/grass	3 culm nodes + culm fragments
	Corylus avellana	0.003g
	Rumex sp.	23
	Polygonum cf. *aviculare*	1 frag
	Polygonum sp.	1
	Chenopodium album	4 + frags
	Gramineae spec. div.	8
	Caryophyllaceae indet.	1
	Stellaria granirea	1
	?*Malus* 'skin'	+
	Vicia/Lathyrus sp.	1 co + 1s
	Indet	7
	Charcoal	1.86g
Ct.	143 2.3kg	
	Cereal fr.	+
	Triticum dicoccum-Type	1
	Corylus avellana	0.04g
	Vicia/Lathyrus sp.	1 co
	Galium aparine	1 fr.
	Thorn	1
	Indet	2
	Charcoal	2.38g
Ct.	145 8kg	
	Cereal fr.	+
	Cereal indet	1
	Triticum sp. (g.b.)	1
	cf. *Linum*-type	1 (damaged seed)
	Charcoal	1.15g
Ct.	147 5.6kg	
	Cereal fr.	+
	Cereal indet.	8
	Triticum sp.	2
	Triticum dicoccum-type	6
	Triticum dicoccum (spf)	1
	Triticum dicoccum (gb)	2
	Triticum sp. gb.	4
	Corylus avellana	0.003g
	Charcoal	0.26g

Ct. 149 2.5kg	
Cereal fr.	+
Triticum sp.	2
Triticum sp. (gb)	1
Chenopodiaceae indet	1
Galium aparine	2
Bud	1
Indet.	1
Corylus avellana	0.01g
Charcoal	0.45g

Ct. 153 1.4kg	
Cereal fr.	+
Vicia/Lathyrus sp.	1 co
Corylus avellana	0.008g
Charcoal	4.32g

Ct. 157 5.1kg	
Cereal fr.	+
Cereal indet.	4
Triticum sp.	3
Triticum sp. (gb)	1
Corylus avellana	0.05g
Charcoal	2.28g.

Ct. 159 1.6kg	
Cereal frags	+
Corylus avellana	0.02g
Charcoal	0.05g

Ct. 160 8.1kg	
Cereal fr.	+
Cereal indet	4
Triticum sp.	2
Triticum dicoccum-type	1
Triticum sp. (gb)	3
Triticum dicoccum ˜gbñ	1
Triticum sp. (spf)	1
Polygonum sp.	1 fr.
Corylus avellana	0.09g
Charcoal	2.18g

Ct. 161 5.15kg	
Cereal fr.	+
Triticum sp.	1
Corylus avellana	0.01g
Charcoal	0.19g

Ct. 163 5.3kg	
Cereal fr.	+
Cereal indet	3
Triticum sp.	2
Triticum dicoccum-type	2
Corylus avellana	0.04g
Indet	1
Charcoal	0.96g

Ct.	164 4.9kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp.	2
	Triticum dicoccum-type	3
	Triticum sp. (spb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	0.10g
	Galium aparine	1 fr
	Rumex sp.	1
	Vicia/Lathyrus sp.	2 co
	Crataegus monogyna	1
	Gramineae (short internodes (Type 2)	2
	Gramineae (swollen basal internode)	1
	Chenopodiaceae indet	1 frag
	Charcoal	1.40g
Ct.	167 4.5kg	
	Cereal frags	+
	Triticum sp.	1
	Corylus avellana	0.01g
	Charcoal	0.27g

Unnumbered samples: labels illegible or obliterated

a.	1.2kg (? from a feature)	
	Gypsum crystals	
	Cereal frags	+
	Cereal indet	1
	Triticum sp.	1
	Corylus avellana	0.01g
	Indet.	1
	Charcoal	0
b.	2.8kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp.	5
	Triticum dicoccum-type	2
	Triticum sp. (spb)	1
	Triticum dicoccum (spf)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	0.06g (includes a whole immature nut)
	Vicia/Lathyrus sp.	1 co
	Charcoal	0.69g
c.	3.5kg	
	Cereal frag	+
	Charcoal	0.19g
d.	4.2kg	
	Cereal frags	+
	Cereal indet	4

	Triticum dicoccum-type	4
	Triticum sp. (gb)	3
	Triticum dicoccum (gb)	1
	Corylus avellana	0.04g
	Rubus fruticosus (u/c)	1
	Rhizome frag(?)	1 (abraded)
	Charcoal	0.66g
e.	4.25kg	
	Cereal frags	+
	Corylus avellana	0.01g
	Vicia/Lathyrus sp.	1 co
	Sambucus nigra (u/c)	1
	Rhizome frag (?)	1 (abraded)
	Charcoal	1.01g
f.	5.3kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp.	2
	Triticum dicoccum-type	1
	Triticum sp. (gb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	0.06g
	? *Prunus spinosa* (abraded frags)	+
	Vicia/Lathyrus sp.	1 co
	Gramineae (swollen basal internode)	1
	Indet	1
	Charcoal	1.18g

APPENDIX C: Catalogue of plant macrofossils from Site 28B (1987 season)

For details of abbreviations, methods of counting and weighing see catalogue for Site 28A.

101.	5.5 kg.	
	Cereal Indet	1
	Cereal frags.	+
	<u>Corylus avellana</u>	0.10 g.
	Rhizome frags.	2
	Charcoal	1.03 g.
102.	4.5 kg.	
	Cereal frags.	+
	<u>Triticum</u> sp.	2
	<u>Corylus avellana</u>	0.05 g.
	<u>Vicia/Lathyrus</u> sp(p)	1s + 2co
	Rhizome frag.(abraded)	1
	Rhizome frag.(Type 6)	1
	Charcoal	0.61 g.
109.	4.5 kg.	
	Cereal frags.	+
	<u>Corylus avellana</u>	0.06 g
	<u>Veronica hederifolia</u>	1 frag
	Charcoal	5.25 g.
110.	5.75 kg. (25% sorted)	
	Cereal frags.	+
	<u>Corylus avellana</u>	0.01 g.
	Rhizome frags.	2
	Rhizome frags.(Type 6?)	1
	Indet	5
	Charcoal	1.44 g.

111.	6.75 kg.	
	Cereal frags.	+
	Cereal indet	2
	Triticum dicoccum-type	1
	Corylus avellana	0.13 g.
	Rhizome frag.(Type 9)	1
	Rhizome frags.	4
	?Gramineae (Swollen basal internode)	1
	Indet	1
	Charcoal	2.48 g
117.	5.5 kg.	
	Cereal frags.	+
	Triticum sp.	1
	Triticum sp. (spb)	1
	Corylus avellana	0.05 g.
	Parenchymatous tissue frags.	
	Charcoal	0.52 g.
118.	4 kg.	
	Cereal frags.	+
	Cereal indet	1
	Corylus avellana	0.07 g.
	Vicia/Lathyrus sp.(p)	1s + 1co
	Indet	1
	Charcoal	1.56 g.
120.	5.5 kg.	
	Cereal frags.	+
	Cereal indet	3
	Triticum sp. (gb)	1
	Triticum sp. (spb)	1
	Corylus avellana	0.28 g.
	Galium sp.	1 frag.
	Chenopodium album	1
	Vicia/Lathyrus sp.	1
	Charcoal	0.94 g.

121.	4.25 kg.	
	Cereal frags.	+
	Cereal indet	8
	Triticum sp.	2
	Triticum dicoccum (gb)	1
	Corylus avellana	0.19 g.
	cf. *Prunus spinosa*	1 abraded frag.
	Galium aparine	1
	Vicia/Lathyrus	1 co frag.
	Indet	1
	Charcoal	1.55 g.
122.	5 kg.	
	Cereal frags.	+
	Cereal indet	3
	Triticum sp.	1
	Triticum sp (spb)	1
	Corylus avellana	0.06 g.
	Prunus spinosa	1 frag.
	Gramineae indet	1
	Indet	1
	Charcoal	1.30 g.
125.	7.5 kg.	
	Cereal frags.	+
	Cereal indet	2
	Triticum sp.	3
	Triticum dicoccum (gb)	1
	Corylus avellana	0.16 g.
	Prunus spinosa	1 frag.
	Chenopodiaceae indet	1
	Galium aparine	1
	Vicia/Lathyrus sp(p)	1 co
	Indet	2
	Charcoal	0.79 g.

126.	5.75 kg.	
	Cereal frags.	+
	Cereal indet	2
	Triticum sp.	2
	Triticum dicoccum-type	4
	Corylus avellana	0.08 g.
	Prunus spinosa	1 frag.
	Epidermis frag.	+
	Vicia/Lathyrus sp(p)	2 co
	Rhizome frags.	2
	Charcoal	1.52 g.
127.	3.25 kg.	
	Cereal frags.	+
	Cereal indet	3
	Corylus avellana	0.15 g
	Galium sp.	1 frag.
	Stellaria media-type	1
	Bud	1
	Indet	2
	Charcoal	0.24 g.
128.	5.5 kg.	
	Cereal frags.	+
	Cereal indet	2
	Triticum sp.	4
	Triticum sp. (gb)	1 frag.
	Corylus avellana	0.25 g.
	Prunus spinosa	2 frags.
	Galium aparine	1
	Vicia/Lathyrus sp.(p)	1 co
	Indet	3 + frags.
	Charcoal	1.22 g.

129.	5.75 kg.	
	Cereal frags.	+
	Cereal indet	4
	<u>Corylus avellana</u>	0.21 g.
	<u>Vicia/Lathyrus</u> sp(p)	1s + 1co
	Polygonaceae indet	1
	Indet	1
	Charcoal	1.33 g.
130.	5.5 kg.	
	Cereal frags.	+
	Cereal indet	3
	<u>Triticum</u> sp.	2
	<u>Triticum dicoccum</u>-type	2
	<u>Triticum</u> sp. (spb)	1
	<u>Corylus avellana</u>	0.33 g.
	Indet	1
	Charcoal	1.60 g.
131.	5.25 kg.	
	Cereal frags.	+
	Cereal indet	1
	<u>Corylus avellana</u>	0.18 g
	Gramineae (swollen basal internodes)	2 frags.
	Charcoal	1.13 g.
132.	5.5 kg.	
	Cereal frags.	1
	Cereal indet	1
	<u>Corylus avellana</u>	0.07 g.
	Charcoal	0.79 g.

133.	6 kg.	
	Cereal frags.	+
	Cereal indet	3
	Triticum sp.	5
	Triticum dicoccum-type	1
	Triticum sp. (spb)	2
	Corylus avellana	0.08 g.
	Vicia/Lathyrus sp.(p)	1s + 1co
	Galium sp.	1 frag.
	Gramineae indet	1
	Charcoal	0.72 g.
135.	5.6 kg.	
	Cereal frags.	+
	Triticum sp. (spb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	0.11 g.
	Epidermal fragments	+
	Root/rhizome frags.	3
	Root/rhizome frags. (Type 5)	4
	Vicia/Lathyrus sp.(p)	3s + 27co
	Veronica hederifolia	1
	cf. Gramineae indet	1
	Indet	6+ frags.
	Buds	2
	Charcoal	2.42 g.

136.	5.75 kg.	
	Cereal frags.	+
	Cereal indet	3
	Triticum sp.	5
	Triticum dicoccum-type	1
	Triticum sp. (spb)	4
	Corylus avellana (incl. immature whole nut)	0.21 g.
	Epidermal frags.	+
	Root/rhizome frags. (Type 5)	2
	Galium aparine	2+ frag.
	Veronica hederifolia	1
	Vicia/Lathyrus sp.(p)	1 co
	Indet	2
	Charcoal	1.59 g.
137	6.25kg.	
	Cereal frags	+
	Cereal indet	2
	Cereal/grass	2
	Corylus avellana	0.17 g
	Vicia/Lathyrus sp.(p)	2 co
	Leguminosae (small seeded)	1
	Epidermal frag.	+
	Charcoal	1.40 g
138.	6.3kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp	2
	Corylus avellana	0.17 g
	Galium aparine	1 + 1frag.
	Charcoal	0.72 g

144	5.5 kg	
	Cereal frags	+
	<u>Triticum dicoccum</u>	3 (some well preserved)
	<u>Corylus avellana</u>	0.13 g
	Epidermal frags	+
	Root/rhizome frags	
	(Type 6)	3
	Root/rhizome frags	6
	<u>Chenopodium album</u>	1
	<u>Vicia/Lathyrus</u> sp(p)	2s + 6co
	Bud	1
	Indet	4
	Charcoal	6.27 g
145	5.75 kg	
	Cereal frags	+
	<u>Triticum</u> sp (spb)	1
	<u>Corylus avellana</u>	0.03 g
	Root/rhizome frag	1
	Charcoal	0.16 g
146	4.6 kg	
	Cereal frags	+
	Cereal indet	2
	<u>Triticum</u> sp	1
	<u>Triticum</u> sp (spf)	1
	<u>Corylus avellana</u>	0.15 g
	Root/rhizome frags	
	(Type 6)	1

	Root/rhizome frag	1
	Galium aparine	1 + 1 frag
	Indet	1
	Charcoal	0.57 g
147	4.75 kg	
	Cereal frags	+
	Triticum sp	1
	Corylus avellana	0.06 g
	? Root fragment	
	(Type 4)	1
	Vicia/Lathyrus sp(p)	2s
	Indet	1
	Charcoal	0.53 g
148	6 kg	
	Cereal frags	+
	Triticum sp (spb)	1
	Corylus avellana	0.02 g
	Vicia/Lathyrus sp(p)	1s + 2co
	Indet	2
	Charcoal	0.09 g
149	5.25 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	5
	Triticum dicoccum-type	2
	Triticum sp (spb)	3
	Triticum dicoccum (spf)	1
	Triticum sp (gb)	7
	Triticum dicoccum (gb)	3
	Corylus avellana	0.12 g
	Chenopodium album	1
	Leguminosae (small-seeded)	1
	Galium aparine	frags
	Epidermal frag	+
	Indet	2
	Charcoal	0.84 g

150	6 kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp	7
	Triticum dicoccum-type	4
	Triticum sp (spb)	7
	Triticum sp (gb)	6
	Triticum dicoccum (gb)	1
	Corylus avellana	0.22 g
	Caryophyllaceae	
	(*Stellaria/Cerastium*-type)	4
	Galium aparine	4 + frags
	Veronica hederifolia	2
	Vicia/Lathyrus sp(p)	1 co
	Indet	1
	Charcoal	0.93 g
151	5.5 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	1
	Triticum dicoccum-type	1
	Triticum sp (gb)	1
	Corylus avellana	0.18 g
	cf. *Malus sylvestris*	1
	Polygonum aviculare	1
	Vicia/Lathyrus sp(p)	1 co
	Veronica hederifolia	1 frag
	Galium aparine	1 + frags
	Epidermal frag	+
	Charcoal	0.70 g

152	7 kg	
	Cereal frags	+
	Cereal indet	3
	<u>Triticum</u> sp	2
	<u>Triticum dicoccum</u>-type	2
	<u>Triticum</u> sp (spb)	1 fr
	<u>Corylus avellana</u>	0.07 g
	<u>Vicia/Lathyrus</u> sp(p)	2s + 12 co
	<u>Galium</u> sp	1 frag
	Gramineae indet	1 frag
	Bud	1
	Epidermal frags	+
	Indet	9
	Charcoal	14.13 g
153	5.75 kg	
	Cereal frags	+
	Cereal indet	2
	<u>Triticum</u> sp	1
	<u>Corylus avellana</u>	0.13 g
	cf.<u>Prunus spinosa</u>	1 frag
	Charcoal	1.27 g
154	6 kg	
	Cereal frags	+
	Cereal indet	5
	<u>Triticum</u> sp (gb)	2
	<u>Corylus avellana</u>	0.21 g
	Charcoal	0.97 g
155	6.75 kg	
	Cereal frags	+
	Cereal indet	2
	<u>Triticum</u> sp (gb)	1
	<u>Corylus avellana</u>	0.09 g

155 cont	*Vicia/Lathyrus sp(p)*	1 co
	Galium aparine	1
	Gramineae (swollen basal internode)	1
	Rhizome frag (Type 9)	1
	Bud	1
	Charcoal	0.86 g
156	6.75 kg	
	Cereal frags	+
	Triticum sp	2
	Corylus avellana	0.04 g
	Galium aparine	1
	Rhizome Frag	1
	Charcoal	0.41 g
157	6.5 kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp	3
	cf *Hordeum* sp	1
	Triticum sp (spb)	1
	Triticum sp (gb)	1
	Corylus avellana	0.13 g
	Vicia/Lathyrus sp(p)	1 co
	Veronica hederifolia	1
	Epidermal frag	+
	Charcoal	0.57 g
158	6.75 kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp	3
	Triticum dicoccum-type	1
	Triticum sp (spb)	1
	Triticum sp (gb)	3

158 cont	*Triticum dicoccum* (gb)	2
	Corylus avellana	0.11 g
	Vicia/Lathyrus sp(p)	2 co
	Galium aparine	1 + frags
	Rhizome frag	1
	Charcoal	0.81 g
159	5.25 kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp	3
	Corylus avellana	0.19 g
	Prunus spinosa	1 frag
	Galium aparine	1
	Indet	2
	Charcoal	0.86 g
160	7.5 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	3
	Triticum sp (spb)	1
	Corylus avellana	0.19 g
	cf *Prunus spinosa*	1 frag
	Epidermal frags	+
	Vicia cf. *tetrasperma*	1
	Vicia/Lathyrus sp	1
	Gramineae (swollen basal internodes)	2 frags
	? Root fragment	1
	Rhizome frags (Type 6)	3
	Indet	2
	Charcoal	4.04 g

161	7.25 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	2
	Triticum sp (gb)	3
	Corylus avellana	0.11 g
	Prunus spinosa	1 frag
	Vicia/Lathyrus sp(p)	2s + 3co
	Scirpus sp	1
	Indet	1
	Charcoal	5.91 g
162	5.6 kg	
	Cereal frags	+
	Triticum sp	1
	Corylus avellana	0.o2 g
	Rhizome frags (Type 9)	1
	Rhizome frags	2
	Indet	1
	Charcoal	1.61 g
163	5.5 kg	
	Triticum sp	1
	Corylus avellana	0.05 g
	Vicia/Lathyrus sp(p)	5co
	Root/Rhizome frags (Type 5)	1
	Rhizome frag	1
	Charcoal	1.83 g
164	6.5 kg	
	Cereal frags	+
	Corylus avellana	0.06 g
	Vicia/Lathyrus sp	1co
	Charcoal	0.40 g

165.	5.5 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	2
	Triticum dicoccum type	2
	Corylus avellana	0.10 g.
	Vicia/Lathyrus sp(p)	2 co
	Galium aparine	1
	Root/rhizome frag	1
	Charcoal	0.29 g
166.	7.25 kg.	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	3
	Triticum sp (gb)	1
	Corylus avellana	0.09 g.
	cf. Quercus sp (cupule frag)	+
	Polygonum aviculare	1
	Rhizome frag	1
	Charcoal	1.33 g
167.	6.75 kg.	
	Cereal frags	+
	Cereal indet	3
	Triticum dicoccum - type	1
	Corylus avellana	0.06 g
	Vicia/Lathyrus sp	1 co
	Indet.	1
	Charcoal	1.07 g.
168.	5.5 kg (25% sorted)	
	Corylus avellana	0.02 g
	Quercus sp (immature cupule)	1
	Rhizome frag.	1
	Charcoal	4.81 g.

169.	7.75 kg (25% sorted)	
	Cereal indet	1
	<u>Corylus avellana</u>	0.008 g
	Indet ? nut fragments	+
	<u>Vicia/Lathyrus</u> sp(p)	1s + 3co
	Epidermal frags	+
	Indet	1
	Charcoal	4.17 g
170.	5.75 kg	
	<u>Vicia/Lathyrus</u> sp	1s
	Root/rhizome frag. (Type 5)	1
	Indet	1
	Charcoal	0.07 g
171.	4.8 kg	
	Cereal frags	+
	<u>Triticum</u> sp.	1
	<u>Corylus avellana</u>	0.01 g
	<u>Vicia/Lathyrus</u> sp(p)	7s + 6co
	Rhizome frags (Type 6)	4
	Rhizome frags	8
	Indet	2
	Charcoal	10.23 g
172.	8 kg	
	<u>Corylus avellana</u>	0.02 g
	<u>Galium aparine</u>	1
	<u>Vicia/Lathyrus</u> sp.	1 frag
	Root/rhizome frags (Type 5)	3
	Root/rhizome frag	1
	Gramineae (culm node)	1
	Charcoal	1.93 g

173.	5.5 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	4
	Triticum dicoccum - type	1
	Corylus avellana	0.03 g
	Rhizome frags	3
	Charcoal	0.51 g
174.	6.5 kg	
	Cereal frags	+
	cf. _Hordeum_ sp	1
	Triticum sp	3
	Triticum dicoccum - type	2
	Corylus avellana	0.03 g
	Vicia/Lathyrus sp(p)	2co
	Rhizome frag (?Type 9)	1
	Charcoal	0.43 g
175.	7.75 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	1
	Triticum dicoccum - type	1
	Triticum sp (spb)	1
	Corylus avellana	0.05 g
	Vicia/Lathyrus sp(p)	2s
	Charcoal	0.65 g
176.	6.5 kg	
	Cereal frag	+
	Cereal indet	1
	Triticum sp (gb)	1
	Corylus avellana	0.02 g
	Indet.	1
	Charcoal	0.19 g

177.	6.5 kg (25% sorted)	
	cf. <u>Prunus spinosa</u>	1 frag
	<u>Vicia/Lathyrus</u> sp(p)	2s + 6co
	Umbelliferae indet	1
	Rhizome frags	2
	Bud	1
	Indet	1
	Charcoal	3.02 g
178.	4.75 kg	
	<u>Prunus spinosa</u>	1 frag
	<u>Corylus avellana</u>	0.007 g
	<u>Vicia/Lathyrus</u> sp(p)	1s + 7co
	Gramineae indet	1
	Root/rhizome frags Type 5)	4
	Rhizome frags	2
	Bud	1
	Indet	3
	Charcoal	1.85 g
179.	5.25 kg (50% sorted)	
	<u>Corylus avellana</u>	0.01 g
	<u>Vicia/Lathyrus</u> sp(p)	9s + 5co
	Root/rhizome frags (Type 5)	1
	Rhizome frags	4
	Bud	1
	Indet	1
	Charcoal	2.20 g
180.	6 kg	
	Cereal frags	+
	<u>Corylus avellana</u>	0.02 g
	<u>Vicia/Lathyrus</u> sp(p)	4co
	Rhizome frags (Type 6)	1
	Rhizome frag.	1
	Charcoal	0.64 g

Ct.185	5.65 kg	
	Corylus avellana	0.03 g
	Prunus spinosa	1 frag
	Rubus fruticosus	1
	Epidermal frags	+
	Vicia/Lathyrus sp(p)	20s + 25co
	Scirpus sp	1
	Root/rhizome frags (Type 5)	2
	Root/rhizome frags. (Type 6)	5
	Root/rhizome frags	2
	? Gramineae rhizome frags	2
	Indet	8
	Charcoal	7.29 g
Ct.186	4.75 kg	
	Cereal frags	+
	Cereal indet	2
	Corylus avellana	0.08 g
	Vicia/Lathyrus sp	1co
	Galium sp	1 frag
	Charcoal	0.18 g
Ct.189	4.25 kg	
	Cereal frags	+
	Corylus avellana	0.03 g
	Vicia/Lathyrus sp	1co
	Galium aparine	1
	Charcoal	1.91 g

Ct.196	5.5 kg	
	Cereal frags	+
	Cereal indet	3
	<u>Triticum dicoccum</u> - type	1
	<u>Triticum</u> sp (spb)	2
	<u>Triticum</u> sp (gb)	1
	<u>Triticum dicoccum</u> (gb)	1
	<u>Corylus avellana</u>	0.003 g
	?Nut shell frags	+
	<u>Stellaria/Cerastium</u>-type	8
	Epidermal frags	+
	Indet	1
	Charcoal	0.30 g
Ct.197	2.75 kg	
	Cereal frags	+
	Cereal indet	1
	<u>Triticum</u> sp	1
	<u>Corylus avellana</u>	0.05 g
	Epidermal frags	+
	<u>Quercus</u> sp. (cupule - immature)	1
	<u>Vicia/Lathyrus</u> sp(p)	1s + 1co
	Buds	3
	cf.<u>Neuroterus</u> sp (oak leaf gall)	1
	Indet	2
	Charcoal	4.93 g.
Ct.198	7.75kg.	
	Cereal frags	+
	Cereal indet	2
	<u>Hordeum</u> sp	1 frag.
	<u>Triticum</u> sp	4
	<u>Corylus avellana</u>	0.12 g.
	<u>Vicia/Lathyrus</u> sp(p)	1s + 1co.
	<u>Rumex</u> sp	1
	Rhizome frag	1
	Charcoal	4.22 g

Ct.199	5 kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp	2
	Corylus avellana	0.03 g
	Charcoal	0.78 g
Ct.200	5.25 kg	
	Cereal frags	+
	Cereal indet	3
	Corylus avellana	0.09 g
	Charcoal	0.53 g
Ct.202a	5.25 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	1
	Triticum dicoccum - type	1
	Corylus avellana	0.16 g
	Prunus spinosa (frags)	+
	Vicia/Laythrus sp(p)	1co
	Chenopodium album	1
	Charcoal	0.95 g
Ct.202c.	6.5 kg	
	Cereal frags	+
	Corylus avellana	0.03 g
	Rhizome frag (Type 6)	1
	Charcoal	0.09 g

Ct.203	2.25 kg. (25% of fine flot sorted)	
	Triticum sp	1
	Corylus avellana	0.03 g
	Prunus spinosa	1
	Epidermal frags	+
	Parenchymatous tissue frags (large)	+
	Rhizome frag	1
	Moehringia trinervia	30
	Vicia/Lathyrus sp	1 co
	Galium aparine	1
	Indet	3
	Charcoal	10.43 g
Ct.204	3.5 kg	
	Cereal frag	+
	Cereal indet	1
	Corylus avellana	0.04 g
	Polygonaceae indet	1
	Indet	1
	Charcoal	0.22 g
Ct.205	5 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	2
	Triticum dicoccum - type	2
	Corylus avellana	0.09 g
	Epidermal frags	+
	Rumex sp	1
	Vicia/Lathyrus spp	2s + 3co
	Stellaria/Cerastium - type	1
	Root/rhizome frag (Type 5)	1
	Indet	1
	Charcoal	4.43 g

Ct.206	5 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp. (spb)	1
	Corylus avellana	0.05 g
	Vicia/Lathyrus sp	1co
	Charcoal	0.24 g
Ct.207	6.75 kg	
	Cereal frags	+
	Triticum sp	3
	Triticum dicoccum type	1
	Triticum sp (gb)	1
	Corylus avellana	0.04 g
	Charcoal	0.25 g
Ct.210	6.75 kg	
	Hordeum sp	1 frag
	Triticum sp (gb)	1
	Corylus avellana	0.008 g
	Galium sp	1 frag
	Buds	2
	Indet	3
	Charcoal	0.07 g
Ct.214	4 kg	
	Cereal frag	+
	Triticum dicoccum - type	1
	Corylus avellana	0.01 g
	Polygonaceae indet	1
	Galium sp	1 frag
	Gramineae culm frag	1
	Rhizome frag (Type 6)	1
	Charcoal	0.22 g

Ct.221	5.25 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	4
	Triticum dicoccum - type	1
	Triticum sp (spb)	1
	Triticum dicoccum (spf)	3
	Triticum sp (gb)	1
	Triticum dicoccum (gb)	3
	Corylus avellana	0.04 g
	Rubus fruticosus	1
	Galium aparine	1
	Moehringia trinervia	1
	Caryophyllaceae indet	2
	Indet	1
	Charcoal	0.21 g

APPENDIX D: Catalogue of plant macrofossils from site 28E (1987 season)

189.	7.5 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp.	1
	Epidermal frag	1
	Indet	1
	Charcoal	0.57 g
190.	7.25 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	1
	Corylus avellana	0.002 g
	Rhizome frag	1
	Charcoal	3.28 g
191.	7.0 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	2
	Corylus avellana	0.04 g
	Vicia/Lathyrus sp(p)	1s + 1co
	Rhizome frag.	1
	Charcoal	2.16 g
192.	7.25 kg	
	Cereal frags	+
	Cereal indet	6
	Triticum sp	3
	Triticum dicoccum (spf)	2
	Corylus avellana	0.06 g
	Vicia/Lathyrus sp(p)	3s + 5co
	Caryophyllaceae indet	1
	Root/rhizome frags (Type 5)	2
	Indet	3
	Charcoal	4.14 g

193.	8.55 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp (spb)	1
	Corylus avellana	0.01 g
	Indet	2
	Charcoal	0.61 g
194.	6 kg	
	Cereal frags	+
	Cereal frags	2
	Triticum sp	2
	Triticum sp (gb)	1
	Corylus avellana	0.02 g
	Indet	1
	Charcoal	1.41 g
196.	7.5 kg	
	Cereal frags	+
	Cereal indet	5
	cf. *Hordeum* sp	1 frag
	Triticum sp	7
	Triticum dicoccum - type	1
	Triticum sp (gb)	1
	Corylus avellana	0.09 g
	Polygonum aviculare	1
	Veronica hederifolia	1
	Galium aparine	1
	Root/rhizome frags (Type 5)	2
	Rhizome frag	1
	Parenchymatous tissue frags (? from Gramineae 'tubers')	+
	Epidermal frags	+
	Catkin frags	+
	Indet	1
	Charcoal	5.17 g

198.	5.75 kg	
	Cereal frags	+
	Triticum sp	4
	Triticum dicoccum - type	1
	Triticum dicoccum (spf)	1
	Corylus avellana	0.006 g
	Vicia/Lathyrus spp	1 frag
	Charred indet. material	+
	Charcoal	0.71

APPENDIX E: Catalogue of plant macrofossils from Site 28C (1988 season)

For details of abbreviations, methods of counting and weighing see Catalogue for Site 28A. Corylus nutshell fragments from Area C were not weighed. These samples contained a high proportion of fragmentary cereal grains: counts given for intact or semi-intact grains are therefore minimum numbers.

Nos. 221-383 : 2nd trowelling pass; 256-288 3rd trowelling pass.

221.	9.15 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	3
	Triticum sp (spb)	1
	Corylus avellana	+
	Charcoal	2.17 g
223.	5.55 kg	
	Cereal frags	++
	Cereal indet	1
	Triticum sp	1
	Triticum dicoccum (gb)	2
	Triticum sp (gb)	1
	Corylus avellana	+
	cf.Malus sp (seed frag)	1
	Indet	1
	Charcoal	1.28 g
225.	6.6 kg	
	Cereal frags	++
	Cereal indet	4
	Triticum sp	3
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	cf. Rosa sp (frags)	+
	cf. Leguminosae (small-seeded)	1
	Neuroterus sp (gall)	1
	Indet	1
	Charcoal	4.90 g

227.	8.6 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp (spb)	1
	Triticum sp (gb)	1
	Corylus avellana	+
	Indet	2
	Charcoal	0.42 kg
229.	6.3 kg	
	Cereal frags	++
	Cereal indet	2
	Triticum sp. (spb)	2
	Corylus avellana	+
	? Carbonised fruit mesocarp	+
	Charcoal	1.68 g
231.	6.9 kg	
	Cereal frags	++
	Cereal indet	3
	Triticum sp	2
	Triticum dicoccum - type	1
	Triticum sp (gb)	2
	Corylus avellana	+
	cf. Vicia/Lathyrus sp	1
	Indet	2
	Charcoal	2.92 g
233.	7.75 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp (spb)	1
	Triticum sp (gb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Charcoal	2.19 g

235.	7.7 kg		
	Cereal frags	+	
	Cereal indet	2	
	Triticum sp	1	
	Triticum sp (spb)	1	
	Triticum sp (gb)	1	
	Triticum dicoccum (gb)	1	
	Corylus avellana	+	
	Prunus spinosa	+	
	?Rhizome frag	1	
	Indet	1	
	Charcoal	3.83 g	
237.	8.65 kg		
	Cereal frags	+	
	Cereal indet	4	
	Triticum sp	1	
	Triticum dicoccum - type	2	
	Triticum sp (gb)	1	
	Triticum sp (spb)	1	
	Triticum dococcum (spf)	1	
	Corylus avellana	+	
	cf. *Solanum dulcamara*	1	
	?Carbonised fruit mesocarp tissue	+	
	Rhizome frag	+	
	Indet	4	
	Charcoal	6.27 g	
239.	9.25 kg		
	Cereal frags	+	
	Cereal indet	1	
	Triticum dicoccum - type	5	
	Triticum aestivum - type	1	
	Triticum sp (gb)	1	
	Triticum sp (spb)	1	
	Corylus avellana	+	
	Charcoal	2.98 g	

241.	6.0 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	4
	Triticum sp (spb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Indet	4
	Charcoal	1.70 g
243.	5.35 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp (spb)	1
	Corylus avellana	+
	Charcoal	0.46 g
245.	7.3 kg	
	Cereal frags	+
	Corylus avellana	+
	Charcoal	0.41 g
247.	9.1 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum dicoccum (gb)	2
	Corylus avellana	+
	Charcoal	0.62 g
249.	7.8 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	1
	Triticum sp (gb)	1
	Corylus avellana	+
	Prunus spinosa	+
	? Large-seeded Leguminosae	1co fr
	Charcoal	0.64 g

251.	6.1 kg	
	Cereal frags	+
	Triticum sp	1
	Corylus avellana	+
	Charcoal	0.10 g
253.	5.0 kg	
	Cereal frags	+
	Cereal indet	1
	Rhizome frag	1
	Stem frag	+
	Indet	1
	Charcoal	0.30 g
256.	8.5 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	1
	Corylus avellana	+
	Rhizome frag	1
	? Fruit mesocarp tissue	+
	Charcoal	0.80 g
258.	7.15 kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp	3
	Triticum sp (spb)	2
	Triticum sp (gb frag)	1
	Triticum dicoccum (spf)	1
	Corylus avellana	+
	Rhizome frag (Type 6)	1
	Charcoal	3.14 g
260.	5.65 kg	
	Cereal frags	+
	Cereal indet	2
	Corylus avellana	+
	cf. _Prunus spinosa_	+
	Charcoal	0.43 g

262.	5.3 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	2
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Charcoal	1.07 g
264.	5.7 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp (gb)	1
	Corylus avellana	+
	Large-seeded Leguminosae	1co
	Charcoal	1.25 g
266.	8.05 kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp	2
	Corylus avellana	+
	Crataegus monogyna	1
	?Fruit mesocarp fissue	+
	Charcoal	2.60 g
268.	6.1 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	1
	Triticum sp (gb)	2
	Corylus avellana	+
	Charcoal	1.34 g

270.	5.65 kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp	1
	Corylus avellana	+
	Vicia/Lathyrus sp	1
	Rhizome frag	1
	?Fruit mesocarp tissue	+
	Mineralised wood frags	+
	Charcoal	2.43 g
272.	5.9 kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp	1
	Triticum dicoccum - type	1
	Triticum sp (spb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Solanum cf. dulcamara	1
	Indet	2
	Charcoal	2.86 g
274.	5.6 kg	
	Cereal frags	+
	Cereal indet	2
	Corylus avellana	+
	Prunus spinosa	+
	Charcoal	1.57 g
276.	6.1 kg	
	Cereal frags	+
	Cereal indet	2
	Corylus avellana	+
	Solanum cf. dulcamara	2
	Indet	3
	Charcoal	0.90 g

278.	4.5 kg	
	Cereal frags	+
	Cereal indet	3
	Corylus avellana	+
	Charcoal	0.49 g
280.	6.0 kg	
	Cereal frags	+
	Triticum sp	1
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Charcoal	0.40 g
282.	6.9 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp (gb)	1
	Corylus avellana	+
	Gramineae (swollen basal	1co
	internode)	1
	Charcoal	0.33 g
284.	5.85 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	1
	Corylus avellana	+
	Indet	1
	Charcoal	1.15 g
286.	5.6 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	1
	Corylus avellana	+
	Charcoal	0.40 g

288.	7.8 kg	
	Cereal frags	+
	Cereal indet	1
	Corylus avellana	+
	Indet	3
	Charcoal	0.26 g
350.	7.55kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	1
	Corylus avellana	+
	Charcoal	0.68 g
352.	9.4 kg	
	Cereal frags	+
	Corylus avellana	+
	Charcoal	0.22 g
354.	5.3 kg	
	Cereal frags	+
	Triticum sp (gb fr)	1
	Triticum dicoccum (gb)	1
	Charcoal	0.06 g
356.	9.4 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum dicoccum (spf)	1
	Corylus avellana	+
	Amorphous charred material with plant stem frags.	+
	Indet	2
	Charcoal	0.46 g

358.	7.1 kg	
	Cereal frags	+
	Cereal indet	1
	Corylus avellana	+
	Charcoal	0.21 g
360.	7.15 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	1
	Corylus avellana	+
	Thorn	1
	Indet	1
	Charcoal	0.76 g
362.	7.35 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	2
	Corylus avellana	+
	Grumineae swollen basal internode	1
	Linum sp	1
	Charcoal	1.11 g
365.	6.25 kg	
	Cereal frags	+
	Cereal indet	1
	Charcoal	0.15 g
367.	7.65 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	3
	Corylus avellana	+
	Galium aparine	1 frag
	?Charred fruit mesocarp fissue	+
	Charred amorphous material with plant stems	+
	Charcoal	1.36 g

369.	7.4 kg	
	Cereal frags	+
	Cereal indet	1
	Corylus avellana	+
	Charcoal	1.12 g
371.	7.2 kg	
	Cereal frags	+
	Corylus avellana	+
	Vicia/Lathyrus spp	1co frag
	Galium aparine	1
	Tilia sp	1 immature fruit
	? Rhizome frag	1
	Charred amorphous material	+
	Charcoal	0.36 g
373.	6.7 kg	
	Cereal frags	+
	Cereal indet	1
	Corylus avellana	+
	Charcoal	0.59 g
375.	8.5 kg	
	Cereal frag	+
	Cereal indet	1
	Corylus avellana	+
	Rhizome frag	1
	Charcoal	0.27 g
377.	8.1 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum dicoccum type	2
	Corylus avellana	+
	Vicia/Lathyrus sp	1co
	Gramineae indet	1
	Rhizome frag (Type 6)	1
	Charred amorphous material with plant stems	+
	Indet	1
	Charcoal	1.13 g

379	7.3 kg	
	Charcoal	0.04 g.
381.	8.2 kg	
	Cereal frags	+
	Cereal indet	1
	<u>Triticum</u> sp	1
	<u>Corylus avellana</u>	+
	Charred amorphous material with plant stems	+
	Charcoal	0.54 g
383.	8.5 kg	
	Cereal frags	++
	Cereal indet	3
	<u>Triticum dicoccum</u> - type	3
	<u>Corylus avellana</u>	+
	<u>Rumex</u> sp	1
	?Rhizome frag.	1
	Indet	2
	Charcoal	1.98 g

Ct.264/7287   4.9 kg

Cereal frag	+
Triticum sp	1
Triticum dicoccum - type	1
Corylus avellana	+
Rumex sp	1
Charcoal	0.51 g

Ct.264/7288   8.2 kg

Cereal frags	+
Triticum dicoccum - type	1
Corylus avellana	+
Indet	2
Charcoal	0.30 g

Ct 264/7289   Wt. not recorded

Cereal frags	+
Cereal indet	1
Triticum sp (gb)	4
Corylus avellana	+
Solanum sp	2
Charcoal	0.80 g

Ct.264/7290   4.25 kg

Corylus avellana	+
?Rhizome frag	1
Charcoal	0.52 g

Ct.264/7291   5.7 kg

Cereal frags	+
Cereal indet	4
Triticum sp	1
Corylus avellana	+
?Charred fruit mesocarp tissue	+
cf. *Neuroterus* sp (gall)	1
Indet ?fruit frags	+
Indet	2
Charcoal	1.98 g

Ct.264/7292 6.95 kg

Cereal frag	+
Cereal indet	2
Triticum sp (gb frags)	2
Triticum sp terminal spf	1
Corylus avellana	+
Vicia/Lathyrus sp	1co
Solanum dulcamara	1 + 1cf
Indet	1
Charcoal	1.50 g

Ct.264/7293 3.5 kg

Cereal frags	+
Corylus avellana	+
Charcoal	0.33 g

Ct 264/7294 6.45 kg

Cereal frags	+
Cereal indet	4
Triticum sp	3
Triticum dicoccum - type	2
Triticum aestivum - type	1
Triticum sp (gb)	3
Triticum sp (terminal spf)	1
Triticum dicoccum (gb)	1
Triticum dicoccum (spf)	1
Corylus avellana	+
cf. _Galium aparine_	1 frag
Solanum dulcamara	1
?Fruit mesocarp tissue	+
Bud	1
Charcoal	3.72 g

Ct.264/7295 6.7 kg

Cereal frag	+
Cereal indet	1
Triticum sp	1
Triticum aestivum - type	1
Corylus avellana	1
Vicia/Lathyrus sp	1co
?Fruit frags	+
Gramineae swollen basal internode	1 frag
Charcoal	0.30 g

Ct.264/7296 7.1 kg

Cereal frags	+
Cereal indet	1
Triticum sp	2
Triticum dicoccum - type	2
Triticum sp (gb frag)	1
Corylus avellana	+
?fruit mesocarp tissue	+
Charcoal	1.13 g

Ct 264/7297 3.95 kg

Cereal frags	+
Cereal indet	1
Triticum sp (gb)	2
Corylus avellana	+
Thlaspi arvense	1
cf. _Solanum_ sp	1
Indet	1
Charcoal	0.72 g

Ct.264/7298 6.15 kg

Cereal frags	+
Cereal indet	1
Triticum sp	1
Corylus avellana	+
Prunus spinosa	+
Vicia/Lathyrus sp	1co
Charcoal	0.66 g

Ct.264/7299 7.35 kg

Cereal frags	+
Corylus avellana	+
Veronica hederifolia	1 frag
Charcoal	0.43 g

Ct.264/7300 6.85 kg

Cereal frags	+
Cereal indet	1
Triticum sp	2
Triticum dicoccum - type	3
Triticum sp (gb)	2
Corylus avellana	+
Vicia/Lathyrus sp	1co
Charcoal	0.70 g

Ct.264/7301 5.2 kg

Cereal frags	+
Triticum sp. (gb)	1
Corylus avellana	+
Indet ? fruit frag	1
Indet	1
Charcoal	0.30 g

Ct.264/7311 5.3 kg

Cereal frags	+
Cereal indet	1
Triticum sp.	2
Corylus avellana	+
cf. _Veronica hederifolia_	1 frag
cf. _Malus_ sp	1 frag
Indet	1
Charcoal	0.76 g

Ct.264/7314 5.75 kg

Cereal frags	+
Triticum sp	4
Triticum dicoccum - type	1
Corylus avellana	+
cf. *Malus* sp	1 frag
Indet	2
Charcoal	1.24 g

Ct.264/7316 5.35 kg

Cereal frags	+
Cereal indet	1
Triticum sp	2
Triticum sp (spb)	1
Triticum sp (gb)	1
Corylus avellana	+
Vicia/Lathyrus sp.	1co
?Fruit mesocarp tissue	+
Indet	1
Charcoal	1.51 g

Ct.266 3.7 kg

Cereal frags	+++
Cereal indet	18
Triticum sp	14
Triticum dicoccum - type	6 (C14 sample)
Triticum sp (gb + frags)	7
Corylus avellana	+
?Fruit mesocarp tissue	+
?Epidermal tissue	+
Indet	1
Charcoal	6.28 g

Ct. 268	6.0 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	3
	Triticum dicoccum - type	3
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Indet	1
	Charcoal	3.00 g
Ct.270	6.0 kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp	2
	Triticum sp (spb)	2
	Triticum sp (gb frag)	1
	Triticum dicoccum (gb)	6
	Corylus avellana	+ (C14 sample)
	Prunus spinosa	+
	Solanum cf *dulcamara*	1
	? Rhizome frag	1
	? Fruit mesocarp tissue	+
	Charcoal	5.91 g
Ct.272	4.9 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	2
	Triticum dicoccum - type	4
	Corylus avellana	+
	Indet	3
	Charcoal	5.34 g

Ct. 274	4.9 kg	
	Cereal frags	++
	Cereal indet	1
	Triticum sp	3
	Triticum aestivum - type	1
	Triticum sp (gb)	1
	Corylus avellana	+
	Gramineae (swollen based internode)	1 frag
	Indet	4
	Charcoal	2.95 g
Ct.278	5.0 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	6
	Triticum sp (terminal spf)	1
	Corylus avellana	+
	Charcoal	1.22 g
Ct.281	5.2 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	4
	Corylus avellana	+
	Charcoal	1.73 g
Ct.283	8.15 kg	
	Cereal frags	+
	Triticum sp	3
	Corylus avellana	+
	?Root frag (Type 5)	1
	Stem frags	+
	Charcoal	0.61 g
Ct.285	6.25 kg	
	Cereal frags	+
	Triticum sp	5
	Corylus avellana	+
	Charcoal	1.52 g

Ct.292	5.35 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	3
	Triticum sp (spb)	1
	Triticum sp (spf)	1
	Corylus avellana	+
	? Fruit mesocarp tissue	+
	Mineralised wood frags	+
	Charcoal	1.28 g
Ct.293	8.15 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	1
	Corylus avellana	+
	Vicia/Lathyrus sp	1co
	Gramineae swollen basal internode	1 frag
	Root/rhizome frag	1
	Stem frags	+
	Charcoal	0.83 g
Ct.295	4.55 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp (spb)	1
	Triticum sp (gb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Stem frag	+
	Charcoal	0.87 g

Ct. 297	5.1 kg	
	Cereal frags	+
	Cereal indet	10
	Triticum sp	3
	Triticum dicoccum - type	1
	Triticum sp (spb)	1
	Triticum sp (gb)	1
	Corylus avellana	+
	Indet	1
	Charcoal	3.36 g
Ct.299	4.7 kg	
	Cereal frags	+
	Triticum dicoccum - type	1
	Corylus avellana	+
	?Fruit fragment	1
	Charcoal	2.39 g
Ct.300	4.7 kg	
	Cereal frags	+
	Cereal indet	4
	Triticum sp	4
	Corylus avellana	+
	Charcoal	1.88 g
Ct.302	5.6 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum dicoccum - type	2
	Corylus avellana	+
	?Fruit mesocarp tissue	+
	Charcoal	0.59 g

Ct. 304	6.3 kg	
	Cereal frags	+
	Cereal indet	6
	Triticum sp	2
	Triticum sp (spb)	2
	Triticum sp (ri)	1
	Triticum sp (gb)	2
	Corylus avellana	+
	Polygonaceae indet	1
	Indet	1
	Charcoal	6.02 g
Ct.309	4.8 kg	
	Cereal frags	+
	Cereal indet	1
	Triticum sp	5
	Corylus avellana	+
	Linum sp	1
	Polygonum convolvulus	1
	Indet	1
	Charcoal	1.80 g
Ct.311	5.3 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	1
	Corylus avellana	+
	Charcoal	0. 82 g

Ct. 314	6.9 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	6
	Triticum dicoccum - type	6
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Polygonum convolvulus	1
	Indet	1
	Charcoal	8.55 g
Ct.317	6.6 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	3
	Triticum dicoccum - type	1
	Triticum sp (spb)	1
	Trticum sp (gb frags)	2
	Corylus avellana	+
	Prunus spinosa	+
	?Fruit fragments	+
	Vicia/Lathyrus sp	1co
	Linum sp	1 frag
	Charcoal	4.68 g
Ct. 319	6.8 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	1
	Corylus avellana	+
	Vicia/Lathyrus sp	2co
	Tilia sp	1 immature fruit
	Rhizome frags	2
	Charcoal	0.76 g

Ct. 321	2.8 kg	
	Cereal frags	+
	Cereal indet	2
	Corylus avellana	+
	Polygonum convolvulus	1
	Charred amorphous material with ?leaf frags	+
	Charcoal	0.82 g
Ct.323	5.25 kg	
	Cereal frags	+
	Cereal indet	5
	Triticum sp	1
	Triticum dicoccum - type	2
	Triticum sp (spb)	1
	Triticum sp (gb)	1
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	Chenopodiaceae indet	1
	?Fruit mesocarp tissue	+
	?Root/stem frag	+
	Indet	2
	Charcoal	2.68 g
Ct.327	7.25 kg	
	Cereal frags	+
	Cereal indet	2
	Triticum sp	3
	Triticum sp (spb)	1
	Triticum dicoccum (spf)	1
	Corylus avellana	+
	?Fruit mesocarp tissue	+
	Charcoal	2.02 g

Ct. 328	5.4 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp	2
	Triticum sp (spb)	3
	Triticum sp (gb)	2
	Corylus avellana	+
	Indet	1
	Charcoal	2.14 g
Ct.330	2.35 kg	
	Cereal frags	+
	Charcoal	0.33 g
Ct.331	7.35 kg	
	Cereal frags	+
	Cereal indet	3
	Triticum sp (spb)	1
	Triticum sp (gb frags)	2
	Triticum dicoccum (gb)	1
	Corylus avellana	+
	?Fruit mesocarp tissue	+
	Indet	2
	Charcoal	2.65 g

APPENDIX F: Catalogue of plant macrofossils from site 28D. (1987 season)

Ct.208	6 kg	
	<u>Corylus avellana</u>	0.51 g
	<u>Malus sylvestris</u> (endocarp frags)	+
	Epidermal frags	+
	?Rhizome frag	1
	Charcoal	13.73 g
Ct.209	2 kg	
	<u>Corylus avellana</u>	1.00 g
	<u>Malus sylvestris</u> (seed)	1
	<u>Malus sylvestris</u> (endocarp frags)	+
	Epidermal frags	+
	Bud	1
	Charcoal	5.86 g
Ct.211	1.25 kg	
	<u>Corylus avellana</u>	0.04 g
	Charcoal	0.67 g
Ct.215	6.85 kg	
	<u>Corylus avellana</u>	0.47 g
	<u>Malus sylvestris</u> (seed)	1
	<u>Malus sylvestris</u> (endocarp frags)	+
	Epidermal frags	+
	Indet	2
	Charcoal	9.09 g
Ct.218	5 kg	
	<u>Corylus avellana</u>	0.04 g
	<u>Malus sylvestris</u> (endocarp frags)	+
	Epidermal fragments	+
	Gramineae (swollen basal intemodes)	2 frags
	Charcoal	5.60 g

Ct.219	4.0 kg	
	Corylus avellana	0.006 g
	Epidermal frag	+
	Gramineae (swollen basal internode)	1 frag
	Charcoal	2.73 g

APPENDIX G: Carbonised plant macrofossils from Burnt Flint Mound, Context 231 (1988 season)

Ct.279	8.5 kg 25% sorted	
	Stem frags	+
	Rhizome frag	1
	Charcoal (> 2mm)	14.24 g
Ct. 287	6.25 kg 25% sorted	
	Rhizome frag	+
	Charcoal (> 2mm)	6.85 g
Ct.288	3.55 kg 50% sorted	
	Charcoal (> 2mm)	2.38 g

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