

Technical Report: plant and invertebrate remains from Iron Age deposits at Sutton Common, South Yorkshire (site code SCOM02-03). Part I. Text and Publication Tables

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Summary

Investigations were undertaken of plant and invertebrate remains from selected deposits from an Iron Age enclosure at Sutton Common. Assemblages from a large number of postholes (mostly thought to be associated with four-post structures) and some other cut features were restricted to charred plant material. The richer of these comprised high concentrations of cereal remains, mainly grain, but also some chaff and small numbers of weed seeds. On the basis of the stratigraphic record it appears that these were deliberately placed deposits. The remaining samples were mainly from the fills of the enclosure ditches. Those from the vicinity of an entranceway were often rich in coarse oak charcoal, presumably from the destruction of nearby structures, but a significant component of plant material thought to have originated in turves—perhaps also relating to structures—was present in some places. Some other remains were perhaps more consistent with an origin in peat. Other ditch fills, especially those at some distance from the entranceway, provided assemblages of 'waterlogged' plant and insect remains which recorded natural or semi-natural vegetation in the vicinity of the ditch, with little or no evidence for human activity and thus presumably represent the natural infilling of the ditches after the site was abandoned, other than a very little charcoal and moderately strong indications of grazing land.

Introduction: materials and methods

Samples for the study of plant and insect macrofossils were taken from all all trenches opened during the excavations of 2002 and 2003. Two stages of assessment established that assemblages dominated by well-preserved 'waterlogged' remains were present in many of the ditch fills, and occasionally in feature fills, with assemblages of charred cereal grains and associated chaff and weed seeds occurring in many of the posthole and other fills. Samples selected for examination of plant and invertebrate macrofossils during the 'analysis' phase of this project were from two groups of deposits: firstly, from the fills of postholes (and some pits and a feature interpreted as a well), all within the Iron Age enclosure; and secondly from the fills of the inner and outer enclosure ditches. As discovered during assessment, preservation of plant material was largely by charring both throughout the feature fills from within the enclosure, but also in many of the ditch fills; plant and insect remains preserved by anoxic 'waterlogging' were present in some quantity in the ditch fills and in some of the 'well' fills and also, much more rarely, in other deposits (where they have mainly been regarded as recent contaminants in deposits which lay not far beneath the modern topsoil and certainly within the zone of modern root and earthworm penetration).

In all, 96 samples from 84 contexts were examined during the analysis phase of this project. Samples, which were usually 3 kg in size (but see Tables 3 and 7 for variations), were prepared by disaggregation and sieving following the methods of Kenward *et al.* (1980), with paraffin flotation (*ibid.*) being used where it was judged that invertebrate remains were present. In other cases, a 'washover' was sometimes used to separate lighter (charred plant) material from the denser fraction, but under the particular circumstances at this site this was not usually very effective: it was very characteristic of most of the deposits, as noted by Boardman and Charles (1997), that there was at least some impregnation of the charred plant material by iron salts which made this component unusually dense. At its strongest, this impregnation resulted in plant macrofossils (here essentially wood charcoal and charred cereal grains) being so far replaced or coated by iron oxide that they

appeared orange in colour. In other cases, grains and charcoal fragments had sand grains cemented to their surfaces to some degree. At most, the grains were entirely coated and sometimes the presence of a grain inside the shell of cemented sand could only be deduced from the size and shape of the object (or by breaking it open!). Clearly material with this kind of iron impregnation and/or surface-cemented sand would not respond to normal washover techniques for separation. The residues were therefore usually simply dried and sieved and each sieve fraction examined. In those cases where the 2-4mm fraction was rich in cereal grains, a proportion of the fraction by weight was subsampled at random and this was used to estimate the numbers of grains and large chaff fragments used in the analysis, with full counts of grain, chaff and charred weed seeds being made for the other fractions. The abundances of all other plant remains in the samples, along with other components such as sand, charcoal and bone, were estimated using a four-point scale from 1 (up to 5 individuals per kg, or one or a few fragments or 'traces') to 4 (abundant specimens or a major component of the sample, representing more than 50% of the original volume of sediment).

Any invertebrates in the residues from paraffin flotation (reviewed by AH during the botanical analysis) were passed to HK. Following an initial assessment of the flots, detailed analysis for invertebrate remains was made where appropriate: only four contained more than a trace of invertebrate remains and only yielded three sufficient fossils for interpretation. Identifications were made in the flot (for familiar taxa) or placed on damp filter paper for more careful inspection where necessary. The remains of adult beetles and bugs from three subsamples were 'detail' recorded, and one small group 'scan' recorded, in the terminology of Kenward (1992). A record of preservational condition was made using the scales presented by Kenward and Large (1998). Fossils were identified by comparison with modern reference material and using the standard works. Adult beetles and bugs, other than aphids and scale insects, were recorded fully quantitatively and a minimum number of individuals estimated on the basis of the fragments present. Other invertebrate macrofossils were usually recorded semi-quantitatively using the scale described by Kenward *et al.* (1986) and Kenward (1992), again using estimates for extremely abundant taxa. Data pertaining to invertebrate remains were recorded directly or transferred from a paper record to a computer database (using *Paradox* software) for analysis and long-term storage.

The interpretative methods employed for invertebrates were essentially the same as those used in work on a variety of sites by Hall, Kenward and co-workers (see Kenward 1978, with modifications outlined by, for example, Kenward 1982; 1988; Hall and Kenward 1990; and Kenward and Hall 1995). Interpretation rests primarily on a number of 'main statistics' of whole assemblages of adult beetles and bugs, and on the recognition of ecologically-related groups of species. The main statistics used include: (a) a measure of species-richness (or diversity), α (alpha) of Fisher *et al.* (1943), for the whole assemblage and for components of it; and (b) proportions of 'outdoor' species (OB, calculated from taxa coded oa and ob), aquatics (W, w), waterside species (D, d), phytophages (plant-feeders) (P, p), species associated with dead wood (L, l), moorland/heathland taxa (M, m), and decomposers (species associated with decomposing matter of some kind). Decomposers are subdivided into (a) species primarily associated with somewhat dry habitats (RD, rd), (b) those found mostly in rather, to very, foul habitats (RF, rf), and (c) a residuum not easily assignable to one of these (rt). The category 'RT' includes all three of these groups of decomposers (rt + rd + rf). In each case, the lower-case codes (e.g. 'rd') are those applied to species and the upper-case codes ('RD') are for the ecological group.

A further ecological component quantified for the present site was the synanthropes, i.e. those species favoured by human activity (Kenward 1997). Taxa have been assigned codes for degree of synanthropy as follows: 'sf'—facultative synanthrope, common in natural as well as artificial habitats; 'st'—typically synanthropic, but able to live in nature; 'ss'—strong synanthrope, absent from or very rare in natural habitats in the relevant geographical area. These codes give rise to ecological groups SF, ST, and SS, which are summed to give SA (all synanthropes). A group of synanthropes regarded as particularly typical of buildings of various kinds has been termed 'house fauna' (Kenward and Hall 1995).

The quantification of an ‘outdoor’ component in what are sometimes clearly natural or semi-natural assemblages may not appear entirely logical, but in fact is useful when working with any deposits associated, even if rather indirectly, with human occupation.

The abundance of these ‘ecological’ groups is discussed against the background of values for many other assemblages from a large number of sites. Thus, % N OB = 30 is a high value, but % N RT = 30 is low; while % N W and % N RF are both high at 10.

The index of diversity offers a guide to the presence or absence of remains of insects which bred in or on the developing deposit (autochthones), low values indicating breeding communities, high ones faunas of mixed origins. Note that ‘significantly’ low values differ for the various components of assemblages; the more inherently rich a component is, the higher the value of the index of diversity for a living community will be. Thus, ‘outdoor’ communities associated with natural vegetation tend to give a high value of α , while very specialised communities, such as those of decaying matter deposited by humans, or stored grain, yield low or very low ones.

Results

Table 1 lists all the plant and invertebrate taxa recorded from these deposits, with details of the charred plant assemblages in Tables 2a and 2b. Sample-by-sample lists of all plant remains and other components of the samples recorded during examination of plant macrofossils during the ‘analysis’ phase are given in Table 3, with lists of invertebrates in Table 4 (both in Part II). Main statistics for the insect assemblages appear in Table 5, with an explanation of the ecological groups employed, with their abbreviations, in Table 6. Sample-by-sample accounts of the results for plant remains from all the samples examined throughout the project, and for invertebrates from the SCOM03 material, appear in Table 7 (Part II). Table 8 (also in Part II) brings together some data concerning insect preservation.

General comments on the remains

Charred plant remains

Taking the site as a whole, most of the samples examined yielded at least a little wood charcoal (sometimes, as in some of the ditch fills from the vicinity of the E entranceway, it was rather abundant) and usually at least a few charred cereal grains. Some posthole fills (almost all considered to be associated with four-post structures), however, were found to contain appreciable concentrations of grains. These richer assemblages (Table 2a) were in the range 50-1000 grains per kilogramme which can be roughly translated as about 90-1500 grains per litre. These may be compared, for example, with data collected by van der Veen (1992) where values for any one sample of the many tens examined by her from nine sites (of mainly Iron Age date) from N E England rarely exceeded 40 grains per litre (ignoring whatever other material may have been present; not surprisingly, the concentrations at Sutton Common were rather less than some of those noted by van der Veen, in the same survey, from a granary in the Roman fort at South Shields).

The majority of the grains and nearly all the chaff seemed to be from glume wheats, probably mostly spelt (*Triticum spelta*) with perhaps a small component of emmer (*T. dicoccon*). There was a variable component of barley (*Hordeum*) which could not be identified further (only a single ‘twisted’ grain consistent with 6-row barley was noted, so it was perhaps all from the 2-row form). Some *Hordeum* grains bore the remains of chaff and were therefore presumably ‘hulled’ barley. Weed seeds were remarkably sparse; indeed, of the remains of fruits and seeds *other than cereal grains* preserved by charring, there were probably more remains of taxa thought likely to have originated in turves than of cornfield weeds (Tables 2a, b and below). Most of the weed seeds present were rather large-seeded

forms (*Bilderdykia*, *Bromus*) and probably represent material that could not be removed even after sieving and winnowing.

A good proportion (perhaps as much as 20%) of the deposits examined contained some evidence of charred plant remains that are thought to represent material originating in turves, and charred through the effects of fire on such material used in roofing or walling, for example, probably during destruction of dwellings, or perhaps through use of turves as low-grade fuel or in hearths, kilns or ovens. The remains characteristic of this 'indicator group' (Hall 2003) were fruits of sedge (*Carex*), heath grass (*Danthonia decumbens*) and bristle-scorpis (*Scirpus setaceus*), together with seeds of blinks (*Montia*) and fragments of root or rhizome, mostly likely to have come from grasses and sedges. In some cases, there were fragments of amorphous material which seemed to be burnt peat, mor humus, or even simply burnt mineral soil. This component was most prominent in some of the ditch fills near the E entranceway of the enclosure (encountered in Trench 3), where coarse oak (*Quercus*) charcoal was also abundant, and these together may therefore represent incidental tumble or deliberate disposal of burnt structural material into the ditch when wooden structures within the enclosure, perhaps mainly those close to the ditch, were destroyed.

'Waterlogged' plant and invertebrate remains

Uncharred plant macrofossils were most abundant in some of the ditch fills, particularly the sequence investigated from Area 4, and present at low concentrations in a few other feature fills, notably the lowermost fills investigated from the 'well'. Very small numbers of uncharred plant macrofossils were present in many of the deposits otherwise characterised by an assemblage of charred material, but these were often considered to be modern. In some cases (e.g. the moderate numbers of duckweed seeds in the posthole fill Context 5408/5409), however, it is difficult to see how they could all be of recent origin. The waterlogged remains accepted as being ancient largely represented plants growing in damp places, from wet meadows to the standing water of a ditch, with some weed taxa indicative of disturbed soils (though not especially of cultivation) and sometimes woody plants which may have originated in carr woodland or scrub.

Most of the processed samples contained no recognizable invertebrate remains, or at most only a few decayed scraps of cuticle, rarely identifiable beyond order. Four yielded rather more, and three of these included sufficient fossils for a detailed analysis to be worthwhile. Preservation was generally poor or very poor (the barren samples probably mostly contained invertebrate fossils when deposited, so these can be seen as the extreme case of poor preservation).

The invertebrate assemblages were mathematically diverse (α 111-154, with standard errors from 15 to 22), though ecologically rather less so. This suggests a rich natural environment, with the impact of human occupation limited. Aquatics were abundant in each of the assemblages recorded in detail (% NW in the range 16-33% of the adult beetles and bugs); the diversity of this component was not very high (α 8-13, SE 2-7), at first sight suggesting a restricted range of habitats (although the values to be expected in death assemblages in undisturbed modern wetland habitats of various kinds are not known). There were moderate proportions of damp ground forms (% ND 7-15) and plant feeders (% NP 11-13). A few species associated with trees and dead wood were present, especially in 'well' fill 8460 (13 individuals, 7% of the fauna). Beetles and bugs coded as associated with decomposer habitats were present in restricted numbers by comparison with occupation site faunas (% NRT 26-29), and within this group there were few species typical of drier accumulations of decaying matter (% NRD 1-3). An appreciable number of the uncoded taxa ('u') probably lived in plant litter, however. Foul-matter associates (RF), especially dung beetles, were consistently present, and occurred in significant quantities in ditch fill 3559 and 'well' fill 8460 (15% and 13% respectively).

Synanthropes were strikingly uncommon (% NSA in the range 5-11; compare with the much higher values given by Kenward 1997 for occupation sites). Within this component, facultative forms (SF) were very well represented (half or more of the synanthropes falling in this category), while 'typical'

synanthropes were relatively rare and strong synanthropes absent. Although many of the taxa recorded at Sutton Common occur in occupation site assemblages, they did not form obvious synanthropic communities, and there was thus no evidence of human occupation of the site at the time the deposits with good preservation of insect remains formed; the material from 'well fill' 8460, in particular, suggests abandonment.

Detailed discussion of individual groups of contexts

(i) Posthole fills, especially those associated with putative four-post structures

Posthole fills were by far the largest group of deposits examined for plant and invertebrate remains at this site—nearly 65% of all contexts selected for assessment or subsequent analysis were of this type. On the basis of the results of the two assessments, it was clear that these were sometimes very productive of charred plant remains, especially grain. Uncharred remains of either plants or insects considered to be ancient rather than recent intrusions were (with the exception of modern roots) usually absent or very sparse.

Details of the results for analyses of posthole fills yielding more than traces of charred cereal (or other) remains can be seen in Tables 2a and b. The following groups of postholes can be considered (compass points relate to notional site-north and are consistent from group to group):

Group A: Samples from Contexts 1093, 1097, and 1099 were investigated; the fourth 'corner', 1096, was either unsampled or not selected for examination. Samples from 1093 (SW) and 1099 (SE) yielded rich assemblages of grain (Table 2a) dominated by ?spelt (indeed, no barley was detected in the sample from 1093) and there was rather a lot of glume-wheat chaff and a modest-sized (for this site, at any rate!) group of weed seeds. By contrast, the sample from 1097 yielded no plant remains other than a little oak charcoal. Material from Contexts 1093 and 1099 was noted as showing some evidence of shrivelled grains.

Group B: All four contexts—3002, 3004, 3008 and 3010—were examined. Two (3004, 3008 from the NW and SW corners, respectively) gave rather rich assemblages characterised by very low wheat:barley ratios (i.e. there was more barley than wheat) and there were modest amounts of chaff and a few weed seeds. The samples from 3002 (NE) and 3010 (SE) gave very few grains and almost no other remains.

Group C: Material was examined from Contexts 3012 (NW), 3016 (SW) and 3022 (SE) (the NE corner, 3026, not being investigated). The sample from 3016 produced a modest sized assemblage of grain, predominantly wheat, with a very little chaff, and a single weed seed. The assemblages from 3012 and 3022 were much smaller, and produced almost nothing but grain and charcoal.

Group D: Three samples were examined—from Contexts 3018 (NW), 3020 (NE) and 3032 (SW) (the SE corner, 3030, not being investigated). The assemblage of grain from 3032 was at the boundary for inclusion in Table 2a (with 50 grains per kg) and yielded nearly twice as much wheat as barley, with a few chaff fragments and traces of weed seeds. The grain assemblages from the other two samples were rather smaller, and chaff and weeds all but absent. In 3020 there was rather more barley than wheat, though the numbers of grains are probably too small for the ratio statistic to be treated with much confidence.

Group E: A single context from this group was examined: 3036, representing the NE corner. It yielded no remains other than a little charcoal.

Group F: Again, only one context, 2552, was examined, representing the NE corner of a supposed four-post structure. Grain was moderately common, but not quantified (assessment only); the assemblage was unusual in containing what may have been rare grains of bread wheat, oats and even

rye, though these identifications have not been checked subsequently. There were a few chaff fragments and weed seeds and some of the wheat grains were noted as being ‘dimpled’ as if partly shrunken before being charred. Such shrinkage might have occurred because the grain was not fully ripe when harvested or because it had begun to germinate or decay to some extent during storage. The absence of any indications of sprouting, however, allows us to discount the later stages of germination through poor storage or as part of a malting process.

Group G: A sample from the SE corner, from 2512, was only examined during the assessment stage. It mainly yielded charcoal with moderate amounts of grain, mostly well-preserved, and mainly wheat, with some (hulled) barley, but no chaff; there were also traces of weed seeds. Traces of oats were again noted.

Group H: The single context examined, 2458, was from the NE corner. Assessment revealed that there was a moderate amount of charred cereal grain and chaff present with what seemed to be both emmer and spelt represented amongst the latter. Amongst the grains, some were small and others shrunken.

Group J: Three ‘corners’ were sampled and examined. At the NE, Context 31317 produced nothing more than a little charcoal, whilst at the NW, Context 31434 yielded a modest-sized assemblage of grain, mainly ?spelt wheat, with a little wheat chaff. The sample representing the SW corner, from Context 31435, gave a single ?spelt grain.

Group K: Three post-holes associated with this presumed four-post structure were examined, though one, comprising fills 31381/2, was located along the eastern ‘side’. One of the three ‘corner’ samples was from 31375 (SW, outer fill), from which there was a moderately large assemblage of ?spelt, with some barley and a few fragments of chaff and a few weed seeds. The other two samples, 31548 (SW, inner fill) and 31379/80 (SE) between them yielded very few charred remains. By contrast, the fills of 313812, along the eastern ‘side’, gave an assemblage extremely similar in character to that from 31375.

Group L: A single posthole, filled with Context 5052, may have been the NW corner of a four-post structure. There was no charred material other than a trace of charcoal.

Group M: Another isolated posthole, perhaps the SW corner of a group—Context 5220 produced a small grain assemblage (mainly ?spelt, with some barley) with a little chaff.

Group N: There were three contexts in this group for which samples were examined. The samples from 5433 (SE) and 5431 (SW) both produced rather large assemblages of grain though with only very little chaff and a few weeds seeds. For the latter context, some wheat grains were noted as having a somewhat shrivelled appearance. The third fill, from 5430 (NW) gave a sample with about 20 grains, all probably spelt, but no other remains.

Group P: The two ‘southern’ postholes were examined. Both 31270 (SE) and 31351 (SW) yielded moderate-sized or large assemblages of grain with modest amounts of chaff but almost no weed seeds.

Group R: A single fill from what is thought to be the NW corner of a four-post structure: Context 5282 gave only small numbers of charred grains in a sample examined during one of the assessments.

Group S: Three ‘corners’ of this group were examined, and in the case of two of them more than one sample was investigated, although no more than a little charred plant material other than charcoal was recovered from any of them. The richest assemblage came from one of two samples from 7244 (originally labelled 7744, representing the SE corner), which was initially thought to be a human cremation but which proved to contain non-human bone (McKinley 2005). There was a low concentration of charred grains with a little chaff and no weed seeds. Of the four samples from 7243

(NE), one contained a very few grains, whilst the others were almost barren, as was the sample from the SW corner, from 7143, which gave only the merest traces of grain.

Group T: All four corners of this group were investigated and in the case of one (7246, SW) four subsamples were examined since there was burnt bone which was initially thought to be a human cremation. In the event, the bone was non-human (McKinley 2005) and all four samples yielded what appeared to be moderately large concentrations of grain (though the actual numbers cannot be presented in Tables 2a and b in the absence of a record for sample weights or volumes). Two of the samples were also characterised by a preponderance of barley over wheat, with two giving some evidence for shrivelled grain and three giving evidence for germination. Clearly the assemblages from this context were in some way different, perhaps not surprisingly in view of the associated burnt bone (although traces of bone were also present in the other three fills of this quartet).

The sample from 7269, the SE corner, gave a modest-sized assemblage of grain with a little chaff and traces of weeds, whilst those from 7264 (NE) and 7265 (NW) both gave rather larger grain concentrations and, in the case of the latter, rather a large component of chaff and weed seeds. No evidence of shrivelled or germinating grain was noted for either of these two samples. Whilst the grain from 7265 was predominantly ?spelt, the assemblage from 7264 had more barley than wheat (in fact, twice as much).

Group U: Charred remains other than wood charcoal were almost completely absent in the three samples examined—from 7340 (SW), 7341 (SE) and 7342 (NE). A single tentatively identified onion couch ‘tuber’ was recorded from 7342.

Group V: An isolated sample, from 7345, gave a moderate amount of grain (examined only during the assessment) in which both spelt and emmer, as well as barley, are thought to have been present, with traces of weed seeds but no chaff.

Group W: The NW corner posthole fill of this group was examined: the sample from 7429 yielded a small assemblage of grain with a little chaff and traces of weed seeds.

Group X: All three samples from the contexts grouped together here produced some grain, though only that from 7433 (SW) contained modest amounts (with rather more barley than wheat), along with a single chaff fragment. Samples from 7486 (NE) and 7488 (SE) yielded only traces of grains.

Group Y: The single posthole fill examined (from 31088, at the SW corner), gave modest amounts of grain and traces of chaff and weed seeds, though the material was not quantified.

The following groups of postholes are less certainly interpreted as being associated with four-post structures:

Group AA: A single context was studied: 5234 (SE corner), from which rare ?spelt grains were recorded.

Group BB: Context 5260 was the fill of a posthole whose relation to any others is uncertain. The sample from it produced a single tentatively identified cereal grain.

Group CC: Another single posthole fill whose relationships are unclear: the sample from 5013 gave traces of ?spelt grains.

Group DD: Three contexts were examined from two postholes thought to be related as an E-W pair (but with uncertainty as to the location of the other pair). Contexts 5024 and 5025 were, respectively the inner and outer fills of the western cut but only 5024 yielded any remains: a single barley grain and one unidentified cereal grain. The sample from 5029 was barren but for a trace of charcoal.

Group EE: The sample from isolated posthole fill 5031 contained a moderate amount of oak charcoal, but the only other remains recorded were traces of charred *Cenococcum sclerotia* (elsewhere, when recorded with certain other remains, considered perhaps to indicate the presence of material originating in burnt peat or turves).

Group FF: Another single posthole fill (5032), the sample from which gave a single cereal grain fragment.

Group GG: Sampled as a cremation, Context 5033 did, indeed, yield burnt human bone (McKinley 2005), but it was also interpreted as a posthole fill from a possible four-post structure. No charred plant material other than charcoal was noted.

Group HH: The sample from Context 2452, perhaps the NE corner of a quartet of posthole fills, gave a moderately large assemblage of charred grain with some chaff and a few weed seeds, examined only during the assessment. It was notable for having rather abundant barley grains (some of which were hulled) and for including what may have been emmer wheat, rather than spelt, amongst the chaff, together with a trace of barley rachis. Many of the cereal grains were noted as being distinctly shrunken (perhaps as a result of having started to germinate or decay, or having been unripe, prior to charring) and many of the barley grains seemed very small, even allowing for shrinkage.

Group JJ: Posthole fill 4305 gave a few charred cereals but was notable mainly for some ‘ashy’ concreted material that may have been burnt peat. Some wheat grains were present but no chaff. The sample was only examined during the assessment.

Group KK: Another isolated sample examined during the assessment, the material from 5373 produced only a little wheat grain and ?spelt chaff.

Group LL: The sample from Context 7050 yielded a little barley, and even less wheat (one grain!) but no other remains.

Group MM: The sample from posthole fill 7148 produced a single ?spelt grain and one further charred seed which may have been yellow-rattle, *Rhinanthus*, which may well have been a grain contaminant.

Group NN: Another isolated posthole, 7204 gave a sample in which there were the merest traces of grains and no other remains.

Group PP: The sample from 5408/9 represented the combined inner and outer fills of the posthole. It gave a rather large assemblage of grains—indeed, the second highest concentration for the site, where this could be calculated. Chaff was also rather frequent and this included at least two fragments of barley rachis and some unidentified detached fragmentary lemmas or glumes. Weed seeds were also rather well represented.

Group RR: Context 31454 gave a sample in which grain was moderately frequent (of which the modest proportion that could be identified beyond ‘cereal’ was ?spelt wheat) and there were also traces of chaff. The cut lay towards the centre of one of the ‘mortuary enclosure’ features.

Group SS: The sample from Context 5277 was only examined during the assessment; it yielded a few poorly preserved ?spelt grains and some even more eroded barley, as well as some burnt bone.

Group TT: Context 5393 may have been the fill of the SE corner posthole of a four-post structure; the sample from it (examined during an assessment) produced some wheat grain but with rather more frequent spelt glume-bases and perhaps also emmer spikelet-forks.

Comments on the posthole fills interpreted as being associated with four-post structures

It is difficult to see any very clear pattern in the assemblages of charred plant remains in relation to the spatial distribution of these posthole fills. The richest assemblages of grain were from postholes scattered across the area excavated—in Groups A (Area 1), B (Area 3), K and P (Area 31, part of 3), N (Area 5) and T (Area 7). There was perhaps some slight tendency for the SW corners to have richer assemblages: of the 12 samples yielding the largest numbers of grains, five were from SW postholes, and three each from SE and NW corners (with one isolated post of unknown relative position). Taking the group of assemblages with the next level of grain abundance, four of the 13 were from SW corners, but four also from NW corners, with three NE and one SE. Approaching this question from the opposite angle—i.e. looking for posthole fills where grain was lacking or very rare—seven of the 19 fills in this category were from NE corners, and nine from SE corners. Unfortunately—as will be evident from the group descriptions above—there were rather few cases where all four corners of a quartet were sampled and examined, and it should also be borne in mind that the groupings of postholes into fours is open to a number of interpretations and that some of those used here might easily be reclassified. It would thus be dangerous to attach too much importance to the weak tendencies observed.

With regard to the proportion of grains of wheat and barley in these assemblages—it having been noted that this varied widely, though with wheat usually predominating—there was some tendency for the larger assemblages overall to be mainly wheat, though with exceptions in the form of material from Contexts 3004 and 3008, both from Group B, where the moderately large grain counts showed barley to be in the majority. It should be remembered, however, that many grains in most of the samples could not be identified beyond ‘cereal’ and that an assumption—which may be unwarranted—has been made that the ‘indet.’ category contains proportions of wheat and barley grains similar to those amongst the grains identified more closely.

The proportion of grains to chaff, where numbers are high enough to make a valid calculation, also seem to follow no particular pattern. It may be noted, with some comfort, given the disparity in results between some parallel samples from certain contexts, that three samples from 7264 gave almost identical grain:chaff ratios (although the third, which had a rather small overall content of grain, did *not* fit this pattern). It has not been felt justifiable to attempt to calculate numbers of whole spikelets represented from the proportions of chaff and grain.

One last phenomenon which requires some brief discussion is the evidence for shrivelled grains in some of the samples, noted especially during the second assessment exercise. Grains of this kind were seen in samples from Groups A (Area 1), F, H (both Area 2), N (Area 5) and T (Area 7)—i.e. spread across the site with no particular spatial ‘clumping’—and in one context from the last of these (7246, sampled as a cremation) some barley grains showing evidence of germination were noted in three of the four samples examined. It is perhaps just a matter of chance that some barley that had begun to sprout (in a wet season, or under poor storage conditions?) before being charred and deposited in this posthole. Were the germination of some significance to the inhabitants of the enclosure, one might expect it to be repeated in other cases. Similarly, the shrivelled grains (mainly wheat), in which signs of germination were not noted, were not so widespread, taking the evidence as a whole, as to suggest that the shrivelling had some interpretive significance (see above).

(ii) Other posthole fills

A number of posthole fills (from nine holes) associated with the box rampart, or which were isolated and not thought to be part of any four-post structure (from a further four) were examined. It is perhaps of some significance that, with the exception of one of two subsamples from Context 5635, none produced more than traces of charred material other than charcoal, and many yielded neither grain nor chaff. The grain-rich subsample from 5635 (the third highest concentration for the site as a whole) may therefore be from a cut from an unidentified four-post quartet, although it should also be

remembered that many of the postholes from four-post groupings were barren. This one assemblage was relatively rich in wheat grain and with very little chaff.

(iii) *Pit fills*

Nine samples came from eight contexts in seven features interpreted as pit fills. Charred plant remains other than charcoal were sparse—indeed, five samples failed to yield any grain or chaff. Of the remainder, two contexts in Pit 7260 gave some positive results. In the case of 7255/6, from the middle to upper fills, these were restricted to some moderately well preserved charred cereal grains, recorded only during the assessment; they were mainly barley (and, of these, some specimens showed a degree of shrivelling—a phenomenon noted in some postholes fills associated with four-post structures, as mentioned above), plus a few wheat grains. The layer below, 7257, gave a sample in which grain was much more abundant (Table 2a)—an example where barley was more abundant than wheat and where chaff was restricted to a trace of material of barley, with no glume wheat chaff at all. There were also a few weed seeds, typical of the site as a whole.

(iv) *The ‘well’*

Across the two assessments and subsequent main analysis, eight contexts from the enigmatic ‘well’ feature were investigated. Most yielded at least a few ‘waterlogged’ plant remains but charred material was restricted to moderate numbers of charred hulled barley grains and a spikelet of two fused cereal grains, probably spelt, from (perhaps not surprisingly) the uppermost fill investigated (8537).

The lowermost deposits examined were from Contexts 8460 and 8492, associated with planks and other wood in the lowest levels excavated. Altogether, five separate subsamples were examined for plant remains (two and three from these two contexts, respectively), and they gave broadly similar results, with small numbers of fossils from a limited range of taxa perhaps indicating an origin in wet scrub or woodland. Whilst remains of woody taxa such as elder, blackberry and raspberry could always be explained as the result of natural dispersal from birds perching above the feature—were it to have had any kind of superstructure—the presence of remains including seeds of dog’s mercury (in two samples from 8492) and stinging nettle (from these two, plus one from 8460) or of ?ground ivy (in 8460), are much more difficult to explain in this way, as is also the case for the trace of ?holly leaf in 8492 and fruiting bodies of the fungus *Rosellinia* cf. *mammiformis* (which grows on a the bark of various hardwood species) in both contexts; surely these must either have arrived with brushwood or some similar material collected from nearby woodland or have been part of a developing scrub vegetation on the abandoned site?

Many insect remains from Context 8640 were very difficult or impossible to identify because they were so decayed; some of the fossils were very ‘floppy’, and some were crumpled. Adult beetles and bugs were abundant, and mathematical (and to an extent ecologically) diverse. Aquatics were sufficiently abundant to indicate deposition in water, the more abundant species suggesting fairly clean conditions, with mud and some vegetation. Much of the terrestrial fauna would have been at home on waterside plants, or in the litter below them, or on mud. While decomposers were not abundant, this assemblage was notable for an appreciable component of scarabaeid dung beetles, together with other elements which may have originated in dung (but also from other kinds of decaying matter). The presence of grazing land was also suggested by two species of chafer beetles. There were indications of decaying wood, some at least bearing bark (indicated by a range of species including six bark beetles *Dryocoetinus villosus*, mostly associated with oak). Presumably many of the insects were exploiting decaying structural timbers. In contrast to these elements, the bark beetle *Hylesinus oleiperda* indicated the local presence of ash trees (*Fraxinus*). Synanthropes were very uncommon in this assemblage and, in combination with the evidence for timber in advanced decay, it seems likely that the part of the site from which these insects came was abandoned by this stage.

None of the rest of the sequence (Contexts 8548, 8542, 8540, 8539, and 8538, in ascending stratigraphic order) yielded more than a few seeds of woody taxa such as elder and blackberry; this may reflect differential preservation in the probably rather freely draining sandy fills of this feature and shed no more light on its history of infilling.

(v) *Deposits associated with Wall 6021*

Three contexts were investigated from the area where some collapsed stone walling had been recorded during excavation at the front of the rampart on the W side: 6022 (build-up in front of wall 6021), 6023 (build-up behind the wall) and 6025 (a spread outside and ?pre-dating the wall). The first two produced no remains of interpretive significance, but the third was characterised by the presence of some charred remains thought very likely to have originated in burnt turves. Thus, together with abundant oak charcoal, there were moderate numbers of nutlets of sedges and seeds of blinks (*Montia fontana* ssp. *chondrosperma*) with traces of bugle (*Ajuga reptans*), bristle scirpus (*Scirpus setaceus*) and sclerotia of *Cenococcum*. One other very probable diagnostic indication of turf was the presence of charred root/rhizome fragments. This group together has, as mentioned above, been noted from many sites (Hall 2003). The association of these remains with coarse oak charcoal (the largest fragments here were 80 mm in maximum dimension) will be considered further below, in connection with some of the ditch fills near the E entranceway.

(vi) *Other isolated deposits*

Nine samples from eight deposits of miscellaneous kinds from within the enclosure were examined, largely at the assessment stage. They were mostly unproductive, though there were traces of wheat grain from both of the fills examined from an oval-rectangular shallow ditch (?mortuary enclosure) 4308, and of ?spelt and barley from fill 7245, also associated with a rectangular feature. Other remains of interest were limited to traces of plant macrofossils in the fill (4982) of a hollow inside the entrance to the enclosure. These—uncharred propagules of blinks and bristle scirpus—were perhaps from an *in situ* seed bank formed in a damp hollow or from imported turves (of the kind inferred for Context 6025, see above) which, in this case, had escaped being burnt. Lastly, a sample from Context 8423 (described as burnt material within the inner bank) produced some ashy material and moderate amounts of clasts (to 4 mm) of what may have been charred peat.

(vii) *Ditch fills*

Investigation of ditch fills was undertaken by means of sequences in two areas. In one, at some distance to the S of the E entranceway (fills of Context 413) there was abundant evidence from a sequence of 12 samples for the natural flora and invertebrate fauna of a ditch containing standing water for much of the period during which it infilled. Typical plant remains were water-plantain (*Alisma*), water crowfoot (*Ranunculus* Subgenus *Batrachium*), hemp agrimony (*Eupatorium cannabinum*), ?fine-leaved water-dropwort (*Oenanthe* cf. *aquatica*) and bur-reed (*Sparganium*). Weeds were limited to a few taxa that are as likely to have been living in or by the ditch as to have arrived with occupation material or from disturbed ground further off—apart, that is, for long prickly-headed poppy (*Papaver argemone*), for which there were two records from deposits in the middle of the sequence. With regard to other possible indicators of human activity during the time the deposits formed, traces of uncharred hazel (*Corylus avellana*) nutshell were present in two ditch fills, whilst single charred sloe (*Prunus spinosa*) fruitstones were recorded from four of them. In three cases, the sloe stones had been ‘holed’, presumably by a small rodent, prior to charring—suggesting a rather complex taphonomic pathway from plant to buried remains. Wood charcoal was present in all but four of the samples, but always in very small amounts and usually in small fragments. No other charred material was recorded apart from a little bark and twig and a single tentatively identified and rather

shrunken barley grain; all of these might represent debris blowing or washing in from within the enclosure.

Material from the fills of the inner and outer ditches closer to the E entranceway was also investigated.

(i) Outer ditch fills

Somewhat to the S of the entranceway, Context 3454 (from the uppermost part of a shallow sequence), was examined through a single sample. Most of the remains were uncharred wetland taxa, but there was a very small component of glume wheat chaff and barley grain and one or two other charred remains which might have originated in burnt turves.

A single context from the outer ditch fill sequence close to the terminal (and therefore to the entranceway) was investigated. Two samples from 3537, roughly in the middle of the vertical sequence, yielded for the most part uncharred plant remains similar to those described for the sequence from 413 above, but with traces of ?spelt grains in both samples.

A further three contexts from the outer ditch fill sequence were examined from a section to the N of the E entranceway during one of the assessments. These were 3347, 3597 and 3600. Context 3597 was the lowermost of the three, and yielded a small assemblage of uncharred plant remains of wetland taxa and rather frequent wood fragments and some bark, only stinging nettle achenes being abundant amongst the fruits and seeds. There was a small group of beetles which included some synanthropes, notably spider beetles (*Ptinus* sp.). From 3347, which directly overlay 3597, there were further remains of wetland plants but with some indications of woody vegetation. There were modest numbers of wetland and waterside insects, together with a few hinting at grazing land. Also noted were traces of burnt soil and burnt ?peat up to 10 mm. Immediately above this, in 3600 (at the middle of the sequence), the few uncharred wetland plant remains and a trace of barley grains were accompanied by further material, in modest amounts, which may have been mor humus or peat—both in charred and uncharred states. The presence of a trace of small (<5 mm) fragments of charred herbaceous detritus might also indicate that material originating in burnt turves was present.

One further context investigated from the outer ditch was 5666. It produced a small assemblage which mainly consisted of wetland plants, with a trace of fine charcoal (to 2 mm).

(ii) Inner ditch fills

Context 3150 from the uppermost part of the sequence was sampled close to the terminal at the entranceway. It was rich in oak charcoal (to 50 mm) with a trace of ?spelt grain and some hints of the presence of material from burnt turves. Other remains were uncharred fruits and seeds from wetland taxa.

A series of samples from the sequence to the S of the E entranceway gave much the best evidence from the site for charred remains from burnt peat or turves. The lowermost sample investigated was from 3590, in which what appeared to be iron-rich masses of fused charcoal were mixed with a little waterlogged material, including some fruits and seeds. The less dense material consisted mainly of uncharred fruits and seeds of wetland plants with small component of bark and herbaceous detritus, but with a 'background' of charred herbaceous material which seemed to be a mixture of stems and rhizomes and some amorphous peat-like material; some charred herbaceous detritus gave the appearance of being 'soot-coated' rather than charred in a conventional sense—one explanation of this is that it is material from within a roof (and perhaps indicating, therefore, that much or all of the charred material here is peat, turf or wetland vegetation used in roofing). The charred plant remains also included cone-axes of alder, together with some rhizome fragments that sometimes seemed somewhat 'collapsed'; both of these are perhaps more likely to represent fen peat than grass turves.

The charred fruits and seeds also included some that are normally thought of as originating in turves, with others more likely to have been in peat or even in burnt cut wetland vegetation. There was a single rather worn ?spelt grain. The small beetle assemblage from assessment included some synanthropic forms, among them spider beetles (*Ptinus* sp.).

Above 3590 was 3589, in which much the same kinds of material were encountered though with no evidence of cereal remains, and with a single poppy seed thought to be opium poppy (*Papaver somniferum*), perhaps simply from a plant growing as an escape from earlier cultivation. Oak charcoal was present, but much less abundant. Above this, again, Context 3582 contained some of the same ‘burnt turf’ indicators, though in smaller amounts; oak charcoal was quite well represented. The uppermost context in this sequence was 3492 with only small amounts of oak charcoal and a few charred remains likely to have originated in burnt turves (the charcoal was frequent enough in the whole sediment to be recorded, along with yellow clay lumps, as an inclusion in a dark grey/brown loamy sand matrix—perhaps further evidence for the presence of burnt structural material). This sequence rather clearly suggests the diminution upwards of the charcoal/turves component, presumably related either to gradual lessening of the input from the levels above, or a large initial input followed by gradual sedimenting out of charred material.

The last sequence of deposits from the inner ditch to be examined was from a section to the N of the E entranceway. The lowermost layer investigated was 3559, which was the first fill and described during excavation as a silt. For the most part, the plant remains were uncharred and indicative of vegetation in the ditch, with a small woody component (including traces of blackthorn thorns and thorny twig fragments). A single glume-wheat glume-base was recorded and a small component of ?burnt turves taxa in the form of modest numbers of *Cenococcum sclerotia*.

Insect remains from a sample from 3559 showed variable and often rather poor preservation: some fossils of ‘peatland’ species were especially decayed, suggesting the possibility that there might be a redeposited component from imported peat. A quite large assemblage of adult beetles and bugs was recovered, and their diversity was very high, inspection of the species list suggesting ecological mixture. There were immense numbers of *Daphnia* (water flea resting eggs), some chironomid midge larvae, and traces of other aquatics, together suggesting fairly clean still or sluggish water. Damp ground or waterside fauna was rather well represented, and included a range of species found on waterside or emergent plants, on waterside mud, and in moist plant litter. Coded decomposers were rare by comparison with occupation site deposits in general, and most might be found (together with numerous uncoded taxa) in natural plant litter. Species from trees or dead wood were rare. There were clear indications of (probably herbivore) dung from various scarabeid dung beetles and a range of others may also have originated in dung. There may therefore have been grazing quite nearby. Some other elements probably originated from this kind of vegetation, too. There was no evidence of human occupation in the sense of dwellings or byres: a very small part of the fauna was contributed by synanthropes, and of these two thirds were facultative forms probably originating (at this site) in natural litter.

Above this, 3558, a deposit containing small amounts of what is thought to be uncharred peat was examined (the field description was ‘silty peat’, but the peat clasts here seem more likely to be an inclusion rather than merely undisaggregated sediment). The assemblage was also characterised by a small group of mosses—perhaps 11 taxa, all present in very small amounts. Some are likely to have arrived on tree bark (or perhaps through deliberate collection of brushwood), one or two to have been growing in or close to the ditch. (Some of these mosses were the same taxa recorded at two levels in the sequence from 413 (at 130-140 and 140-150 cm), and giving much the same interpretive evidence.)

There was a moderately large assemblage of insects from the sample from 3558 examined, their preservation, as for 3559, being somewhat variable. The fauna was very diverse, and fairly mixed ecologically. Among the beetles and bugs, a third of the individuals were aquatics (indeed, the four most abundant beetles fell in this category), and these were complemented by numerous *Daphnia*

ephippia and various others. There thus can be little doubt that the deposit formed in water, the fauna suggesting still to sluggish conditions, with no more than slight pollution. There was a single riffle beetle, which requires clean flowing water, but this may have arrived in flight or flood. Damp ground and waterside taxa contributed a modest number of individuals, but many of the terrestrial species recorded, including most of the decomposers, could have exploited plants or natural plant litter by water.

There was limited evidence for conditions further away, with a hint of live trees and clearer indications of dead wood. Modest numbers of scarabeid dung beetles hint at the presence of herbivore faeces not too far away, and some of the other beetles may also have exploited dung. There were only weak hints of grazing land vegetation in the immediate vicinity. Synanthropic insects were rare, and mostly facultative or 'typical' forms which would have been found in local natural habitats. There is thus no evidence for human occupation contemporaneous with deposition.

Next in sequence was Context 3540 from which some wetland plant taxa were noted, including yellow water-lily (*Nuphar lutea*), indicative of a body of standing water, unless it arrived with imported peat. Material thought to be charred peat was also present, though there were only traces, up to 5mm. That some scrub may have been growing locally is perhaps suggested by the presence of traces of thorny hawthorn twig fragments to 40 mm.

Immediately above 3540 was 3609, in which there was abundant charcoal (including oak to 70 mm), a small component of charred cereal grains, and some burnt soil and perhaps other material from burnt turves. Uncharred remains were sparse and suggested damp ditch conditions with some standing water. The next context in sequence was 3536 from which much the same kinds of remains were recorded. Above this was 3535, investigated through two samples. Again, there was abundant oak charcoal (to 70 mm), some wetland taxa, modest numbers of charred spelt grains in one of the samples, and some evidence for turves, more abundant in this same sample than in the other, suggesting a degree of heterogeneity of the ditch fills—perhaps not surprising if the charred component was tipped or collapsed wholesale into it rather than accumulating slowly. The abundant charcoal and consistent evidence for what may have been burnt turves (and in some cases peat) in these outer ditch fill presumably relates to the destruction and collapse of a superstructure on the bank above the ditch.

Plant remains in the context of previous studies at Sutton Common

Two previous published accounts exist of plant material from this enigmatic site (Boardman 1987; and Boardman 1997 and Boardman and Charles 1997). The first of these dealt with charred material from a single grain-rich deposit in the ditch of the smaller enclosure, discussed in more detail in the second report, where further material from the smaller enclosure and samples from the larger enclosure were also described.

The grain-rich sample from the smaller enclosure ditch yielded abundant spelt grains and glume-bases and even whole spikelets. With these were small numbers of emmer grains, glume-bases and whole spikelets, and a roughly similar number of specimens in each morphological category that could not be identified more closely than 'spelt/emmer'. There were traces of hulled barley grains and some weeds, the more abundant of which were brome caryopses with some *Bilderdykia*. There were even some fern frond fragments, most likely to be bracken (but not identified further by Boardman and Charles). The state of preservation of this material was described as excellent 'and even some partially charred material survived' (*ibid.*, 248). The presence of abundant awns (including tips) was taken to indicate an unthreshed, or at least unwinnowed, crop.

Samples giving assemblages of charred remains were also examined from seven posthole, postpipe or pit fills from the larger enclosure. Assemblages from these were small (though the lack of information concerning sample size in the published report means that concentrations cannot be estimated). Here

hulled barley and spelt predominated, with smaller numbers of tentatively identified bread wheat grains, some 'naked' barley grains, and some wheat identified as 'cf. *monococcum/dicoccum*'. 'Soil encrusting' and 'orange staining' were noted here, too. Material from waterlogged layers from the ditch of the small enclosure gave assemblages essentially composed of wetland taxa with no very strong evidence for human activity—as has been the case in the present study. No charred remains were reported from the three samples examined, though interestingly *Cenococcum* sclerotia were present in all three and rather frequent in one of them.

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Table 1. Complete list of plant and invertebrate taxa recorded from deposits excavated at Sutton Common, South Yorkshire (site code SCOM02-3).

*The list of plants includes all those recorded from assessments of material in 2002 and 2003 as well as the samples analysed in more detail from the 2003 excavation. Nomenclature and taxonomic order follow Tutin et al. (1964-80) for vascular plants, Smith (1978) for mosses, and Kloet and Hincks (1964-77) for insects. Except in the case of remains of cereals, plant material was preserved by anoxic waterlogging unless otherwise indicated. For insects: where both secure and tentative identifications for a given taxon were recorded, only the former are listed here. Ecological codes used in calculating insect statistics (Table 5) are given (they are explained in Table 6). * = not used in calculating assemblage statistics. The remains were of adults unless stated. 'Sp.' indicates that record was probably an additional taxon, 'sp. indet.' that the material may have been of a taxon listed above it.*

Taxon	Vernacular	Parts
Filicales	fern	pinnule fragments
<i>Salix</i> sp(p).	willow	twig epidermis fragments
cf. <i>Salix</i> sp(p).	?willow	twig fragments
<i>Salix/Populus</i> sp(p).	willow/poplar/aspen	charcoal fragments
<i>Populus tremula</i> L.	aspen	catkin scales
<i>Betula</i> sp(p).	birch	fruits
<i>Alnus glutinosa</i> (L.) Gaertner	alder	buds and/or bud-scales, female cones/cone-axes, female cone scales, fruits, immature leaves, male catkin fragments, twig fragments, charred female cone axis/axes
<i>Betula/Corylus</i>	birch/hazel	charcoal fragments
<i>Corylus avellana</i> L.	hazel	charred and uncharred nuts and/or nutshell fragments
<i>Quercus</i> sp(p).	oak	buds and/or bud-scales, twig and wood fragments, charcoal fragments, charred cotyledons and immature cupules
<i>Urtica dioica</i> L.	stinging nettle	achenes
<i>Polygonum aviculare</i> agg.	knotgrass	charred and uncharred fruits
<i>P. hydropiper</i> L.	water-pepper	charred and uncharred fruits
<i>P. persicaria</i> L.	persicaria/red shank	charred and uncharred fruits
<i>P. lapathifolium</i> L.	pale persicaria	charred and uncharred fruits
Polygonaceae	dock/knotweed family	charred fruits
<i>Bilderdykia convolvulus</i> (L.) Dumort.	black bindweed	charred and uncharred fruits and charred fruit fragments
<i>Rumex acetosella</i> agg.	sheep's sorrel	fruits
<i>Rumex</i> sp(p).	docks	charred and uncharred fruits
<i>Chenopodium ficifolium</i> Sm.	fig-leaved goosefoot	seeds
<i>C. album</i> L.	fat hen	charred and uncharred seeds
<i>Atriplex</i> sp(p).	oraches	charred and uncharred seeds
Chenopodiaceae	goosefoot family	charred and uncharred seeds
<i>Montia fontana</i> ssp. <i>chondrosperma</i> (Fenzl) Walters	blinks	charred and uncharred seeds
<i>Moehringia trinervia</i> (L.) Clairv.	three-nerved sandwort	seeds
<i>Stellaria media</i> (L.) Vill.	chickweed	seeds
<i>S. cf. neglecta</i> Weihe in Bluff & Fingerh.	?greater chickweed	seeds
<i>S. palustris</i> Retz./ <i>S. graminea</i> L.	marsh/lesser stitchwort	seeds
<i>Stellaria</i> sp(p).	stitchworts/chickweeds	seeds
<i>Cerastium</i> sp(p).	mouse-ear chickweeds	seeds

<i>Silene dioica</i> (L.) Clairv.	red campion	seeds
Caryophyllaceae	pink/campion family	seeds
<i>Nuphar lutea</i> (L.) Sibth. & Sm.	yellow water-lily	seeds
<i>Ranunculus</i> Section <i>Ranunculus</i>	meadow/creeping/bulbous buttercup	charred and uncharred achenes
<i>R. sceleratus</i> L.	celery-leaved crowfoot	achenes
<i>R. flammula</i> L.	lesser spearwort	charred and uncharred achenes
<i>R. cf. lingua</i> L.	?greater spearwort	achenes
<i>R.</i> Subgenus <i>Batrachium</i>	water crowfoots	achenes
<i>Papaver somniferum</i> L.	opium poppy	seeds
<i>P. argemone</i> L.	long prickly-headed poppy	seeds
<i>Nasturtium officinale</i> R. Br. in Aiton	watercress	seeds
<i>Brassica rapa</i> L.	'turnip'	charred seeds
<i>Raphanus raphanistrum</i> L.	wild radish	charred pod segments and/or fragments
<i>Filipendula ulmaria</i> (L.) Maxim.	meadowsweet	achenes
<i>Rubus idaeus</i> L.	raspberry	seeds
<i>Rubus fruticosus</i> agg.	blackberry/bramble	seeds
<i>Rubus</i> sp(p).	blackberries, etc.	charred and uncharred seeds, uncharred prickles
<i>Rosa</i> sp(p).	roses	achenes
<i>Potentilla palustris</i> (L.) Scop.	marsh cinquefoil	achenes
<i>P. anserine</i> L.	silverweed	charred and uncharred achenes
<i>P. cf. erecta</i> (L.) Räschel	?tormentil	charred and uncharred achenes
<i>Potentilla</i> sp(p).	cinquefoils, etc.	achenes
cf. <i>Aphanes microcarpa</i> (Boiss. & Reuter) Rothm.	?slender parsley-piert	achenes
<i>Crataegus monogyna</i> Jacq.	hawthorn	pyrenes
<i>Crataegus</i> sp(p).	hawthorns	twig fragments with thorns
cf. <i>Crataegus</i> sp(p).	?hawthorns	pyrenes
<i>Prunus spinosa</i> L.	sloe	charred and uncharred fruitstones, thorns, twig fragments with thorns
<i>Prunus</i> sp(p).	sloe/plum/cherry, etc.	twig fragments
<i>Vicia cf. tetrasperma</i> (L.) Schreber	?smooth tare	charred seeds
<i>Vicia</i> sp(p).	vetches, etc.	charred seeds
Leguminosae	pea family	charred cotyledons and seeds
<i>Oxalis acetosella</i> L.	wood-sorrel	seeds
<i>Mercurialis perennis</i> L.	dog's mercury	seeds
<i>Ilex aquifolium</i> L.	holly	seeds
cf. <i>I. aquifolium</i> L.	?holly	leaf epidermis fragments
<i>Viola</i> sp(p).	violets/pansies, etc.	seeds
<i>Lythrum salicaria</i> L.	purple loosestrife	seeds
<i>Epilobium</i> sp(p).	willow-herbs, etc.	seeds
Umbelliferae	carrot family	mericarps
<i>Hydrocotyle vulgaris</i> L.	marsh pennywort	mericarps
<i>Berula erecta</i> (Hudson) Coville	narrow-leaved water-parsnip	mericarps
<i>Oenanthe aquatica</i> (L.) Poir. in Lam.	fine-leaved water-dropwort	mericarps
<i>Oenanthe</i> sp(p).	water-dropworts	mericarps
<i>Aethusa cynapium</i> L.	fool's parsley	mericarps
<i>Fraxinus excelsior</i> L.	ash	wood fragments
<i>Galium aparine</i> L.	goosegrass, cleavers	charred and uncharred fruits, uncharred epicarp
<i>Galium</i> sp(p).	bedstraws, etc.	charred fruits
<i>Ajuga reptans</i> L.	bugle	charred and uncharred nutlets
cf. <i>Marrubium vulgare</i> L.	?white horehound	nutlets
<i>Galeopsis</i> Subgenus <i>Galeopsis</i>	hemp-nettles	nutlets
<i>Galeopsis</i> sp(p).	hemp-nettles	charred nutlets
<i>Lamium</i> Section <i>Lamiopsis</i>	annual dead-nettles	nutlets
<i>Stachys</i> sp(p).	woundworts	nutlets

cf. <i>Glechoma hederacea</i> L.	?ground-ivy	nutlets
<i>Prunella vulgaris</i> L.	selfheal	nutlets
<i>Lycopus europaeus</i> L.	gipsywort	nutlets
<i>Mentha</i> sp(p).	mints	nutlets
Labiatae	mint family	nutlets
<i>Hyoscyamus niger</i> L.	henbane	seeds
<i>Solanum</i> cf. <i>nigrum</i> L.	?black nightshade	seeds
<i>S. dulcamara</i> L.	woody nightshade	seeds
<i>Rhinanthus</i> sp(p).	yellow rattles	charred seeds
<i>Plantago</i> cf. <i>media</i> L.	?hoary plantain	charred seeds
<i>Sambucus</i> cf. <i>ebulus</i> L.	?danewort	seeds
<i>S. nigra</i> L.	elder	seeds and seed fragments
cf. <i>S. nigra</i>	?elder	wood fragments
<i>Eupatorium cannabinum</i> L.	hemp agrimony	achenes
<i>Bidens</i> sp(p).	bur-marigolds	achenes
<i>Matricaria maritima</i> L./		
<i>M. perforata</i> Mérat	sea/scentless mayweed	charred achenes
<i>Carduus/Cirsium</i> sp(p).	thistles	achenes
<i>Sonchus asper</i> (L.) Hill	prickly sow-thistle	achenes
<i>S.</i> cf. <i>oleraceus</i> L.	?sow-thistle	achenes
<i>Taraxacum</i> sp(p).	dandelions	achenes
<i>Lapsana communis</i> L.	nipplewort	charred achenes
<i>Alisma</i> sp(p).	water-plantains	carpels and/or seeds
<i>Potamogeton</i> sp(p).	pondweeds	pyrenes
<i>Zannichellia palustris</i> L.	horned pondweed	fruits
<i>Juncus inflexus</i> L./ <i>J. effusus</i> L./		
<i>J. conglomeratus</i> L.	hard/soft/compact rush	seeds
<i>J.</i> cf. <i>compressus</i> Jacq.	?round-fruited rush	seeds
<i>J. compressus</i> / <i>J. gerardi</i> Lois.	round-fruited/saltmarsh rush	seeds
<i>J. bufonius</i> L.	toad rush	seeds
<i>Juncus acutiflorus</i> Ehrh. ex Hoffm./		
<i>J. articulatus</i> L.	sharp-flowered/jointed rush	seeds
<i>J.</i> cf. <i>articulatus</i> L.	?jointed rush	seeds
<i>Juncus</i> sp(p).	rushes	seeds
<i>Glyceria</i> sp(p).	sweet-grasses	caryopses
<i>Bromus</i> sp(p).	bromes, etc.	charred caryopses
cf. <i>Arrhenatherum elatius</i> ssp.		
<i>bulbosum</i> (Willd.) Schübler		
& Martens.	?false oat-grass	charred rhizome fragments
<i>Alopecurus</i> sp(p).	foxtails	waterlogged caryopses
<i>Danthonia decumbens</i> (L.) DC.		
in Lam. & DC.	heath grass	charred and uncharred caryopses
Gramineae	grasses	charred and uncharred caryopses, charred culm nodes, charred spikelets/spikelet fragments
Gramineae/Cerealia	grasses/cereals	charred caryopses
<i>Triticum dicoccon</i> Schrank	emmer	charred spikelet forks
<i>T.</i> cf. <i>dicoccon</i>	?emmer	charred caryopses, glume-bases, spikelet forks
<i>Triticum spelta</i> L.	spelt wheat	charred caryopses, glume-bases, spikelet forks, spikelets/spikelet fragments
<i>Triticum</i> cf. 'aestivo-compactum'	?bread/club wheat	charred caryopses
<i>Triticum</i> sp(p).	wheats	charred caryopses, glumes, glume- bases, spikelet forks
<i>Hordeum</i> sp(p).	barley	charred caryopses, rachis fragments, rachis internodes
<i>Avena</i> cf. <i>fatua</i> L.	?wild oat	charred spikelets/spikelet fragments
<i>Avena</i> sp(p).	oats	charred caryopses

Cerealia indet.	cereals	charred awns/awn fragments, caryopses, lemmas and/or glumes
cf. Cerealia indet.	?cereals	charred culm-nodes
<i>Lemna</i> sp(p).	duckweeds	seeds
<i>Sparganium</i> sp(p).	bur-reeds	charred and uncharred fruits
<i>Typha</i> sp(p).	reedmaces	seeds
cf. <i>Scirpus lacustris sensu lato</i>	?bulrush	nutlets
<i>S. setaceus</i> L.	bristle club-rush	charred and uncharred nutlets
<i>Eleocharis palustris sensu lato</i>	common spike-rush	nutlets
<i>Carex</i> sp(p).	sedges	charred and uncharred nutlets

Mosses (all remains were leaves and/or shoot fragments unless otherwise indicated)

<i>Sphagnum</i> sp(p).		leaves
<i>Polytrichum</i> sp(p).		charred shoot fragments
<i>Fissidens</i> sp(p).		
<i>Bryum</i> sp(p).		
<i>Ulota</i> sp(p).		
<i>Neckera complanata</i> (Hedw.) Hüb.		
<i>Thuidium tamariscinum</i> (Hedw.) Br. Eur.		
<i>Cratoneuron filicinum</i> (Hedw.) Spruce		
cf. <i>C. commutatum</i> (Hedw.) Roth		
cf. <i>Campylium</i> sp(p).		
<i>Drepanocladus</i> sp(p).		
<i>Calliergon giganteum</i> (Schimp.) Kindb.		
<i>C. cuspidatum</i> (Hedw.) Kindb.		
<i>Isoetecium myurum</i> Brid.		
<i>I. myosuroides</i> Brid.		
<i>Homalothecium sericeum</i> (Hedw.) Br. Eur./ <i>H. lutescens</i> (Hedw.) Robins.		
<i>Eurhynchium</i> cf. <i>striatum</i> (Hedw.) Schimp.		
<i>E. praelongum</i> (Hedw.) Br. Eur.		
<i>Eurhynchium</i> sp(p).		
<i>Hypnum</i> cf. <i>cupressiforme</i> Hedw.		
<i>Rhytidiadelphus</i> sp(p).		

Fungi

<i>Rosellinia</i> cf. <i>mammiformis</i> (Persoon ex Fries)		
Cesati & de Notaris		perithecia
<i>Rosellinia</i> sp(p).		perithecia

Algae

Characeae		oogonia
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Invertebrates

		Cicadellidae spp.	oa-p
*Oligochaeta sp. (egg capsule)	u	Delphacidae spp.	oa-p
		*Aphidoidea sp.	u
*Trichoptera sp. (case)	oa-w		
*Trichoptera sp. (larva)	oa-w	*Lepidoptera sp. (pupa)	u
* <i>Daphnia</i> sp. (ephippium)	oa-w	*Chironomidae sp. (larva)	w
*Cladocera sp. (ephippium)	oa-w	*Bibionidae sp.	u
*Ostracoda sp.	u	*Diptera sp. (adult)	u
		*Diptera sp. (puparium)	u
*Dermaptera sp.	u		
		<i>Dyschirius globosus</i> (Herbst)	oa
<i>Drymus brunneus</i> (Sahlberg)	oa-p	<i>Clivina fossor</i> (Linnaeus)	oa
<i>Derephysia foliacea</i> (Fallen)	oa-p	<i>Trechus obtusus</i> Erichson	oa
Corixidae sp.	oa-w	<i>Trechus quadristriatus</i> (Schrank)	oa
<i>Megophthalmus</i> sp.	oa-p	<i>Trechus secalis</i> (Paykull)	oa-d
<i>Aphrodes bicinctus</i> (Schrank)	oa-p	<i>Trechus micros</i> (Herbst)	u

<i>Bembidion lampros</i> (Herbst)	oa	Leiodiidae sp.	u
<i>Bembidion doris</i> (Panzer)	oa-d	<i>Agathidium</i> spp.	u
<i>Bembidion obtusum</i> Serville	oa	<i>Nargus velox</i> (Spence)	u
<i>Bembidion guttula</i> or <i>mannerheimi</i>	oa	<i>Catops</i> spp.	u
<i>Bembidion</i> (<i>Philochthus</i>) sp. indet.	oa	<i>Silpha atrata</i> Linnaeus	u
<i>Bembidion</i> sp.	oa	Scydmaenidae sp.	u
<i>Pterostichus nigrita</i> (Paykull)	oa-d	<i>Micropeplus fulvus</i> Erichson	rt
<i>Pterostichus ?strenuus</i> (Panzer)	oa	<i>Micropeplus staphylinoides</i> (Marsham)	rt
<i>Pterostichus</i> sp.	ob	<i>Megarthus</i> sp.	rt
<i>Calathus fuscipes</i> (Goeze)	oa	<i>Anthobium atrocephalum</i> (Gyllenhal)	oa
<i>Agonum obscurum</i> (Herbst)	oa-d	<i>Anthobium</i> sp. indet.	oa
? <i>Agonum</i> sp.	oa	? <i>Olophrum assimile</i> (Paykull)	oa
<i>Amara</i> sp.	oa	<i>Olophrum piceum</i> (Gyllenhal)	oa
? <i>Harpalus</i> sp.	oa	<i>Acidota crenata</i> (Fabricius)	oa
? <i>Bradycellus</i> sp.	oa	<i>Lesteva heeri</i> Fauvel	oa-d
<i>Metabletus</i> sp.	oa	<i>Lesteva longoelytrata</i> (Goeze)	oa-d
Carabidae spp. and spp. indet.	ob	<i>Omalius</i> sp.	rt
<i>Haliplus</i> sp.	oa-w	Omaliinae spp.	rt
<i>Hygrotus inaequalis</i> (Fabricius)	oa-w	<i>Carpelimus bilineatus</i> Stephens	rt-sf
<i>Hydroporus</i> spp.	oa-w	<i>Carpelimus ?corticinus</i> (Gravenhorst)	oa-d
Hydroporinae sp.	oa-w	<i>Carpelimus elongatulus</i> (Erichson)	oa-d
<i>Agabus</i> sp.	oa-w	<i>Carpelimus ?rivularis</i> (Motschulsky)	ob-d
<i>Ilybius fuliginosus</i> (Fabricius)	oa-w	<i>Carpelimus</i> spp. indet.	u
<i>Agabus</i> or <i>Ilybius</i> sp.	oa-w	<i>Platystethus alutaceus</i> Thomson	oa-d
<i>Colymbetes fuscus</i> (Linnaeus)	oa-w	<i>Platystethus arenarius</i> (Fourcroy)	rf
<i>Dytiscus</i> sp.	oa-w	<i>Platystethus ?nitens</i> (Sahlberg)	oa-d
Dytiscidae sp. indet.	oa-w	<i>Platystethus nodifrons</i> (Mannerheim)	oa-d
<i>Gyrinus</i> sp.	oa-w	<i>Anotylus ?nitidulus</i> (Gravenhorst)	rt
<i>Hydrochus elongatus</i> (Schaller)	oa-w	<i>Anotylus rugosus</i> (Fabricius)	rt
<i>Hydrochus</i> sp. indet.	oa-w	<i>Anotylus sculpturatus</i> group	rt
<i>Helophorus aquaticus</i> (Linnaeus)	oa-w	<i>Stenus</i> spp.	u
<i>Helophorus grandis</i> Illiger	oa-w	<i>Euaesthetus</i> sp.	oa
<i>Helophorus</i> spp.	oa-w	<i>Lathrobium</i> spp.	u
<i>Coelostoma orbiculare</i> (Fabricius)	oa-w	<i>Rugilus orbiculatus</i> (Paykull)	rt-sf
<i>Sphaeridium lunatum</i> or <i>scarabaeoides</i>	rf	<i>Rugilus rufipes</i> Germar	rt-st
<i>Cercyon ?pygmaeus</i> (Illiger)	rf-st	<i>Rugilus</i> sp. indet.	rt
<i>Cercyon tristis</i> (Illiger)	oa-d	Paederinae sp.	u
<i>Cercyon ustulatus</i> (Preyssler)	oa-d	<i>Othius myrmecophilus</i> Kiesenwetter	rt
<i>Cercyon</i> sp.	u	<i>Othius</i> sp.	rt
<i>Megasternum obscurum</i> (Marsham)	rt	<i>Gyrohypnus ?angustatus</i> Stephens	rt-st
<i>Hydrobius fuscipes</i> (Linnaeus)	oa-w	<i>Xantholinus gallicus</i> or <i>linearis</i>	rt-sf
<i>Anacaena</i> sp.	oa-w	<i>Xantholinus longiventris</i> Heer	rt-sf
<i>Laccobius</i> sp.	oa-w	Xantholininae sp. indet.	u
Hydrophilinae spp. and spp. indet.	oa-w	<i>Erichsonius cinerascens</i> (Gravenhorst)	oa-d
<i>Abraeus</i> sp.	l	<i>Philonthus</i> sp.	u
<i>Acritus homoeopathicus</i> Wollaston	u	<i>Gabrius</i> sp.	rt
<i>Acritus nigricornis</i> (Hoffmann)	rt-st	<i>Quedius</i> sp.	u
<i>Onthophilus striatus</i> (Forster)	rt-sf	Staphylininae spp. indet.	u
<i>Ochthebius bicolon</i> Germar	oa-w	<i>Tachyporus</i> sp.	u
<i>Ochthebius minimus</i> (Fabricius)	oa-w	<i>Tachinus ?signatus</i> Gravenhorst	u
<i>Ochthebius</i> sp.	oa-w	<i>Hygronoma dimidiata</i> (Gravenhorst)	rt-d
<i>Hydraena ?nigrita</i> Germar	oa-w	<i>Falagria caesa</i> or <i>sulcatula</i>	rt-sf
<i>Hydraena testacea</i> Curtis	oa-w	<i>Falagria</i> or <i>Cordalia</i> sp. indet.	rt-sf
<i>Hydraena</i> sp. indet.	oa-w	<i>Aleochara</i> sp.	u
<i>Limnebius aluta</i> (Bedel)	oa-w	Aleocharinae spp.	u
<i>Limnebius ?papposus</i> Mulsant	oa-w	<i>Pselaphus heisei</i> (Herbst)	u
<i>Limnebius truncatellus</i> (Thunberg)	oa-w	Pselaphidae spp.	u
<i>Limnebius</i> sp. indet.	oa-w	<i>Geotrupes</i> spp.	oa-rf
<i>Ptenidium</i> sp.	rt	<i>Colobopterus fossor</i> (Linnaeus)	oa-rf
<i>Acrotrichis</i> spp.	rt	<i>Aphodius ater</i> (Degeer)	oa-rf

<i>Aphodius contaminatus</i> (Herbst)	oa-rf	<i>Alosterna tabacicolor</i> (Degeer)	1
<i>Aphodius ?prodromus</i> (Brahm)	ob-rf	?Cerambycidae sp.	1
<i>Aphodius rufipes</i> (Linnaeus)	oa-rf	<i>Plateumaris</i> sp.	oa-d-p
<i>Aphodius ?sphacelatus</i> (Panzer)	oa-rf	<i>Hydrothassa</i> sp.	oa-d-p
<i>Aphodius</i> sp. and spp. indet.	ob-rf	<i>Prasocuris phellandrii</i> (Linnaeus)	oa-p-d
<i>Serica brunnea</i> (Linnaeus)	oa-p	Chrysomelinae sp.	oa-p
<i>Phyllopertha horticola</i> (Linnaeus)	oa-p	? <i>Galerucella</i> sp.	oa-p
<i>Clambus</i> sp.	rt-sf	<i>Phyllotreta</i> sp.	oa-p
<i>Microcara testacea</i> (Linnaeus)	oa-p-d	<i>Chaetocnema ?concinna</i> (Marsham)	oa-p
<i>Cyphon</i> spp.	oa-d	Halticinae sp.	oa-p
<i>Dryops</i> sp?p.	oa-d	<i>Deporaus betulae</i> (Linnaeus)	oa-p
<i>Esolus parallelepipedus</i> (Müller)	oa-w	<i>Apion</i> sp.	oa-p
<i>Ampedus ?balteatus</i> (Linnaeus)	u	<i>Phyllobius argentatus</i> (Linnaeus)	oa-p
<i>Melanotus erythropus</i> (Gmelin)	1	<i>Barypeithes</i> sp.	oa-p
* <i>Melanotus erythropus</i> (Gmelin) (larva)	1	<i>Strophosomus</i> sp.	oa-p
<i>Athous haemorrhoidalis</i> (Fabricius)	oa-p	<i>Sitona</i> sp.	oa-p
<i>Ctenicera cuprea</i> (Fabricius)	oa-p	<i>Acalles</i> sp.	u
*? <i>Actenicerus sjaelandicus</i> (Müller) (larva)	oa	<i>Notaris acridulus</i> (Linnaeus)	oa-d-p
* <i>Denticollis linearis</i> (Linnaeus) (larva)	u	<i>Orthochaetes</i> sp.	oa-p
Elateridae sp.	ob	<i>Ceutorhynchus</i> spp.	oa-p
*Elateridae sp. indet. (larva)	ob	Ceuthorhynchinae sp.	oa-p
<i>Grynobius planus</i> (Fabricius)	1	<i>Gymnetron ?pascuorum</i> (Gyllenhal)	oa-p
<i>Anobium</i> sp.	1	<i>Rhynchaenus</i> sp.	oa-p
<i>Lyctus linearis</i> (Goeze)	l-sf	Curculionidae spp. and spp. indet.	oa
<i>Brachypterus</i> sp.	oa-p	<i>Scolytus</i> sp.	1
<i>Rhizophagus dispar</i> (Paykull)	1	<i>Hylesinus oleiperda</i> (Fabricius)	u
<i>Monotoma bicolor</i> Villa	rt-st	<i>Dryocoetinus villosus</i> (Fabricius)	1
<i>Monotoma longicollis</i> (Gyllenhal)	rt-st	? <i>Taphrorychus bicolor</i> (Herbst)	1
<i>Monotoma</i> sp. indet.	rt-sf	Scolytidae sp.	1
<i>Cryptophagus</i> spp.	rd-sf	Coleoptera spp.	u
<i>Atomaria</i> sp.	rd	*Coleoptera spp. indet. (larva)	u
<i>Phalacrus caricis</i> Sturm	oa-p		
<i>Cerylon ferrugineum</i> Stephens	1	*Proctotrupoidea sp.	u
<i>Orthoperus</i> sp.	rt	*Hymenoptera sp.	u
Corylophidae sp.	rt	*Formicidae sp.	u
<i>Coccidula rufa</i> (Herbst)	oa-p-d		
Coccinellidae sp.	oa-p	*Insecta sp. (pupa)	u
<i>Stephostethus lardarius</i> (Degeer)	rt-st		
<i>Lathridius minutus</i> group	rd-st	*Pseudoscorpiones sp.	u
<i>Enicmus</i> sp.	rt-sf	*Aranae sp.	u
<i>Dienerella</i> sp.	rd-sf	*Acarina sp.	u
<i>Corticaria</i> sp.	rt-sf		
<i>Corticarina</i> or <i>Cortinicara</i> sp.	rt	* <i>Lophopus crystallinus</i> (Pallas)	oa-w

Table 2a-b. Data concerning assemblages of charred plant remains from Sutton Common.

Table 2a. Quantification of charred material from those assemblages containing moderate or large quantities of remains other than wood charcoal (actual or estimated total number of cereal grains per kg >49, where this could be calculated; records in cases where very few remains were found are given in Table 2b). N.B. Table 2a is divided into two parts.

Numbers estimated from, or including an estimated component from, a subsample of the one or more of the sieved fractions are shown in italics. ‘+’ in the row for emmer grains indicates that a few grains within a much larger component of ?spelt may be referable to this species. ‘+’ or ‘++’ in the row for Cerealia indicates some/many unidentified cereal grain fragments also present. Scores on a four-point scale are given for charcoal, along with the size of the largest fragment (in millimetres).

Key to abbreviations: Plant parts: f—one or a few fragments; fca—female cone axes; frst—fruitstones; gl—glume; glb—glume-bases; lem—lemma fragments; nsf—nutshell fragments; rac—rachis fragments; scl—sclerotia; spf—spikelet forks. Context types: Po—posthole fill (Po4—from four-post structure); Pi—Pit fill; crem—‘cremation’; dep—‘deposit’.

Notes

¹ Counted amongst ?spelt grains; + indicates the likely presence of one or more tentatively identified emmer grains

² Probably includes at least some grains which were definitely spelt, on the basis of remnants of chaff adhering to them

³ Includes some ‘withered’ or ‘shrunkened’ grains

⁴ Includes one or two specimens showing evidence of germination

⁵ Including a small proportion of very small specimens

⁶ All rather small specimens

Context		1093	1099	3004	3008	3016	3032	5408/ 5409	5431	5433	5635	7246	7246	7246
Context type		Po4	Po4	Po4	Po4	Po4	Po4	Po?4	Po4	Po4	Po	Po4c	Po4c	Po4c
Four-poster group		A	A	B	B	C	D	PP	N	N	-	T	T	T
Sample		1	1	8	10	12	46	1	1	1	2	1	2	5
Wt (kg)		2.4	2.47	3	3	3	3	3	3	3	3	?	?	?
Approx. proportion (% by weight) of 2-4 mm fraction examined)		25	12	33	33	100	100	17	25	13	25	100	100	100
Taxon	Parts													
Grains														
<i>Triticum cf. dicoccon</i> ¹		+	+										+	+
<i>T. cf. spelta</i>		406 ¹	392 ²	17	86	104 ²	25	827	178	135	197	45 ³	162 ³	120 ³
<i>Triticum</i> sp(p).						3								
<i>Hordeum</i> sp(p).			8	87	145	19	14	152	12	83	75	73 ⁴	170 ⁴	79 ⁴
<i>Avena</i> sp(p).												1	(1)	
Cerealia		174+	2085 ++	220+	83+	130+	111+	937 ++	130+	339+	1289+	35+	136+	37+
Total grain		580	2485	324	314	256	150	1916	320	557	1561	154	469	236
Nos. grain/kg		242	1006	108	105	82	50	639	107	186	520	?	?	?
Wheat:Barley		∞	49	0.2	0.6	5.6	1.8	5.4	14.8	1.6	2.6	0.6	0.9	1.5
Chaff														
<i>Triticum dicoccum</i>	glb	12			6									
	spf			?2	?6			?1					(11)	
<i>T. spelta</i>	glb	12+ ?29	33+ ?30	17	17		?7	35	?2	6	6	2		
	spf	8+?25	45+ ?60	3	5	2	?5	28				?3	?5	?7
<i>Triticum</i> sp. (probably <i>dicoccon/spelta</i>)	glb			9	15	2	1	30			2			1
	spf			4	12		2	66	3		3	1		
<i>Hordeum</i> sp(p).	lem													
	rac			2	3			4						
Cerealia (glume/lemma fragments)								++						
Total chaff		86	168	37	64	4	15	160++	5	6	11	6	16	8

Context		1093	1099	3004	3008	3016	3032	5408/ 5409	5431	5433	5635	7246	7246	7246
Context type		Po4	Po4	Po4	Po4	Po4	Po4	Po?4	Po4	Po4	Po	Po4c	Po4c	Po4c
Four-poster group		A	A	B	B	C	D	PP	N	N	-	T	T	T
Sample		1	1	8	10	12	46	1	1	1	2	1	2	5
Grain:Chaff		6.7	14.8	8.8	4.9	64	10	12	64	93	142	25.7	29.3	29.5
Other propagules														
<i>Polygonum aviculare</i> agg.					1									
<i>P. persicaria/lapathifolium</i>					1									
<i>Rumex</i> sp(p).		1		1	1									
<i>Bilderdykia convolvulus</i>			10	1	1			3	2		10 ⁶		1	
Polygonaceae								1	1					
<i>Chenopodium ficifolium</i>								2						
<i>C. album</i>		3		3	1		1	7	1					
<i>Atriplex</i> sp(p).		1		2							2			
Chenopodiaceae									2					
<i>Montia fontana</i> ssp. <i>chondrosperma</i>														
<i>Brassica rapa</i>														
Leguminosae (<2 mm)			6					1	1		1			
<i>Galium aparine</i>														
<i>Galium</i> sp(p).					1									(1)
<i>Plantago</i> cf. <i>media</i>								1						
<i>Matricaria maritima/perforata</i>								1						
<i>Lapsana communis</i>			2											
<i>Bromus</i> sp(p).		2	89			1	1	4		2	5	2	6	5
Gramineae (large-seeded)													4	
Gramineae (medium-sized)		16												
Gramineae (small)		3								2				1
<i>Sparganium</i> sp(p).								1						
<i>Scirpus setaceus</i>														
<i>Carex</i> sp(p).		1												
indet.											1			

Context		1093	1099	3004	3008	3016	3032	5408/ 5409	5431	5433	5635	7246	7246	7246
Context type		Po4	Po4	Po4	Po4	Po4	Po4	Po?4	Po4	Po4	Po	Po4c	Po4c	Po4c
Four-poster group		A	A	B	B	C	D	PP	N	N	-	T	T	T
Sample		1	1	8	10	12	46	1	1	1	2	1	2	5
Other plant material														
Gramineae	culm nodes				+									
herbaceous detritus		+												
root/rhizome fragments														
charcoal		++25	+15	+15	+10	+10	+15	+15	+10	+10	+10	++5	++5	+5

Context		7257	7264	7265	31270	31351	31375	31381/ 31382	31434
Context type		Pi	Po4	Po4	Po4	Po4	Po4	Po4	Po4
Four-poster group		-	T	T	P	P	K	K	J
Sample		1	1	1	154	153	144	142	148
Wt (kg)		3	3	3	3	3	3	3	3
Approx. proportion (% by weight) of 2-4 mm fraction examined)		25	100	14	14	33	33	14	20
Taxon	Parts								
Grains									
<i>Triticum</i> cf. <i>dicoccon</i> ¹									
<i>T. cf. spelta</i>		248 ⁵	40	637	502	124 ³	75 ²	82 ²	60
<i>Triticum</i> sp(p).									
<i>Hordeum</i> sp(p).		353 ⁵	80	28	31	25	49	37	5
<i>Avena</i> sp(p).									
Cerealìa		133+	80+	337+	432+	222+	248+	476+	115+
Total grain		734	200	1002	965	371	372	595	180
Nos. grain/kg		245	66	334	321	123	124	198	60
Wheat:Barley		0.7	0.5	22.8	16.2	4.9	1.5	2.2	12
Chaff									
<i>Triticum dicoccon</i>	glb						21		23
	spf				22		1		22
<i>T. spelta</i>	glb		1	37	22	11	4	2	8
	spf			3	8	7			
<i>Triticum</i> sp. (probably <i>dicoccon/spelta</i>)	glb			18	10	9		2	
	spf		1	30	21	11	2	14	
<i>Hordeum</i> sp(p).	lem	+							
	rac	1				1			
Cerealìa (glume/lemma fragments)									
Total chaff		1+	2	88	43	39	8	18	13
Grain:Chaff		734	100	11.4	22.4	9.5	46.5	33	13.8
Other propagules									

Context		7257	7264	7265	31270	31351	31375	31381/ 31382	31434
Context type		Pi	Po4	Po4	Po4	Po4	Po4	Po4	Po4
Four-poster group		-	T	T	P	P	K	K	J
Sample		1	1	1	154	153	144	142	148
<i>Polygonum aviculare</i> agg.									
<i>P. persicaria</i> / <i>lapathifolium</i>									
<i>Rumex</i> sp(p).									
<i>Bilderdykia convolvulus</i>		f		2			2	1	
Polygonaceae									
<i>Chenopodium ficifolium</i>									
<i>C. album</i>		1		1					
<i>Atriplex</i> sp(p).							1		
Chenopodiaceae									
<i>Montia fontana</i> ssp. <i>chondrosperma</i>									
<i>Brassica rapa</i>				1					
Leguminosae (<2 mm)						2			
<i>Galium aparine</i>				1					
<i>Galium</i> sp(p).									
<i>Plantago</i> cf. <i>media</i>									
<i>Matricaria</i> <i>maritima/perforata</i>									
<i>Lapsana communis</i>									
<i>Bromus</i> sp(p).		1		89					
Gramineae (large-seeded)									
Gramineae (medium-sized)				12			2		2
Gramineae (small)								5	
<i>Sparganium</i> sp(p).									
<i>Scirpus setaceus</i>									
<i>Carex</i> sp(p).									
indet.									
Other plant material									
Gramineae	culm								

Context		7257	7264	7265	31270	31351	31375	31381/ 31382	31434
Context type		Pi	Po4	Po4	Po4	Po4	Po4	Po4	Po4
Four-poster group		-	T	T	P	P	K	K	J
Sample		1	1	1	154	153	144	142	148
	nodes								
herbaceous detritus									
root/rhizome fragments									
charcoal		+25	++20	++25	+10	+10	+15	++30	+10

Table 2b. Records of charred remains for assemblages consisting of very few individuals (and especially those lacking more than traces of chaff).

Key as in Table 2a. Where no counts were made the data are present as '+' = present.

Context types (in addition to abbreviations used in Table 2a): IDN—inner ditch fill to N of E entrance; IDS—ditto, to S of E entrance; IDT, ditto, close to terminal; ODS—outer ditch fill to S of E entrance;

N.B. The table is divided into three parts.

Notes

¹ The data for the two samples for this context were combined, although the residue for one of them was *not* examined during this work.

Context		1079	1174	3002	3010	3012	3018	3020	3022	3150	3454	3492	3535 ¹
Context type		PoBR	Po	Po4	Po4	Po4	Po4	Po4	Po4	IDT	ODS	IDS	IDN
Four-poster group		-	-	B	B	C	D	D	C	-	-	-	-
Sample		1	1	1	9	44	37	36	11	31	1	77	51+96
Wt (kg)		0.44	3	3	3	3	3	3	3	3	3	3	6
Taxon	Parts												
Grains													
<i>Triticum cf. dicoccon</i>													
<i>T. cf. spelta</i>		1		1	+	6	12	9	2	1		3	17
<i>Triticum sp(p).</i>													
<i>Hordeum sp(p).</i>					+	13	5	27	1				
Cerealialia				7+		58+	37	92	1				
Total grain		1		8	+	77	54	128	4	1		3	17
Wheat:Barley		-	-	-	-	(0.5)	(2.4)	0.3	-	-	-	-	-
Chaff													
<i>Triticum dicoccon</i>	glb												
	spf				?	+							
<i>T. spelta</i>	glb		1		+						?	1	
	spf						1				?	1	
<i>Triticum dicoccon/spelta</i>	glb											2	
	spf											2	
	gl fgts											+	
<i>Hordeum sp(p).</i>	rac			5								3	
Other propagules													
<i>Alnus glutinosa</i>	fca												
<i>Corylus avellana</i>	nsf												
<i>Polygonum aviculare agg.</i>												+	
<i>P. hydropiper</i>													
<i>P. persicaria</i>													
<i>P. lapathifolium</i>													
<i>Rumex sp(p).</i>													
<i>Bilderdykia convolvulus</i>													
<i>Chenopodium album</i>													

Context		1079	1174	3002	3010	3012	3018	3020	3022	3150	3454	3492	3535 ¹
Context type		PoBR	Po	Po4	Po4	Po4	Po4	Po4	Po4	IDT	ODS	IDS	IDN
Four-poster group		-	-	B	B	C	D	D	C	-	-	-	-
Sample		1	1	1	9	44	37	36	11	31	1	77	51+96
<i>Atriplex</i> sp(p).													
<i>Montia fontana</i> ssp. <i>chondrosperma</i>												+	
<i>Ranunculus</i> Section <i>Ranunuclus</i>													
<i>R. flammula</i>												+	
<i>R. cf. lingua</i>													
<i>Raphanus raphanistrum</i>	pod segs					2							
<i>Potentilla anserina</i>										1			
<i>P. cf. erecta</i>													
<i>Prunus spinosa</i>	frtst									1		1	0.5
Leguminosae (<2 mm)													
<i>Rhinanthus</i> sp(p).													
<i>Plantago cf. media</i>													
<i>Lapsana communis</i>													
<i>Iris pseudacorus</i>													+
cf. <i>Glyceria</i> sp(p).													
<i>Danthonia decumbens</i>												+	
<i>Bromus</i> sp(p).								1					
Gramineae (medium- sized)	caryo												
Gramineae (small)													
<i>Sparganium</i> sp(p).													
<i>Scirpus setaceus</i>													
<i>Carex</i> sp(p).										+	+	+	+
Other material													
herbaceous detritus													+
root/rhizome fragments											+	+	+
other organic material										+			
?burnt soil												+	+
?burnt peat/organic soil													+

Context		1079	1174	3002	3010	3012	3018	3020	3022	3150	3454	3492	3535¹
Context type		PoBR	Po	Po4	Po4	Po4	Po4	Po4	Po4	IDT	ODS	IDS	IDN
Four-poster group		-	-	B	B	C	D	D	C	-	-	-	-
Sample		1	1	1	9	44	37	36	11	31	1	77	51+96
burnt peat													
charred moss stems													
<i>Cenococcum</i>	scl										+		
twig fragments													
charcoal		+5	+10	+10	+10	+20	+10	+15	+30	+++ 50	+25	++25	++++ 70

Context		3536	3540	3559	3582	3589	3590	3609	5007	5220	7050	7143
Context type		IDN	IDN	IDN	IDS	IDS	IDS	IDN	Po	Po4	Po?4	Po4
Four-poster group		-	-	-	-	-	-	-	-	M	LL	S
Sample		97	99	101	102	103	104	98	1	1	6	1
Wt (kg)		3	3	2.7	3	3	3	3	3	3	3	3
Taxon	Parts											
Grains												
<i>Triticum cf. dicoccon</i>												
<i>T. cf. spelta</i>		2			1		1	2	4	84	1	1
<i>Triticum</i> sp(p).												
<i>Hordeum</i> sp(p).		1						1	9	3	14	
Cerealìa		2			1				16	48+	10	
Total grain		5			2		1	3	29	135	25	1
Wheat:Barley		-	-	-	-	-	-	-	(0.4)	28	(0.07)	-
Chaff												
<i>Triticum dicoccon</i>	glb											
	spf									?1		
<i>T. spelta</i>	glb									2		
	spf											?2
<i>Triticum dicoccon/spelta</i>	glb			1								
	spf									1		
	gl											
	fgts											
<i>Hordeum</i> sp(p).	rac											
Other propagules												
<i>Alnus glutinosa</i>	fca						+					
<i>Corylus avellana</i>	nsf											
<i>Polygonum aviculare</i> agg.							+					
<i>P. hydropiper</i>		+						+				
<i>P. persicaria</i>									1			
<i>P. lapathifolium</i>						+						
<i>Rumex</i> sp(p).						+						
<i>Bilderdykia convolvulus</i>												
<i>Chenopodium album</i>					2	+						

Context		3536	3540	3559	3582	3589	3590	3609	5007	5220	7050	7143
Context type		IDN	IDN	IDN	IDS	IDS	IDS	IDN	Po	Po4	Po?4	Po4
Four-poster group		-	-	-	-	-	-	-	-	M	LL	S
Sample		97	99	101	102	103	104	98	1	1	6	1
<i>Atriplex</i> sp(p).							+	+		1		
<i>Montia fontana</i> ssp. <i>chondrosperma</i>					3	++	+					
<i>Ranunculus</i> Section <i>Ranunuculus</i>		+				+	+					
<i>R. flammula</i>		+				+	+	+				
<i>R. cf. lingua</i>							+					
<i>Raphanus raphanistrum</i>	pod segs											
<i>Potentilla anserina</i>												
<i>P. cf. erecta</i>							+	+				
<i>Prunus spinosa</i>	frtst	1							1f			
Leguminosae (<2 mm)												
<i>Rhinanthus</i> sp(p).								+				
<i>Plantago cf. media</i>					1							
<i>Lapsana communis</i>												
<i>Iris pseudacorus</i> cf. <i>Glyceria</i> sp(p).							+					
<i>Danthonia decumbens</i>					9	++	?+					
<i>Bromus</i> sp(p).					1					1		
Gramineae (medium-sized)	caryo											
Gramineae (small)					2		+					
<i>Sparganium</i> sp(p).												
<i>Scirpus setaceus</i>					1	++	+					
<i>Carex</i> sp(p).		+			++	++	++	++				
Other material												
herbaceous detritus		+				+	+					
root/rhizome fragments		+			+	++	++	+				
other organic material												
?burnt soil		+			+	+		+++				
?burnt peat/organic soil						+						

Context		3536	3540	3559	3582	3589	3590	3609	5007	5220	7050	7143
Context type		IDN	IDN	IDN	IDS	IDS	IDS	IDN	Po	Po4	Po?4	Po4
Four-poster group		-	-	-	-	-	-	-	-	M	LL	S
Sample		97	99	101	102	103	104	98	1	1	6	1
burnt peat			+				++60					
charred moss stems						+						
<i>Cenococcum</i>	scl	+	+	++			++	+				
twig fragments							+10					
charcoal		+++ 40	+10	+5	+++ 40	+++35	++70	++++ 70	+10	+15	+5	+30

Context		7204	7243	7244	7244	7246	7269	7429	7430	7433	31088	31454
Context type		Po?4	Po4	Po4c	Po4c	Po4c	Po4	Po4	Po4	Po4	Po4	Po?4
Four-poster group		NN	S	S	S	T	T	W	W	X	Y	RR
Sample		1	2	1	2	4	1	1	1	1	88	170
Wt (kg)		3	3	?	?	?	3	3	3	3	3	3
Taxon	Parts											
Grains												
<i>Triticum</i> cf. <i>dicoccon</i>						+	?+		+			
<i>T. cf. spelta</i>		1	2	14	5	13	89 ³	22	38	22	++	42
<i>Triticum</i> sp(p).				2								
<i>Hordeum</i> sp(p).		1	2	5+?5	6	20	8	14	14	36	+	4
Cerealialia		1	1	9+?1	11	25	45	32+	38	69+	+	51
Total grain		3	5	36	22	68	142	88	93	127		97
Wheat:Barley		-	-	(1.6)	(0.8)	0.7	11.1	1.6	2.7	0.6	(>>1)	10.5
Chaff												
<i>Triticum dicoccon</i>	glb											
	spf								?1			?1
<i>T. spelta</i>	glb			7			2	3	?1		+	1
	spf			?3			1	2			+	
<i>Triticum dicoccon/spelta</i>	glb						4		1			
	spf									1		1
	gl											
	fgts											
<i>Hordeum</i> sp(p).	rac											
Other propagules												
<i>Alnus glutinosa</i>	fca											
<i>Corylus avellana</i>	nsfl				1							
<i>Polygonum aviculare</i> agg.											+	
<i>P. hydropiper</i>												
<i>P. persicaria</i>												
<i>P. lapathifolium</i>												
<i>Rumex</i> sp(p).												
<i>Bilderdykia</i>							2	1	1	1	+	f

Context		7204	7243	7244	7244	7246	7269	7429	7430	7433	31088	31454
Context type		Po?4	Po4	Po4c	Po4c	Po4c	Po4	Po4	Po4	Po4	Po4	Po?4
Four-poster group		NN	S	S	S	T	T	W	W	X	Y	RR
Sample		1	2	1	2	4	1	1	1	1	88	170
<i>convolvulus</i>												
<i>Chenopodium album</i>												
<i>Atriplex</i> sp(p).												
<i>Montia fontana</i> ssp. <i>chondrosperma</i>												
<i>Ranunculus</i> Section <i>Ranunuclus</i>												
<i>R. flammula</i>												
<i>R. cf. lingua</i>												
<i>Raphanus</i> <i>raphanistrum</i>	pod segs											
<i>Potentilla anserina</i>												
<i>P. cf. erecta</i>												
<i>Prunus spinosa</i>	frst											
Leguminosae (<2 mm)											+	
<i>Rhinanthus</i> sp(p).												
<i>Plantago cf. media</i>												
<i>Lapsana communis</i>												
<i>Iris pseudacorus</i> cf. <i>Glyceria</i> sp(p).												
<i>Danthonia decumbens</i>												
<i>Bromus</i> sp(p).						1	2		1			
Gramineae (medium-sized)	caryo											
Gramineae (small)												
<i>Sparganium</i> sp(p).							2					
<i>Scirpus setaceus</i>												
<i>Carex</i> sp(p).												
Other material												
herbaceous detritus												
root/rhizome fragments												
other organic material												

Context		7204	7243	7244	7244	7246	7269	7429	7430	7433	31088	31454
Context type		Po?4	Po4	Po4c	Po4c	Po4c	Po4	Po4	Po4	Po4	Po4	Po?4
Four-poster group		NN	S	S	S	T	T	W	W	X	Y	RR
Sample		1	2	1	2	4	1	1	1	1	88	170
?burnt soil												
?burnt peat/organic soil												
burnt peat												
charred moss stems												
<i>Cenococcum</i>	scl											
twig fragments												
charcoal		+10	+15	++5	+5	+10	++25	+10	+20	+15	++25	++25