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BOXFIELD FARM, STEVENAGE, HERTFORDSHIRE: CARBONISED PLANT REMAINS AND OTHER MACROFOSSILS.

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Summary

Limited sampling at this Roman farm close to the edge of the Hertfordshire Boulder Clay plateau produced remains of Triticum spelta with traces of barley (Hordeum sp.), bread-type wheat (T.aestivum s.l.) and an associated weed flora. A 'corn-dryer', fuelled with wood and spelt chaff, is thought to have been used for drying prime grain prior to storage or milling and perhaps also for parching spelt malt. Samples from the aerated fills of a well produced carbonised cereals, arable weeds and a grassland flora, but the feature was too deep (14.5m +) for its presumed basal organic fills to be excavated. Plant remains from other contexts were assessed, but not studied in detail, being apparently typical of Roman rural assemblages.

Author's address :-

Peter Murphy BSc MPhil

Centre of East Anglian Studies
University of East Anglia
Norwich
Norfolk

Boxfield Farm, Stevenage, Herts (HAT 10 and HAT 37): Carbonised plant remains and other macrofossils

Introduction

The site is thought by the excavator to represent a Roman farm: it comprises a complex ditched enclosure containing a 'corn-dryer' and associated structures, a deep well, fragmentary remains of timber buildings, a sand-quarry, 'dew pond' and other ditches, gulleys, pits and postholes. It is located close to the edge of a boulder-clay plateau, just over 2km to the west of the River Beane. Although plant remains from rural Roman sites have been quite extensively studied in East Anglia, and elsewhere, there is comparatively little information on arable farming on heavy boulder-clay soils, even though field survey indicates that in some areas such soils were densely settled and under arable production (Williamson 1984) during the Roman period. Limited sampling was therefore undertaken at this site to obtain relevant assemblages of plant remains.

Sampling and retrieval

The deposits from this site mainly comprised very stiff decalcified clay and disaggration of these deposits proved difficult. Consequently very large-scale bulk sampling and flotation was impractical. Samples were, however, collected from the 'corn-dryer', well and some other features for examination in the laboratory.

From the 'corn-dryer' and associated layers twenty 1kg samples were examined. These came from layers within the flue (GF), stoke-hole (JA) and an overlying layer (JE). The composition of the assemblages of plant material present were recorded in detail in an attempt to reconstruct the function, or functions, of the structure. Plant remains and other macrofossils present are listed in Table 1.

The deposits at the site provided rather poor conditions for the preservation of biota, and one objective of the excavation of the well (CAB) was to expose structured organic deposits from which, it was anticipated, a wider range of macro- and micro-fossils would be obtained. In addition, samples (1-2kg) were taken from the upper aerated fills at 15cm vertical intervals for possible land mollusc analysis and assessment of types of refuse deposition. Unfortunately, the great depth of the feature (14.5m +) meant that excavation had to be stopped for safety reasons before basal organic fills were reached, and consequently only the samples from the upper fills were available for analysis. Samples were selected for assessment from this series at regular vertical intervals.

The samples were found to have largely decalcified clay matrices and mollusc shells were therefore not preserved, except in the basal chalky sample at 1425-1440cm and where the shell structure had been modified by burning. No useful shell assemblages were obtained. However, the samples did contain carbonised plant remains, which are listed in Table 2. Following this assessment it was not thought that further work on the remaining samples could be justified.

Other contexts sampled are listed in Table 3. 1kg samples were initially examined with the aim of distinguishing contexts which included high densities of plant material which might relate to particular types of crop-processing activity. In the event, the samples were found to contain only small quantities of carbonised crop plant remains and weed seeds, which are thought to represent no more than a diffuse 'background scatter' of material, derived from a variety of sources. Full quantitative analysis was not thought to be worthwhile.

The samples were air-dried and then immersed in hot water. Some clay

aggregates were not broken down by this method and retrieval of plant material was therefore incomplete. Plant remains were extracted by manual flotation/washover, using a 0.5mm collecting mesh.

The 'corn-dryer' (Table 1)

Samples from this feature produced abundant carbonised remains of spelt wheat (Triticum spelta), comprising mainly spikelet fragments with some grains, occasional culm fragments and a few remains of weeds, mainly the common weed grasses Bromus mollis/secalinus and Avena fatua-type. Damaged and fragmentary remains of wheat were also present, but the only crop definitely identifiable was spelt. The counts given in Table 1 should be regarded as minimum numbers of specimens, for there were many small, unquantifiable, fragments. Silica residues of awns and inflorescence bracts were present in most samples, and some produced white vesicular siliceous material, thought to represent silica derived from cereals, which had been fused at high temperatures.

Assemblages from structures of this type have been reviewed by Van der Veen (forthcoming), who concludes that 'corn dryers' were in fact multi-purpose structures used both for drying grain for consumption or storage and for parching malt. Characterising functions depends on detailed recording of sample composition, location (Fig.1) and the percentage of sprouted (germinated) grains.

The plant remains from the stoke-pit (JA) are assumed to represent fuel. Charcoal, including oak (Quercus sp.) and hazel or alder (Corylus/Alnus sp.) was present, but cereal remains were also abundant: JA2 is estimated to have contained approximately 200 grains and 10,500 glume bases per kg of soil. The use of cereal processing waste, mixed with wood, as a fuel for grain parching is well-attested historically, and palaeobotanical evidence indicates that Roman corn-dryers were similarly fuelled (Van der Veen, ibid).

The distribution of plant material in samples from the basal flue fill GF 18 is shown in Fig. 2. It is quite clear that the density of cereal remains was greatest at the southern end of the flue, close to the stoke pit, and fell away northwards. A probable interpretation of this distribution is that charred plant material from the stoke-pit was carried along the flue by the draught. Consequently samples from this layer are of little help in characterising plant remains which had fallen from the drying floor. The samples from GF 17 (5, 6, 7 and 8) are also of limited use, for they included fragments of fused siliceous material, thought to indicate very high temperatures and hence, probably, preferential combustion of spikelet fragments.

This leaves the two samples from GF 16 (9 and 10). The sample 10 came from directly adjacent to the stoke-pit and is likely to have included material derived from fuel. Sample 9, however, came from end of the eastern arm of the flue, at the furthest point from the stoke-hole, and is much less likely to include fuel residues. No siliceous fused material was noted, though this does not necessarily exclude differential preservation of glumes and grains. However, the sample did contain a relatively high proportion of grains (c. 180 per kg) with few glume bases (c. 12 per kg). The grain : glume ratio, at 14.6 : 1 is conspicuously high. A few of the grains present had germinated prior to carbonisation though poor preservation makes the determination of the exact proportion of sprouted grains difficult. This is, in fact, a general problem with the samples from this structure. Of the 152 grains identifiable as wheat from GF and JA, 42 (27.6%) showed signs of germination, but in addition most samples included grain fragments and detached sprouts, so this percentage is probably misleadingly low.

Taking all these results together it may be concluded that:

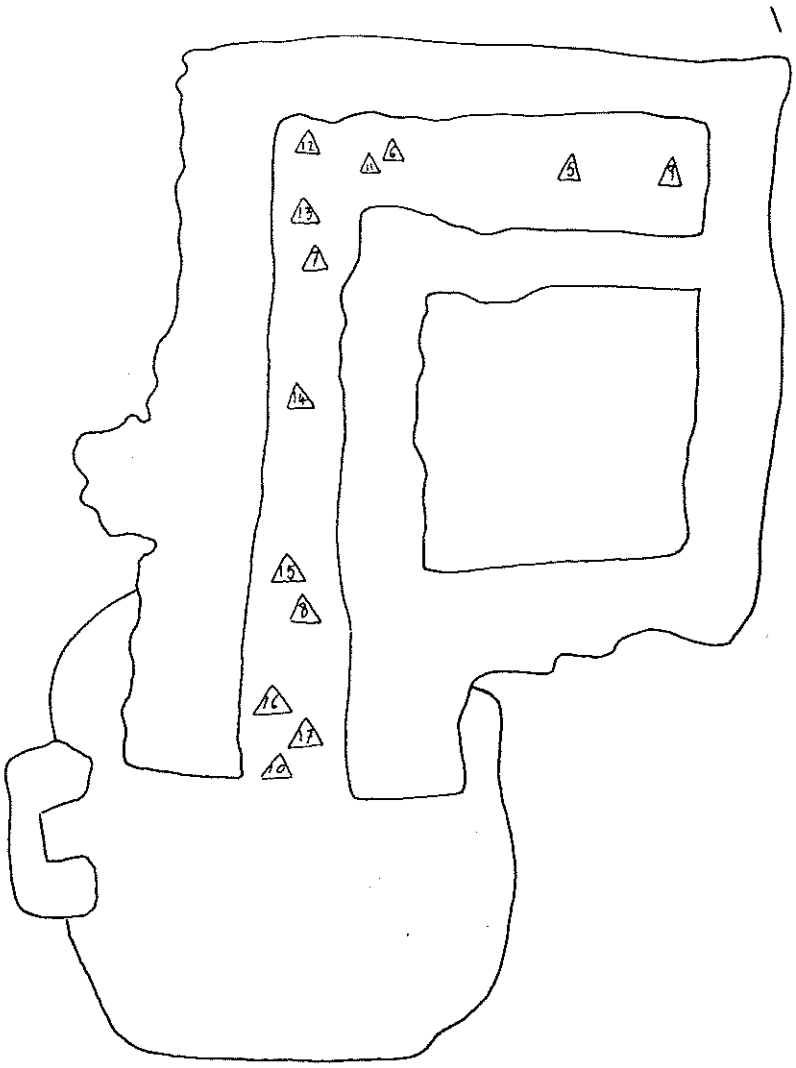
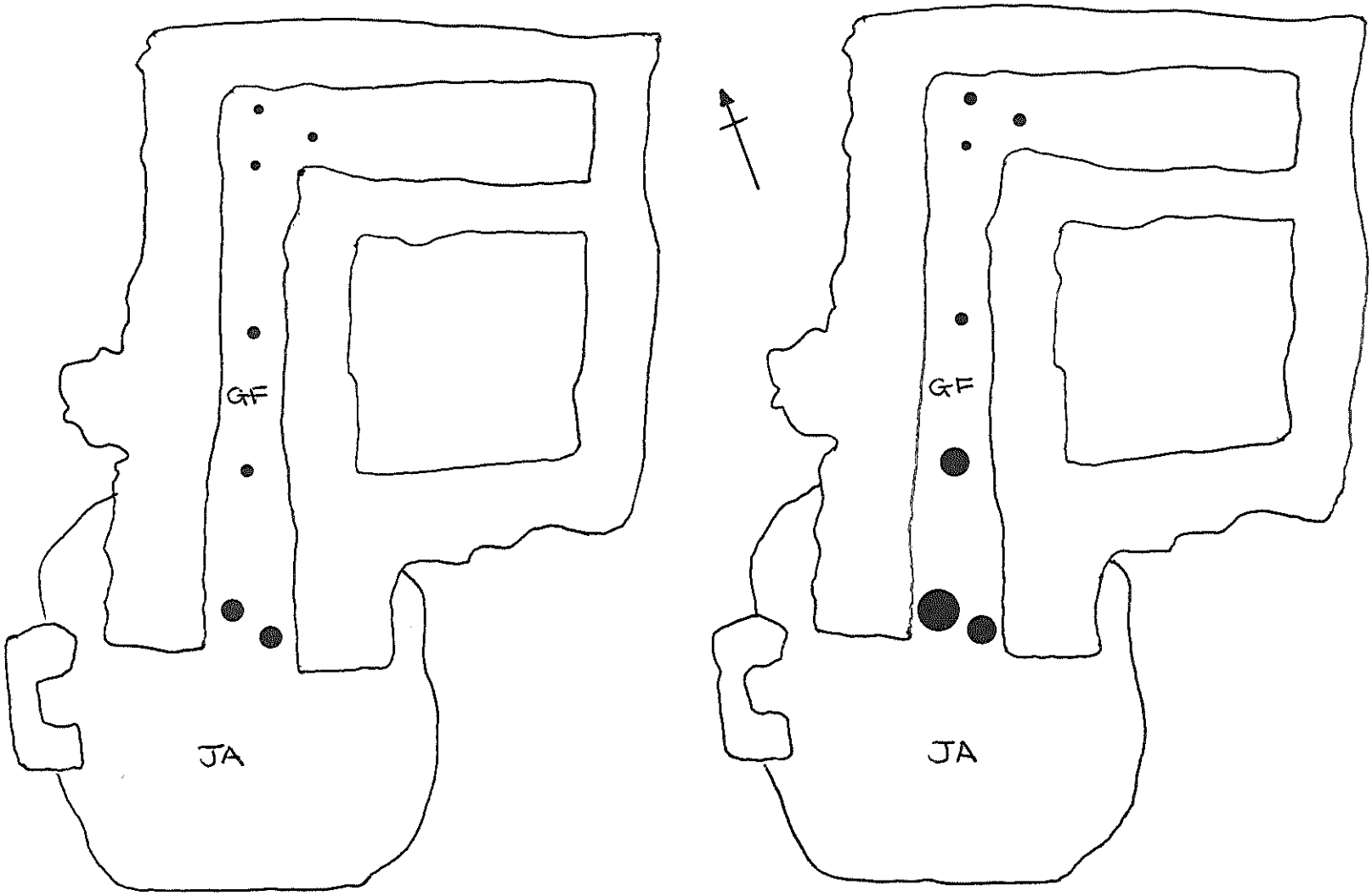


Fig 1 : Locations of samples from the Rue (GF).



grains/kg

glumes/kg.

0 – 10
11 – 100
101 – 1,000
1,001 – 5,000
5,001 +

1 : 20

1. The structure was used for large-scale processing of spelt wheat: no other crops were represented;
2. The absence or rarity of culm fragments and weed seeds indicates that ears/spikelets had been separated from straw and weed seeds before processing in the 'corn-dryer';
3. The fuel used was spelt chaff mixed with wood or charcoal;
4. Most samples from the flue included some fuel residues carried from the stoke-pit by the draught;
5. One sample (GF 16 9) included a high proportion of grains most of which showed no obvious signs of sprouting. If differential preservation of grains and glumes can be discounted this would indicate drying of prime grain (with a few glumes as contaminants) prior to storage or milling. (Van der Veen's Functions 4 and 5).
6. The proportion of sprouted grains is difficult to determine, due to probable fragmentation of germinated grains and their 'sprouts'. The parching of spelt malt is therefore impossible to establish with certainty, but remains a possibility.

The layer overlying the structure included small quantities of cereal remains, probably derived from the earlier deposits, but also quite a large amount of charcoal. This included charcoal of oak (Quercus sp.) and ash (Fraxinus sp.) from mature wood with some fragments of roundwood, c. 20-25mm diameter, of hazel (Corylus sp.), perhaps derived from the superstructure.

The well (Table 2)

Carbonised plant remains from well fills at depths between 0.27 and 14.40m are listed in Table 2. Samples from the upper fills produced mammal bone fragments, occasional scraps of mussel shell (Mytilus edulis) and low densities of carbonised cereal and other plant remains. These included spikelet fragments of spelt (Triticum spelta), indeterminate wheat grains, a rachis internode of barley (Hordeum sp.), hazel nut shell fragments (Corylus avellana) and a few weed seeds. Although only small (1kg) samples were examined for assessment purposes it appeared that processing larger samples would be unlikely to add anything to the interpretation of these deposits, which appear to have contained food waste and crop processing residues probably derived from a variety of sources.

Below this, bone and marine mollusc shell fragments were not observed in the samples, although samples from 230-370cm had somewhat higher densities of carbonised plant remains. At this level cereal grains and spikelet fragments (of T. spelta, T. aestivum-type and Hordeum sp.) were associated with seeds of arable weeds and grassland plants. Grassland taxa represented were Ranunculus sp(p) (buttercups), Stellaria graminea (lesser stitchwort), Linum cf. catharticum (purging flax), small-seeded Leguminosae, Rumex acetosella (sheep's sorrel), Plantago lanceolata (ribwort plantain), Chrysanthemum leucanthemum (ox-eye daisy) and various Gramineae (grasses). These included one calcicole species (L. catharticum) and two plants more characteristic of sandy soils (S. graminea, R.acetosella). This may reflect the variability of soil types towards the margin of the Boulder Clay Plateau. The fruits and seeds of grassland plants were associated culm fragments of grasses and/or cereals. It appears that the fills at this depth included a mixture of residues from cereal processing and spoilt hay, burnt as refuse.

Samples from below about 5m consisted of quite clean decalcified clay with flints and chalk, containing only occasional small charcoal fragments, very rare cereal remains and weed seeds and a few land mollusc shells.

Other contexts (Table 3)

1kg samples from contexts listed in Table 3 were assessed but not examined in

detail. They contained almost uniformly low densities of carbonised plant material, typically including spikelet fragments of Triticum spelta, wheat grains, and weed seeds, mainly Bromus and Avena associated with variable quantities of charcoal and bone fragments. Assemblages of plant material of this type are commonplace at rural Roman sites: they cannot be regarded as primary refuse deposits, but rather represent material dispersed across the site from areas of crop processing (such as the 'corn dryer'). No concentrations of material worth detailed analysis were detected.

The pit RC, at HAT 10, was interpreted by its excavator as a cess pit, and samples from this context were therefore inspected in the hope of finding mineralised plant material. Layers RC 2-4 produced carbonised cereals and weed seeds, but no mineralised macrofossils, which implies that the field interpretation was incorrect. RC 4 did, however, produce a few seeds (not apparently mineralised) of Lemna sp. (duckweed). Survival of these seeds in a deposit which would not have been permanently waterlogged is surprising, though it is possible that the clay matrix of the fill resulted in development of locally anaerobic conditions. Assuming that there is no possibility of recent contamination these seeds point to the presence of standing stagnant water in the feature, which may have been a sump or shallow well intercepting surface drainage.

Conclusions

The samples from the 'corn-dryer', well and other contexts clearly establish that spelt was being processed on a large scale at this site: the majority of samples examined contained, at least, low densities of spelt glume bases and other spikelet fragments. Remains of barley occurred only sporadically in small quantities. The results from this site thus establish that on this area of the Hertfordshire Boulder Clay plateau spelt production was the main element of the arable economy, as elsewhere in East Anglia. Specific interpretation of the corn-dryer assemblages proved difficult but clearly a late stage in spelt processing is represented: apparently drying of prime grain for storage and milling and perhaps also parching of spelt malt.

The weed flora associated with the cereal remains included a range of taxa very characteristic of Roman sites, though given local soil conditions the rarity of Anthemis cotula (noted in only one sample, from the stoke-pit JA) is surprising. This plant is a particularly characteristic weed of Boulder Clay soils (Kay 1971) yet in the samples examined from Boxfield Farm the other common mayweed Tripleurospermum maritimum is more frequent and abundant. Given the limited scale of sampling it is perhaps unwise to make too much of this, though it is possible that the heaviest clay soils of the Hornbeam and Hanslope Associations (Hodge et al. 1984) in this area were not under cultivation.

Some evidence for disposal of waste or spoilt hay was provided by carbonised macrofossils from the well fills.

References

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Kay, Q.O.N. (1971) 'Anthemis cotula' J.Ecol. 59, 623-36

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Acknowledgement

I am most grateful to Marijke van der Veen for allowing me to refer to her unpublished paper.

Layer		GF17	GF17	GF17	GF17	GF16	GF16	GF18	GF18	GF18	GF18	GF18	GF18	GF18	JA2	JA4	JA5	JA8	JA8	JA10	JE1
Sample		5	6	7	8	9	10	11	12	13	14	15	16	17	2	3	4	5	6	8	3
Cereal indet	ca.fr	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	ca	2	4	1	4(2)	27	1	2	6	7	4	2	1	4	6	8	6	7	2	12	2
	spr	-	-	-	-	2	-	1fr	-	-	-	6	3	8	5	1	3	1	1	13	-
	cn	-	1	-	-	-	-	-	1+fr	-	1	-	-	-	1fr	-	-	-	-	-	-
	cb	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ib(si)	-	-	-	-	-	++	+	+	+	+	+	-	-	+	-	-	-	+	-	-
Triticum sp(p)	ca	7	2(1)	4(1)	8(2)	17(1)	7(3)	6(1)	3(2)	2(1)	8(3)	9(5)	5(1)	6(2)	7(1)	19(4)	6(3)	11(3)	3	22(8)	17(3)
	spb	-	-	-	-	-	1	-	1	-	4	3	7	10	33	2	1	4	2	5	-
	gb	-	1	1	-	-	1	1	3	2	12	39	31	27	87	9	12	5	10	32	1
	ri	-	1	-	-	-	1	2	3	-	8	21	14	15	40	3	3	2	6	3	-
	afr	-	-	-	-	+	-	-	-	-	+	+	+	+	+	+	-	+	+	+	-
	afr(si)	-	-	-	-	+	++	+	+	+	+	+	-	+	+	-	-	-	+	+	-
Triticum spelta L.	spk	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	spf	-	-	-	-	-	1	-	-	-	-	-	2	3	4	-	-	-	-	1	-
	spb	-	-	-	-	-	-	1	-	-	-	-	-	-	4	-	1	-	-	-	-
	gb	-	-	3	7	3	14	12	7	2	66	142	126	115	484	40	42	74	63	170	17
	ri	-	-	-	1	-	-	-	2	2	9	12	9	-	40	2	3	8	6	12	-
Cruciferae indet		-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Chenopodiaceae indet.		-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
cf. Trifolium-type		-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Vicia/Lathyrus sp(p)		-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1	-
Polygonum sp.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1fr	-	1	-
Rumex sp.		1	-	-	-	-	-	-	-	-	2	2	-	1	-	-	-	-	-	2	1
Anthemis cotula L.		-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Tripleurospermum maritimum(L)Koch		-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-
Lapsana communis L.		-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Compositae indet.		-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Bromus mollis/secalinus		-	-	-	-	-	-	-	-	-	3	2	1	3	-	-	-	1	1	1	-
Avena fatua-type	fb	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	2	-
Avena sp(p)	ca	-	-	-	1	-	-	-	-	-	1	1	1fr	-	2	2	1	1	-	6	1
Avena sp(p)	fb fr	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
Avena sp(p)	afr	-	-	+	-	-	-	-	-	-	+	+	+	+	+	-	+	+	+	+	-
Avena/Bromus	ca	-	-	-	1	-	-	-	-	1	-	-	-	-	2	-	1	-	1	2	1
Gramineae	ca	-	-	-	1	-	-	-	-	-	1	5	4	-	1	-	1	-	1	7	-
Indeterminate seeds etc.		-	1	-	-	1	1	2	-	-	-	2	2	2	4	1	-	-	1	5	-
Charcoal		+	+	++	+	+	+	+	+	+	+	+	+	+	+	+	++	++	++	++	+++
Siliceous fused material		+	+	+	+	-	-	-	+	-	+	-	-	-	-	+	+	+	-	-	-
Small mammal/amphibian bone		-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
Vallonia sp (burnt shell)		-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
% flot sorted		100	100	100	100	25	25	100	100	100	100	12.5	3.125	6.25	6.25	100	100	12.5	6.25	6.25	100

Table 1 : Plant remains and other macrofossils from the 'corn-dryer' flue (GF), stoke-hole (JA) and overlying deposit (JE)

All samples 1kg. All taxa represented by carbonised macrofossils except where indicated

Abbreviations: afr - awn fragments; ca - caryopses; cb - culm bases; cn - culm nodes; fb floret bases; fr fragments; gb - glume bases; ib - cereal inflorescence bract fragments, including glume tips; ri-rachis internodes; si - silica residues; spb - spikelet bases; spf - spikelet forks; spk - spikelets, containing grain; spr - 'sprouts'.

Figures in brackets refer to numbers of grains which definitely had germinated before carbonisation.

Depth (cm)		1.501 27-30	2.503 45-60	3.506 90-105	4.509 135-150	5.512 180-195	5.515 225-240	6.518 270-285	6.521 315-330	8.523 200-215	9.524 230-245	10.525 235-250	11.533 360-370	11.538 405-420	11.543 450-465	12.535 360-375	15.572 885-900	15.584 1065-1080	19.608 1425-1440
Cereal indet	ca fr	+	+	+	+	+	-	+	+	-	+	+++	+	+	-	+	-	-	-
	ca	-	2	2	1	-	-	-	-	-	-	21	3	6	-	-	-	-	1
	spr	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cereal/grass	cn/fr	-	-	-	-	-	-	-	+	-	+	++	+	2+	-	+	-	-	-
Triticum sp(p)	ca	-	7*	8	2	1	-	-	-	-	3*	64*	13	4	-	1	-	-	1
Triticum aestivum s.l.	ca	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-
Triticum sp(p)	gb	1	-	-	-	1	-	2	1	-	1	11	2	2	-	1	-	-	-
	spb	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
	ri	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
	rn	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	afr	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-
Triticum spelta L	gb	7	29	6	1	-	1	-	-	1	5	7	3	2	1	2	1	-	-
	spb	-	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	ri	-	1	-	-	-	-	-	-	-	1	4	-	-	-	-	-	-	-
	spf	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-
	spk	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Hordeum sp(p)	ca	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
	ri	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	fr
Ranunculus acris/repens/bulbosus		-	-	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-
Agrostemma githago L		-	-	-	-	-	-	-	-	-	-	fr	-	-	-	-	-	-	-
Stellaria graminea L		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Atriplex patula/hastata		-	-	-	-	-	-	-	2	-	3	51+fr	3	fr	-	1	-	-	-
Chenopodiaceae indet		-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-
Linum cf. catharticum L.		-	-	-	-	-	-	-	-	-	-	1(cap)	-	-	-	-	-	-	-
Medicago-type		-	-	-	-	-	-	-	1	-	1	-	-	2	-	-	-	-	-
Medicago/Lotus/Trifolium sp(p)		-	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-
Vicia/Lathyrus sp.		-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Leguminosae indet.		-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aphanes sp.		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Crataegus monogyna Jacq		-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Polygonum aviculare agg.		-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-
Polygonum convolvulus L.		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Polygonum sp.		-	-	-	-	-	-	-	-	-	-	5	1	-	-	-	-	-	-
Rumex sp(p)		-	-	-	-	-	-	-	-	-	3	14	-	1	-	-	-	-	-
Rumex acetosella agg		-	-	-	-	-	-	-	2	-	2	23	-	-	1	-	-	-	-
Polygonaceae indet.		-	-	-	-	-	-	-	-	-	-	3	2	2	-	-	-	-	-
Corylus avellana L.		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithospermum arvense L.		-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Euphrasia/Odontites sp.		-	-	-	-	-	-	-	-	-	-	13	1	-	-	-	-	-	-
Plantago lanceolata L.		-	-	-	-	-	-	-	1	-	-	4	-	-	-	-	-	-	-
Sherardia arvensis L.		-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Valerianella sp.		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Tripleurospermum maritimum (L) Koch		-	-	-	-	-	-	-	-	-	2	46	1	-	-	-	-	-	-
Chrysanthemum leucanthemum L.		-	-	-	-	-	-	-	1	-	-	4	1	-	-	-	-	-	-
Carex sp.		-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Anisantha sterilis (L) Nevski		-	-	-	-	-	-	-	-	-	-	4	-	-	-	1	-	-	-
Bromus mollis/secalinus		1fr	4	-	1	-	-	-	-	-	-	1	-	-	-	-	-	fr	-
Avena sp.	afr	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Gramineae indet.		1	-	-	-	-	-	1	5	-	5	44	3	1	-	-	-	-	-
Indeterminate seeds etc.		1	-	2	-	-	2	-	1	-	4	34	7	1	-	1	-	-	-
Bone fragments		++	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-
Small mammal/amphibian bone		-	-	-	+	-	-	+	-	-	+	-	+	-	-	-	-	-	-
Mytilus shell		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vallonia costata		-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Vallonia excentrica		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Cochlicopa sp.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Charred insect		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-

Table 2 : Carbonised plant remains and other macrofossils from the well CAB

All samples 1kg. Additional samples from following contexts produced only small charcoal fragments: 10.525 (235-250cm); 11.538 (405-520); 13.536 (360-375); 13.545 (480-495); 15.548 (525-540); 15.554 (615-630); 15.560 (705-720); 15.566 (795-810); 15.578 (975-810); 15.578 (975-990); 16.590 (1155-1170); 17.596 (1245-1260); 19.602 (1335-1350)

Abbreviations: afr - awn fragments; ca-caryopses; cap - capsule with seeds; cn - culm node; fr fragment; gb - glume base; ri -rachis internode; rn - rachis node; spb - spikelet base; spf - spikelet fork; spk - spikelet containing grain; spr - grain 'sprout'. An asterisk indicates sprouted grains present.

Period II Phase I

HAT 10 WT 2 1 Hearth

Period II Phase II

HAT 37 DBN 1 1 Eaves drip
HAT 37 DBO 1 1 Eaves drip
HAT 37 DBP 1 1 Eaves drip
HAT 37 DBR 1 1 Eaves drip
HAT 37 DBS 1 1 Eaves drip
HAT 37 DBT 1 1 Eaves drip
HAT 37 DBU 1 1 Eaves drip
HAT 37 DCB 1 1 Small circular feature
HAT 37 DCT 1 1 Pit
HAT 37 DDK 1 2 Ditch segment
HAT 37 EAA 1 29 Sand quarry
HAT 37 EAA 2 30 Sand quarry
HAT 37 EAA 3 31 Sand quarry
HAT 37 EAA 4 32 Sand quarry
HAT 37 EAA 5 33 Sand quarry
HAT 37 EAA 6 34 Sand quarry
HAT 37 EAA 7 35 Sand quarry
HAT 37 EAA 8 36 Sand quarry
HAT 37 EAA 9 37 Sand quarry
HAT 37 EBB 2 2 Shallow subrectangular feature
HAT 37 EBL 1 1 Ditch segment

Period II Phase III

HAT 10 GF Flue of 'corn-dryer' }(see Table 1)
HAT 10 JA Stoke hole of 'corndryer'}
HAT 37 CAB Well (see Table 2)
HAT 37 DBB 1 1 Pit
HAT 37 DBB 1 2 Pit
HAT 37 DBB 1 3 Pit
HAT 37 DBF 1 1 Pit
HAT 37 DBG 1 1 Pit
HAT 37 DBI 1 1 Palisade
HAT 37 DBL 1 1 Post hole
HAT 37 DDP 1 1 Palisade

Period III Phase I

HAT 10 JE 1 3 Layer over malting kiln area (see Table 1)
HAT 10 JT 3 1 Pit
HAT 10 AAJ 3 2 Palisade/depression (? this phase)

Period III Phase II

HAT 10 FC 3 13 Circular gully of building
HAT 10 FZ 7 31 Circular gully of building

Period III Phase III

HAT 10 GK 2 158 Dew pond
HAT 10 GK 2 159 Dew pond
HAT 10 GK 2 160 Dew pond
HAT 10 GK 12 161 Dew pond
HAT 10 GK 12 162 Dew pond
HAT 10 GK 12 163 Dew pond
HAT 10 RC 2 19 Cess pit

HAT	10	RC	3	20 Cess pit
HAT	10	RC	4	21 Cess pit
HAT	10	RC	4	22 Cess pit

Table 3 : Contexts sampled for analysis/assessment

Samples from unphased contexts omitted