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CARBONISED PLANT REMAINS FROM ROMAN CONTEXTS AT STEBBING GREEN, ESSEX.

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Summary

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Samples from the bases of two ovens and from a drainage ditch produced cereal samples composed largely of spelt (Triticum spelta) chaff with some cereal grains and occasional weed seeds and culm fragments. Germinated grains and loose 'sprouts' were consistently present. The deposits are thought to represent the remains of oven fuel mixed with malted grains accidentally charred during parching (following the interpretation of material from Catsgore by Hillman [1982]). An interpretation of features at the site in terms of the malting process is offered.

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Historic Buildings and Monuments Commission for England

Stebbing Green, Essex

Introduction

The site, on low-lying ground with a subsoil of Chalky Boulder Clay, comprised a complex of ditches, gulleys, pits, the bases of flues from hearths or ovens and associated surfaces of cobbles and rammed chalk/clay. Millstone fragments were found, indicating that some cereal processing had taken place on site. Samples were collected from four paired features (53 and 55, 64 and 66) thought to be flue bases, from a charcoal-rich layer 156 in pit 125, which had evidently contained some type of wooden structure and from ditch 29, primarily in order to recover carbonised remains of cereals.

The deposits

The fills of the supposed flue bases included a high proportion of red-fired clay fragments with some charred plant material in a dark grey clay matrix. 156 contained a much higher proportion of charcoal in a similar matrix. A column sample was taken from the lowest 48cm of fill in the ditch 29. The fills were as follows:

- 50-60cm (<u>40</u>) Very dark grey firm clay; stoney with abundant rounded to subrounded flint pebbles to cobbles; abundant small chalk fragments; abundant small charcoal fragments; some fired clay fragments.
- 60-62cm (60) Dark grey firm clay; stoney; abundant mollusc shells; some charcoal fragments.
- 62-70cm (<u>60</u>) Dark grey to dark greyish-brown firm clay; some greyish-brown silty patches; stoney with rounded to subrounded flint pebbles and chalk fragments; charcoal fragments and small fired clay fragments.
- 70-77cm (60) Dark grey to dark greyish-brown sandy clay; very stoney with rounded to subrounded flint pebbles; chalk flecks; small charcoal fragments.
- 77-85cm (<u>68</u>) Very dark grey clay; stoney with rounded to subrounded flint pebbles to cobbles and chalk fragments; abundant charcoal fragments.
- 85-90cm (<u>68</u>) Very dark grey to black clay; slightly stoney with small flints and chalk fragments; carbonised plant material including cereal chaff very abundant.
- 90-98cm (<u>68</u>) Very dark grey clay; stoney with small subrounded to rounded flint pebbles and chalk fragments; carbonised plant material common.

Samples were disaggregated by soaking in hot water and carbonised plant material was then separated by manual flotation, collecting the flots in a 0.5mm mesh. The non-floating residues were wet-sieved in a 0.5mm mesh. The flots and residues from all samples were examined but only material from the lowest fills of ditch 29 and from the 'flue bases' has been studied in detail. Most other samples included very similar assemblages of carbonised cereal remains to those contexts, but at lower densities and in a poorer state of preservation. The sample from <u>156</u> was composed of charcoal fragments with no cereal remains.

Carbonised cereals and crop weeds

Identifications from the samples examined in detail are given in Table 1. The commonest elements are glume bases of spelt, <u>Triticum spelta</u>, characterised by their width, strong primary keel, strong subsidiary venation obscuring the secondary keel, wide angle at the primary keel and even curvature of the rest of the glume. Some bases, though poorly preserved, are too wide to be anything other than spelt. The unidentified bases are fragmentary and/or abraded. There are a few semi-complete spelt spikelet forks. The well-preserved internodes all have strong veins on their outer surfaces. The wheat awn fragments show clear clusters of small barbs. The grains are not well preserved and some had germinated prior to carbonisation.

<u>Avena</u> awn fragments are also present, but a few <u>A. fatua-type</u> floret bases show that a weed oat is represented. Other weed taxa identified are <u>Atriplex</u> sp., <u>Medicago lupulina</u>, <u>Rumex</u> sp(p), <u>Polygonum</u> sp, <u>Plantago</u> lanceolata, Anthemis cotula, Picris sp and Gramineae.

Molluscs

Mollusc shells were present in the fills of ditch 29 but have not been examined in detail. Shells were rare in the lowest fills, perhaps implying rapid infilling providing little opportunity for colonisation by molluscs. The upper fills, and in particular the shelly band in 60, at 60-62cm contained abundant shells of <u>Succinea</u> sp., and <u>Anisus leucostoma</u> with a few specimens of <u>Armiger crista</u>, <u>Vertigo pygmaea</u>, <u>Vallonia</u> sp(p), <u>Carychiun</u> sp(p) and Arionid granules. It would appear that by this level the ditch had reached a stable profile and was a linear marshy depression. There is no evidence for flowing water at any level.

Discussion

The cereal samples from this site are all essentially similar in composition. They consist largely of spelt chaff with some grains but very few weed seeds or culm fragments, implying a harvesting method involving separate reaping of ears and straw. Germinated wheat grains are consistently present though there are also unsprouted grains. The samples vary principally in terms of the density of carbonised macrofossils in the soil and their state of preservation. The lower ditch fills contained abundant fragments of awns, lemmas and paleas but these elements were rare or absent in the 'flue base' fills. These latter features also contained few near-intact spikelet forks and relatively few rachis internodes. The higher grain:glume base ratio in some 'flue-base' samples also probably relates to preservational factors. Allowing for this variability due to varying preservation it appears that the samples are all related to the same type of activity.

Hillman (1982) has interpreted comparable assemblages from 'corn-dryers' at the Romano-British site at Catsgore, Somerset as the remains of sprouted spelt accidentally charred during parching, as part of the malting process, mixed together with spelt chaff and wood charcoal which had been used to fuel the ovens. A similar interpretation is possible for the Stebbing material : the samples from the 'flue-bases' would represent mixed charred residues in a primary context, whilst the material from the ditch would represent residues raked-out from these, or similar, ovens. In Essex, evidence for the use of wheat in malting and brewing comes from Culver Street, Colchester, where a deposit of carbonised sprouted wheat grains with some barley, interpreted as malt, was found in the corner of a room burnt during the Boudiccan sack of the city (Murphy, in prep.)

If the cereal samples from Stebbing are interpreted as charred malting residues, interpretation of other aspects of the site follows. Firstly, its location in a low-lying situation is explained. Any other type of cereal processing would best be done in a dry situation, but for malting and brewing ample water supplies are needed, and a drainage system is necessary for the discharge of waste water. Secondly the excavated contexts can be interpreted. The wooden framework in pit 125 could be the base of a tank in which grain was initially soaked; the adjacent ditches could have acted as drains to take off surplus water which had not been absorbed by the grain. The rammed chalk/clay surface 63 might represent a malting floor(which would have had to be within a building). The ovens with flue bases 53, 55, 64 and 66 could have served to parch the malt. The millstone fragments could have been used for coarsely grinding the dried malt prior to production of the wort for brewing.

Context no. Depth (cm)		68 85-90 (a)	68 90-98 (a)	54 -	56 	65 _	67 _
Cereal indet s	pr.(b)	13	7	-	-	3	
Cereal indet ca	afr.	+	+	+	+	++	+
Cereal indet ca	а	2	1	8	1	7	1
Cereal indet ri	n	-	-	-	-	1	-
Cereal indet ci	n	-	-	-	lfr	-	-
Triticum sp(p) ca	a(c)	17	6	13	10	27	5
Triticum sp(p) at	fr	++	++	-	-	+	-
Triticum sp(p) gl	b(d)	106	48	6	21	50	65
Triticum sp(p) sp	pb(e)	69	12	5	4	29	14
Triticum sp(p) r:	i	141	56	-	4	20	10
Triticum sp(p) bi	ri	5	2	-	-	1	-
Triticum sp(p) ri	n (f)	4	-	-	-	-	-
Triticum spelta L gl	b(g)	591	185	70	65	287	136
Triticum spelta L sp	pf.(h)	27	11		-	6	2
Avena sp(p) ca	a	-	-	-	-	lcf	-
Avena sp(p) at	fr	++	-	-		+	+
Atriplex patula/hasta	ta	8+fr	1+fr	1	1	-	-
Medicago lupulina L		1	1		***	-	-
Rumex sp(p)		11	3fr	-	-	1	-
Polygonaceae indet		1		-	-	-	-
Plantago lanceolata L		1	-			-	-
Anthemis cotula L		2	-	1	-	1	-
Picris sp		1		-		-	-
Gramineae indet		8	4	-	-	6	1
Bud		-	-			-	1
Indet seeds etc.		2	1	1		1	1
Sample wt (kg)		1	1	3.9	3.65	4.7	5
% flot sorted		3.125	3.125	25	25	25	25

Table 1 : Carbonised plant remains

Taxa are represented by fruits or seeds except where indicated.

Abbreviations: a-awn; bri-basal rachis internode; ca-caryopsis; cn-culm node; fr-fragments; gb-glume base; ri-rachis internode; rn-rachis node; spb-spikelet base; spf-spikelet forks; spr-'sprouts'.

Notes:

(a) These fills included cladoceran ephippia and a few non-carbonised macrofossils of <u>Urtica</u> and <u>Carex</u> (b) Plumule and primary root frags (c) Including germinated grains (d) Abraded/fragmentary (e) Forks in poor state with only stubs of the glume bases surviving (f) Non-fragmented nodes of glume wheat (g) With lemma and palea fragments adhering internally in some cases. Terminal glumes present (h) Rarely complete.

The samples also included small fragments of cereal chaff, so the counts are minimum nos. of specimens. Additional weed taxa are <u>Avena fatua</u>, <u>Polygonum convolvulus</u> and an indeterminate umbellifer from the upper ditch fills.