RHL Rpt 4861

1170.

Site: Lofts Farm, Heybridge.

County: Essex

Code: LF 84/LFP 840

Director: N. Brown

Type of site: Neolithic pits; Late Bronze Age enclosure; Early Iron Age well; Roman field ditches.

Type of material: Carbonised cereals and crop weeds; seeds.

P. MURPHY

Lofts Farm, Heybridge, Essex: Plant macrofossils

The plant macrofossils recovered during the excavations at this site in the winter of 1984-5 fall into two groups: samples of carbonised plant remains from Neolithic and Late Bronze Age features at the area excavation of the enclosure (LF 84); and samples of seeds, wood and other macrofossils preserved principally by waterlogging in the fill of the well (LFP 840). These two groups of samples provide complementary information mainly on crops and crop processing and on the local environment, and will be considered in separate sections of this report.

(1) The enclosure

Sampling and recovery

Bulk samples were collected from features of Neolithic, Late Bronze Age and Roman date within the main excavated area. A standard sampling unit of 8 litres (approx. 10kg) was used and from most contexts several sample units were collected (see Appendix and Fig).

The samples were all of gravel-based deposits and it was anticipated that retrieval of carbonised plant remains using a simple water flotation tank with 0.5mm collecting meshes (Williams 1973) would present no difficulties: samples from other gravel sites in southern and eastern Essex have usually disaggregated readily on immersion in water and acceptable rates of recovery have been achieved by machine flotation. However at Lofts Farm it was found that this technique was ineffective, since a high proportion of the charcoal and other plant remains in these samples would not float off. Manual flotation was therefore substituted, and was rather more effective since the water with suspended plant material could be completely poured through the collecting mesh. Nevertheless some charcoal was still visible in the residues. Examination of the flots and residues in the laboratory showed that the problem arose from the impregnation and coating of the plant remains with ferrimanganiferous concretions which had increased their density. Some of these concretions are quite large, up to about 20mm, and include flint pebbles, charcoal fragments and occasional cereal remains cemented together. Such concretions are a common feature of poorly-drained gravel soils in the coastal area of Essex (Sturdy 1976, 71).

cf. Vicia faba var minor	(g)	-	-	-	-	1	-	-	-	-	-
cf. Lathyrus nissolia L (cotyledons)	(h)	-	2	-	-	-	-	-	-	-	-
Vicia/Lathyrus sp. (seeds)		-	84	-	-	-	5	-	-	-	-
Vicia/Lathyrus sp. (cotyledons)		-	105	-	-	-	12	-	-	-	-
Prunus sp.		-	-	-	-	-	-	-	-	-	-
Polygonum aviculare agg.		-	-	-	-	-	6	-	-	-	-
Polygonum lapathifolium L		-	-	-	-	-	16	-	-	-	-
Polygonum lapathifolium/persicaria	(i)	-	-	-	-	-	22	-	-	-	-
Polygonum convolvulus L		-	-	-	-	-	10+fr	-	-	-	-
Rumex sp.		-	2	-	-	-	20	-	-	1	-
Polygonaceae indet.		-	-	-	-	-	8	-	-	-	-
Corylus avellana L	(j)	-	-	-	-	-	+	-	-	-	-
Solanum nigrum L		-	-	-	-	-	1+1cf	-	-	-	-
Prunella vulgaris L		-	-	-	-	-	1	-	-	-	-
Plantago lanceolata L		-	12	-	-	-	1	-	-	-	-
Galium aparine L		1cf(m)	-	2+fr(m)	-	-	-	-	-	-	-
Galium sp.		-	-	-	-	-	-	-	-	-	-
Tripleurospermum maritimum (L) Koch		-	-	-	-	-	2	-	-	-	-
Compositae indet.	(k)	-	-	-	-	-	2	-	-	-	-
Carex sp.	(l)	-	-	-	-	-	4	-	-	-	-
cf. Eleocharis sp.		-	-	-	-	-	-	-	-	-	-
Indeterminate seeds etc.		-	18	-	-	-	11	-	-	-	-
Indeterminate buds		-	+	-	-	-	+	-	-	-	-
Sample volume (litres)		16	40	16	-	32	8	8	8	32	16

Table : Carbonised remains of cereals, crop weeds etc. from the Lofts Farm enclosure.

Notes: (a) Badly deformed grains or incomplete deformed grains with embryo area. (b) Plumule/primary root. (c) Strictly speaking grass or cereal culm fragments. (d) The term spikelet base is used to describe forks lacking internodes and with only the extreme basal parts of the glumes surviving. (e) Badly deformed large grass caryopses. (f) Counts were not made since some intrusive modern seeds are present and are not always easily distinguishable from carbonised seeds. (g) Very badly deformed. (h) Surfaces abraded but apparently rugose. (i) 'Puffed' into sub-spherical shape. (j) Small nutshell fragments. (k) Tripleurospermum-size, but surfaces poorly preserved. (l) Trifacial nutlets. (m) Badly encrused with limonite. (n) One fork contains a poorly-preserved grain. (o) Underdeveloped grain. (p) Includes some germinated grains. (q) Including one nudum-type grain. (r) For identifications of a 10% sub-sample see Table .

Context No.			0141/0372	0153	0162	0192	0194	0204	0205	0207	0218	0220
Sample No(s).			88	1,3,4	85	9,14,18,19	7,10	15	17	20	23,27	26
Cereal indet	(caryopses)	(a)	1	31	-	2	3	66	-	1	-	1
	('sprouts')	(b)	-	-	-	-	-	+	-	-	-	-
	(culm fragments)	(c)	-	+	-	-	-	+	+	-	-	-
Triticum spp.	(caryopses)		-	5	-	4	2	64(p)	-	-	-	-
	(spikelet forks/bases)	(d)	-	-	-	-	-	1889(r)	-	-	-	-
	(glume bases)		-	6	-	-	-	3055(r)	-	-	1	-
	(rachis internodes)		-	-	-	-	-	16(t)	-	-	-	-
	(tough rachis nodes)		-	-	-	-	-	1+4cf	-	-	-	-
Triticum dicoccum Schübl.	(spikelet forks/bases)		-	2(n)+8cf	-	1	1	(r)	-	-	1cf	-
	(glume bases)		-	23	-	-	2	(r)	-	-	-	-
Triticum spelta L	(spikelet forks/bases)		-	-	-	-	-	(r)	-	-	-	-
	(glume bases)		-	-	-	1+1cf	1	(r)	-	-	-	-
Hordeum sp.	(caryopses)		-	7	-	-	1(o)	8(q)	-	-	-	-
	(rachis nodes)		-	1	-	-	-	3	-	-	-	-
	(rachis internodes)		-	-	-	-	-	4(s)	-	-	-	-
Avena sp.	(caryopses)		-	-	-	-	-	1+1cf	-	-	-	-
	(floret bases)		-	-	-	-	-	2(u)	-	-	-	-
Avena/Bromus	(caryopses)	(e)	-	5	-	2	9	32	-	-	-	-
Bromus mollis/secalinus	(caryopses)		-	-	-	1	4	70	-	-	-	-
Gramineae indet.	(caryopses)		-	-	-	-	-	10	-	-	-	-
Arrhenatherum elatius var bulbosum	(tubers)		-	1	-	-	-	-	-	-	-	-
Ranunculus acris/repens/bulbosus			-	-	-	-	-	2	-	-	-	-
Montia fontana L subsp. chondrosperma			-	-	-	-	-	1	-	-	-	-
Chenopodium album L		(f)	-	-	-	-	-	+	-	-	-	-
Malva sp.			-	1+1cf	-	-	-	-	-	-	-	-
Medicago lupulina-type			-	1	-	-	-	-	-	-	-	-
Vicia tetrasperma-type			-	1	-	-	-	-	-	-	-	-
Vicia sativa-type			-	1	-	-	-	-	-	-	-	-

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-	8	16	16	12	4	16	16	16	16	24	16	8	16	12	16	12

Notes contd. (s) Including a short section of rachis comprising three internodes. (t) Poorly preserved; outer faces mostly abraded. (u) The articulation scars have not survived. (v) Very abraded fragment, probably of Prunus endocarp.

0234	0248	0249	0251	0252	0309	0317	0320	0331	0338	0346	0367	0368	0377	0380	0465	0477
28	32	123	37	39	52	65	54	119	70	72,73	79	82	103	106	117	121
-	-	-	12	2	-	-	1	-	-	1	-	2	1	1	-	-
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The residues from a selection of contexts were thoroughly air-dried and re-floated in the laboratory in the hope of completing the extraction of plant material. Even in these conditions, however, much of the plant material in the residues would not float and even vigorous repeated wash-over achieved only a partial extraction. To extract the remaining plant remains it would have been necessary to sort the residues under the microscope, but in view of the large amounts of residue this was not thought to be a practical proposition. Even this procedure would not have ensured recovery of seeds completely coated and obscured.

It must be concluded that retrieval rates at this site were lower than is normally achieved, and this rules out certain kinds of data analysis. In particular comparisons with other sites based on seed concentrations would be invalid. There is no reason, however, to think that the composition of the assemblages (ie. relative proportions of grains, chaff and weed seeds) has been affected.

Crop plants

1. Wheats (Triticum spp.)

The wheat grains from these samples are almost all very poorly preserved, more or less distorted and with porous surfaces. Some are obscured by concretions. Elongate grains of spelt/emmer-type predominate, but a few shorter bread/club wheat-type grains are present in contexts 0192 and 0204. Some of the grains from 0204 had germinated before being carbonised.

Spikelet and rachis fragments were recovered from contexts 0153, 0192, 0194, 0204, 0218, 1002 and 1005. The specimens from 0153 and 0204 include a high proportion of well-preserved identifiable specimens. In both contexts the loose glume bases are mostly narrow, with prominent primary keels and clear secondary keels. The angle between the outer surfaces of the glumes on either side of the primary keels on these specimens is less than 90^{o}, whilst the angle at the secondary keel is obtuse. These characteristics, combined with distribution of glume dimensions (Fig) indicate a predominance of emmer, Triticum dicoccum (Helbaek 1952; Hillman pers. comm. and forthcoming). There is also a smaller proportion of wider, more robust bases with angles on either side of the primary keel greater than 90^{o}. On these specimens the secondary keel is not readily distinguishable from the very strongly-developed subsidiary veins. These are of spelt, Triticum spelta. Hardly any of the spikelet forks and spikelet bases retain their internodes but from the characteristics of the associated glume bases and from the angle between

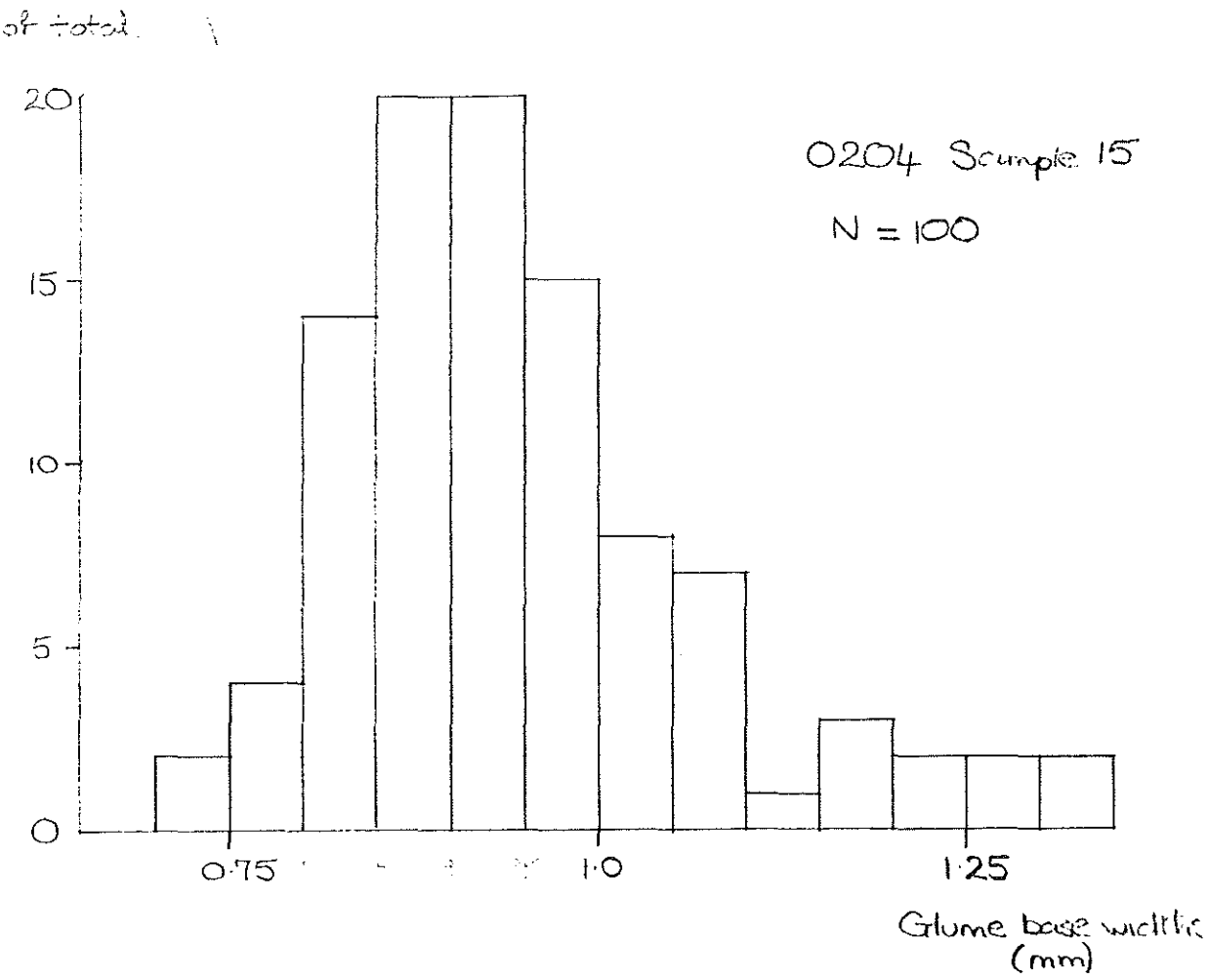


Fig : Distribution of glume-base width for 0204 (Sample 15). 100 bases measured.

Triticum spp. glume bases		3055		
Identifications of 10% sub-sample:	*Triticum spelta*		21	(6.9%)
	Triticum dicoccum		158	(51.6%)
	Triticum cf. *dicoccum*		59	(19.3%)
	Triticum sp.		68	(22.2%)
			306	
Triticum spp. spikelet forks/bases		1889		
Identifications of 10% sub-sample:	*Triticum* cf. *spelta*		4	(2.1%)
	Triticum dicoccum		90	(47.6%)
	Triticum sp.		95	(50.3%)
			189	

Table : *Triticum* spp. glumes, spikelet forks and bases from context 0204 (Sample 15), based on morphological criteria.

the outer faces of the glumes, (viewed from above), most specimens are identified as emmer with a small proportion of spelt.

Rachis internodes of glume wheats are present but very rare. Their outer surfaces are not well-preserved, though the presence of poorly-defined veins indicates that some are of spelt. There is one battered specimen of a rachis node from a free-threshing wheat in 0204, and several tentatively identified abraded specimens.

2. Barley (Hordeum sp)

The grains of barley are again very poorly preserved and few specimens retain any trace of their original surfaces. Some hulled grains with angular cross-sections are present in 0153 and 0204. 0204 also produced an incomplete but otherwise well-preserved grain with a very rounded profile, a shallow median groove on its dorsal surface, and a thin raised ridge in the ventral furrow: all features characteristic of naked barley (var. nudum). It cannot be determined whether these very deformed grains include specimens from lateral spikelets.

The barley rachis fragments consist mainly of rachis nodes with little of the internodes surviving. In 0204 rachis internodes probably from the lower part of ears are present.

3. Oats (Avena sp)

The sample from 0204 contains a few grains of oats (Avena sp) and two floret bases. Unfortunately the articulation scars have not survived and it is therefore impossible to determine whether wild or cultivated species are represented.

4. Horse-bean? (cf. Vicia faba)

A single extremely deformed seed, possibly of a bean, came from 0194.

5. Discussion

In the samples examined from Late Bronze Age contexts the predominant cereal is emmer with some spelt, barley, including both hulled and naked varieties, and traces of a free-threshing wheat. Oats are present, but are perhaps most likely to be from a weed species. These results are comparable to those from the Late Bronze Age enclosure at Springfield Lyons, Chelmsford (Murphy,

forthcoming), though at Springfield Lyons spelt was roughly as well-represented as emmer, and naked barley was not identified. There is also a record of spelt from a contemporary saltern site at South Woodham Ferrers (Hullbridge Survey Site 2: Wilkinson and Murphy, in press).

A single very poorly-preserved and deformed seed from Lofts Farm is tentatively identified as horse-bean. This crop has also been recorded from Late Bronze Age samples from Springfield Lyons and Frog Hall Farm, Fingringhoe (Murphy 1983). The results from these sites demonstrate that the principle crops of the later first millenium B.C. (spelt, emmer, free-threshing wheat, barley and beans) had already been introduced to this area by the late Bronze Age.

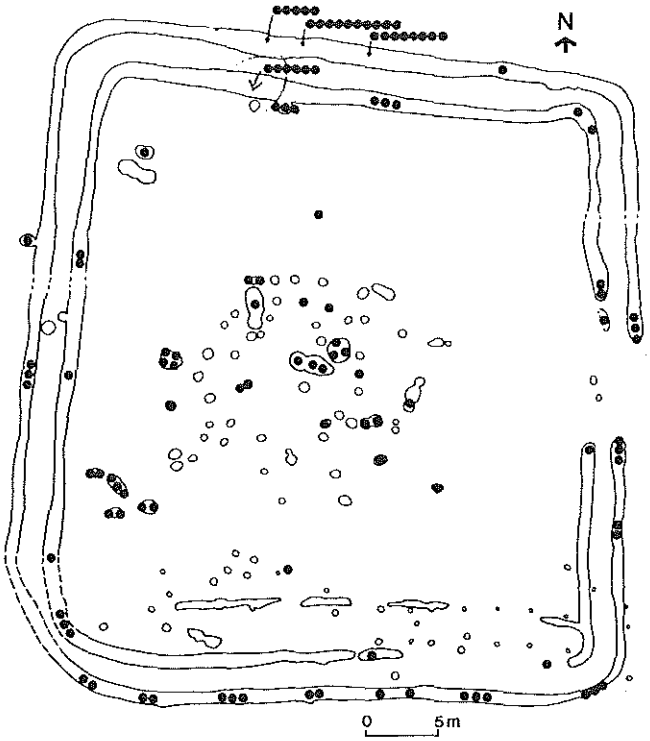
Two Neolithic samples (119 from 0331 and 54 from 0320) produced a single unidentified cereal grain and fragments of hazelnut shells. Other samples from Neolithic contexts 0189, 0190, 0320, 0331 and 0354 produced no seeds. Seven samples from the Roman field ditches crossing the site contained no remains of cereals or weed seeds.

The weed flora

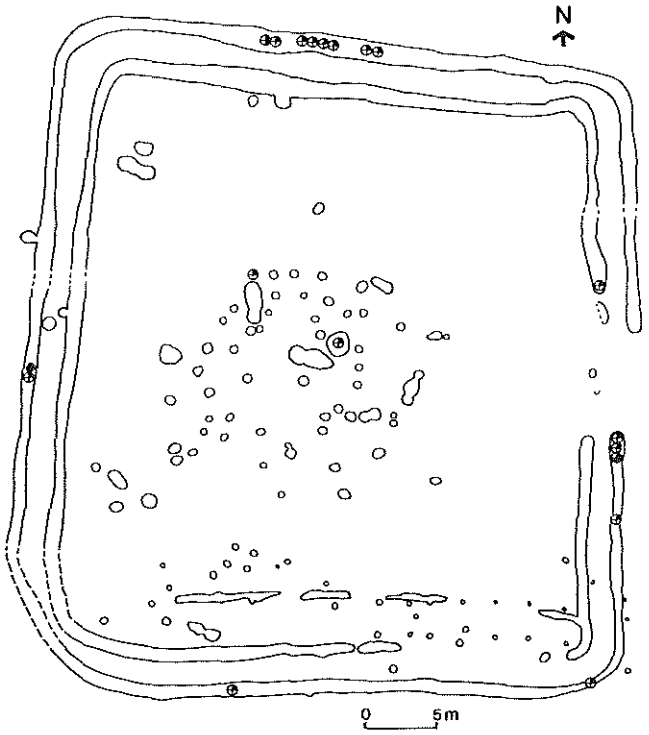
Most of the carbonised weed seeds from the site came from contexts 0153 and 0204, both fills of the enclosure ditch. The flora includes a damp grassland component, represented by fruits and seeds of Ranunculus acris/repens/bulbosus, Montia fontana, Prunella vulgaris and Carex sp. The predominant arable weeds are Bromus spp, Vicia/Lathyrus spp. and Polygonum spp, with some seeds of Chenopodium album, Malva sp, Medicago lupulina-type, Rumex sp, Solanum nigrum, Plantago lanceolata, Galium aparine and Tripleurospermum maritimum.

Distribution and composition of cereal/weed seed assemblages from Late Bronze Age contexts

In Figs - the locations of samples and the distributions of cereal grains, cereal spikelet fragments, weed seeds, nutshells and fruitstones are shown. There is a marked concentration of plant remains in samples from the outer ditch: the results are summarised in Table . The majority of internal pits and postholes sampled produced no seeds or cereal remains, though seven of the thirty-five samples from these internal features produced very sparse assemblages comprising in total two indeterminate cereal grains, a fragment of Prunus fruitstone, a small grass caryopsis and six nutlets of Polygonum aviculare.



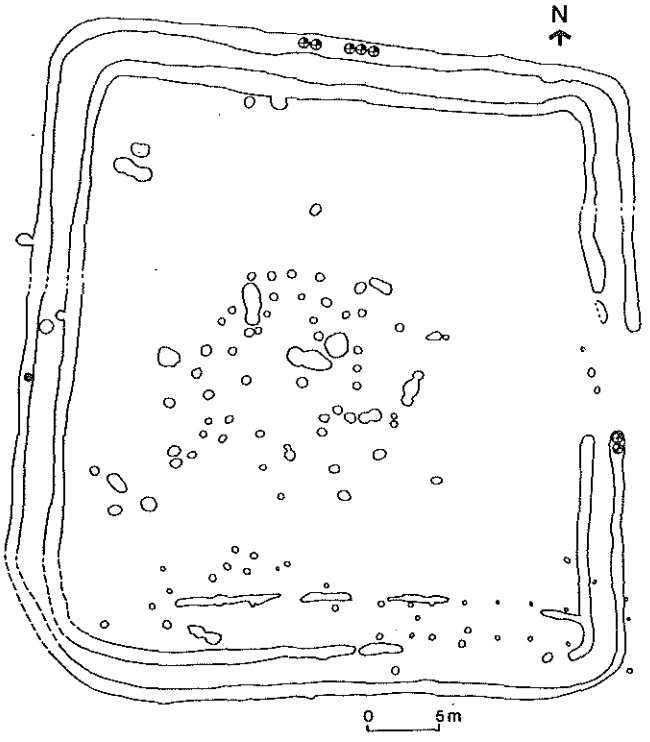
Locations of samples. (Late Bronze Age features).



Cereal grains

- Less than 5 grains
- 5–15 grains
- 5–35 grains
- More than 100 grains

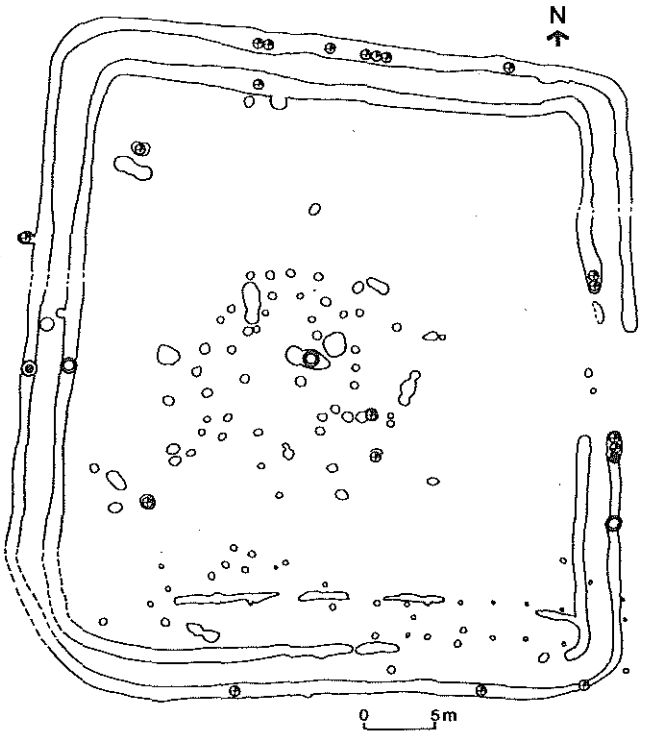
} per 8 litre sample unit



Cereal spikelet fragments

- Less than 5 fragments
- 5–50 fragments
- More than 5000 fragments

} per 8 litre sample unit



Weed seeds, nutshells, fruitstones

- Less than 5 weed seeds
- 5–10 weed seeds
- More than 100 weed seeds

} per 8 litre sample unit

Presence of fruitstones or nutshells is indicated by an outer concentric circle

	Total no. of samples examined	Total nos. of seeds, spikelet fragments etc.			
		Cereal grains	Spikelet fragments (b)	Weed seeds etc. (c)	Fruitstones, nutshells
Outer ditch (a)	53	214(98.6%)	6923(100%)	443(97.6%)	2
Inner ditch (a)	27	1(0.5%)	0	3(0.7%)	1
Internal features	36	2(0.9%)	0	8(1.7%)	1

Table : Distribution of plant remains in contexts of the Late Bronze Age enclosure

Notes: (a) Including directly associated pits and postholes.

(b) Calculated as glume bases + rachis nodes/internodes + (spikelet forks/bases x 2).

(c) Including *Avena*. Excluding *Chenopodium album*.

Main context	0002	0002	0002
Location	Butt end at S. side of entrance	Western side	Northern side
Subsidiary context(s)	0153	0204	0192,0194,0251
Samples	1,3,4	15	7,9,10,14,18,19,37
Cereal grains	43(15.7%)	138(1.9%)	25(47.2%)
Cereal spikelet fragments	50(18.3%)	6861(94.9%)	9(17.0%)
Weed seeds	180(65.9%)	233(3.2%)	19(35.8%)
Totals	273	7232	53

Table : Composition of the three main cereal/weed seed assemblages.

Figures calculated as in Table .

In the outer ditch (0002) there are three main concentrations of cereal remains: at the south side of the main entrance (Context 0153, Samples 1, 3 and 4), in the centre of its western side (Context 0204, Sample 15), and near the middle of its northern side (Contexts 0192, 194 and 0251; Samples 7, 9, 10, 14, 18, 19, 37). These concentrations all occurred in the upper fill: the lower fill contained comparatively few cereal remains. The cereals and crop weeds from each of these three concentrations can be considered as a single assemblage since the contextual sub-divisions on the northern side of the enclosure have no stratigraphic significance. (0192, 0194 and 0251 are all the upper fill of 0002 but from different excavated segments.)

The composition of these three assemblages from 0002 are summarised in Table . In contexts 0153 and 0204 assemblages consist largely of cereal chaff and weed seeds: indeed in 0204 almost 95% of the assemblage consists of chaff. These two assemblages thus consist predominantly of crop cleaning waste (essentially 'fine sievings' from spikelet and grain-cleaning equivalent to the waste from stages 12 and 13 in the model of glume wheat processing described by Hillman (1981, 1984)), though they could well also include some cereal remains from other sources.

The assemblages from the northern side of the enclosure ditch contain a higher proportion of cereal grains and the samples also included much higher concentrations of charcoal than any other samples from the site. They probably represent charred material from domestic hearths and refuse fires discarded outside the enclosure.

Comparison of the distribution of plant remains at this site with that at the Late Bronze Age enclosure at Springfield Lyons reveals some interesting contrasts. For reasons discussed above, comparisons based on absolute concentrations of plant remains in the soil at the two sites would be invalid, but comparison of the spatial distribution of plant remains at these sites is possible. At Springfield Lyons samples from the enclosure ditch produced few plant remains, but there was a concentration of carbonised cereals and crop weeds within a group of pits in the centre of south-west quadrant of the enclosure. This indicates that waste from crop processing was burnt in this area and suggests that crop cleaning took place nearby. At Lofts Farm, however, cereal remains came principally from the enclosure ditch suggesting either that crop processing took place outside the enclosure or that the interior was kept very clean and all refuse was removed and dumped outside it.

(2) The well

Bulk samples for machine flotation were collected from contexts 1000, 1001, 1002, 1003, 1004, 1005 and 1008, and a second series of samples for laboratory analysis was taken from the wet deposits 1003, 1004 and 1005. The bulk samples were processed as described above, and methods described by Kenward et al (1980) were used to extract macrofossils from a smaller sample of 1005, the lowest deposit. Fruits, seeds etc. from the samples are listed in Table . Faunal remains included cladoceran epphippia and insects (from 1005) and a few fragments of cattle teeth and burnt bone (from 1001, 1002, 1003 and 1005). The deposits were, however, non-calcareous and consequently mollusc shells, ostracods and unburnt bone were absent. Wood fragments from the well are described in a separate report.

1005 was a deposit of wet dark grey organic silty clay with flint pebbles. The sample from this layer contained abundant plant macrofossils preserved by waterlogging, but in the upper fills only carbonised plant remains had survived (Table). Macrofossils of grassland, marsh and aquatic taxa predominate in the assemblage from 1005. Fruits of Gramineae are particularly common but most specimens could not be identified since their pericarp cell structures are obscured by sediment and a dark brown colouring. The taxa indicating wet grassland and marsh habitats include Ranunculus acris/repens/bulbosus, R. flammula, Rorippa islandica, Montia fontana subsp. chondrosperma, Apium sp, Polygonum persicaria, P. lapathifolium, P. hydropiper, Mentha spp, Lycopus europaeus, Juncus spp, Eleocharis spp, Isolepis setacea, Carex spp. and Alopecurus geniculatus. Seeds of aquatic plants, notably Ranunculus subg. Batrachium and Lemna sp. are common. There are a few seeds of Ranunculus parviflorus, Aphanes arvensis/microcarpa and Rumex acetosella, species characteristic of dry grassland and bare ground habitats. Scrub taxa are represented by rare macrofossils of Rubus fruticosus, Sambucus nigra and Corylus avellana. Seeds of weeds are present at lower frequencies than in the majority of assemblages from settlement sites. Taxa include Chenopodium album, C. ficifolium, C. rubrum/glaucum, Atriplex sp. and Urtica urens, characteristic plants of the phytosociological association Chenopodio-Urticetum urentis, a plant community found in nitrogen-rich habitats including dung-hills (Van Zeist 1974, 342). Although some of the weed species identified can grow as segetals, the more common weeds found in carbonised assemblages in association with cereals such as Polygonum convolvulus, Tripleurospermum maritimum, Avena spp. and Bromus spp. were not present in the sample from 1005. The single fruit of the halophyte Triglochin maritima presumably reached the site by casual dispersal from salt-marsh to the south.

Context No.		1000	1001	1002	1005 (o)	1005	1008 (o)
Cereal indet.*	(a)	1	5	38	3	1	-
Triticum sp.*	(a)	1	-	5	1	-	1
Triticum sp.*	(b)	-	-	2	-	-	-
Triticum sp.*	(c)	-	-	1	1	-	-
Hordeum sp.*	(a)	-	-	5	1	-	-
Hordeum sp.*	(d)	-	-	-	-	1	-
Vicia/Lathyrus sp.*	(e)	1	-	-	-	-	-
Corylus avellana L.*	(f)	-	-	-	+	-	-
Polygonum convolvulus L.*		-	-	1	-	-	-
Rumex sp.*		-	-	-	1	-	-
Eleocharis sp.*		-	-	-	1	-	-
cf. Bromus sp.*	(g)	-	-	1	-	-	-
Charcoal*		+	+	+	+	+	+
Ranunculus subg. Batrachium		-	-	-	-	577	-
Ranunculus acris/repens/bulbosus		-	-	-	-	77	-
Ranunculus flammula L.		-	-	-	-	16	-
Ranunculus parviflorus L.		-	-	-	-	3	-
Ranunculus sp.	(h)	-	-	-	-	7	-
Thlaspi arvense L.		-	-	-	-	2	-
Rorippa islandica (Oeder) Borbas.		-	-	-	-	2	-
Cerastium/Stellaria sp.		-	-	-	-	63	-
Montia fontana L. subsp. chondrosperma		-	-	-	-	34	-
Chenopodium album L.		-	-	-	-	34	-
Chenopodium ficifolium Sm.		-	-	-	-	84	-
Chenopodium rubrum/glaucum		-	-	-	-	27	-
Chenopodium sp.	(h)	-	-	-	-	29	-
Atriplex sp.		-	-	-	-	32	-
Chenopodiaceae indet.	(h)	-	-	-	-	115	-
Malva sp.	(h)	-	-	-	-	1	-
Rubus fruticosus agg.		-	-	-	-	3	-
Potentilla sp.	(h)	-	-	-	-	9	-
Aphanes arvensis/microcarpa		-	-	-	-	4	-
Apium sp.		-	-	-	-	2	-
Umbelliferae indet.		-	-	-	-	1	-
Polygonum aviculare agg.		-	-	-	-	2	-
Polygonum persicaria/lapathifolium		-	-	-	-	13	-
Polygonum hydropiper L.	(i)	-	-	-	-	54	-
Polygonum sp.	(j)	-	-	-	-	70	-
Rumex acetosella agg.		-	-	-	-	4	-
Rumex sp.	(j)	-	-	-	-	55	-
Urtica urens L.		-	-	-	-	3	-
Urtica dioica L.		-	-	-	-	6	-
Mentha arvensis/aquatica		-					

Polygonum hydropiper L.	(i)	-	-	-	-	54	-
Polygonum sp.	(j)	-	-	-	-	70	-
Rumex acetosella agg.		-	-	-	-	4	-
Rumex sp.	(j)	-	-	-	-	55	-
Urtica urens L.		-	-	-	-	3	-
Urtica dioica L.		-	-	-	-	6	-
Mentha arvensis/aquatica		-	-	-	-	2	-
Lycopus europaeus L.		-	-	-	-	1	-
(Prunella vulgaris L.)		-	-	-	-	(+)	-
Lamium sp.		-	-	-	-	4	-
Plantago major L.		-	-	-	-	2	-
Sambucus nigra L.		-	-	-	-	1	-
Cirsium sp.		-	-	-	-	2	-
Sonchus asper (L) Hill		-	-	-	-	5	-
Compositae indet.		-	-	-	-	1	-
Alismataceae indet.	(k)	-	-	-	-	1	-
Triglochin maritima L.		-	-	-	-	1	-
Juncus sp(p)	(l)	-	-	-	-	+	-
Lemna sp.		-	-	-	-	183	-
Eleocharis sp.		-	-	-	-	7	-
(Isolepis setacea (L)RBr)		-	-	-	-	(+)	-
Carex hirta/lasiocarpa-type		-	-	-	-	41	-
Carex pilulifera-type		-	-	-	-	2	-
Carex spicata-type		-	-	-	-	3	-
Carex spp.	(m)	-	-	-	-	30	-
Alopecurus geniculatus L.		-	-	-	-	86	-
Gramineae indet.	(n)	-	-	-	-	1524	-
Buds		-	-	-	-	+	-
Twigs/wood fragments		-	-	-	-	+	-
Indeterminate seeds etc.		-	-	-	-	33	-
Sample wt/volume (kg/litres)		16l.	32l.	24l.	32l.	2kg	8l.

Table . Plant macrofossils from the well at Lofts Farm.

Unless otherwise stated taxa are represented by fruits or seeds. Carbonised specimens are indicated by an asterisk. Species listed in brackets were absent from the 2kg. sample of 1005, but present in other samples of sediment which were scanned over. Notes: (a) Caryopses; (b) Spikelet forks; (c) Glume bases; (d) Badly damaged rachis node; (e) Cotyledon; (f) Nutshell fragments; (g) Fragment; (h) Fragmentary, or specimens with testas or exocarps missing or obscured by sediment; (i) With perianths; (j) No perianths; (k) Fragment of embryo; (l) Present, but not counted; (m) Mostly small bicarpellate forms; (n) Predominantly medium-sized caryopses, 2.5-3.0mm. long with elongate linear hilum. Cell structure obscured in most specimens by an overall dark brown colouration; (o) These were bulk samples of waterlogged deposits from which only carbonised macrofossils were identified.

The plant remains from the upper fills of the well consist mainly of carbonised cereals, predominantly grains, and much charcoal. These upper deposits seem to include domestic refuse.

From these results it is clear that whilst the lowest fill, 1005, accumulated local vegetation consisted of wet grassland with areas of standing water and patches of nitrophilous weed vegetation, probably related to deposition of dung by grazing animals. The local landscape was open, with little evidence for scrub or hedgerows. Although 1005 contained some charcoal and carbonised cereals, but carbonised macrofossils were much more common in the upper fills, which seem to have been deposited during the secondary use of the well for refuse disposal.

Appendix

Lofts Farm. Samples from the enclosure.

Sample No.	Context No.	Sample No.	Context No.	Sample No.	Context No.
1 (2)	0153	39 (1.5)	0252	77 (1.5)	0366
2 (1.5)	0155	*40 (1.5)	0239(0259a)	78 (1.5)	0360
3 (1)	0153	*41 (2)	0274	79 (2)	0367
4 (2)	0153	*42 (2)	0274	80 (1)	0368
5 (2)	0125(0185a)	43 (-)	0251	81 (2)	0369
6 (-)	0185	*44 (-)	0280	82 (1)	0368
7 (2)	0194	45 (2)	0278 Not received.	83 (1.5)	0160
8 (-)	0192	*46 (2)	0282	84 (1.5)	0161
9 (-)	0192	*47 (2)	0282	85 (2)	0162
10 (2)	0194	48 (2)	0269	86 (2)	0069
11 (-)	0194	49 (-)	Not received.	87 (2)	0099/0371
12 (0.25)	0193(0192a)	50 (2)	0284	88 (2)	0141/0372
13 (-)	0192	51 (1)	0280 Not received.	89 (2)	0067
14 (1)	0192	52 (0.5)	0309	90 (2)	0141
15 (1)	0204	53 (0.5)	0309	91 (1.5)	0372
16 (1)	0204	*54 (2)	0320	92 (2)	0158
17 (1)	0205	*55 (1)	0320	93 (2)	0373
18 (2)	0192	56 (1.5)	0324	94 (1)	0374
19 (-)	0192	57 (1.5)	0324	95 (2)	0158
20 (1)	0207	58 (2)	0325	96 (2)	0265
21 (-)	0192	59 (2)	0328	97 (1)	0266
22 (2)	0208	60 (1.5)	0329	98 (2)	0265
23 (2)	0218	*61 (2)	0331	99 (2)	0247
24 (1)	0218	62	Not received.	100 (2)	0247(0501)
25 (2)	0219	*63 (2)	0331	101 (2)	0499
26 (2)	0220	64 (2)	0308	*102 (1.5)	0170
27 (2)	0218	65 (2)	0317	103 (2)	0377
28 (2)	0234(0239a)	66 (2)	0317	104 (2)	0377
29 (1)	0218	67 (1)	0332	105 (1.5)	0379
30 (2)	0228	68 (2)	0332	106 (1.5)	0380
31 (2)	0238	69 (2)	0333	107 (2)	0386
32 (1)	0248	70 (2)	0338	108 (-)	0387
33 (1)	0248	71 (2)	0340	109 (2)	0391
34 (1)	0255	72 (2)	0346	110 (2)	0399/0400
35 (1)	0255	73 (1)	0346	111 (2)	0414/0415
36 (2)	0268	74 (1)	0348	*112 (1)	0189
37 (2)	0251	75 (1.5)	0352	113 (2)	0416/0417
38 (1.5)	0271	76 (2)	0353	*114 (2)	0189

Sample No.	Context No.	Sample No.	Context No.	Sample No.	Context No.
*115 (2)	0354	123 (2)	0249	131 (2)	0243
116 (2)	0240	124 (1.5)	0215	132 (1.5)	0201
117 (2)	0465	125 (2)	0272	133 (1)	0198
118 (2)	0241	126 (1.5)	0479	134 (1)	0434
*119 (2)	0331	127 (2)	0244	135 (2)	0485
*120 (2)	190	128 (2)	0245	136 (2)	0494
121 (1.5)	0477	129 (2)	0242	400 (-)	0278
122 (1)	0207	130 (1.5)	0440/0441		

Samples containing cereal remains or seeds are underlined, and samples from Neolithic and Roman contexts are marked with an asterisk. Figures in brackets refer to numbers of 8 litre sample units. For four samples the context nos. on the labels and sample forms do not match (marked a). The labels have been taken to be correct.

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