AML REPORT 3333

Site: Moulsham Street, Chelmsford

County: Essex

Reference No: MTC 80

Director: M. Eddy

Type of Site: Roman to post-medieval urban occupation.
Possible prehistoric soil surface.

Geology: Brickearth

Type of material: Plant macrofossils.
(with notes on other macroscopic remains).

Moulsham Street, Chelmsford, Essex: Macroscopic plant remains.

Samples from two post-medieval ovens (85, 91), two Roman pits (239, 257), a central column sample from a Roman ditch (246) and a sample from a suggested prehistoric soil horizon (304) were examined. Biological remains and artefacts recovered from these samples by flotation and wet-sieving are listed in Table 1. Further portions of sediment from the basal fill of 246 have been retained for the study of arthropods (insects and crustaceans) and ostracods, should this be possible at some future date.*

Only the plant macrofossils have been studied in detail. The plant remains from the base of 246 were preserved in anaerobic conditions. They show considerable variation in their state of preservation; for example, some of the grass caryopses are well preserved but many of the more durable seed-types (eg. Rumex) are in a very poor state. The remaining deposits at the site produced mainly carbonised plant material, predominantly cereal remains. The botanical remains are listed in Table 2.

Discussion

The sample from the possible prehistoric soil horizon (304) produced very small fragments of charcoal, charred cereals, bone, mussel shell and greenish slag. Slag of this kind was common in nearby Roman pits (239 and 257). It therefore seems quite possible that both the slag and the biological remains from this context have been introduced by root and/or worm action; certainly it would be unwise to attempt to relate the material from this sample to any prehistoric activity in the area.

The basal deposit in the Roman ditch 246 was a homogeneous dark greyish brown (around 10YR 3.5/2; moist) organic silty clay, showing some laminations in its upper few centimetres. This fine sediment included very few stones apart from occasional medium rounded flints, introduced presumably by some artificial means. The deposit appears to have formed in a tranquil sedimentary environment and is thought to be derived from a restricted catchment around the ditch, rather than representing a flood-loam. It produced seeds, wood fragments, insect remains, Cladocera and a few ostracod valves. The plant remains indicate a local flora dominated by ruderals, in particular by Urtica dioica (stinging nettle), though seeds of Hyoscyamus niger (henbane) and Rumex spp. (docks) are moderately common.

*Footnote. In addition two samples were taken from the base of 246 for pollen analysis.

Wetland and meadow species occur at low frequencies. There are a few seeds of woody plants (bramble, elderberry), but insufficient to indicate any substantial area of scrub or hedgerow. Aquatics are extremely rare. Molluscs were not present, though the survival of the ostracod valves indicates that conditions in the sediment would have been suitable for their preservation. Their absence must, therefore, result from ecological factors which probably also suppressed the growth of aquatic angiosperms. Given the nitrophilous character of the flora, organic pollution of the ditch combined possibly with periodic drying-out seems the most likely reason for the absence of molluscs and aquatic plants. There is no evidence for the presence of sewage in the ditch; plant remains characteristic of sewage deposits (e.g. cereal pericarp fragments, fig seeds) are absent. However pollution by cattle, either by direct deposition of exreta or by leaching and surface run-off from the surrounding area could have resulted in eutrophication of water in the ditch. Certainly the flora resembles that seen in the vicinity of cattle-troughs. Overall, the biological evidence can be interpreted as indicating that this part of the flood-plain was used for pasture while this sediment accumulated.

The upper fill of 246, panned at the interface with the subjacent anaerobic deposit, was much more heterogeneous. The matrix comprised brown to greyish-brown silty clay loam, patches of sandy loam and some lumps of disturbed brickearth with abundant small to large flints. Charred cereals, charcoal, a few uncharred seeds, bone fragments (blunt and unburnt), fishbone, small mammal bone, pottery and slag were recovered. The samples from two Roman pits from the site (239 and 257) produced a similar range of biological remains and artefacts. The cereal remains from these deposits are mainly of spelt (Triticum spelta) with some barley (Hordeum sp.) and a wild or cultivated oat (Avena sp.). Cereal chaff is relatively abundant, but since only small scatters of cereals were recovered it is difficult to determine the precise activity which resulted in their deposition. Some charred seeds of plants more characteristic of grassland than arable habitats occur in association with these cereals (Ranunculus sp., Prunella vulgaris and Plantago lanceolata), and charred bracken frond fragments (Pteridium aquilinum) were recovered from 263. It seems likely that these were not present in the arable fields, but rather may represent the charred remains of discarded flooring material - bracken and hay. Apart from the cereals the only food-plant definitely identified was the strawberry (Fragaria vesca) from 241.

The plant remains from the fills of the post-medieval ovens provide no specific information about their functions.

	Post-med pits		Roman pits					Roman ditch			Soi
Sample no.	1	2	3	4	5	6	7	8	9	10	11
Context no.	85	91	241	263	264	257	246	246	246	246	304
Charcoal	*	+	+	+	+	+	+	+	+	+	+
Charred cereals	-	+	+	+	+	-	+	-	+	-	+
Seeds (anaerobic)	+(1)	-	-	-	+	+(1)	-	+	-	+	-
Wood (")	-	-	-	-	-	-	-	-	-	+	-
Insects	-	-	-	-	-	-	-	-	-	+	-
Ostracods	-	-	-	-	-	-	-	-	-	+	-
Cladocera	-	-	-	-	-	-	-	+	+	+	-
Mussel shell	-	+	-	-	-	-	-	-	-	-	+
Oyster shell	-	-	+	+	-	-	-	-	-	-	-
Burnt bone frags.	+	-	-	+	+	-	+	-	-	-	+
Bone frags.	+	+	+	+	+	-	+	+	-	-	-
Small mammal bone	-	-	+	-	-	-	+	-	-	-	-
Fishbone	-	-	-	-	+	-	+	-	-	-	-
'Glassy' slag	+	-	-	-	-	-	-	-	-	-	-
Green (bronze?) slag	-	-	+	+	+	+	+	-	-	-	+
Tile/Brick frags.	-	+	-	-	-	-	-	-	+	-	-
Pottery	-	-	+	-	+	-	+	+	+	-	-
Coal	-	+	-	-	-	-	-	-	-	-	-
Mortar/Lime	-	+	-	-	-	-	-	-	-	-	-
Sample wt. (kg.)	1.9	2	2	2	3.5	0.9	6x2	2	1.1	2x2	2

Note (1) Sambucus only.

Table 1: Artefacts and biological remains recovered from the samples.

Table 2: Plant remains from the samples.

Notes (i) Basal rachis internode.
(ii) All one species.
(iii) Probably the subsp. chondrosperma, but atypically small, under 0.9mm.
(iv) Most without perianths. The perianths surviving are in a poor state.
(v) Probably under-developed Rumex.
(vi) 16mm. diameter branch frag., obliquely cut.
(vii) These could not be definitely identified; the closest match found is with C. vulgae.

Abbreviations

a	awn
l	leaf
(c)	carbonised
ca	caryopsis
fr	fragments
gb	glume base
gt	glume tip
p	plumule and primary root frags.
ri	rachis internode
sil	siliqua
spb	spikelet base
spf	spikelet fork
+	present, not counted
∞	refers to the U. dioica seeds. The basal layers of 246 produced many thousands of seeds. These have not been counted, but it should be emphasised that U. dioica is by far the most important species.

Sample No.		1	2	3	4	5	6
Context No.		85	91	241	263	264	257
Depth (cm); where appropriate		-	-	-	-	-	-
Cereal indet	ca + fr (c)	-	-	+	+	+	-
Cereal indet	p.fr. (c)	-	1	-	-	-	-
Hordeum sp.	ca (c)	-	1	2	-	1	-
Triticum sp.	ca (c)	-	-	-	5	1	-
	ri (c)	-	-	1	6	1	-
	gb (c)	-	-	2	8	2	-
	spb (c)	-	-	-	-	-	-
	a. fr (c)	-	-	+	+	-	-
Triticum spelta L.	gb (c)	-	-	3	12	5	-
	gt (c)	-	-	-	-	-	-
	spf (c)	-	-	-	-	-	-
Avena sp.	a. fr (c)	-	-	-	-	+	-
Pteridium aquilinum (L) Kuhn.	1 fr (c)	-	-	-	+	-	-
Ranunculus spp.		-	-	-	-	1(c)	-
Papaver c.f. *argemone* L.		-	-	-	-	-	-
Raphanus raphanistrum sil. fr (c)		-	-	-	-	-	-
Thlaspi arvense L.		-	-	-	-	-	-
Cruciferae indet.		-	-	-	-	-	-
Hypericum sp.		-	-	-	-	-	-
Cerastium sp.		-	-	-	-	-	-
Stellaria media (L) Vill		-	-	-	cf.1(c)	-	-
Stellaria graminea L.		-	-	-	-	-	-
Montia fontana L.		-	-	-	-	-	-
Chenopodium album L.		-	-	-	1	3	-
Chenopodium c.f. *ficifolium* Sm.		-	-	-	-	-	-
Chenopodium sp.		-	-	1(c)	-	1(c)	-
Atriplex patula/hastata		-	-	-	-	3	-
Rubus fruticosus agg.		-	-	-	-	-	-
Potentilla sp.		-	-	-	-	-	-
Fragaria vesca L.		-	-	1	-	-	-
Torilis/Anthriscus		-	-	-	-	-	-
Conium maculatum L.		-	-	-	-	-	-
c.f. *Pastinaca sativa* L.		-	-	-	-	-	-
Umbelliferae indet.		-	-	-	-	-	-
Polygonum aviculare agg.		-	-	-	-	-	-
Rumex spp.		-	-	1(c)	1	-	-
Polygonaceae indet.		-	-	-	-	-	-
Urtica urens L.		-	-	-	-	-	-
Urtica dioica L.		-	-	-	2	-	-

7	7	7	7	7	7	8	9	10	10	11
246	246	246	246	246	246	246	246	246	246	304
)-10	10-20	20-30	30-40	40-50	50-60	60-70	72-75	75-85	85-92	-
+	+	+	+	+	+	-	+	-	+	+
-	-	-	1	-	-	-	-	-	-	-
-	-	cf.1	-	-	-	-	-	-	-	-
2	1	1	3	2	2	-	-	-	-	-
1(i)	3	3	7	-	1	-	1	-	-	-
-	3	5	4	-	-	-	-	-	-	-
-	-	-	-	-	1	-	-	-	-	-
-	+	+	+	+	-	-	-	-	-	-
2	6	9	19	1	1	-	-	-	-	-
-	-	-	1	-	-	-	-	-	-	-
2	1	-	1	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	1(c)	-	-	-	-	9	1	4	-
-	-	-	-	-	-	-	1	-	-	-
-	-	1	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	2	-
-	-	-	-	-	-	-	-	1(ii)	10(ii)	-
-	-	-	-	-	-	-	-	-	1	-
-	-	-	-	-	-	-	-	-	11	-
-	-	-	-	-	-	-	cf.5	1	4	-
-	-	-	-	-	-	-	-	-	1	-
-	-	-	-	-	-	-	1(iii)	-	-	-
1(c)	1(c)	-	-	-	-	-	1	-	-	-
-	-	-	-	-	-	-	2	-	1	-
-	-	-	-	-	-	-	1	4	1	-
-	-	-	-	-	-	-	-	-	1	-
-	-	-	-	-	-	-	-	-	[illegible]	-
-	-	-	-	-	-	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	1	-	-	-
-	-	1	-	-	-	-	5	26	10	-
-	-	-	-	-	-	-	-	1	-	-
-	-	-	-	-	-	-	-	-	2	-
-	-	-	-	-	-	-	3	4	16	-
-	1	-	2(c)	3(c)	-	-	27+1(c)(iv)	102(iv)	22(iv)	-
1(c)	-	-	-	-	-	-	3(v)	-	8(v)	-
-	-	-	-	-	-	-	5	-	4	-
-	-	-	-	-	-	1	∞	∞	∞	-

Quercus sp. wood	-	-	-	-	-	-
Hyoscyamus niger L.	-	-	-	-	-	-
Solanum nigrum L.	-	-	-	-	-	-
Solanum c.f. dulcamara L.	-	-	-	-	-	-
Solanaceae indet.	-	-	-	-	-	-
Lycopus europaeus L.	-	-	-	-	-	-
Prunella vulgaris L. (c)	-	-	-	1	-	-
Ballota nigra L.	-	-	-	-	-	-
Labiatae indet.	-	-	-	-	-	-
Plantago major L.	-	-	-	-	-	-
Plantago lanceolata L. (c)	-	-	-	-	2	-
Sambucus nigra L.	+	-	-	-	1	1
Chrysanthemum vulgare-type	-	-	-	-	-	-
Cirsium sp.	-	-	-	-	-	-
Lapsana communis L.	-	-	-	-	-	-
Sonchus c.f. asper (L) Hill	-	-	-	-	-	-
Alismataceae indet.	-	-	-	-	-	-
Juncus spp.	-	-	-	-	-	-
c.f. Typha sp.	-	-	-	-	-	-
Eleocharis sp.	-	-	-	-	1(c)	-
Carex sp.	-	-	-	-	-	-
Cyperaceae indet.	-	-	-	-	-	-
Bromus mollis/secalinus (c)	-	cf.1	-	2	3	-
Gramineae indet.	-	-	-	-	-	-
Indet. stem frags (c)	-	+	-	-	-	-
bud (c)	-	-	-	1	-	-
seeds	-	1	3(c)	-	1	-

-	-	-	-	-	-	-	-	-	+(vi)	-
-	-	-	-	-	-	-	6	275	40	-
-	-	-	-	-	-	-	1	1	-	-
-	-	-	-	-	-	-	1	-	-	-
-	-	-	-	-	-	2	-	-	-	-
-	-	-	-	-	-	-	1	-	1	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	19	cf.1	-
-	-	-	-	-	-	1	4	-	-	-
-	-	-	-	-	-	-	-	-	1	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1	20	2	-	-
-	-	-	-	-	-	-	-	7(vii)	27(vii)	-
-	-	-	-	-	-	-	cf.2	1	1	-
-	-	-	-	-	-	-	-	2	-	-
-	-	-	-	-	-	-	-	1	1	-
-	-	-	-	-	-	-	1	1	-	-
-	-	-	-	-	-	-	+	+	+	-
-	-	-	-	-	-	-	-	-	1	-
-	-	-	cf.2(c)	-	-	-	2	-	-	-
-	-	-	1(c)	-	-	-	7	4	6	-
-	-	1(c)	-	-	-	-	1	3	1	-
-	-	4	5	-	1	-	1	1	-	-
1(c)	-	1(c)	-	-	1(c)	-	14	14+1(c)	22	-
+	-	+	+-	-	+	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
1	2(c)	2(c)	1	2(c)	1	1	7+2(c)	5	2	-

Moulsham Street, Chelmsford (MTC 80)
Addendum

A number of samples, taken in the final stages of the excavation were subsequently received for examination. Portions of these samples (max. wt. 1 kg.) were examined in order to determine whether they would provide any additional information. Samples from the post-medieval ovens (65, 87, 321) produced charcoal, rare poorly-preserved cereals, shell fragments, bone, fishbone, slag, fired clay, pottery and mortar; however these samples provide no clear evidence for the function of the ovens. The Roman samples contained charcoal, a few cereals and bone fragments. The majority of samples from the 11th-13th century well (333-340) were of little interest. They contained miscellaneous biological remains with a restricted weed flora fairly typical of medieval urban sites, including Brassica sp., Chenopodium album, Rubus fruticosus, Aethusa cynapium, Urtica urens, Urtica dioica, Prunella vulgaris, Sambucus nigra, Anthemis cotula, Arctium sp., Gramineae.

Two samples, however, (334 and 338) included crop plant remains, and 2 kg. subsamples of these have therefore been examined in slightly more detail. The plant remains from 334 consist predominantly of charred wheat and rye grains and rachis internodes. From its composition the assemblage seems to have consisted of unthreshed ears of these cereals, together with seeds of arable weeds and some other plant remains including heather and fern, which may have been derived from flooring or litter. Since the cereals had not been processed before they were carbonised local cultivation of rye and wheat seems probable. 338 produced seeds of wild plants from scrub, trampled and disturbed ground, probably growing in the immediate vicinity. The only cultivated plants are fig and a possible hemp fruit.

	Post-med ovens			Medieval well								Roman features	
Context No.	65	87	321	333	334	335	336	337	338	339	340	346	359
Charcoal	+	+	+	+	+	+	+	+	+	+	+	+	+
Charred cereals	-	+	+	-	+	-	-	-	-	-	-	+	+
Seeds (anaerbic)	-	-	-	-	+	+	+	+	+	+	+	-	-
Wood (")	-	-	-	+	-	-	+	+	+	+	+	-	-
Leaf fragments	-	-	-	-	-	-	-	-	+	-	-	-	-
Mosses	-	-	-	-	-	-	+	-	+	+	+	-	-
Insects	-	-	-	-	-	-	-	-	+	+	+	-	-
Ostracods	-	-	-	-	-	-	-	-	+	+	+	-	-
Mussel shell	+	+	-	+	-	-	-	-	-	-	-	-	-
Oyster shell	-	+	-	-	-	-	-	-	-	-	-	-	-
Bone fragments	-	-	+	+	-	-	+	+	+	-	-	-	+
Small mammal bone	-	-	-	-	-	+	-	-	-	-	+	-	-
Fishbone	-	+	-	-	+	-	-	-	-	-	-	-	-
Slag	-	-	+	-	-	-	-	-	-	-	-	-	-
Fired clay	+	-	-	-	-	-	-	+	-	-	-	-	-
Pottery	-	-	+	-	-	-	+	-	+	+	+	-	-
Mortar/Plaster	+	-	-	-	-	-	-	-	-	-	-	-	-
Sample wt. (kg.)	0.75	0.8	1	1	1	1	1	1	1	1	1	0.25	0.4

Table 3: Artefacts and biological remains recovered from the additional samples.

Context No.		334	338
Cereal indet.		31 (c)	-
Triticum aestivum L.	ca	11 (c)	-
Secale cereale L.	ca	25 (c)	-
Triticum aestivum L.	ri	18 (approx) (c)	-
Secale cereale	ri	21 (approx) (c)	-
Triticum and Secale	af	+ (c)	-
Avena sp.	flo	1 (c)	-
Ficus carica L.		-	1
c.f. Cannabis sativa L.		-	1
Pteridophyte	pi	1 (c)	-
Brassica sp.		-	1
Stellaria media-type		-	2
Montia fontana L.		-	1
Chenopodium album L.		-	2
Chenopodium sp.		1	3
Leguminosae indet.		5	-
Rubus sp.		-	3
Polygonum aviculare agg.		2 (c)	2
Polygonum sp.		-	2
Rumex sp.		1 (c)	-
Urtica urens L.		-	35
Urtica dioica L.		-	12
Calluna vulgaris (L) Hull (lvs)		+ (c)	-
Solanaceae indet.		3	-
Plantago major L.		-	4
Sambucus nigra L.		-	39
Anthemis cotula L.		-	4
Taraxacum sp.		-	3
Compositae indet.		-	1
Carex sp.		5 (c) + 1	2
Mosses		+ (c)	+
Charcoal		+ (c)	-
Wood chips, twigs etc.		-	+
Leaf fragments		-	+
Buds		-	+
Indeterminate		9	4

Table 4: Plant remains from two additional samples.