

## APPENDIX 1 - MACROSCOPIC PLANT REMAINS AND CHARCOAL

### 1.1 Assessment of the Charred Plant Remains

*by Ruth Pelling*

#### *Introduction*

- 1.1.1 Samples were recovered during excavation works at East of Station Road for the recovery of charred plant remains and charcoal. A total of 18 samples were processed by flotation in a modified Siraf-type machine. The flots were collected onto a 250 µm mesh and allowed to air dry slowly. The samples were taken from ditch fills, pit fills and a tree-throw hole with the intention of examining the economy of the site and its interaction with the local environment. The deposits are of late Iron Age - early Roman date.

#### *Methodology*

- 1.1.2 All the samples processed were submitted for assessment. Flots were first put through a stack of sieves from 500 µm to 2 mm mesh size in order to break them into manageable fractions. Each fraction was then scanned under a binocular microscope at x10 to x20 magnification. Any seeds or chaff noted were provisionally identified based on morphological characteristics and an estimate of abundance was made.

#### *Quantification*

- 1.1.3 Of the 18 samples assessed six contained charred remains other than charcoal (Table 18). Cereal grain was infrequent, present in only four samples, and always less than 50 items (usually less than 10). Chaff was more commonly present, recorded in five samples. Three samples contained quite useful quantities, with 51 to 100 items. Weeds were noted in three samples, again in low numbers. In addition a single monocotyledon rhizome was noted in sample 22 from burnt pit 1345.
- 1.1.4 The cereal species noted were dominated by *Triticum spelta* (spelt wheat), with *Hordeum vulgare* (barley) grain noted in sample 1. The weeds noted included *Montia fontana* (blinks), *Rumex* sp. (docks) and *Tripleurospermum inodorum* (scentless mayweed), all presumably occurring as weeds of the arable crop.
- 1.1.5 Charcoal was present in 13 samples and in abundant quantities in six samples. *Quercus* sp. (oak) dominated the assemblages, while Pomoideae (apple, pear, hawthorn etc.) was the only other taxon noted. Much of the charcoal was poorly preserved and presented difficulties for identification due to the presence of iron deposits.

### *Provenance*

- 1.1.6 The remains are typical of cereal processing waste, with few grains but frequent glume bases and some weeds. It is likely that the waste has been reused in fires as fuel and then discarded as refuse. The chaff rich samples all came from ditch fills. The samples from burnt pits 1349 and 1361 (samples 21, 22 and 23) were rich in charcoal but produced few cereal remains.

### *Conservation*

- 1.1.7 The flots are in a stable condition and can be archived for long term storage.

### *Comparative Material*

- 1.1.8 *Hordeum vulgare* and *Triticum spelta* have been recorded from other contemporary sites within the CTRL project (for example Thurnham Villa, Waterloo Connection and Hockers Lane). They are the principal cereals recorded throughout southern Britain at this time, for example in the Danebury Environs area (Campbell, 2000). Some of the richer deposits from Thurnham Villa and Hockers Lane have also produced emmer wheat and oats, which have not been recorded at the East of Station Road site. It will be important for addressing the fieldwork aims to establish how important these crops were and at what date, and equally to establish when they are absent.

### *Potential for Further Work*

- 1.1.9 While the concentration of remains in the deposits are not comparable in terms of scale to those of the larger sites, such as Thurnham Villa, they do provide additional information which within the context of the CTRL project as a whole is very important. Prior to the CTRL work knowledge of the agricultural activities of the area in the Iron Age and Romano-British periods was very limited indeed. There is now the opportunity to conduct an informative landscape study, within which the smaller sites, such as this one, will add useful additional information for the study of past agricultural regimes and change in cereal production and exploitation of the landscape over time. It would be of value for addressing Fieldwork Event Aims 2 and 3 to produce an extensive dataset so as to track the occurrences or absences of the poorly understood crops such as emmer wheat, oats and the pulses. It is therefore recommended that in order to produce a worthwhile data-set, the three samples (3, 19 and 20) which produced large quantities of chaff are examined in detail.

### *Bibliography*

Campbell, G, 2000 , Plant utilization: the evidence from charred plant remains, in B Cunliffe, *The Danebury Environs Program: the prehistory of a Wessex landscape 1*, Oxford, 45-59

## 1.2 Assessment of the Waterlogged Plant Remains

*by Ruth Pelling*

### *Introduction*

- 1.2.1 Samples of waterlogged deposit were taken from the fills of the palaeochannel in trench 17 at East of Station Road for the recovery of plant, molluscan and insect remains. One of the fills, context 1726, from which samples 16-18 were taken, produced occasional sherds of late Iron Age – early Roman pottery. The purpose of the sampling was to provide information on the local and wider environment of the area in the period in which the later Iron Age-early Roman site adjacent was occupied. Bulk samples were taken in the field and kept wet in sealed bags and plastic boxes. Sub-samples were submitted for the assessment of waterlogged plant remains.

### *Methodology*

- 1.2.2 A sub-sample from each waterlogged deposit sampled was submitted for assessment. Sub-samples of 200 g were processed by a simple wash over technique and collected onto a 250 µm mesh. This will not provide an exhaustive species list but should provide sufficient material to assess the presence or absence of waterlogged material, the quality of preservation, the density of any remains and an indication of the range of species or types of material present.
- 1.2.3 Each flot was then washed through a stack of sieves ranging from 2 mm to 250 µm mesh size. Each fraction to 500 µm was scanned, while still wet, under a binocular microscope at x10 to x20 magnification. Provisional identifications and an approximation of abundance on a three point scale (+ = present, ++ = some; +++ = many) were made.

### *Quantification*

*Five samples from two deep deposits within the palaeochannel (contexts 1725 and 1726) were assessed. The samples from context 1726 are believed to be of late Iron-Age - early Roman date. A summary of the material noted in each sample is shown in Table 19.*

- 1.2.4 Table 20 shows the plant species noted in each sample.
- 1.2.5 The two upper deposits, samples 14 and 15 from context 1725, produced abundant fragments of poorly preserved wood. Generally the wood was not easily identifiable, although it was recognised as non-*Quercus* (non-oak). Some possible Pomoideae (apple/hawthorn etc) was recorded in sample 15. Few seeds were noted with the exception of occasional *Corylus avellana* (hazel) nut shell fragments, *Sambucus nigra* (elder), *Urtica dioica* (stinging nettle) and a *Crataegus monogyna* (hawthorn) stone, all of which suggest scrub-land type vegetation with some nitrogen loving ruderal species. Occasional seeds of *Apium nodiflorum* (foll's watercress), may have been growing on the edges of the channel.
- 1.2.6 The samples taken from context 1726 (samples 16, 17 and 18) produced a greater ranged of plant remains. Samples 16 and 17 particularly produced a good range of plant remains and also several insect fragments. The upper of the three samples, 17, produced a flora which suggests damp or wet grassland (*Ranunculus acris/repens/bulbosus*, *Lychnis flos-cuculi*, *Rumex conglomeratus*), with occasional *Salix* sp. (willow) and perhaps a scrubby background suggested by *Prunus spinosa* (sloe) and some ruderal habitats. Some wet ground or marshy species which were presumably growing on the banks of the channel or within the muddy sub-strata of the channel itself include *Apium nodiflorum*, *Lycopus europeus* (gipsywort) and *Sparganium erectum* (branched bur-reed). A large number of leaf fragments and some bud-scales were also present in this sample. Sample 18 produced a more restricted range of species which included plants likely to be growing along the edge of the channel (*Apium graveolens* and *Polygonum persicaria/lapathifolium*) and a possible ruderal element (*Fumaria* sp., *Atriplex* sp. and *Rumex* sp.). A single charred glume base of *Triticum spelta/dicoccum* (spelt/emmer wheat) was also recovered from sample 18, an appropriate cereal for the late Iron Age or Early Roman period. The lower of the three samples again produced a more varied species list. Again there was a range of plants which suggest damp, or even quite wet, ground alongside the river (*Montia fontana* subsp. *chondrosperma*, *Conium maculatum*, *Apium nodiflorum* and *Polygonum persicaria/lapathifolium*), with *Alisma plantago-aquatica* and *Sparganium erectum* perhaps within the channel itself. There appears to be much reduced grassland element, although *Leontodon* sp. was identified. There is possibly a greater arable or ruderal component represented by this lowest sample, with *Brassica/sinapis* sp., *Galeopsis* sp., *Chenopodium album*, *Rumex* sp., *Valerianella dentata*.

#### *Provenance*

- 1.2.7 The three more productive samples are from a peaty layer thought to be of late Iron Age to early Roman date and so are probably more or less contemporary with the adjacent site. The remains present within the samples are likely to have derived from wind blown species growing within the vicinity and some plants growing within the channel or its edge which have dropped their seeds into the water. There is no evidence of deliberately dumped deposits within the samples. The lower deposits seem to suggest a predominantly grassland type habitat while the upper deposit produced samples containing mostly wood fragments, perhaps deriving from a single tree.

#### *Conservation*

- 1.2.8 If the samples are to be stored for any length of time before analysis it is recommended that they are refrigerated or kept in a cold store. They can be kept in such an environment for some time as either unprocessed deposit or processed flots.

*Comparative Material*

- 1.2.9 Few waterlogged deposits of the Late Iron Age or Early Roman period have been examined from the CTRL corridor. Deposits from a well at Thurnham Villa have the potential to shed light on the environment in the late Roman period at the time of the abandonment of the villa. The present set of samples should provide some information about the local environment earlier on in the Roman period.

*Potential for Further Work*

- 1.2.10 Good waterlogged well deposits can provide very useful data not available if only charred remains are recovered. Such remains might include the identification of leafy plants or seeds of foods which normally do not survive, as well as habitat information about the microenvironment of the feature and the environment of the wider area. The preservation of the material from the palaeochannel deposits is good. The samples offer the potential to examine aspects of the surrounding environment of the East of Station Road site at the time of use of the adjacent site. It is recommended that if the dating is confirmed sub-samples of 0.5 to 1 kg of samples 16-18 are examined in detail for their plant macrofossils, in order to address the Fieldwork Event Aims. Particular aims will be to define the environment and economy of the site and the position and interaction of the site with the local environment.

Table 18: East of Station Road: summary of the charred plant remains

Context	Feature	Period	Sample No	Sample Vol (l)	Flot size (ml)	Grain	Chaff	Weed seeds	Charcoal	Notes
1318	Ditch 1319	LIA-RO	4	10	50				+	uncharred root? Wood
1320	drainage ditch	LIA-RO	5	7	10		+			
1215	Ditch 1341	LIA-RO	6	10	10					roots/ modern weeds
1217	Ditch 1218	LIA-RO	7	7	10					Roots
1314	Ditch 1315	LIA-RO	3	10	10				++	
1307	Ditch 1326	LIA-RO	2	11	10	+	+++			
1706	Ditch 1707	LIA-RO	8	4	20				+++	
1712	Ditch 1713	LIA-RO	9	4	100				+++	
1708	Ditch 1707	LIA-RO	10	10	50				+++	
6008	gully 6009	LIA-RO	1	10	10	+			++	
1714	layer	LIA-RO	11	6	10				++	
1715	1716	LIA-RO	12	6	50				+++	
1614	Ditch 1615	LIA-RO	13	18	10				++	
1330	Ditch 1331	LIA-RO	19	10	20	++	+++	++	++	
1345	Ditch 1358	LIA-RO	20	10	20	+	+++	+		Roots
1350	burnt pit 1349	LIA-RO	21	10	20				+	Roots
1351	burnt pit 1349	LIA-RO	22	10	30		+	+	+++	Rhizome
1363	burnt pit 1361	LIA-RO	23	4	200				++++	

+ = 1-10  
 ++ = 11-50  
 +++ = 51-100  
 ++++ = 101-1000  
 1000+ = >1000

Table 19: East of Station Road: summary of waterlogged plant remains

Sample	Context	Weight assessed (g)	Total waterlogged	Total charred	Id-charred	Seeds/fruits	Wood	Leaf/Bud	Molluscs	Insects	Notes
14	1725	200	+++	-	-	+	+++	-	-	+	
15	1725	200	+++	-	-	+	+++	+	-	+	Scrub, ruderal
16	1726	200	+++	-	-	+++	-	-	++	+	Wet, ruderal, grass
17	1726	200	+++	+	Medick T.sp. glume	+++	-	+++	-	+++	scrub, ruderal, grass
18	1726	200	++	-	-	++	+	+	-	+	Ruderal

+ = 1-10  
 ++ = 11-50  
 +++ = 51-100  
 ++++ = 101-1000  
 1000+ = >1000

Table 20: East of Station Road: summary of species of waterlogged plants identified (seed/nutlet etc. recorded unless otherwise stated)

Species	Sample	14	15	16	17	18
	Context	1725	1725	1726	1726	1726
	Weight (g)	200	200	200	200	200
Ranunculus acris/repens/bulbosus	Buttercup	-	-	-	+	-
Fumaria sp.	Fumitory	-	-	-	-	+
Brassica/Sinapis sp.	Turnip/ Mustard etc	-	-	+	-	-
Lychnis flos-cuculi	Ragged robin	-	+	-	+	-
Stellaria media agg.	Chickweed	-	-	-	+	-
Montia fontana subsp chondrosperma	Blinks	-	-	+	-	-
Chenopodium album	Fat hen	-	-	+	+	-
Chenopodium sp.		-	-	-	+	-
Atriplex sp.	Orache	-	-	-	-	+
Prunus spinosa	Sloe, fruit stone	-	-	-	+	-
cf. Crataegus monogyna	Hawthorn, fruit stone	-	+	-	-	-
Conium maculatum	Hemlock	-	-	+	-	-
Apium nodiflorum	Fool's watercress	-	+	+	+	+
Polygonum persicaria/lapathifolium	Red shank/persicaria,	-	-	+	-	+
Rumex conglomeratus	Sharp dock	-	-	-	+	-
Rumex sp.	Docks	-	-	+	+	+
Urtica dioica	Stinging/Common nettle	-	+	-	-	-
Corylus avellana	Hazel nut shell frag.	+	-	-	-	-
Salix sp.	Willow bud	-	-	-	+	-
Solanum sp,	Nightshade	-	-	+	+	-
cf. Anagalis sp.	Pimpernel	-	-	-	+	-
Labiatae	Labiatae, small seeded	-	-	+	-	-
Lycopus europaeus	Gipsywort	-	-	-	+	-
Galeopsis sp.	Hemp-nettle	-	-	+	-	-
Sambucus nigra	Elder	+	-	-	-	-
Valerianella dentata	Narrow fruited cornsalad	-	-	+	-	-
Carduus/Cirsium sp.	Thistle	-	-	-	+	-
Leontodon sp.	Hawkbit	-	-	+	-	-
Alisma plantago-aquatica	Water plantain	-	-	+	-	-
Sparganium erectum	Branched bur-reed	-	-	+	+	-
Carex sp.	Sedge	-	+	-	-	-
cf. Pomoideae	Hawthorn/Apple etc wood	-	+++	-	-	-
Non-Quercus sp.	Non-oak wood	+++	-	-	-	-
Indet	Bud scales	-	+	-	-	-
Indet	Leaf frags	-	-	-	+++	-
Charred Remains						
Triticum spelta/dicocum	Spelt/Emmer wheat glume	-	-	-	-	+
Medicago/Trifolium sp.	Medick/Clover	-	-	-	-	+

+ = 1-10  
 ++ = 11-50  
 +++ = 51-100  
 ++++ = 101-1000  
 1000+ = >1000



