1.1 Assessment of the Charred Plant Remains

by Ruth Pelling

Introduction

1.1.1 Samples were recovered during excavation works for the recovery of charred plant remains and charcoal. It was hoped that the samples would provide details of the subsistence economy, the landuse and the landscape associated with the site. Samples were taken from the fills of late Neolithic-early Bronze Age features including ring ditches, late Bronze Age ditches probably forming parts of a field system, and pits and cremation pits of varying dates. A total of 40 samples were processed for the extraction of charred plant remains by flotation using a modified Siraf-type machine. The flots were collected onto a 250 µm mesh and allowed to air dry slowly. A total of 25 samples produced flots which were submitted for assessment.

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 The flots were generally small, within the region of 10 ml. Low numbers of cereal grain (0-10) were noted in nine samples, while slightly greater number of grains (11-50) were noted only in sample 6. No chaff was recorded in any sample and occasional weeds only in two. The cereal grain identified was predominantly of *Hordeum vulgare* (barley) with a single hulled wheat in sample 32 and an *Avena* sp. (oat) in sample 6. In addition to the cereal remains, occasional fragments of *Corylus avellana* (hazel-nut) shell were noted in sample 37. The preservation of the grain is generally good and in some cases excellent.

1.1.4 Charcoal was present in all samples, generally in low or moderate quantities. More abundant charcoal was recorded from samples 5, 6 and 47. The charcoal taxa identified were dominated by *Quercus* sp. (oak), with frequent Pomoideae (apple, pear, hawthorn etc.) and occasional *Prunus spinosa* (sloe).

Provenance

1.1.5 The richer sample with *Hordeum vulgare* and *Avena* sp. grain was taken from a probably late Iron Age deposit in pit 35. Given the late date for this deposit it is possible that the *Avena* sp. is from a cultivated variety, although this cannot be demonstrated in the absence of chaff. The remaining cereal grains were from largely Bronze Age deposits within both ditch and pit fills. The grain present in the samples is likely to have derived from background scatters of cereal remains present across the site.

Conservation

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

Comparative Material

1.1.7 Plant macrofossil assemblages of Bronze Age date have so far rarely been assessed within the CTRL. Some middle to late Bronze Age deposits were assessed from West of Blind Lane, which produced similarly low levels of grain, although additionally with a very small amount of chaff. *Hordeum vulgare* and *Triticum spelta* were also identified. Late Neolithic to early Bronze Age deposits have been noted from Eyhorne Street. Cereal remains were again limited and may have contained some intrusive material, particularly *Triticum spelta* which has not been recorded from sites of such early date in the United Kingdom. This site also produced large quantities of *Corylus avellana* (hazel) nut shell, a characteristic find of the Neolithic and early Bronze Age which is often taken to indicate a continued heavy reliance on collected woodland resources (see Moffet *et al*. 1989). Evidence from elsewhere, notably a site within Dartford (Pelling *unpub*) indicates that by the middle Bronze Age significant cereal based agriculture was established in Kent, as it seems to be in other areas of Southern Britain, such as the Thames and Kennet Valleys. Barley and emmer wheat seem to have been the principal cereals at this time, although the Dartford material indicates that spelt wheat was introduced into Kent by the middle Bronze Age.

Potential for Further Work

1.1.8 The range and quantity of charred seeds and chaff within the samples is such that further analysis is unlikely to extend the species list much further. However, given the paucity of charred macrofossil assemblages of the period from the late Neolithic to the middle Bronze Age within Kent, it is recommended that the assessment results are considered in the overall synthesis. The dataset is insufficient to characterise the local environment in detail, but the rarity of information for the earlier part of the period represented at Tutt Hill suggests that it would be of value for the data to be noted in any publication.

References

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1.2 Assessment of the Charcoal

by Dana Challinor

Introduction

1.2.1 A total of nineteen samples were submitted for the wood charcoal assessment: fourteen from cremation pits (sampled in entirety for the recovery of charred plant remains and cremated bone), two from one of the ring ditches and three from two pits near the ring ditches. The purpose in sampling the cremations was to examine the evidence for change and continuity in burial practice.

Methodology

1.2.2 The samples were processed by flotation in a modified Siraf-type machine, with the flots collected onto a 250µm mesh. All nineteen of the samples were assessed. The volume of soil processed ranged from 0.9 kg to 40 litres. The flots were air-dried and divided into fractions using a set of sieves. Fragments of charcoal were randomly extracted, fractured and examined in transverse section under a binocular microscope at x10 and x20 magnification. Fragments caught in the >2 mm sized sieves were quantified as identifiable. In the case of large flots, a sample of *circa* 20% was examined. The flots were also scanned for the presence of any other charred plant remains.

Quantification

1.2.3 Sixteen flots produced identifiable wood charcoal (Table 7.1 - Table 7.2). Six taxa were identified - *Quercus* sp. (oak), *Alnus/Corylus* (alder/hazel), Salicaceae (willow, poplar), *Prunus* sp. (blackthorn, cherry), Maloideae (hawthorn, apple, pear etc.) and *Fraxinus excelsior* (ash). Ring-porous taxa are more easily recognisable at low magnification, although the identification of the diffuse porous taxa is tentative. The quantity of preserved charcoal varied between cremation pits, with some producing several hundred identifiable fragments (Table 7.1) whereas others contained only small fragments which were too comminuted to identify. There was some variation in the taxonomic composition between cremation pits. Cremation pit 46, dated to the early-middle Bronze Age, produced large assemblages dominated by *Fraxinus excelsior*, with smaller amounts of *Quercus* and Maloideae. Cremation pit 301, dated to the middle Bronze Age, was composed of fragments of Salicaceae and undated cremation pit 98 was dominated by *Alnus/Corylus* type charcoal. The ring-ditch deposits produced low concentrations of charcoal, with *Quercus* and Maloideae present, and the late Bronze Age pit (53) produced a large assemblage dominated by *Alnus/Corylus*. There was some cremated bone present in the cremation samples and also some carbonised material, potentially liquid from the cremation process. Possible modern root contamination was present in both deposits of pit 301 and coal was observed in pits 98 and 269.

Provenance

1.2.4 Four of the cremation pits produced interesting assemblages of reasonable size, with varied taxonomic composition (46, 98, 269, 301). All of these pits appeared to contain assemblages of fuelwood which were dominated by a single taxon (it is assumed that the *Alnus/Corylus* type charcoal is either one or the other as the fragments exhibited similar patterns). The preservation of the charcoal was good, although there were few fragments large enough to provide evidence on woodland management. The potential of these samples to provide informative evidence for burial practices will depend upon further dating evidence being available. The ring ditch and pit samples produced assemblages low in concentration and hence of low potential, with the exception of pit 53, which produced a reasonably sized assemblage.

Conservation

1.2.5 The flots are in a stable condition and present no problems for long-term storage and archive.

Comparative Material

1.2.6 A limited range of taxa were identified at this site. This is to be expected in funerary contexts, where deliberate selection of fuelwood has been noted at other sites. The predominance of a single taxon in Bronze Age cremation assemblages, indicating the use of a single tree or specifically selected species in ritual activities, has been noted at Radley Barrow Hills (Thompson 1999, 352) and at the Rollright Stones (Straker 1988). It has also been suggested that the abundance of oak or ash in cremation deposits, compared to other species, is a result of the pyre structure, the timber from these trees providing the supports in a central position, less likely to have been totally reduced to ash (Gale 1997, 82).

Potential for Further Work

1.2.7 Further work on these samples depends upon obtaining a clearer indication of their date, especially in the case of the cremations. Assuming that these issues are resolved, it is considered that a full discussion of the charcoal from these cremation deposits would allow valuable comparisons to be made with other sites, both regionally and nationally. This would contribute to CTRL research aims relating to ritual practice in the 'early agriculturalists' period, and to change and continuity in burial practice in the late Iron Age and Roman period. A programme of radiocarbon dating would, however, be essential for this study to be carried out. It is recommended that this would be of greatest benefit if carried out as part of a wider study at Landscape Zone level; the results at a site-specific level would not be of particular significance.

Bibliography

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Thompson, G B, 1999, The analysis of wood charcoals from selected pits and funerary contexts, in A Barclay and C Halpin, *Excavations at Barrow Hills, Radley, Oxfordshire,* volume 1: *the Neolithic and Bronze Age monument complex*, Thames Valley Landscapes 11, 247-253, Oxford, Oxford Archaeological Unit

Table 7.1: Summary of charred plant remains

Sample Details					Flot Details						
Sample	**Context**	**Feature Type**	**Phase**	**Sample size (l)**	**Flot size (ml)**	**Grain**	**Chaff**	**Weed seeds**	**Other**	**Charcoal**	**Comments**
4	22	Pit 21	?	40	50	-	-	-	-	+	roots
5	24	Pit 23	?	40	400	-	-	-	-	++++	iron staining
6	36	Pit 35	LIA?	19	150	++	-	++	-	+++	recent roots/tubers
7	43	Pit 42	LBA	14	10	-	-	-	-	+	
15	86	Ring ditch 90	LN-EBA	40	10	+	-	-	-	++	
16	67	Ring ditch 89	LN-EBA	21	20	-	-	-	-	++	
17	68	Ring ditch 89	LN-EBA	15	10	-	-	-	-	++	
18	69	Ring ditch 89	LN-EBA	15	2	-	-	-	-	+	
19	74	Ring ditch 89	LN-EBA	4	10	-	-	-	-	++	
20	79	Ring ditch 81	LN-EBA	36	10	+	-	-	-	++	roots/sand
26	118	Pit 117	MBA	35	10	+	-	-	-	++	
27	168	Ring ditch 156	LN-EBA	20	2	-	-	-	-	+	
32	196	Ditch 190	LBA	19	10	+	-	-	-	+	roots sand
35	200	Ditch 190	LBA	14	2	+	-	-	-	+	
37	219	Pit 217	MBA	24	20	-	-	-	+	++	
38	248	Ditch 190	LBA	40	20	-	-	+	-	++	roots
39	253	Pit 119	?	40	10	+	-	-	-	++	
40	166	Ring ditch 156	LN-EBA	40	10	-	-	-	-	+	
41	177	Ring ditch 156	LN-EBA	40	10	-	-	-	-	+	
42	178	Ring ditch 156	LN-EBA	40	2	-	-	-	-	+	
43	179	Ring ditch 156	MBA	40	10	-	-	-	-	+	
44	164	Ring ditch 156	LN-EBA	40	20	-	-	-	-	++	recent large roots
47	272	Cremation 269	?	16	50	-	-	-	-	+++	
51	267	Cremation 266	?	32	10	+	-	-	-	+	
52	268	Cremation 266	?	14	10	+	-	-	-	++	

+ = 1-10; ++ = 11-50; +++ = 51-100

Table 7.2: Summary of charcoal from cremations

Sample details						Flot details		
Fill of	**Feature type**	**Context**	**Period**	**Sample no.**	**Sample size (l)**	**Flot size (ml)**	**Charcoal**	**Taxa**
301	Cremation pit	299	MBA	50	18	100	++	Salicaceae
		298	MBA	49	40	85	+++	Salicaceae
98	Cremation pit	99	Undated	21	34	165	+++	*Alnus/Corylus*
46	Cremation pit	47	E-MBA	9	30	190	++++	*Quercus* sp. *Fraxinus excelsior*
		48	E-MBA	10	20	135	++++	Maloideae *Fraxinus excelsior*
		50	E-MBA	12	0.9 kg	8	+	*Quercus* sp.
		49	E-MBA	11	2.75 kg	6	-	
44	Cremation pit	45	Undated	8	10	0.2	-	
269	Cremation pit	270	Undated	45	12	175	+++	*Quercus* sp. Maloideae
		271	Undated	46	40	100	+++	*Quercus* sp. *Prunus* sp.
70	Cremation pit	72	LIA-ER	23	36	4	+	*Quercus* sp. Maloideae
		71	LIA-ER	22	16	0.5	+	Maloideae

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

Table 7.31: Summary of charcoal from other features

Sample details						Flot details		
Fill of	**Feature type**	**Context**	**Period**	**Sample no.**	**Sample size (l)**	**Flot size (ml)**	**Charcoal**	**Taxa**
114	Pit	116	Undated	25	2.75 kg	6	+	*Quercus* sp.
		115	Undated	24	10	2	+	*Quercus* sp. Maloideae
156	Ring ditch	187	LN-EBA	29	30	9	+	*Quercus* sp. Maloideae
		188	LN-EBA	30	40	15	+	*Quercus* sp. Maloideae
170	Pit	171	Undated	28	40	5	-	
51	Pit	52	undated	13	10	200	++++	*Alnus/Corylus*
53	Pit	54	LBA	14	10	1	+	*Alnus/Corylus*

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