

## APPENDIX 1 MACROSCOPIC PLANT REMAINS AND CHARCOAL

by Ruth Pelling

### Introduction

- 1.1.1 Samples for the extraction of charred plant remains and charcoal were taken from a range of features including postholes, pits, hearths and ditches as well as industrial furnaces with evidence of iron smelting. The deposits sampled were of Late Iron Age and Roman date. Samples of 3 to 40 litres in volume were processed by flotation in a modified Siraf-type machine. The flots were collected onto a 250 µm mesh and allowed to air dry. A total of 61 samples were submitted for assessment

### Methodology

- 1.1.2 Each sample submitted was first put through a stack of sieves from 500 µm to 2 mm mesh size in order to break the flot into manageable fractions. Each fraction was then scanned under a binocular microscope at x10 to x20 magnification. Seeds or chaff were provisionally identified on the basis of morphological characteristics and an estimate of abundance was made. Charcoal was broken in transverse section and provisionally identified. Quantification was based on a four point relative scale for charcoal (present, common, frequent and abundant), and on numerical estimates for seeds and chaff (1-10, 11-50, 51-100 and >100).

### Quantification

- 1.1.3 A total of 61 samples were assessed, 41 of which produced seeds and/or chaff and 51 produced charcoal. Cereal grain was present in 37 samples, five of which contained over 50 grains. Samples <824> and <818>, produced very large assemblages. Sample <818> contained over 2000 grains, the majority of which were provisionally identified as *Triticum spelta* (spelt wheat). This sample also contained large quantities of glume bases. In total chaff was noted in 31 samples, 6 of which produced more than 50 items (including sample <818>). Overall the cereal species were dominated by *Triticum spelta* with occasional *Hordeum vulgare* (barley) and *Avena* sp. (oats). It was not possible to establish if the *Avena* sp. was a cultivated or wild species. In addition to the cereal remains weed seeds were present in 24 samples, generally in small quantities and two samples produced occasional large legumes recorded as *Vicia/Pisum* sp. (vetch/bean/pea). Occasional *Corylus avellana* (hazel) nut shell was noted in sample <836>.
- 1.1.4 The charcoal was dominated by *Quercus* sp. (oak), while cf. *Prunus spinosa* (sloe), *Pomoideae* (apple/pear hawthorn etc.) and cf. *Corylus/Alnus* sp. (hazel/alder) were also noted. Of the 51 samples that produced charcoal, most contained only small amounts. Two samples produced abundant charcoal with no other charred remains, pit sample <800> and furnace sample <846>. A further 12 samples contained frequent charcoal.

### Provenance

- 1.1.5 All types of feature produced charred seeds and chaff. Sample <818> which produced a very large deposit of grain and chaff was taken from a posthole. Sample <824> which also produced a good cereal assemblage was taken from another posthole. The large deposits of cereal grain and chaff and the consistency of the presence of *Triticum spelta* across the site would suggest that cereal processing activities were taking place and that the remains derive from accidents during processing or storage, or from deliberately burnt and discarded cereal processing waste. Much of

the material is likely to be redeposited, although some *in-situ* burning might be represented, for example in the case of the large amount of grain from posthole sample <818>. The two furnace samples and furnace associated feature sample <805> produced frequent or abundant charcoal with no seeds or chaff. It is reasonable to assume that the charcoal derived from fuel for the furnaces. Charcoal from the hearths may also represent fuel although these deposits were quite mixed and may represent redeposited material.

#### *Conservation*

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

#### *Comparative Material*

- 1.1.7 Assessment of samples from sites along the length of the CTRL and from other sites in Kent suggest that cereal cultivation was well established by the Late Iron Age, although some sites, such as South of Snarkhurst Wood, appear not to have been involved in cereal processing on any scale. The assessment evidence also suggests that all sites in the region produced *Hordeum vulgare*, but there were sites which were concerned with both *Triticum dicoccum* (emmer wheat) and *T. spelta*, such as Thurnham Villa, Eyhorne Street and Beechbrook Wood, and sites which appear to have only utilised *T. spelta*, such as East of Station Road. An earlier assessment of samples from Leda Cottages as part of the Hurst Wood group produced *Hordeum vulgare* and *Triticum dicoccum*, with no *T. spelta*, although the number of samples and quantities of grain and chaff were small.
- 1.1.8 In other well studied areas of southern Britain, such as the Thames Valley and the Hampshire basin, *Triticum spelta* was the dominant cereal cultivated during the Late Iron Age and Roman periods. *Triticum dicoccum* appears as little more than a weed in most areas of southern Britain, although it has been recorded at some sites in the Roman period as a crop in its own right (eg. Pelling 2000). In the north-east of England both *T. dicoccum* and *T. spelta* were cultivated throughout the Iron Age and into the Roman period, where the choice of wheat seems to be based on the agricultural regime of that site (Van der Veen and O'Connor 1998). It is yet to be demonstrated if there was a deliberate choice to grow either spelt, or emmer, or a mixed crop, in the Kent region or if the occurrence is totally random.

#### *Potential for Further Work*

- 1.1.9 The arable economy of Kent is still poorly understood, although work on the CTRL has highlighted some interesting elements which seem to be characteristic of the region, but unlike neighbouring areas. Principal characteristics seem to be the early introduction of spelt wheat in the Middle Bronze Age, at least to the Thames Estuary area (Pelling, unpub.) and the continued cultivation of emmer wheat on some sites through the Iron Age and Roman period. It is important to establish why some sites produce abundant evidence for cereal production or processing and others do not and to attempt to establish why some sites were utilising emmer and spelt and others just spelt. The data from individual sites, such as West of Leda Cottages, form critical components of the broader landscape study in terms of their agricultural relationships. It is therefore recommended that up to 5 samples which produced over 50 items of grain and/or chaff and the two very rich cereal deposits are sorted and examined in full (samples <818, <824>). In addition, the assessment data should also be utilised in the final report.
- 1.1.10 The majority of the charcoal recovered is from redeposited fills of pits, ditches and so on and as such probably represent spent firewood. Oak seems to be the most well represented taxa, as is often the case on archaeological sites, probably reflecting the

availability and usefulness of the tree. Pomoideae likewise tends to be well represented in archaeological deposits. Any analysis of the charcoal from the majority of features is likely to be of limited use. The industrial features on the site may reflect a more deliberate collection and use of wood taxa however, perhaps with taxa selected for its particular burning qualities, temperature ranges and so on. It is therefore recommended that charcoal from the two furnace samples, the furnace associated feature and four or five hearth samples be examined more closely.

#### *Bibliography*

Pelling, R, unpublished a *The charred plant remains from Prince's Road, Dartford*, unpublished report for the Canterbury Archaeological Trust

Pelling, R, 2000, Charred plant remains, in A Roman settlement at Mansfield College, Oxford, *Oxoniensia* **65**, (P Booth and C Hayden), 291-331

Van der Veen, M., and O'Connor, T., 1998, The expansion of agricultural production in the late Iron Age and Roman Britain, in *Science in Archaeology an agenda for the future* (ed. J Bayley), 127-44

Table 7.1: Quantification of charred plant remains by context

Sample	Context	Feature	Sub-group	Spot Date	Sample Volume (l)	Grain	Chaff	Weeds	Other	Charcoal	Notes
800	8006	Pit		LIA/RO	40					4	
801	8008	Hearth			12					3	
802	8010	Hearth			30					2	
803	8012	Hearth			40		1			3	
804	8015	Pit		RO	40					3	
805	8020	Hearth associated feature		LIA; ERO	25					3	
806	8017	Hearth			3					2	
807	8026	Hearth			40			1		3	Metal residue?
808	8023	Hearth			15					3	
809	8022	Hearth		LIA; ERO	30					2	metal residue
810	8032	Ditch		RO	40	1	2	1		1	Roots
811	8036	Pit		RO	40					1	
812	8051	Pit		RO	18	1	2	1		1	
813	8051	Pit		RO	20	1	1			1	Roots
814	8097	Hearth		RO	40	2	3	2		2	Big roots
815	8099	Pit		RO	40	1				1	Big roots
816	8184	Ditch	8624	LIA	40	3	1			3	
817	8192	Ditch	8624		40	1	1			3	lots large roots
818	8163	Posthole	8403		20	2000+	4	2	1		freq. grain /chaff, few weeds!
819	8155	Pit		RO	30	2	3	1	1	3	
820	8197	Posthole	8403		10	1				1	
821	8198	Posthole	8403		9					1	
822	8204	Posthole	8402		10					2	
823	8205	Posthole	8402		10					2	
824	8215	Posthole	8403		40	4	3	1		2	
825	8215	Posthole	8403		4	1	1			1	
826	8216	Posthole	8403		10	1					
827	8060	Layer		RO	40	3	3	3		2	
828	8137	Pit		LIA; ERO	40	1	2	2		1	

Sample	Context	Feature	Sub-group	Spot Date	Sample Volume (l)	Grain	Chaff	Weeds	Other	Charcoal	Notes
829	8143	Pit			10	1	1				
834	8102	Pit	8625	LIA; ERO	20	1		1		2	
835	8303	Pit			16	1		1		2	
836	8309	Pit		LIA; ERO	20	2	1	2	1	2	
837	8322	Pit		RO	40	2	1	1		2	
838	8324	Pit		RO	40	1	2	1		2	
839	8313	Ditch	8629	LIA; ERO	40	2	2	1		2	
840	8330	Pit		LIA	20	1	1			1	
841	8332	pot		LIA; ERO	2	1	1			1	
842	8281	Layer		RO	37	1	1			2	
843	8281	Pit		RO	10	2	2	1		2	rachis + glumes
845	8336	Layer	8300		18					1	Roots
846	8337	Furnace	8300		15					4	All charcoal - large bits
847	8343	Furnace	8300	LIA; ERO	20					3	
848	8368	Posthole	8402		10					2	
849	8369	Posthole	8402	LIA	10					2	
850	8370	Posthole	8402		8					2	
851	8377	Posthole			9		1			1	
852	8380	Posthole	8402		10	2	1	1		1	
853	8381	Posthole	8402		7	3	1	1		1	
854	8387	Posthole	8403		15	2		1		1	
855	8338	Posthole	8300		10	2				1	
856	8441	Ditch	8630	MD	20	1	2	1		1	Roots
857	8443	Ditch	8630	LIA; ERO	20	1	3	1			Roots
858	8445	Ditch	8627	LIA	20	1	1	1		1	Roots
859	8447	Ditch	8627	LIA; ERO	40	1	2	1		1	
860	8499	Tree throw		RO	20	2	2	1		2	
861	8498	Tree throw		RO	20		1			2	
863	8563	Ditch	8626	LIA; ERO	20					3	
864	8580	Ditch	8628	LIA; ERO	20					3	
865	8579	Ditch	8628	LIA; ERO	40	1				2	
	8145	Ditch				1				1	Roots