APPENDIX J ASSESSMENT OF CARBONISED GRAIN

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1.0 BACKGROUND

A pit (F40) located to the centre of an Iron Age enclosure contained several phases of activity which were all sampled separately. The enclosure contained a number of features including a cremation which were surrounded by an enclosure ditch and the pit is thought to correlate with the earliest phase of activity. During excavation little domestic waste was recovered and for this reason it is believed that the site may be ritual rather than domestic in nature.

2.0 METHOD

Three fully processed samples, including both flot and retents, were received for analysis. All charred remains were sorted under a binocular microscope. Identifications were made with reference to the modem comparative collection of Headland Archaeology Ltd. Botanical nomenclature generally follows that of the Flora Europaea (Tutin *et al,* 1964-80).

3.0 RESULTS

All botanical material recovered was preserved by charring the results are presented in Table 1.

3.1 CEREAL REMAINS

The most common component was cereal grain with both barley and wheat being present. Grains of barley were most frequently encountered and the better preserved of these were identified as the hulled variety. Straight (symmetrical) and twisted (asymmetrical) grains were identified where preservation allowed. A ratio of approximately 1:1 straight to twisted was recorded potentially indicating that both the two-row form and six-row variety were present. A small number of barley rachis fragments were also recovered but these were not in sufficiently good condition to improve upon the identifications gained from the grain morphology.

Wheat grains were recovered though not in the same numbers as the barley. The overall morphology was typical of *Triticum spelta* (spelt wheat). Chaff fragments were also encountered though the number present was low relative to the numbers of grain. Most of these were identified as being *T. spelta* though a proportion could not be identified to the level of species.

A small number of oat grains were also present in two of the samples. It is, however, generally impossible to distinguish between the cultivated oats *A vena strigosa* (small/bristle/black oat) and *Avena sativa* (common oat) and the wild species *Avenafatua* purely on the morphology of the grains. Separation of the varieties relies on the floret bases or chaff being present and none were recovered. Nevertheless, the low quantity of grains suggest that they probably represent the wild species *A. fatua* which was probably growing as a contaminant of the main crops.

3.2 OTHER POTENTIAL ECONOMIC SPECIES

A small number of hazelnut shell fragments were recovered from the largest sample (Cl 070). Hazelnuts have been used throughout prehistory as a source of food and these may indicate either a low level domestic activity or the use of hazel as a fuel.

3.3 WEED SEEDS

The weed seed assemblage is extremely sparse with only 1 *Polygonum* sp. (Knot grass) 2 *Rumex* sp. (Docks) and a small number of *Gramineae* sp. (Grasses) being present. These would all be compatible with weeds of cultivation and waste places. The most likely explanation for their presence on site is that they were brought into the settlement as contaminants of the cereals. The low concentrations of the remains, however, make any detailed discussion of field ecology impossible.

4.0 DISCUSSION

There are few Iron Age sites from Yorkshire that have produced assemblages of carbonised cereals. However, there are

precedents for such concentrations of hulled barley and spelt wheat from other Iron Age sites from northern England, notably Thorpe Thewles and Stanwick (Huntley and Stallibrass 1995). The use of spelt in the area clearly predates the Roman occupation with which it is more commonly associated.

The proportions of weed seeds are low relative to grain providing an indication that the crop had been cleaned prior to becoming charred. Two of the samples contained weed seeds which were dominated by large and medium grass caryopses that are close in size and density to that of the grain. It would seem likely therefore that the crop had been both winnowed and sieved in order to remove the smaller, lighter elements. The number of wheat chaff elements (glume bases and spikelet forks) is about 10% that of the grains and can be interpreted in two ways:

A) the majority of the chaff had been ashed (ie a taphonomic explanation)
B) the surviving chaff represents hard-to-remove contaminants of the grain

Under most circumstances spelt is likely to have been stored as spikelets (Hillman 1984) and if the first of these options is correct then this assemblage could represent either a burned store of spikelets or a crop burned during parching of the grain (ie corn drying). If the absence of chaff is real then the wheat grain that was charred must have been fully processed and at least partially cleaned just prior to consumption.

In any event the assemblage would appear to represent the debris from the destruction of a storage context or processing facility by fire. The mixture of wheat and barley in the same context could be explained by the two crops having been stored in the same structure or by there having been grown together in the field as a maslin (mixed) crop. The composition of the three samples is essentially similar although the concentration of cereals remains in C1070 is much higher than the others. This could suggest that all of the charred cereal remains derive from just one incident. There would appear to be no evidence for burning *in situ,* and the presence of burned rubble in the pit might indicate the disposal of demolition debris from a nearby storage structure. The original function of the pit may therefore not have had anything to do with the grain deposited into it. The composition of the cereal remains in this feature stands in contrast to low concentrations encountered over the rest of the site, clearly the charred grain was a localised feature. Its presence would, however, tend to suggest either a domestic or an industrial (ie drying and storage) use to this area.

References

Hillman, G 1981 'Reconstructing crop husbandry practices from charred remains of crops', *in* Mercer, R (ed) *Farming Practice in British Prehistory* (2nd edition). Edinburgh: Edinburgh University Press, 123-162.

Huntley J and Stallibrass 5 1995 *Plant and vertebrate remains from archaeological sites in Northern England.* Research Report No. 4. Durham: Architectural and Archaeological Society of Durham and Northumberland.

Tutin, T.G. Heywood, V.H. Burges, N.A. Valintine, D.H. Walters, S.M. and Webb, D.A. 1964 -80 *Flora Europaea.* Cambridge: CUP.

Table 1 Carbonised Plant Remains

		Horizon	2	2	2
		Description	Pit lining	Pit - burnt grain	Pit - ash
		Context No	1069	1070	1075
		Feature No	40	40	40
		Orig. volume (l)	10	10	10
Latin name	**Plant part**	**Common name**			
Polygonum sp.	nutlet	knotgrass		1	
Rumex sp.	nutlet	dock		1	1
Gramineae (large grained)	caryopsis	large-grained grass		118	6
Gramineae (medium grained)	caryopsis	medium-grained grass		25	
Gramineae (small grained)	caryopsis	small-grained grass		1	
Indeterminate	seed			2	
Cereals					
Triticum cf. dicoccum	caryopsis	emmer wheat		8	
Triticum spelta L. (Motica)	caryopsis	spelt wheat	4	1799	94
Triticum cf. spelta	caryopsis	spelt wheat		329	
Triticum spelta L. (Motica)	spiklet forks	spelt wheat		28	
Triticum spelta L. (Motica)	glume base	spelt wheat		44	
Triticum dicoccum/spelta	spiklet forks	emmer/spelt wheat		20	
Triticum dicoccum/spelta	glume base	emmer/spelt wheat		136	
Triticum dicoccum/spelta	caryopsis with spiklet forks	wheat indet.		20	
Triticum aestivo/compactum	caryopsis	bread/common wheat		8	
Triticum sp.	caryopsis	wheat indet.		238	35
Horedum vulgare indet.	caryopsis	barley indet.	12	2544	282
cf. Hordeum vulgare indet.	caryopsis	barley indet.		1856	34
Hordeum vulgare indet.	rachis internodes	barley indet.		8	
Hordeum vulgare (hulled)	caryopsis	hulled barley	25	4519	358
Hordeum vulgare (hulled - straight)	caryopsis	hulled barley		289	
Hordeum vulgare (hulled - twisted)	caryopsis	hulled barley		320	1
Avena sp.	caryopsis	oat		48	
Cereal indet.	caryopsis	cereal indet		1151	97
Rachis indet.	rachis internodes	cereal indet		8	