Report 4774

THE CHARRED PLANT REMAINS FROM NORTHMOOR, WATKINS FARM
by Lisa Moffett

15/01/86

Samples for charred plant remains were taken from both the Iron Age and Romano-British phases of the site. Part of the object of the sampling programme was to see if there was any change between the phases, but greater emphasis was placed on the Iron Age as there is generally less charred material studied from this period. A further objective was to see if there were any differences in the material between the small enclosures within the main Iron Age enclosure. Differences between these enclosures might perhaps have been related to differences in activities carried out within these enclosures. As is usual on prehistoric sites, the numbers of items recovered in most of the samples were so low that, with a few exceptions, it was not possible to say whether any differences observed were real or not. A number of the samples, particularly the Romano-British ones, contained no charred plant remains at all, other than a few fragments of wood charcoal (unidentified). The difference between which samples contained charred plant remains and which did not did seem to be real, however, and appears to reflect a concentration of activity in one area of the Iron Age site, as discussed below.

The cereal remains consisted of spelt (Triticum spelta),a possible club wheat grain (Triticum cf aestivo-compactum) and six-row hulled barley (Hordeum vulgare). The spelt was identified by its obtuse angled and strongly veined glume bases (the bases of the protective enclosing chaff parts). Only a few glume bases were well-preserved enough to be identified, the rest had to be referred to the emmer/spelt (Triticum dicoccum/spelta) indeterminate category. The presence of emmer cannot, therefore, be entirely ruled out, although there is no direct evidence for it. The barley was identified as the six-row type from one rachis fragment and from one grain which was well-preserved enough to show the asymmetric 'twist' characteristic of the lateral florets of six-row barley. This evidence does not exclude the presence also of two-row barley, but the six-row variety is the kind generally known from prehistoric and Roman sites in Britain.

Many of the non-cultivated species present are plants of both disturbed and arable habitats. A few, such as stinging nettle (Urtica dioica), elder (Sambucus nigra) and henbane (Hyocyamus niger), do not grow as crop weeds and prefer nitrogen-rich habitats and disturbed ground. Hawthorn (Crataegus cf. monogyna) may have been growing either as clumps of scrub or , possibly, as hedges (Robinson, pers. comm.) Spikerush (Eleocharis palustris/uniglumis) is a wet ground plant. It appears in more of the samples than any of the other non-cultivated plants and may have grown in the waterlogged enclosure ditches. All of these plants could have been growing around the site in the disturbed habitats provided by human occupation, and the surrounding grass and scrub. Some undoubtedly were introduced onto the site as weeds in the cereals.

The distribution of the plant remains seems to locate pretty clearly the primary area where crop products were coming into contact with fire and being disposed of, at least in the Iron Age

phase. This area appears to be the northwest side of the main hut circle in the area of feature 487. Other features contain a thin scatter of charred remains, but the distinction between features inside and outside the main enclosure ditch is clear-cut. No charred remains (except a few fragments of wood charcoal) were recovered from the ditch itself or from outside the main enclosure ditch, except for hearth 553. This distribution is hardly surprising, as one would expect the cereal remains to reflect the disposal pattern of domestic rubbish - if the cereals remains themselves were domestic rubbish.

The pattern of distribution and general paucity of remains suggests the small scale processing of cereals for immediate domestic use. Glume wheats such as spelt need to be parched and pounded to release the grain, and the most effective way of removing the waste product - the chaff and weeds - is by winnowing to remove the lighter chaff and weed seeds and then sieving to remove the denser chaff items (such as glume bases and spikelet forks), small dense weed seeds and small tail grains. When this grain processing is done on a large scale, it generates a large amount of the chaff/weed by-product which may be stored and used as tinder (Hillman, 1984a). If the processing is done on a small scale from day to day, the chaff may go straight back into the hearth or oven used for parching (Hillman, 1984b). Both chaff and grains may also become charred as a result of accidents during parching. The numbers of items in these samples are, in the main, too low to attempt to recognise whether they originate from chaff by-products or prime grain products (a minor amount of mixing between crop-processing products is inevitable). Feature 498/4, a burial with burning in the feature, contained mainly emmer/spelt chaff, perhaps used to start the fire, but the total amount of chaff present is small. A sample from the nearby western house enclosure ditch contained mainly grain (chiefly barley) and weeds. These deposits may simply represent two separate incidents of rubbish disposal. The one feature which did contain substantial amounts of charred plant remains (487)appears to be a mixed deposit. A quarter of the items in this sample are prime cereal grains (barley and wheat) with some (mainly spelt) chaff. More than half of the sample was composed of weed seeds, but not all of them were from arable weed species, as henbane and elder were present as well. This suggests that the material was originally derived from several sources, although it could all have become charred at the same time.

There is little detectable difference between the Iron Age material and the Romano-British material except that there is less over-all from the Romano-British phase. The charred remains are still confined to within the main enclosure ditch. There is no visible concentration of remains within the enclosure area, but there are probably not enough samples from this phase within the enclosure area to detect a concentration if one existed. However, most of the Romano-British samples come from the main enclosure ditch and features outside it - a fact which could also account for the apparently reduced amount of material from the later period.

It is not possible to determine from the plant remains if this site was a 'producer' or if it was exclusively a 'consumer'

of crops. The presence of cereals on the site is not necessarily an indication of arable agriculture. In theory a 'producer' site would be expected to have the remains of the types of crop-processing activities which are performed at the site of production, such as the straw remains from the threshing and first winnowing stages (Hillman, 1981). In practice, however, these products are often not found even on sites which are clearly arable farm sites because the circumstances under which these products are likely to be exposed to fire and thus preserved by charring are relatively rare. There is no assemblage at Northmoor identifiable as any of the types of products that would be generated only at a 'producer' site, and there the evidence rests.

An attempt has been made to reconstruct the economy of Iron Age gravel terrace sites by plotting the percentages of grains, weeds and chaff on triangle scattergrams and noting how the assemblages cluster (Jones, 1985). In his article, Jones contrasts the weed-dominated assemblages of two first terrace sites which he interprets as 'consumer' sites (Smith's field and Claydon Pike) with the more grain-dominated assemblages of two sites on the second terrace which he interprets as 'producer' sites (Ashville and Mount Farm). His argument (possibly a contentious one) is that prime grains are more likely to become charred at the site of production. If this theory is correct, then Northmoor, which is on the first terrace, ought to be roughly comparable to Smith's field and Claydon Pike. In fact, the triangle scattergram (fig. X) for the Iron Age samples at Northmoor does not compare very convincingly with either pair of gravel terrace sites. This suggests that perhaps it would be more useful to work from the empirical evidence and to concentrate on determining which types of charred remains we can expect to find on sites where the subsistence base can be deduced by independent means. Only when we have data from more sites to work with will it be practical to try to determine the subsistence base from the charred plant remains alone.

To sum, the relative scarcity and distribution of charred cereal items suggests cereal use and processing on a small or domestic scale. The depositional pattern suggests that the rubbish generated (which may also have included grains accidently charred in a cooking process) was being disposed of on the northwest side of the central round house probably near where these processes were taking place. This pattern of activity might have continued into the later period, but there are too few samples to be able to say. It is not possible to tell from the charred plant remains whether the crops were grown at the site or whether this was strictly a 'consumer' site.

REFERENCES

Hillman, G.C.H., 1981, Reconstructing Crop Husbandry Practices from Charred Remains of Crops, Farming Practice in British Prehistory, Roger Mercer (ed.), Edinburgh University Press.

Hillman, G.C.H., 1984a, Traditional Husbandry and Processing of Cereals in Recent Times: the Operations, Products and Equipment Which Might Feature in Sumerian Texts, Part I: the Glume Wheats, Bulletin on Sumerian Agriculture, vol. 1.

Hillman, G.C.H., 1984b, Interpretation of Archaeological Plant Remains: The Application of Ethnographic Models from Turkey, Plants and Ancient Man, van Zeist and Casparie (eds.), Balkema.

Jones, M., 1985, Archaeobotany Beyond Subsistence Reconstruction, Beyond Domestication in Prehistoric Europe, Barker and Gamble (eds.), Academic Press.

TABLE A
IRON AGE SAMPLES

SAMPLE NO:	553	487	498/ 4	495/ B2	410	425/ 1	425/ 2
CEREALS							
Triticum dicoccum/ spelta rachises	–	2	–	–	–	–	–
T. dicoccum/spelta spikelet forks	–	3	7	–	–	–	–
T. dicoccum/spelta glume bases	2	46	14	3	16	–	–
T. spelta glume bases	–	9	–	1	–	–	–
T. cf spelta grains	–	–	–	–	–	1	–
Triticum sp. grains	–	10	1	4	3	–	1
Hordeum vulgare rachises	–	1	–	–	–	–	–
Hordeum sp. rachises	–	1	–	–	–	–	–
Hordeum hulled grains	–	8	–	–	–	–	–
Hordeum indet. grains	–	18	–	1	–	–	2
Cereal indet. grains	1	55	1	4	6	6	4
Cereal/Large Gramineae culm nodes + bases	–	1	4	–	1	–	–
WEEDS							
Silene sp.	–	1	–	–	–	–	–
Montia fontana ssp. chondrosperma	2	–	–	–	–	–	–
Chenopodium sp.	–	63	–	–	–	–	–
Chenopodiaceae indet.	–	39	–	–	1	–	–
Medicago/Melilotus	–	2	–	–	–	–	–
Trifolium spp.	–	56	–	–	–	–	–
Vicia cf hirsuta	–	–	–	–	–	1	–
Vicia/Lathyrus	–	9	–	1	–	1	–
Large Legume indet.	–	–	–	–	–	–	1
Rosaceae thorns	1	–	–	–	–	–	–
?Rosaceae fruit	1	–	–	–	–	–	–
Polygonum aviculare agg.	–	1	–	–	–	–	–
P. persicaria	–	3	–	–	–	–	–
P. convolvulus	–	2	–	–	–	–	–
Rumex sp.	2	6	–	–	–	1	–
Hyoscyamus niger	–	1	–	–	–	–	–
Veronica hederifolia	–	2	–	–	–	–	–
Euphrasia/Odontites	–	3	–	–	–	–	–
cf Lamium sp.	–	1	–	–	–	–	–
Galium spp.	–	10	–	–	–	–	–
Sambucus nigra	–	1	–	–	1?	–	–
Cirsium/Carduus	–	1	–	–	–	–	–
Compositae indet.	–	–	1	–	–	–	–
Eleocharis palustris/ uniglumis	–	10	–	–	–	–	–
Carex sp.	1	1	–	–	–	–	–
Gramineae indet.	–	5	–	–	1	1	–
Ignota	3	16	3	–	2	1	–

TABLE B
IRON AGE SAMPLES

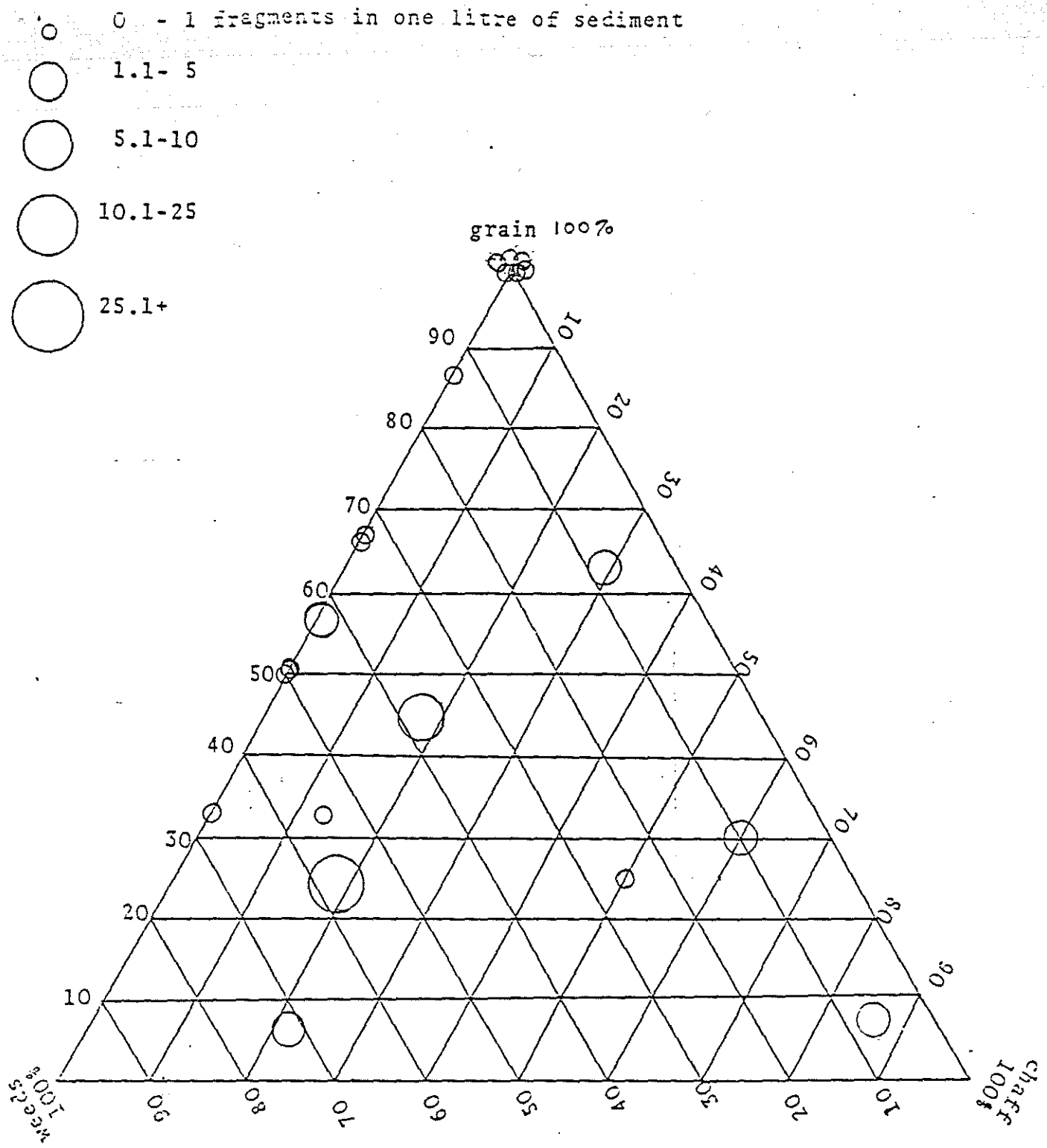
	129/ w	124/ 1	124/ 2	124/ 3	166	125/ 3rd	125/ 6th
CEREALS							
Triticum dicoccum/ spelta spikelet forks	–	–	–	–	–	–	–
T. dicoccum/spelta glume bases	–	–	–	–	2	–	–
Triticum sp. grains	1	1	–	2	1	2	–
Hordeum hulled grains	–	–	–	–	1	–	2
Hordeum indet. grains	–	–	1	–	–	–	1
Cereal indet. grains	–	1	1	1	3	–	1
WEEDS							
Vicia/Lathyrus	–	–	–	–	–	–	–
Urtica dioica	–	–	–	–	1	–	–
Galium sp.	–	1	–	–	–	–	–
Eleocharis palustris/ uniglumis	–	–	1	–	7	–	–
Ignota	1	–	–	–	1	–	–

TABLE C
IRON AGE SAMPLES

	496/ N end	496/ 3	513/ 517	413/ 2	151/ 4th	127/ 2	140/ 3
CEREALS							
Triticum dicoccum/ spelta rachises	1	–	–	–	–	–	–
T. dicoccum/spelta spikelet forks	1	–	–	–	–	–	1
T. dicoccum/spelta glume bases	6	–	–	–	–	–	–
T. spelta/aestivum s.l. grains	1	–	–	–	–	–	–
Triticum sp. grains	–	2	–	1	1	–	–
Hordeum hulled grains	–	1	–	–	–	–	–
Hordeum indet. grains	8	–	–	–	–	–	–
Cereal indet. grains	14	2	2	–	2	1	1
WEEDS							
Stellaria media type	1	–	–	–	–	–	–
Chenopodium sp.	2	–	–	–	–	–	–
Trifolium spp.	6	–	–	–	–	–	–
Vicia/Lathrus	2	–	–	1	2	–	–
Potentilla sp.	2	–	–	–	–	–	–
cf Crataegus sp.	–	–	–	–	1	–	–
Rosaceae thorns	1	–	–	–	–	–	–
Polygonum persicaria	–	–	–	–	1	–	–
P. lapathifolium/ nodosum	2	–	–	–	–	–	–
Galium sp.	–	–	–	–	1	–	–
Compositae indet.	1	–	–	–	–	–	–
Eleocharis palustris/ uniglumis	1	–	–	–	1	–	1
Gramineae indet.	1	–	–	–	–	–	–
Ignota	1	–	–	–	1	1	–

TABLE D
ROMANO-BRITISH SAMPLES

SAMPLE NO:	131/2	134/3	138/1	411/A/2	412/4
CEREALS					
Triticum dicoccum/spelta spikelet forks	1	–	–	–	–
T. dicoccum/spelta glume bases	1	–	–	–	–
T. cf aestivo-compactum	–	1	–	–	–
Triticum sp. grains	1	1	7	–	–
Hordeum hulled grains	1	–	–	1	–
Hordeum indet. grains	1	–	–	1	–
Cereal indet. grains	8	–	4	1	–
WEEDS					
Chenopodium sp.	–	–	1	–	–
Medicago/Melilotus/ Trifolium	3	–	–	–	–
cf Trifolium sp.	–	–	–	1	–
Polygonum cf persicaria	1	–	–	–	–
Urtica dioica	1	–	–	–	–
Galium cf aparine	1	–	–	–	–
Galium sp.	–	–	1	–	–
Eleocharis palustris/ uniglumis	2	–	–	–	–
Avena sp.	–	–	–	1	–
Large Gramineae indet.	–	–	–	–	1



Triangular diagram showing the relative proportions of cereals, chaff and weeds. Each circle represents one sample.

Vorthmoor, Watkins Farm, Iron Age samples