Ancient Monuments Laboratory
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CULTIVATED PLANTS AND DOMESTIC ACTIVITIES: THE EVIDENCE FROM THE CHARRED PLANT REMAINS FROM DEAN COURT FARM, OXON.

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Summary

Some rich cereal and arable weed assemblages were recovered from this Medieval grange owned by Abingdon Abbey. Four sites were involved: Site A was the 12th/ 13th century grange, Site B consisted of a few 12th/ 13th century occupation features, Site C was a 14th century stone building and Site D was the relocated 14th century grange building complex, which included a bakehouse/ brewhouse/ kitchen.

Author's address :-

Department of Plant Biology
University of Birmingham
P.O. Box 363
Birmingham
B15 2TT

021 472 1301 x2666

CULTIVATED PLANTS AND DOMESTIC ACTIVITIES: THE EVIDENCE FROM THE CHARRED PLANT REMAINS

by Lisa Moffett

Soil samples for charred plant remains were taken during excavation from various likely contexts from each of the four sites. Obvious visible areas of charred material were sampled, such as the spreads of charred material from the kitchen at Site D. Other contexts were also sampled, but some contained only a small amount of material.

The samples were processed using bucket flotation, and the collected charred material was sorted by a biotechnician. There was insufficient time to analyse every sample in depth and it was decided that rather than counting individual items it would be more informative to examine as many samples as possible, merely scoring each species in a sample as present, common or very abundant. The results are presented in Table **.

The material consisted chiefly of cereal grains with a few legumes, occasional other food plants and an assortment of mainly arable weeds. Chaff remains were few, suggesting either that there was an extreme difference between the preservation of chaff remains and cereal grains, or that the cereals had already been processed, i.e. threshed and winnowed, before they became charred.

CULTIVATED PLANTS

Wheat

The most common cereal found was wheat. There were two species of wheat, a rivet or macaroni wheat (*Triticum turgidum/durum*) and a bread/club wheat (*Triticum aestivum* s.l.). The cereal grains were in a poor state of preservation and no attempt was made to identify the wheat grains to species. There were, however, a very few rachis nodes (the nodes where the spikelets containing the grains attach to the ear). Rachises are much more diagnostic than the grains and some were well-preserved enough to identify. Using the criteria described by Hillman (Hillman, paper presented to IWGP in 1983, and forthcoming) it was possible to separate the rachis nodes of the *turgidum* group from those of the *aestivum* group.

The presence of a *turgidum* wheat is worthy of note because this species has rarely been found on archaeological sites in Britain and this has, not surprisingly, led to the conclusion that the wheat itself was rare (e.g. Fowler, 1981). There is now a growing body of evidence to suggest that *T. turgidum*, rather than being rare, has been overlooked, perhaps partly due to identification difficulties and partly to the fact that there is often very little rachis material found on Medieval sites (Moffett, in prep.). Rivet wheat produces a poorer quality flour for breadmaking than bread wheat but it is a highly productive wheat (Percival, 1921). Possibly the rivet wheat was being grown with the intention of mixing its flour with that of bread wheat for baking purposes.

Barley

Barley and oats both came well after wheat in abundance.There were no rachis nodes of barley, and the grains were too poorly preserved to show whether there were any of the characteristic 'twisted' lateral grains of six-row barley. It is therefore, impossible to tell if the barley was six-row, two-row, or if both types were present. Only a few grains still retained impressions of the lemma and palea which indicated that the barley was hulled. The presence of naked barley, therefore, cannot be ruled out, although it would be rather unusual.

Oats

Cultivated oats (*Avena sativa*) cannot be separated from wild oats (*Avena fatua or ludoviciana*) without the diagnostic lemma bases. Only one lemma base of *A. sativa* was found in these samples, but it is almost certain that most or all of the oats were cultivated. Wild oats can be a very successful crop weed, and in theory could contribute significantly to the oat grains in a sample. However, as oats were recorded regularly in the accounts of other manors

belonging to the abbey (Kirk, 1892), it is assumed that the oats in the sample represent a crop and not weed contaments. Oats and barley are both traditionally spring sown crops and were often grown together as dredge. In most of the samples these two crops were present in roughly equal amounts, but this does not, of course, show that they were grown together. In the abbey accounts oats and barley are usually two separate entries.

Rye

Rye is the least frequently found cereal on the site as a whole, although it is the second most abundant cereal in a sample from the Site D hall (1016). The element of chance plays such a large part in the preservation of archaeobotanical material that it is usually difficult or impossible to draw reliable conclusions from the relative abundance of different cereals on a site. The relative scarcity of rye in this case, however, is reflected in the surviving abbey accounts of some of the other manors, where rye is almost always represented by the smallest number of quarters accounted for of any cereal, if it is mentioned at all (Kirk, 1892). Rye is noteworthy by its absence from the accounts of most of the Bishop of Winchester's estates, although it does figure in the accounts from one of the Winchester estates in Berkshire (Titow, 1972). Charred remains of rye were occasionally found at Winchester, however, despite the lack of documentary evidence (Green, unpub. M.Phil. thesis). It is quite common from Medieval sites in the West Midlands region and often found in abundance (Moffett forthcoming, a and b). Although there does seem to be some regional variation in the distribution of rye that may be partly related to frequency of particular soil types, these variations have yet to be clearly defined.

Legumes

Legumes found include peas (*Pisum sativum*), beans (*Vicia faba* var. *minor*) and vetch (*Vicia sativa*), from Site D, and beans and lentil (*Lens culinaris* ssp. *microsperma*) from Site A. Most of what is identified in the tables as Legumes indet. is the right size and shape for *V. sativa* and probably is cultivated vetch, but this could not be demonstrated as the hilums had not survived.

Lentil is a rather infrequent find, although lentils are known from Hyde Abbey and Wolvesey Palace in Winchester (Green, unpub. M.Phil. thesis). It is usually rather marginal as a staple crop in Britain, preferring a more Mediterranean climate, although it can do quite well in good seasons on warm soils. Lentils may have been cultivated for food, perhaps as something of a luxury, or, more prosaically, they may have been grown for fodder. The fact that lentils were found on such high status sites in Winchester does seem to argue in favour of their use for human consumption, however, and the grange at Deancourt may well have been producing lentils for Abingdon Abbey.

Apple

Two fragments of apple core (*Malus* sp.) were found on the kitchen floor. Although it is not possible to tell from the core if it was crab apple or cultivated apple, the context in which it was found is certainly domestic enough!

Grape

Two grape pips (*Vitis vinifera*) were found, both from Site D. One came from the hall floor and the other from the kitchen floor. Grapes were grown in the Medieval period both for wine and for verjuice, the latter being widely used in cooking and also easier to produce in the British climate, as the grapes were pressed green. There was a vinyard at Abingdon Abbey, at least during the 13th and 14th centuries, which probably produced more verjuice than wine (McLean, 1981). Vinyards were expensive, as they required specialist expertise to establish and maintain. If there were vines at Deancourt it is likely that there were only a few to produce verjuice for the kitchen, and they might, perhaps, have been trained up the side of the building - a not unusual practice where there were walls made of stone (McLean, 1981). Of course, the grapes need not have been grown at the grange - they could also have come from the abbey or further afield.

Fennel

Two fennel seeds (*Foeniculum vulgare*) were also found on the Site D kitchen floor. Fennel is a popular culinary herb with a long history of use. Its strong flavour, resembling anise, was much appreciated by Medieval people and, like most Medieval herbs, it also had its medicinal uses (Freeman, 1943).

WILD PLANTS

Most of the other species present are weeds of arable and disturbed ground, and most are probably associated with the field crops. The majority of the weeds are not confined to any particular soil type, but there are some that have preferences. Greater knapweed, (*Centaurea* cf. *scabiosa*), hare's ear (*Bupleurum rotundifolium*), corn buttercup (*Ranunculus arvensis*) and shepherd's needle (*Scandix pecten-veneris*) are most common on dry calcareous soils (Fitter, 1978). Sheep's sorrel (*Rumex actosella*) and nipplewort (*Chrysanthemum segetum*) are more likely to occur on acid soils, but they constitute a minor element in the assemblage.

There is also an indication of a flora from heavier and less well-drained soils. Stinking mayweed (*Anthemis cotula*) is often associated with heavy clay soils. Spikerush (*Eleocharis palustris/uniglumis*) requires at least seasonal flooding (Walters, 1949). Both of these plants were present fairly consistently in the samples from all of the sites.

The damp ground element is most noticeable in an early feature from Site A, 1736/4. Spikerush was curiously absent from this sample, but capsules and seeds were found of hard rush (*Juncus* cf. *inflexus*) which grows on damp, heavy, neutral to basic soils (Clapham et. al., 1962). This was associated with numerous sedge nutlets (*Carex* spp.) as well as other plants of disturbed ground or grassland. The general impression from this assemblage is more one of damp pasture than arable ground, although there were still cereals present as well. Possibly this assemblage is of mixed origin, or perhaps cereals were being cultivated on rather marginal damp lowland.

A small but significant hedgerow/ruderal element is also present. On Site A this consists of blackberry/raspberrry (*Rubus fruticosus/idaeus*), hawthorn (*Crataegus* cf. *monogyna*) and hazel (*Corylus avellana*), all of which could have been collected for food. On Site D, in addition to the ubiquitous hazel, there is elder (*Sambucus nigra*), black horehound (*Ballota nigra*) and hedge woundwort (*Stachys sylvatica*). These plants can grow in hedgerows but are not confined to them, growing freely on waste ground, especially where there are rich soils. If the fact that they became charred is due to an association with cereals, then it is more likely that they were growing at the field margins rather than in the fields themselves. Henbane (*Hyoscyamus niger*) and ground elder (*Aegopodium podagraria*) could also be part of this group of plants. They are waste ground or garden weeds and suggest that the ruderal assemblage from Site D may have had its origin in the garden rather than the crop field.

DISCUSSION

Malting?

Despite the presence of apparent malting kilns in the kitchen, none of the cereal assemblages from this area, or indeed elsewhere on the site, show convincing signs of having been malted. Although malting is generally done today with barley, it can be done with any cereal. The grain is first soaked in water to absorb sufficient moisture to allow germination, then the water is drained off and the grain is left in a warm place, usually in small heaps, to germinate. Regular turning of the heaps of grain ensures even germination. The purpose of germinating the grain is to activate enzymes (diastase) which release the starch in the grain and convert it to sugar so that it is available to the growing plant. This sugar is needed by the yeasts which cause fermentation in brewing. When the growing shoot is between 1/3 and 1/2 the length of the grain, the grain is lightly roasted to kill the shoots but not the enzymes, as the diastic activity of converting starch to sugar needs to continue during brewing. This product is the malt. After screening to remove the shoots and rootlets, and crushing or light milling to release the endosperm from the bran, it is ready for brewing (Hunter, 1952). Unmalted grains as well as peas, beans or other legumes can be added during brewing to

increase the starch content. (Kaye, 1936)

When the shoots are growing, they use up some of the starch in the grain, thus causing the grain to begin to shrivel. The growing shoot also leaves a furrow down the back of the grain. Despite the poor preservation of the charred material, these signs ought to have been detectable had the shoots been allowed to grow for the length of time normal in the malting process. In fact, only a very few grains in some of the samples (seventeen out of several hundred grains) showed visible signs of having germinated. There were also no coleoptiles (shoots) in any of the samples. Germinated grains were found of all four cereal genera, though barley and oats seemed to be the most frequently germinated. It is just possible that malt was being produced which had not been allowed to germinate far enough to be detectable in poorly preserved charred material. Corran, in his book on the history of brewing, sites two French historians of Medieval brewing who describe the malting process in a way that seems to suggest that the grain was only just germinated before kilning (Corran, 1975). If this were the case then the grain would not have had time to start to shrivel and the shoot would not be long enough to leave a furrow. One might, however, possibly still expect to find some of the short coleoptiles, as these tend to detach easily when the grain is charred.

Although there does not appear to be very convincing evidence for it from the botanical remains, it is still entirely possible that the kilns were used for malting. Care would probably be taken to protect the malt from smoke as this would affect the taste of the ale. The temperature at which the malt is roasted would also need to be fairly low since the object is to kill the growing shoot without destroying the diastase. The chances of malt becoming charred, therefore, are probably quite small. Perhaps the few definitely germinated grains in the samples are grains of malt which have been dropped or spilled in handling, though they may simply be grains which have sprouted due to a damp harvest.

Baking?

Evidence for baking is even more difficult, since, as with malt, one would not expect the product, i.e. the bread, to become charred except as the result of a rare accident, and then one would not expect to find the evidence since burned loaves would hardly be left in the oven. It is difficult to find a direct connection between baking and the presence of large amounts of charred whole cereal grains. Perhaps loaves were rolled in a coating of whole grains as granary loaves often are today.

CONCLUSION

Whatever the activity that produced the charred material, it seems to have been one that was taking place during the whole period of occupation. The general character of the assemblages from all four sites appears to be very similar, consisting chiefly of a mix of several species of cereal grains with a few legumes, some weeds, and only a few chaff fragments. This type of assemblage is familiar from other Medieval sites, sometimes in rich deposits associated with oven/kiln structures, as, for example, at Stafford (Moffett, forthcoming b), and sometimes more dispersed, generally in association with occupation. Even when ovens/kilns are present, the actual activity which produced the charred material is very difficult to pinpoint, as can be seen from the above discussion. Corn drying is sometimes sited (Jones and Milles,1984), but corn drying seems a most unlikely activity to be taking place in a structure such as Building IX from Site D, and where the archaeology is very suggestive of malting. It also appears from documentary evidence that, although there are many Medieval references to malting kilns, there are no references to corn driers, at least in England (Dyer, pers. comm.). It is quite likely, of course, that there are a number of different activities which give could rise to similar appearing assemblages, but what those activities are has yet to be clearly demonstrated.

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Site A

Key
+=present
++=common
+++=very abundant

	Sample:	211/2 drain, building I	1735/2 ditch	1735/N ditch	1736/4 early feature	1747/N ditch
	Size in litres:	31 L	9 L	13L	9 L	10 L
Triticum turgidum/durum rachis nodes		-	+	-	-	-
Triticum aestivum s.l. rachis nodes		-	+	+	+	+
Triticum spp. free-threshing rachises		-	+	+	+	+
Triticum spp. free-threshing grains		++	+++	+++	++	+++
Secale cereale grains		+	+	-	-	+?
Hordeum sativum grains		+	++	++	+	++
Avena sp. grains		+cf.	++	+	+	++
Cereal indet. grains		++	+++	+++	++	+++
Cereal/Gramineae culm nodes		-	-	-	-	+
Vicia faba var. minor		-	+	-	-	-
Vicia/Pisum		+	-	-	-	+
Lens culinaris ssp. microsperma		-	-	-	-	+
Legumes indet.		-	-	+	-	+
Fruitstone/Nutshell indet.		+	-	-	-	-
Ranunculus acris/repens/bulbosus		-	-	-	+	-
Ranunculus flammula/reptans		-	-	+	-	-
Agrostemma githago (calyx tips)		-	-	-	-	+cf.
Atriplex sp.		-	+	+	+	+
Medicago lupulina		-	+	-	-	-
Medicago/Melilotus/Large Trifolium		-	-	++	-	+
Vicia/Lathyrus		-	+	-	+	-
Rubus fruticosus/idaeus		-	-	+	-	-
Crataegus cf. monogyna		-	+	-	-	-
Scandix pecten-veneris		-	-	+	-	-
Conium maculatum		-	-	+	-	-
Polygonum convolvulus		-	-	+	-	-
Rumex sp.		-	+	-	+	+
Corylus avellana		-	-	+	-	-
Anagallis cf. arvensis		-	-	-	+	-
Veronica hederifolia		-	-	-	+	-
Odontites verna		-	-	+	-	-
Euphrasia/Odontites		-	+	-	+	-
Plantago lanceolata type		-	-	-	+	-
Galium aparine		-	-	-	+	-
Galium sp.		-	-	+	-	-
Anthemis cotula		-	+	+	+	-
Centaurea cf. scabiosa		-	-	-	-	+
Juncus cf. inflexus (capsules +seeds)		-	-	-	+	-
Eleocharis palustris/uniglumis		-	+	+	-	+
Carex spp.		-	+	-	+++	-
Poa sp.		-	-	-	+	-
Gramineae indet.		+	+	-	+	-

Site B

Sample:	545/2 pit	571 pit	576 pit
Size in litres:	10 L	10 L	10 L
Triticum turgidum/durum rachises	-	-	+
T. aestivum s.l. rachises	-	-	+
Triticum spp. free-threshing grains	++	++	+++
Secale cereale grains	-	-	+
Hordeum sativum grains	-	+	+
Avena sp. grains	-	-	+
Avena/Large Gramineae grains	+	++	-
Cereal indet. grains	+	++	+++
Cereal/Gramineae culm nodes	+	-	-
Vicia/Pisum	-	-	+
Legumes indet.	-	+	++
Chenopodium sp.	-	-	+
Medicago lupulina	-	-	+
Medicago/Melilotus/Trifolium	+	+	++
Vicia/Lathyrus	-	-	+
Scandix pecten-veneris	-	-	+
Rumex sp.	-	-	+
Euphrasia/Odontites	-	+	++
Centaurea cf. scabiosa	-	-	+
Galium sp.	-	-	+
Anthemis cotula	-	+	+
Tripleurospermum maritimum	-	-	+
Eleocharis palustris/uniglumis	-	+	-
Carex sp.	-	-	+
Gramineae indet.	-	+	+

Site C

Sample:	764/2 Layer over infilled ditch	775/1 oven fill
Size in litres:	15 L	10 L
Triticum spp. grains	+	++
Hordeum sativum grains	-	+
Avena/Large Gramineae grains	-	+
Medicago/Melilotus/Large Trifolium	-	+
Corylus avellana	+	-
Galium spp.	-	+
Anthemis cotula	-	+
Gramineae indet.	+	-

Site D

Sample:	1016 hall	1513 kitchen	1501 kitchen	1518 kitchen	1519 kitchen	411/6 drain	1574 ?
Size in litres:	8 L	2 L	14L	5L	5L	11 L	?
T. turgidum/durum rachis nodes	+	-	+	+	-	-	+
T. cf. spelta rachises	-	-	-	-	-	+	-
T. aestivum s.l. rachis nodes	-	+	-	+	-	+	-
T. free-threshing rachis nodes	+	-	-	-	-	-	-
T. free-threshing grains	+++	+++	+++	+++	-	+++	++
S. cereale grains	++	-	-	+	-	+cf.	+
H. sativum grains	+	++	+	+	-	++	+
Avena sativa lemma bases	-	-	+	-	-	-	-
Avena sp. grains	+	+	+	+	-	++	+
Cereal indet. grains	+++	+++	+++	+++	++	+++	++
Vicia sativa	+	+	+	-	-	+	+
V. faba	+	+	+	+	-	+	+
Vicia/Pisum	-	++	+	+	-	-	+
Pisum sativum	+	+	-	-	-	+	-
Legumes indet.	+	-	+	+	-	++	++
Vitis vinifera	+	-	+	-	-	-	-
Malus sp. core frags.	-	+	-	-	-	-	-
Foeniculum vulgare	-	-	+	-	-	-	-
Ranunculus a/r/b	-	+	-	-	+	+	+
Ranunculus arvensis	-	-	+	-	-	-	-
Sinapis arvensis	-	-	-	+cf.	-	-	-
Brassica/Sinapis	-	-	-	-	-	-	+
Small Cruciferae	-	-	-	+	-	-	-
cf. Cruciferae capsule frag.	-	-	-	-	-	-	+
Silene vulgaris	+	-	-	-	+cf.	+	+
Silene/Lychnis (frag.)	-	+	-	-	-	-	-
Agrostemma githago	-	-	+cf.	-	+	-	-
Stellaria media	-	-	-	-	+	-	-
Chenopodium sp.	-	++	-	+	+	+	-
Atriplex sp.	+	-	-	-	+	+	+
Malvaceae indet.	-	+	-	-	-	-	-
Medicago/Melilotus/Trifolium	++	-	++	-	++	+	+
Trifolium type	-	+++	++	+	+++	++	-
Vicia hirsuta	-	+	+	-	+	+	-
Vicia tetrasperma	-	-	-	-	-	-	+
Lathyrus nissolia	-	-	+	-	-	-	-
Vicia/Lathyrus	++	++	++	+	++	++	+
Scandix pecten-veneris	-	+	-	+	-	-	-
Bupleurum rotundifolium	+	-	-	-	-	-	-
Umbelliferae indet. (resembles B. rotund.)	-	++	++	+	++	+	-
Aegopodium podagraria	-	+	-	-	-	-	-
Polygonum aviculare agg.	-	+	+	-	-	-	-
Polygonum persicaria/ lapthifolium	-	-	-	+	-	-	+
Polygonum convolvulus	-	-	+	-	-	-	-
Rumex acetosella agg.	-	-	-	-	+	-	-

Rumex sp.	++	++	+	+	++	+	+
Corylus avellana	-	+	+	+	-	-	-
Anagallis sp.	+	+	+	-	-	+	-
Menyanthes trifoliata	-	+cf.	-	-	-	-	-
Lithosperemum arvense	-	+	+	-	-	-	-
Hyoscyamus niger	-	-	-	-	+	+	-
Odontites verna	+	-	-	-	-	-	-
Euphrasia/Odontites	-	+	+	-	+	+	-
Stachys sylvatica	-	+	-	-	-	-	-
Ballota nigra	-	-	-	-	+	-	-
Galeopsis angustifolia	-	-	-	-	+cf.	-	-
Plantago sp.	-	-	-	-	+	-	-
Galium aparine	-	-	+	-	-	-	+
Galium sp.	+	++	-	+	+	+	-
Sambucus nigra	-	-	-	-	+	-	+
Valerianella locusta	-	-	-	+	-	-	-
Valerianella rimosa	-	-	-	+	+	-	-
Valerianella dentata	-	++	+	-	+	-	-
Anthemis cotula	+	+++	++	+	++	+	-
Tripleurospermum maritimum	-	-	-	+	+	-	-
Chrysanthemum segetum	-	-	+	-	-	-	-
Centaurea sp.	-	-	-	-	+	-	-
Picris echoides	-	-	+?	-	-	-	-
Eleocharis palustris/uniglumis	+	+	-	-	+	-	-
Carex spp.	-	+	+	-	-	-	+
Lolium sp.	++cf.	-	++cf.	+cf.	-	-	-
Poa annua	-	-	-	+	-	-	-
Poa sp.	-	+	-	-	+	-	-
Cynosurus cristatus	-	-	-	-	+	-	-
Bromus subsect. Eubromus	-	-	-	-	-	-	+
Phleum pratense	-	-	-	-	+	-	-
Gramineae	++	+	+	-	++	++	+
Culm nodes	-	-	+	-	-	+	-
Tree buds	-	-	-	+	-	+	+