

WHITTLEWOOD PROJECT: ANALYSIS OF THE ARCHAEOBOTANICAL REMAINS

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INTRODUCTION

This report presents the findings arising out of the archaeobotanical analysis undertaken by *ArchaeoScape* for the Whittlewood Project, Northamptonshire. Following recent excavations, bulk samples obtained from an Iron Age enclosure, Roman-British gully (Dagnall Farm, Wicken), medieval features (Silverstone and Weatherhead Farm), and a 13th Century manorial enclosure were assessed with the aim of establishing their potential for providing detailed information on the local environment, and the economy and diet of the site's inhabitants (Vaughan-Williams, 2005). The assessment recommended the analysis of six samples because of the good preservation and concentration of archaeobotanical remains:

- (1) Context (185) from a grain silo at the Iron Age enclosure (site code: WH+)
- (2) Sample <59>, spit (10) from the medieval organic deposit at Weatherhead Farm (site code: LE)
- (3) Contexts (13) (sample <1>, stokehole), (77) (sample <9>, stokehole), (40) (sample <6>, pit) and (99) (context <10>, hearth) from the 13th century manorial enclosure (site code: GFW04)

METHODS

The bulk samples were processed on-site by flotation using 300 micron and 1mm mesh sieves. For analysis, the flots were sorted and identifications were made under a low power zoom-stereo microscope. Identifications were made with reference to the modern seed reference collection at Royal Holloway University London, and Berggren (1981) and Anderberg (1994). Plant nomenclature follows Stace (1997). The results are presented in Table 1.

Taxa description

The glumes and spikelets were used to identify the wheat grains to species. These were primarily identified as emmer wheat (*Triticum dicoccum*) due to the presence of a strong primary keel and a slight secondary keel providing the typical angular appearance. Occasional spelt glumes (*Triticum spelta*) were identified on the basis of lacking a secondary keel, so providing a more rounded appearance, along with strong veins down to the base of the glume.

RESULTS

WH+: Iron Age Enclosure

The assemblage recovered from this grain silo was rich in charred cereal grains, chaff and grasses. Hulled barley (*Hordeum* sp.) and wheat (*Triticum* sp.) grains were nearly 50:50 in ratio. Approximately 50% of the barley grains were identified as straight hulled barley. An abundance of cereal grain ends (*Cereale* indet.) were also present, though were not counted due to the absence of an embryo. Small grasses were a frequent presence, along with chaff in the form of glume bases and occasional spikelets. These were identified predominantly as emmer wheat (*Triticum dicoccum*). Weed seeds were very occasional, represented by a few seeds of common mallow (*Malva sylvestris*) and dill (*Anethum graveolens*).

Weatherhead Farm (LE): Organic Deposit

The organic deposit from Test Pit 59, Spit 10 provided a waterlogged assemblage dominated by the seeds of the marshy celery-leaved buttercup (*Ranunculus sceleratus*). The seeds of rough ground plants accompanied these with taxa such as bramble (*Rubus* sp.), elder (*Sambucus nigra*) and stinking chamomile (*Anthemis cotula*). This latter is also a common arable weed, as are fool's parsley (*Aethusa cynapium*) and field woundwort (*Stachys arvensis*). Fragments of hazelnut shell (*Corylus avellana*) were also recovered from this assemblage.

GFW04: 13th Century Manorial Enclosure

Stokehole deposits (13) and (77) both provided assemblages rich in charred grain and pulses. Context (13) provided a more dense assemblage than context (77) which it overlay, and was dominated by the presence of both hulled barley and wheat grains, along with frequent pulses such as vetches (*Vicia* sp.), peas (*Pisum sativum*) and broad beans. Arable weed seeds were occasional and dominated by grasses. Other typical weeds were represented through the seeds of fat hen (*Chenopodium album*), orache (*Atriplex* sp.), and stinking chamomile. This species also had one pod containing 4 seeds preserved. Stokehole (77) produced a more even spread of barley grain, wheat grain and pulses such as the broad bean, peas and lentils. Occasional weed seeds were recovered in the form of stinking chamomile. Pit fill (40) produced a low density of material consisting essentially of grains of hulled barley and wheat, along with occasional pulses of lentil, broad bean and vetch / pea. Hearth (99) contained frequent fragmented charcoal. The assemblage was numerically dominated by grains of hulled barley and grass seeds. Wheat grains were more occasional (ca. 5:1). Weed seeds comprised about half the assemblage with orache, St. John's Wort (*Hypericum* sp.), stinking chamomile and dock (*Rumex* sp.).

INTERPRETATION

WH+: Iron Age Enclosure

The grain silo from this Iron Age enclosure is unusually rich for a feature of this age. Despite the mix of barley and wheat grain, the assemblage is indicative of having been semi-cleaned prior to storage and then burnt due to the minor presence of small weed seeds, and moderate concentrations of large grass seeds and chaff. When cleaning crops, various stages of sieving are undertaken to separate the grain from the larger and smaller contaminants i.e. large and small weed seeds and chaff. The final stage is handpicking, to remove those contaminants of a similar size to the grain itself (Hillman, 1981, 1984). The presence of large grass seeds and chaff in this assemblage, but an absence of weed seeds, may be a reflection of the harvest having been winnowed, coarse and fine sieved, and then stored prior the final handpicking, which often occurred prior to processing of the cereals. However, there was also an abundance of broken grain ends, and the quantity of chaff recovered is more than would be expected for a cleaned crop at this stage. This is surprising, since chaff is highly susceptible to more rapid combustion than other cereal components (Boardman and Jones, 1990; Gustafsson, 2000). Considering the chaff here was moderately well preserved, it seems unlikely that these items at least were subject to long-lasting, low-intensity heat.

The mixture of cereals recovered suggests that the crops could have been cultivated as field crops or maslins, i.e. sowing two crops in one field, so diminishing the risks of a poor harvest (Jones and Halstead, 1995). Wheat is often considered a more refined crop than barley, but it is more sensitive to fluctuating weather conditions, climate change and adverse soil conditions (Van der Veen, 1992). The cultivation of a maslin therefore potentially provides the population with a much-favoured wheat crop, whilst also providing barley as a safeguard against poor harvests because of its ability to survive in unfavourable environments. Alternatively, the mixture of cereals and the presence of chaff may indicate that assemblages from more than one phase of human activities are represented in the silo, with domestic rubbish (e.g. hearth rakings) deposited in the feature after the fire that caused the charring of the prime, stored grain.

Weatherhead Farm (LE): Organic Deposit

The waterlogged assemblage from Test Pit 59, Spit 10 indicates an essentially damp ground habitat, relating to either marshy ground, or that situated near a water channel, such as a river or a ditch. The latter is more likely in the presence of rough open ground plants such as bramble. The presence of field weeds such as stinking chamomile and field woundwort are

also suggestive of the deposit being near an arable landscape. The fragments of hazelnut shell could reflect the gathering and consumption of these fruits. However, there is no direct evidence to associate them with human activities, nor are they in any concentration, so they may well originate from natural depositional processes.

GFW04: 13th Century Manorial Enclosure

Stokehole deposits (13) and (77), pit fill (40) and hearth deposit (99) all provide evidence that at this time hulled barley (probably 2-row due to the frequency of straight grains), emmer wheat, and pulses including peas, broad beans, lentils and other species of vetch were being cultivated at this site. The lack of chaff in the 13th Century stokeholes and pits is indicative of the presence of only semi, if not fully, cleaned grain at the time of charring. Both clean and semi-cleaned grain was dried in kilns, which is equally beneficial to both types. Storing the grain in its glume provides greater protection from germination and infestations, and the hull around the barley grains were still generally visible. Both emmer and spelt wheat are glume wheat's, which means that they need parching to release the grain from the chaff. Pure grain is also parched as it helps to halt or reduce the problem of germination. Germinated grain was roasted as part of the process of brewing beer (Van der Veen, 1989; Jones et al., 1991).

The presence of large quantities of vetches, peas, and beans along with the grain suggests that the structure was used not only as a brew or malthouse, but also to dry and parch crops in preparation for long term storage. It is probable that the cereals and pulses were grown together as a maslin crop, as has been documented in estate records. Pulses were often used to feed horses and pay workers, although they may well have been imported into nearby urban towns along with the grain (Green, 1984). Beans, peas, lentils and vetches can all be used to bulk up recipes for soups, stews and pottage (Wilson, 1973). The occasional seeds from segetal plants could have become charred either through having escaped crop-cleaning, or through being part of the tinder that started the fire, which would have included the by-products of crop-cleaning along with straw and other waste materials.

Pit (77) contained few remains, but is suggestive of a storage pit. The grains remaining in the fill, along with occasional weed seeds are likely to have become charred through the process of pit sterilisation, which was done by setting fire to the pit (Reynolds, 1974). When in use, straw, which could include chaff, was used to line the pits, and was sometimes also placed between layers (Carruthers, 1995). The grasses may originate from this or from tinder thrown into the pit to start the cleansing fire. The lack of weeds or chaff suggests the crops were fully cleaned prior to storage, however, with such a small assemblage this is by no means certain.

It is possible that the cereals and pulses were (semi-) cleaned, and then dried in the drying kiln before being stored in the pit.

Hearth (99) was similarly poorer in charred items compared to the stokeholes. This is a reflection of the proximity of the material to the fire itself. Weed seeds such as stinking chamomile and the grasses would have been a part of the fuel for the fire (tinder). The presence of barley and wheat grains along with pulses from the pea family (*Fabaceae* sp.) reflects their use in the day to day cooking of the household, with material being accidentally charred either during food preparation or during the cooking itself.

DISCUSSION AND CONCLUSIONS

Iron Age

Hulled barley and spelt wheat are typical cereals recovered from Iron Age sites, with evidence generally pointing to emmer wheat cultivation diminishing around the Bronze Age / Iron Age transition (Carruthers, 1992; Scaife, 1994, 1996). Clearly, this would not have been a sudden change, but would have varied both spatially and temporally. For example, sites along the Upper and Middle Thames Valley indicate that emmer wheat cultivation persisted in this area until the Saxon period (Pelling and Robinson, 2000). These records are consistent with those from WH+, which indicates emmer wheat cultivation along with hulled barley during the Iron Age; although spelt wheat was clearly also present (glume bases). It is possible that context (185) is early Iron Age in date, and therefore represents the transition from emmer to spelt wheat cultivation in this area. Alternatively, the transition may simply have occurred later in eastern and southern regions of England. A further three samples were taken from associated stokeholes of this feature: contexts (132), (162) and (173) (Vaughan-Williams, 2005). They all produced similar assemblages of hulled barley and wheat, though emmer wheat chaff was only also recovered from context (132).

Medieval

The results from Weatherhead Farm are limited but the waterlogged assemblage does indicate an arable landscape, with arable weeds such as stinking chamomile and field woundwort present in the assemblage. The presence of local damp ground, such as natural drainage channels or artificial ditches, is suggested by the presence of buttercup. The hazelnut fragments may reflect the presence of human activity, but their scarcity means they are just as likely to have been consumed by other animals or deposited naturally. Although bramble and elder are edible, they are common wild plants. Aside from dill (*Anaethum*

graveolens), the other seeds preserved are not generally considered edible, and fools parsley is poisonous (Mabey, 1989; Gerard, 1998).

Wheat and barley are commonly recovered from medieval sites, from a broad range of features including hearths, pits and kilns. Bread wheat (*Triticum* sp.) is the typical species from sites of this age, such as found at Stert Street, Abingdon (Jones, 1979), sites in Avebury (Scaife, 1996) and at Newbury in Berkshire (Green, 1999), where a kiln produced a mixture of barley, bread wheat and oat grains plus legumes including vetches. No chaff was preserved in these samples to determine the species of wheat; however, the grains did have the more rounded appearance of free-threshing wheat as opposed to glume wheat's. The assemblages from the 13th Century Manorial Enclosure indicate that along with hulled barley and wheat (probably bread wheat), pulses including the broad bean, lentils, pea and vetches were cultivated. Their presence in stokeholes, as well as an occasional presence in a storage pit and hearth, indicates that they were cultivated in their own right, although probably as a mixed crop, for consumption as well as possibly payment of labour and fodder for animals.

In conclusion, the Iron Age economy of the study area seems to have consisted of emmer wheat, spelt wheat and probably 2-row hulled barley cultivation. It is also possible that this assemblage indicates the beginning of a well-recorded transition to the widespread cultivation of spelt wheat, which was favoured throughout the Iron Age and Roman period. In contrast, the assemblages from the 13th century manorial enclosure included pulses, such as peas, beans and vetches, as well as wheat and hulled barley, indicating their importance in the economy and diet.

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