

60515/ Wilton Autos

## **The Charred and Waterlogged Plant Remains**

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### **Palaeo-environmental summary**

During excavation at the site of Wilton Autos a series of bulk samples were taken for the extraction of charred, waterlogged and mineralised plant remains and any other palaeo-environmental evidence present. Particular focus was given to the large late Saxon sunken feature building and the medieval pits. The data represents the first study of charred plant remains from Saxon period Salisbury and allows some understanding of the cereal economy of the period as well as the use of the sunken feature building. The medieval pits have produced evidence for the disposal of waste food and burnt cereals and the data generated generally fits the pattern emerging for the medieval period in urban and semi-urban centres across southern Britain at this time.

### **Introduction and environmental samples taken**

A total of 59 bulk samples were taken from features within each phase and were processed for the recovery and assessment of charred plant remains and charcoals. Due to the limitations of the budget only 41 samples were examined by 'detailed assessment' methods. The remaining samples were listed and the flot volumes recorded (table 5).

Given the absence of Saxon material from Salisbury, priority was given to the Saxon SFB and associated features. A total of 18 samples were examined from the SFB and internal features including 'floor deposits' (context 550), hearths (features 580, 599) postholes (features 652, 654 and 690) and pits (features 584 and 622). Two further Saxon pit samples were examined from the eastern part of the site (features 392 and 342). It was hoped that the spread of deposits across the SFB would help to establish spatial use of the building and function of the internal features. One sample was examined from a Saxo-Norman pit (feature 342). For the medieval period 16 samples were examined, of 13 were from 10 pits (features 114, 156, 194, 289, 297, 302, 358, 362, 432 and 310). Two were from ditch fills (features 177 and 188) and one was from a post hole (feature 367). Care was taken to select a mixture of basal fills of pits and sample sequences from individual pits. In addition two samples were taken from a large ditch or channel which underlay the Saxon SFB and was thought to be a Pleistocene channel (feature 639).

### **Methods**

Bulk samples were processed by standard flotation methods; the flot retained on a 0.5 mm mesh, residues fractionated into 5.6 mm, 2mm and 1mm fractions and dried. The coarse fractions (>5.6 mm) were sorted, weighed and discarded. Given the tight budget the samples were examined by detailed scanning under a stereo-binocular microscope at x10 – x40 magnification rather than subjecting them to a more rapid scanning followed by detailed examination of a selection. The samples tended to be rich in grain with other items forming minor components of the assemblage. The method adopted was to record cereal grains by counting the total number present and recording the species present on a scale of relative abundance rather than detailed quantification of each grain/species. All other items (chaff, weed seeds and so on) were fully identified and quantified. This method allows more samples to be examined and broad patterns to be recognised without spending considerable time identifying each individual grain. The results are detailed in tables 1 to 3. Identifications follow the nomenclature of Stace (1997). Waterlogged material was

present in quantity in one sample only (sample 26, pit feature 156). A sub-sample of 1 litre had been processed specifically for waterlogged plant remains and had been kept wet. The number of quantifiable items present was low however, the flot being dominated by degraded unidentifiable organic material. The larger bulk sample which had been allowed to dry for the examination of charred remains provided a much larger and more useful assemblage of waterlogged seeds. This flot was therefore carefully scanned and any waterlogged seeds or other quantifiable remains were identified with scored recorded for their relative abundance. The range of species noted is recorded in table 4.

## **Results**

The flots were generally charred with mineralised or waterlogged material present in small quantities in some samples. The charred assemblage tended to be dominated by cereal grain with only limited weeds, chaff and other items. Preservation of the grain tended to be poor, with large numbers of highly pitted grain identifiable by gross morphology only. This sort of assemblage and preservation is typical on late Saxon and medieval sites and is presumably related to multiple factors including the size of burning episodes and heat obtained as well as post-depositional mechanical damage.

### ***Palaeolithic channel***

The two samples examined from the channel deposits tentatively identified as Pleistocene riverine sands contained material more indicative of Saxon or medieval activity including grain of free-threshing wheat (*Triticum aestivum/turgidum* type) and barley (*Hordeum vulgare*). Both can be regarded as either heavily contaminated by later deposits or of later date that speculated.

## **Saxon**

### ***The Sunken Feature Building***

The large sunken feature building was sampled in detail in an attempt to plot variation in occupational activities and so on. Samples were taken from the floor (context 550, feature 551) as well as from internal features: two pits (features 584 and 622), post-holes (features 690, 652 and 654) and multiple samples from two shallow scoops thought to be hearths (features 580 and 599).

The three floor samples and two pit samples produced broadly similar deposits with between 75 to 170 cereal grains dominated by free-threshing wheat and barley, and with rare weeds or other impurities (hazel nut shell, weed seeds). Occasional grains of oats (*Avena* sp.) were also noted and pulses (*Vicia/Pisum sativum*) were present in one floor sample. The floor samples tended to produce larger flots with greater quantities of charcoal, although this was not excessively so and may not be significant. The density of grain in the floor deposits ranged from 4.2 to 17 grain per litre of deposit. The density of grain in the pits ranged from 5 to 25 grains per litre. The weed seeds are of common species of arable fields or other disturbed/cultivated ground and are few in number suggesting they represent occasional contaminants only. The charcoal appears to be dominated by *Quercus* sp. (oak).

The hearths had been severely truncated, only shallow scoops surviving, and this appears to have affected the assemblages. The flots were small with only rare grain and surprisingly small quantities of charcoal (the charcoal was too small and rare for meaningful identification or quantification of taxa); although in part the flot size is related to the small sample size. Two samples from hearth 599 (contexts 609 and 610) produced more substantial flots with nearer 100 grain, forming relatively dense concentrations of remains, which were more concentrated than the floor samples (30 and 10 grains per litre). The proportion of charcoal was still low and it is not clear if

this is related to truncation by later activity, or that the hearth had been cleaned out of charcoal and later reused for waste disposal, or indeed was used primarily for some function involving the roasting of grain. The cereal grain was dominated by free-threshing wheat with some barley. Oats and rye (*Secale cereale*) were present in one sample only (context 610). A single rachis internode of free-threshing wheat in one hearth deposit (context 612) may derive from the use of chaff as fuel (preferable to wood if roasting grain) or may represent an impurity of the grain. A single pulse and a fragment of hazel nut shell in the hearth samples may represent cooking waste. Occasional evidence of other food waste in the hearth samples included two seeds of raspberry/blackberry (*Rubus* sp.), two elderberry (*Sambucus nigra*) seeds and occasional fish and mammal bone fragments.

The posthole samples again produced small flots with little charcoal and with a modest quantity of grain comparable to the floor deposits (4.3 to 8.3 grains per litre deposit). Free-threshing wheat grains were most numerous with occasional barley and oats, and with rare rachis segments of both wheat and barley. An unusual find was a single possible spelt grain (*Triticum* cf. *spelta*) in the upper fill of the post hole (sample 198). The identification of this grain is tentative and there is no other evidence for spelt wheat from the sunken feature building. It is likely that this grain is a flattened bread wheat type grain or that it represents intrusive material resulting from Roman or prehistoric activity on the site. Small numbers of weed seeds in the post-hole samples included legumes of intermediate size which may represent small cultivated varieties or large weedy forms.

#### ***Other Saxon pits***

Two additional Saxon pits (features 392 and 342) were examined from the eastern area of the site. Both deposits produced similar flots dominated by free-threshing wheat. Pit feature 342 in particular produced a fairly substantial grain rich flot which also contained numerous grains of barley and occasional oats and rye with occasional chaff. Both samples produced occasional weeds of arable or ruderal habitats most of which are likely to have originated in the arable fields with the cereals.

#### ***Saxon-Norman***

A single sample from a Saxo-Norman pit was examined (feature 342). The sample produced a small flot with free-threshing wheat grain and occasional barley and a small quantity of charcoal. In addition occasional elderberry seeds and fish scales were present.

#### ***The Medieval Pits***

The medieval pit samples tended to produce much larger flots than the Saxon features with a greater density of cereal grains, although this was not universally the case. Multiple samples were examined from two pits: three from pit 156 and two from pit 289. The basal fill of pit 156 produced a large flot with waterlogged material as well as charred grain and occasional chaff and possible pulses. The upper fills produced greater quantities of charred grain and occasional impurities (weeds and chaff). The middle fill (context 231) was particularly rich, over 500 grains being recovered. In all three samples free-threshing wheat and hulled barley were present in similar proportions with occasional oats. Grains of oats were more common in the middle fill (context 231). Occasional fish bones/scale and fragments of hazel nut shell (*Corylus avellana*) are indicative of domestic type rubbish. The waterlogged deposit (context 200) produced a large flot dominated by degraded organic matter and a range of wild species typical of disturbed habitats, such as red campion (*Silene dioica*), hemlock (*Conium maculatum*), sun spurge (*Euphorbia helioscopia*), knotgrass (*Polygonum aviculare*), common and small nettles (*Urtica dioica* and *U.*

*urens*), and hawkweed ox-tongue (*Picris hieracioides*). Such species are likely to have been growing within the site around the pit features. The presence of seeds of buttercup (*Ranunculus acris/repens/bulbosus*), sedges (*Carex* sp.) and common spikerush (*Eleocharis palustris*) is suggestive of damp grassy conditions in the vicinity of the pit. Of more interest were several seeds of probable hemp (*Cannabis sativa*). Preservation of the material was not sufficient to positively rule out hops (*Humulus lupulus*), although the seeds were much larger than would be expected for this species suggesting hemp to be more likely. Hemp was widely grown as a fibre plant in medieval England and is frequently found on settlement sites (Greig 1995).

Two flots were recovered from pit 289, both of which were rich in cereal grain with some chaff and weed seeds. The number of weeds in the lower fill (context 290) was higher than for any other sample on the site and included numerous seeds of stinking mayweed (*Anthemis cotula*), a troublesome arable weed which forms seed clusters. Both samples contained grain of free-threshing wheat and barley in similar proportions with occasional grain of oats and rye. Chaff included rachis of both wheat and barley. The chaff and weeds are likely to represent impurities in largely processed grain, the higher number perhaps indicative of a grain deposit which was been less thoroughly cleaned.

Of the remaining samples examined from this phase one deposit from the upper fill of a ditch (context 216, feature 177) produced a large grain assemblage dominated by free-threshing wheat. Grain of barley and oats were rare and rye was absent. This deposit had a slightly higher than average number of rachis segments including of rye, although given the number of grain this is interpreted as impurities of the grain rather than the result of a separate activity involving chaff. Weeds were of common arable/ruderal species such as corn gromwell (*Lithospermum arvense*) stinking mayweed).

The remaining deposits examined produced modest flots, all with low quantities of grain (up to 50) and occasional impurities (weeds and chaff). Possible pulses were present in one pit/post-pit deposit (feature 114) and one ditch deposit (feature 188). Generally these samples were taken from the basal or secondary deposits of pits. There was no evidence for primary sewage/cess-pit type deposits suggesting that these pits were backfilled with general domestic refuse including burnt cereal grain and occasional hazel nut fragments. One primary fill contained occasional waterlogged material (pit 194, context 195) although preservation was poor and the only species identified were numerous seeds of raspberry/blackberry (*Rubus* sp.) and a single seed of fig (*Ficus carica*). This latter species hints at a relatively sophisticated diet with the consumption of imported fruit.

## **Discussion**

### ***The cultivated species***

Generally the range of cultivated species is as would be expected for a late Saxon and medieval site. Two grains of possible spelt (one in a Saxon feature and one in a medieval pit) are likely to be derived from earlier re-deposited material or may simply be slightly malformed free-threshing grain. Only one variety of free-threshing wheat was identified, the hexaploid *Triticum aestivum* (bread type) type. Tetraploid wheat is recorded in increasingly regularity from the 11<sup>th</sup> century onwards (Moffett 1991) and while occasional earlier late Saxon finds are known (Campbell 1994; Pelling in prep.) including a possible example from Harnham in Salisbury (Stevens unpubl.), it does not appear to be widely cultivated prior to the Norman Conquest. The paucity of chaff (the ploidy level of free-threshing wheat cannot be determined on grain) at the site is such that its presence in the medieval period may be masked by preservation. Free-threshing wheat is the most well represented cereal on the site throughout the period

represented and is likely to have been the major bread crop. The importance of barley may also have been significant and it occurs in similar proportion to the wheat in several samples, both from Saxon features and the medieval pits. While barley may often represent a fodder crop, there is no other evidence for fodder in the sunken feature building and it may therefore represent a food crop. Rye and oats were rare in samples from both phases. Rye was particularly rare in the Saxon period, possibly slightly increasing in number during the medieval occupation, although never apparently significant.

The relative roles of the various cereals are difficult to assess, particularly as the minor crops may be under-represented. If rye and oats were used as fodder crops for example it is possible that they were simply not frequent burnt with other domestic food crops. The dominance of free-threshing wheat and barley, with rye and oats as occasional rare presences only, has been noted on a number of sites from the Saxon period in southern Britain such as Southampton (Monk 1978; Hunter 2005), and surrounding region (Carruthers 1991; Green 1991; 1994). Rye seems to be present in larger quantities only in exceptional deposits where its presence must in part be the product of chance preservation (eg Green 1994). Elsewhere in Britain rye appears to have been much more important, for example in parts of East Anglia there is evidence for the cultivation of rye on the sandier Breckland soils from the middle Saxon period (Murphy 1983; Grieg 1991), while at Stafford and rural West Cotton there was good evidence for the specific use of rye chaff as a fuel or kindling in ovens (Moffett 1994; Campbell 1994).

The absence of oats in the samples may similarly be a product of preservation. There are historical records of large amounts of oats being cultivated in late Saxon and medieval Britain (Green 1981), although large deposits of burnt grain only occur occasionally and seemingly by chance. Thus it is likely that oats and rye were cultivated more widely than is frequently indicated by the charred remains and their paucity is a product of differential use rather than cultivation.

The evidence for the use of cultivated crops other than cereals is slight at the site. In the Saxon period there is slight evidence for the cultivation of pulses of unknown species. Fragments of hazel nut shell are typically found on Saxon and medieval sites and they would have represented an easily available wild resource. In the medieval period sloe is also represented although it is not possible to establish if this represents fruit burnt with fire wood or for culinary use. Finally there is evidence for the use of hemp in the medieval period. The cultivation of hemp as a fibre plant in Europe has been known since prior to the Roman period (Gale & Cutler 2000) and it was a tithable commodity in Britain by 1175 (Beck 1886). It produces a strong fibre used in cordage, nets, canvas, cloth and in carpet manufacture. When cultivated for its fibre the plants are uprooted before full maturation (Gale and Cutler 2000), then steeped in water. While hemp seeds are occasionally found on urban sites in York, London and Norwich (Grieg 1991) evidence for retting sites is much rarer and tends to be out of town, for example in bogs and fens (Bradshaw et al. 1981), as it also seems to be for flax. It is possible that the hemp seeds in the pit deposit at Wilton were immature, and it is plausible that retting was taking place in medieval Wilton, an area renowned for its textile and carpet manufacture.

### ***Sample composition***

The samples examined from the Wilton Autos site, with the exception of the waterlogged deposit from pit 156, have been dominated by charred cereal grain with occasional impurities (pulses, weeds and chaff) and charcoal. In general it is likely that the cereals were brought into the site in a processed state and the deposits represent grain burnt in repeated small scale events rather than fewer large scale

catastrophic burning events. The condition of the grain was generally poor with much pitting, indicative of oxygenating conditions. In the event of a major burning episode it would be expected to find better preserved grain and greater quantities of charcoal. It is possible then that the grain was regularly parched prior to milling making small scale milling much easier (parching is not necessary for industrial size mills). Alternatively damaged grain infected with fungal or insect infection may have been destroyed regularly on domestic fires. If rye and oats were more usually used for fodder crops, or even for their straw in the case of rye, it might not be expected to recover them in charred deposits as regularly. The uniformity of deposits in the SFB would indicate that the material derives from one large event or again that it represents a series of similar events over time. For example, it is possible that the contents of hearths were regularly swept out and the waste put into pits, or simply spread across the floor where they also ended up in post-holes. In the medieval period the presence of occasional hemp seeds may point to hemp retting activities on the site, although this can not be conclusively demonstrated.

While there are occasional indeterminate mineralised seeds and fragments in the pits, as well as fruit remains including fig, there is no clear evidence for the presence of sewage waste. The pits appear to contain domestic waste dominated by burnt cereals with occasional bones/fish fragments rather than sewage. Mineralised material in cess-pits tends to be a product of more urban centres which is presumably related to opportunities for waste disposal. Generally the deposits at Wilton are typical of semi-rural sites of mixed economy.

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