

Report on the analysis of a sample of richly organic medieval occupation
sediment from excavations at 24-6, The Bolts, Scarborough, N. Yorkshire

Preliminary examination has been made of a sample of richly organic sediment from excavations at 24-6 The Bolts, Scarborough, at the request of T. Pearson (Scarborough Archaeological and Historical Society/York Archaeological Trust) to evaluate the potential for further analysis of biological remains.

A 'test' subsample of 1 kg was disaggregated in the laboratory and subjected to paraffin flotation following the usual methods employed by the Environmental Archaeology Unit. The resulting 'flot' was examined for insect remains, the residue for plant remains and other components. A small subsample was checked by means of a 'smear' for parasite ova, but none were recorded.

The large residue, mainly of plant remains, from this blackish, more or less 'felted' silty detritus indicates the highly organic nature of the deposit. The dark colour partly reflects the presence of charcoal, but probably much more results from sulphides (H_2S was released on addition of dilute HCl to a little of the sediment). There was only a small proportion of mineral particles in the range 0.2-c.5 mm; most of the residue comprised plant tissue - probably deriving from woody and herbaceous stems and leaves. Amongst these were considerable amounts of fragmentary stem ('rachis') and frond ('pinnule') of bracken (*Pteridium aquilinum*), root/twig and shoot fragments of heather/ling (*Calluna vulgaris*) and some stem ('culm') fragments of grasses/cereals, including characteristic 'nodes'. Mixed with these were wood chips - some identifiable as ash (*Fraxinus*), alder (*Alnus*) and oak (*Quercus*) - leather offcuts, fish bone and some charcoal.

Amongst the plant remains recorded from the remainder of the residue, the best represented groups were foodplants, heathland/moorland taxa (partly a function of the large proportion of heather) and weeds of cornfields and other cultivated soils. The foodplants included fig (*Ficus carica*), walnut (*Juglans regia*) and hazelnut (*Corylus avellana*), with waterlogged remains of cereals - grains or 'bran' fragments of oats, wheat/rye and barley. The flax (*Linum usitatissimum*) seeds and capsule fragments may indicate the use of this plant for fibre or for its oily seeds (which appear to have been widely eaten in the past).

The heathland/moorland component was mainly *Calluna*, but there were also numerous leaves of cross-leaved heath (*Erica tetralix*), a species favouring the wetter parts of heaths and bogs. The trace of *Sphagnum* may be linked with this component - possibly plants brought for bedding (an origin in imported peat seems less likely).

The mosses are primarily species of woodland habitats and may have been brought with leaf litter or on tree bark. Some are species commonly associated with latrine pits, however, where they are likely to have served as toilet tissue. In the present case, however, the absence of parasite ova suggests that the cereal 'bran' and mosses are *not* indicative of human faecal remains; they may be from stable clearings, for example. Here, the presence of probable straw, and a suite of cornfield weeds may be significant, though of course straw is as likely to have been used within human habitation as in animal housing. The presence of hay or undigested plant remains in herbivore dung may be reflected in the records for taxa like the legume flowers (probably including clover, *Trifolium*), *Rhinanthus*, *Prunella vulgaris* and *Bellis perennis*, though the last two of these might have originated in local turf by paths or roadsides.

Moderately large numbers of insect remains were present in the 'flot', and their preservation was excellent (specimens of some species which normally lose their superficial hairs as fossils retained an almost complete pubescence). There were abundant fly puparia of at least three species, together with unusually well preserved mites and a single scale insect. Subjectively, the insect assemblage was of low diversity, suggesting a restricted range of habitats.

The majority of the insect remains were Coleoptera (beetles), the most numerous being *Sitophilus granarius* (the grain weevil), and *Xylodromus concinnus* (found in decaying matter of various kinds, but also a typical domestic/stored products species). A second typical grain beetle, *Oryzaephilus surinamensis*, was represented by several specimens. Some of the *S. granarius* were somewhat pale and may have been incompletely darkened, suggesting that they had not emerged from the cereal grains in which they developed. Most of the remaining beetles were of species often found in rather dirty buildings and stored products, although all can exist outside buildings. Notable were several woodworm beetles (*Anobium punctatum*), the spider beetle *Tipnus unicolor* (typical of old, rather damp buildings), and the mealworm, *Tenebrio obscurus*.

A small proportion of the beetles were of species requiring outdoor habitats. Of these, only *Cercyon depressus*, found in decaying matter by salt water, was represented by more than one individual, however, and means of introduction of the remaining species cannot be determined. It might be hazarded that *Sitona hispidulus*, which feeds on Leguminosae, was imported with cut vegetation, but its size and density make it possible that this weevil passed through the cleaning stages of grain - or, of course, through one of several other mechanisms.

It is likely that the majority of the beetles were imported with the material forming the layer; only *C. depressus* seems certain to have invaded *in situ*, although a few of the rarer species (for example *Aphodius granarius*) may also have done so.

The overall interpretation of this deposit is that it consisted primarily of domestic refuse including a proportion of spoiling grain, containing weevils and other pests, straw and perhaps also hay. Bedding or litter including bracken and heather was another important component. On the basis of these analyses, there is no evidence for human faeces, though (on the basis of plant remains alone) animal dung may have been present. The insect remains give no evidence for the development of large populations *in situ*, suggesting that the material was either sealed rapidly or deposited in winter.

Clearly this deposit is deserving of further analysis, and in particular we recommend that bulk-sieving of, say 35kg, be carried out to retrieve small bone and large plant remains. A series of samples through the layer - and, indeed, of the 'peat' underlying this context - would be of very great use in exploring changes through time and determining whether the layers were uniform or originated as a series of dumps of different kinds of material. It should also be possible to discover more concerning environment and activity at and around the sources of the dumped material.

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