

ARH

# Biological analyses of samples from 20-4 Swinegate

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by

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## Summary

A small series of samples from excavations at 20-4 Swinegate were examined for biological remains and for their lithological nature. Amongst the samples there were spot finds of bird eggshell and fish bones, and a sample rich in small burnt and unburnt peat fragments. The contents of a pot proved to be lime. Another sample comprised faecal concretions, presumably of human origin.

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Eight samples of various kinds were submitted for examination of their content of animal and plant remains and the nature of their lithology. The results of the examinations are presented in context number order. Remarks or queries from the excavators follow the context number, in brackets.

**Context 1006** [fish bones]

Sample 2: a small collection of fish bones.

These remains were identified as several head bones of herring (perhaps one individual), several fin rays (probably also of this species) and two branchiostegal rays of a gadid (cod family). The herring head bones comprised single pre-opercular, interopercular, subopercular, opercular and parasphenoid and two cleithra.

**Context 1016** [context sample; apparent high content of copper oxide; possible metal-working residue]

Sample 1: mid-dark grey, crumbly, slightly silty fine sand with traces of tiny fragments of brick/tile, occasional small pellets of grey clay and coal to 40 mm maximum dimension. There were also occasional small patches of blue-green crystals of ?copper salts.

A 1 kg subsample was disaggregated in water and sieved to 300 microns; the fine fraction was noted as being rich in soot/fine charcoal. The residue consisted of large amounts of sand and gravel, with some clinker-like glassy slag up to 20 mm, a little bone, charcoal, brick/tile and a trace of chalk. There was a single fragment of brightly blue-green-stained bone to 15 mm, a fragment (about 10mm) of blue-green-stained (mineralised) plant detritus and occasional clasts of undisaggregated sediment containing blue-green crystals. The residue was dried and passed to York Archaeological Trust for further analysis.

The nature of this material is a mineralogical rather than biological question, but it seems likely that some copper salts were present, perhaps corrosion products from copper/copper alloy artefacts or metal-working.

**Context 1043** [layer of concretions - iron panning?]

Sample 3: mid-dark grey-brown, crumbly, sandy clay with traces of mortar and brick/tile and abundant brittle, dark brown concretions; some patches of orange (?oxidised) matrix.

A small fragment from one of the irregularly-shaped concretions, which were up to about 40 mm in maximum dimension, was treated with dilute hydrochloric acid. The resultant solution was examined under a transmission microscope and found to contain eggs of the gut parasites *Ascaris* (roundworm) and *Trichuris* (whip-worm). There is little doubt that these were faecal concretions, probably of human origin. They were, however, very poorly preserved and, apart from some mineralised ?straw culm (stem) fragments, plant remains (and in particular foodplants) were not observed.

**Context 1073** [spot finds of eggshell]

Samples 5 and 6: both contained fragments of bird eggshell, the largest up to about 10 mm across. Though they cannot be identified with certainty, they are consistent with eggs such as those of domestic fowl or similar-sized birds.

**Context 1077** [fill and contexts of pot 1073]

Sample 4: light grey-brown, crumbly to brittle (though thixotropic when handled), slightly silty fine sand; however, on treatment with dilute hydrochloric acid, virtually all of the matrix dissolved with great effervescence, leaving a few sand grains and tiny fragments of brick/tile and charcoal. The 'sandiness' may have been largely caused by granular white calcareous detritus observed under the microscope during acid treatment.

This appears to have been almost pure lime, with only a rather small amount of contaminant material.

**Context 1089** [deposit with high ash content]

Sample 7: mid orange-grey-brown, crumbly (though thixotropic when handled), somewhat heterogeneous, calcareous sandy silt with abundant fragments of peat to 20 mm maximum dimension and small glossy iron-rich concretions to about 10 mm.

The peat fragments, which on disaggregation were found to make up a very large proportion of the sediment, and some of which were charred, were examined more closely; they contained spores of the bog moss *Sphagnum*, and in places leaves of *S. imbricatum*. This moss was a major peat-forming species in the post-glacial and has been recorded repeatedly from urban archaeological deposits in York. This material was presumably brought for fuel. The concreted material is also thought to be peat, impregnated with iron salts, and perhaps naturally occurring (?bog ore).

**Context 1110** [context sample]

Sample 8: mid-dark grey-brown, crumbly, slightly silty sand with abundant very fine charcoal (soot?) and abundant bright orange-red indurated clay clasts (to about 25 mm maximum dimension), presumably daub, hearth lining or some similar burnt clay.