

**Report on some concretions from excavations
at the Priory, Isle of May 1996**

by

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Summary

The results of some analyses of concretions from the fill of a rock-cut shute beneath the reredorter of the Priory on the Isle of May, Scotland, are described. Several of the concretions contained small amounts of organic matter and in two cases eggs of the intestinal parasitic nematode Trichuris were observed. With these in one sample were traces of cereal 'bran' and pollen probably including that of cereals. This evidence, together with the identification of the Trichuris as T. trichiura, the whipworm of humans, suggests that at least some of the concretions contained or were largely composed of human faecal material.

Keywords: ISLE OF MAY; MEDIEVAL; CONCRETIONS; PLANT REMAINS; POLLEN; PARASITIC WORM EGGS; TRICHURIS; HUMAN FAECAL MATERIAL

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Introduction and methods

Three samples of concreted material from the fills of a rock-cut shute beneath the reredorter of the Priory on the Isle of May were submitted for investigation of plant and invertebrate remains, with the specific aim of looking for eggs of parasitic worms and for food remains, as evidence that the concretions contained faecal material.

During an initial examination of all the material, subsamples of a few milligrammes were dissolved using dilute hydrochloric acid. On the basis of this work, two samples in which eggs of the whipworm, *Trichuris*, were detected were selected for a more detailed analysis and further subsamples from these were disaggregated and slides prepared for examination under the transmission microscope.

The following account presents the results from the two parts of this exercise. The data pertaining to those *Trichuris* eggs which could be measured are shown in Figure 1, and Table 1 summarises the material identified from these subsamples.

Context 11, Sample 459

The sample comprised three fragments of concreted material, two (numbered 459.2 and 459.3 by the author) very sand-rich, with a resinous mid-brown matrix, the third (459.1) with a more or less amorphous pale brown matrix, mineral-replaced plant fragments and a fragment of cancellous bone. All three fragments were calcareous, especially 459.3.

The suspension from the subsamples from 459.1 revealed mainly unidentified plant tissue and amorphous organic material, with some phytoliths, plant hairs and arthropod cuticle; there were moderate numbers of cereal/large grass pollen grains and a single pollen grain of cornflower (*Centaurea cyanus*). A few small fragments of wheat/rye (*Triticum/Secale*) 'bran' were noted (in one case a fragment consisted of the periderm layer, together with some of the less often preserved 'cross cells'). Small numbers of *Trichuris* eggs were present; most were very well preserved, retaining both polar plugs and in many cases also some cell contents.

The suspension from the subsample of 459.2 was found to contain a trace of plant tissue which might have been cereal 'bran', but otherwise only small subspherical bodies containing several small chambers or plastid-like structures were observed; these may be algal in origin but are not so far identifiable.

In the suspension from the subsample from 459.3 a few very decayed plant fragments were observed, together with some amorphous orange-brown humic matter, and also a few (unidentified) pollen grains.

Context 42, Sample 1216

Whitish to orange-brown, more or less vesicular concretions perhaps of different parent materials. All were more or less calcareous. Five clasts were separately numbered and examined:

1261.1: sub-spindle-shaped, iron-rich, perhaps largely iron-corrosion from an artefact. The suspension contained amorphous orange brown organic matter

and ?phytoliths, but nothing diagnostic was observed.

1216.2: large sub-spherical concretion, very heterogeneous, with rare plant tissue casts, iron-varnished vesicles, igneous rock fragments. This was perhaps another iron object? The suspension included some very decayed plant fragments, ?amorphous organic matter and some fine (< 0.5 mm) charcoal.

1216.3: sand grains cemented with dark brown resinous-looking matrix. The suspension contained some fine plant detritus, including epidermis fragments with long and very dense hairs, and some insect cuticle.

1216.4: pale, undense concretion with a cast of a mineral-replaced fly puparium and mineral-replaced plant tissue, including ?wood. Some dark brown resinous matrix was also noted. The suspension yielded plant and insect cuticle fragments, and pollen (including ?plantain, *Plantago*).

1216.5: light brown, somewhat undense, with some plant tissue casts; internally, dark metallic and varicoloured brittle matrix. The suspension contained a few scraps of plant tissue and invertebrate cuticle (?fly puparium).

Context 45, Sample 1220

This sample consisted of three fragments of more or less spongy pale brown, slightly calcareous concretion with some coarse mineral-replaced plant fragments, mineral-replaced fly puparia or casts thereof. The two suspensions (from one of the three fragments only) was found to mostly amorphous organic matter with some very decayed plant tissue. Traces of well-preserved *Trichuris* eggs were noted (data in Table 1).

Discussion

There is little doubt that several of these concretions contained or, indeed, consisted of, faecal material and, on the basis of the measurements of *Trichuris* eggs this was probably human in origin (the y are closely similar in size to the eggs reported by Jones (1983) from a human stool of Anglo-Scandinavian date from a site at 6-8 Pavement in York). Slight evidence for cereal-based foods in the form of 'bran' (and probably also the grass/cereal and cornflower pollen) was found in one of the samples, but in general plant material was not well enough preserved to be identified. The presence of fly puparia in some specimens is typical of but not necessarily diagnostic for concretions containing faecal matter.

Reference

Jones, A. K. G. (1983). *A coprolite from 6-8 Pavement*, pp. 225-9 in Hall, A. R., Kenward, H. K., Williams, D. and Greig, J. R. A., Environment and living conditions at two Anglo-Scandinavian sites. *The Archaeology of York* 14(4). London: CBA.

Table 1. Summary of results from analyses of subsamples of concretion from excavations at the Isle of May. Remains are scored on a three-point scale from + (ne or a few examples noted) to +++ (a major component of the subsample(s) examined).

Contexts	11			42					45
	459.1	459.2	459.3	1216.1	1216.2	1216.3	1216.4	1216.5	1220
amorphous organic material	++	+	+	?	?				+
diatoms									+
charcoal					+				
unidentified plant epidermis or other tissue (including mineral-replaced material)	+	+	+		+	+	+	+	+
xylem spiral thickenings	+								+
tracheids	+								
mineral-replaced wood fragments							?		
plant hairs	++					+			+
phytoliths	+			?					+
Gramineae/Cerealia epidermis	+								
<i>Triticum/Secale</i> 'bran'	+	?							?
unidentified pollen	+		+				+		+
large Gramineae/Cerealia type pollen	++								+
<i>Centaurea cyanus</i> pollen	+								
<i>Trichuris</i> eggs	++								+
arthropod cuticle	+					+	+	+	
mineral-replaced fly puparia							+		
?cancellous bone	+								