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**Biological remains from excavations
at the Orchard Fields site, Malton
(site code OF92)**

I. Samples for biological analysis and an infant burial

by

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Summary

A series of samples of 2nd-4th century AD date from the *vicus* at the Roman fort of Derventio, Malton, was examined for plant and animal remains. Most of the deposits yielded no more than small assemblages of land snails which indicated the presence of grassland in the vicinity. An infant burial was identified from bones excavated from two adjacent contexts; the child was no more than two months old at death.

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Biological remains from excavations at the Orchard Fields site, Malton (site code OF92)

I. Samples for biological analysis and an infant burial

A series of 18 samples of deposits of Roman date from excavations in the *vicus* area of the fort at Malton (*Derwentio*), N. Yorkshire, were submitted for an analysis of biological remains.

All the samples were examined in the laboratory and a description of the sediment made using a standard *pro forma*. Subsamples were removed for processing, a 1 kg subsample retained as a voucher and, where there was sufficient, the remainder was bulk-sieved to 1 mm.

The 'test' subsamples were disaggregated and sieved (to 300 μ m) following methods of Kenward *et al.* (1980) and a 'washover' was performed, in which lighter material was decanted from the disaggregated material. After checking under the microscope, washovers were returned to the residues and oven dried. Dry residues were then quickly checked for their composition. The residues were sorted carefully in only two cases: samples 519 and 520, which contained remains of a human infant.

The remaining sediment from each sample was 'bulk-sieved' (Kenward *et al.* 1980) to reduce its volume and to check for the more thinly dispersed remains. In all cases, the predominant material in the residues was oolite limestone 'sand' and gravel, usually with some quartz sand. Although often described both in the field and in the laboratory as 'mortar', none of the samples was found to contain mortar *per se*, though some of the finer material may have originated in mortar, long since rotted.

The samples are considered in context number order, with archaeological information (where appropriate) in brackets:

Context 417, sample 417 [layer/deposit]

Mid grey-brown to brown, moist, crumbly (working plastic), sandy clay with oolite limestone fragments 6-20 mm present.

The small washover contained a few snails, a little charcoal (to 5 mm) and a little white 'glassy slag', ?daub/burnt clay and cancellous bone, together with fragments of modern roots. The snails were *Carychium tridentatum* (1), *Pupilla muscorum* (2), *Vallonia* sp. (3), *Trichia hispida* (16), *Helicella itala* (5) with 18 *Cecilioides acicula*. With the exception of the last, a burrowing species, these are likely to have originated in grassland.

A small amount of oyster shell (to 50 mm), mussel shell (to 20 mm), mammal bone (to 30 mm), pot (to 30 mm), slag and charcoal (both to 20 mm) was present in the residue from

bulk-sieving 23.3 kg, indicating the presence of some occupation debris amongst the limestone clasts which formed the greatest part of the >1 mm fraction of this deposit.

Context 431, sample 431 ['occupation' type deposit]

Mid yellow-brown, moist, crumbly (working plastic), sandy clay with some stones 2-60 mm and abundant rotted ?mortar and limestone.

The tiny washover gave a few snails and a few fragments of charcoal to 3 mm. The snails were single specimens of *Vallonia excentrica*, *Trichia hispida* and *Helicella itala*, all essentially grassland taxa. There were also a few fragments of beetle, clearly of modern origin.

A bulk-sieved subsample of 9.7 kg was also processed. The residue of both subsamples consisted of angular to sub-rounded oolitic limestone gravel with abundant oolite 'sand'. There were a few small flint fragments (<20 mm) in the BS subsample.

Context 432, sample 432 ['occupation' type deposit]

Mid orange- to yellow-brown, moist, crumbly (working plastic), sandy clay, with some stones 2-20 mm.

There was a small washover of modern roots and root bark, with a little charcoal to 5 mm, a trace of cancellous bone and a single modern birch (*Betula* sp.) female catkin scale. There were also quite a lot of very small (<2 mm) fragments of very brittle, iron-stained material, probably extremely degraded bone.

The 7 kg subsample bulk-sieved to 1 mm gave no biological remains.

Context 436, sample 436 ['occupation' type deposit]

Mid orange-brown, moist, crumbly, clay sand with some limestone fragments 2-20 mm. The clay content of this sediment was quite large, so a dilute solution of sodium pyrophosphate was used to assist in disaggregation.

There was no washover, apart from two fragments of charcoal <2 mm. The residue was of angular and more or less rounded oolite gravel with 'sand' and some ferruginous limestone. The residue from bulk-sieving 9.2 kg was similar.

Context 437, sample 437 [floor deposit of mortary material associated with wall 421]

Lithology as for 436, but sediment wetter.

No washover was carried out for this sample; the residue consisted of sand and oolite limestone gravel with only a few fragments of charcoal <3 mm. The residue from bulk-

sieving 14.8 kg was like that from the 'test' subsample, but a little pot was also recovered.

Context 444, sample 444 [uppermost fill of foundation trench]

Mid/dark grey-brown, wet, plastic, ?humic, sandy silty clay with some stones 2-6 mm and white flecks (?mortar). There was a considerable clay content in this subsample and repeated use of dilute sodium pyrophosphate solution was necessary to accelerate disaggregation.

The small washover comprised modern roots and a modern moss shoot; there were also several snails, together with two small fragments of bone, a little white 'glassy slag' and a little charcoal to 5 mm. There was also a single charred grain of barley (*Hordeum*), a fragment of charred hazel (*Corylus avellana*) nutshell, several ?modern knotgrass (*Polygonum aviculare*) fruits, an earthworm egg capsule and some arthropod remains which were identified as fragments of beetle of modern origin.

The snail assemblage comprised *Vertigo pygmaea* (2), *Pupilla muscorum* (4), *Vallonia excentrica* (11), *Cochlicopa lubrica* (4), *Trichia hispida* (19), *Helicella itala* (5), and *Oxychilus* sp. (2). Most of these would be likely to have lived in rather dry grassland. There were also 15 *Cecilioides acicula*.

A subsample of 4.6 kg was bulk-sieved to 1 mm; it yielded only oolite limestone gravel and 'sand'.

Context 512, sample 512

Mid grey, moist, crumbly, ?slightly humic, silty clay sand with roots, some stones 2-20 mm, and moderate amounts of charcoal (perhaps including charred cereals).

There was a small washover which included a few snails, several charred barley grains (some hulled and in rather good condition), a little charcoal (to 10 mm), 'glassy slag', charred sedge (*Carex* sp.) and *Potentilla* sp. 'seeds' and a few charred straw/large grass culm fragments. The snail assemblage comprised *Vertigo pygmaea* (2), *Pupilla muscorum* (1), *Cochlicopa lubrica* (2), *Vallonia excentrica* (1), *V. costata* (1) and *V. sp.* (3), *Trichia hispida* (7), *Cepaea* sp. (1) and *Cecilioides acicula* (10). Again, with the exception of *C. acicula*, these are grassland taxa.

Context 513, sample 513 [lens in fill of foundation trench 527]

Mid grey-brown, moist, crumbly, sandy clay with some stones 2-20 mm, charcoal and ?decaying mortar.

The tiny washover included some snails, 'glassy slag', charcoal (to 5 mm), a single charred ?barley grain and a tiny fragment of ?small mammal bone. There were also two charred 'seeds', one a knotgrass, the other a small *Vicia* sp. The snails comprised *Pupilla muscorum*

(1), *Cochlicopa lubrica* (1), *Trichia hispida* (4), and *Helicella itala* (1), together with 5 *Cecilioides acicula*; apart from the last, these represent grassland habitats. The residue included a large fragment of mammal bone (to 35 mm), but was otherwise angular oolitic limestone gravel and 'sand'. The residue from bulk-sieving 2.1 kg of this sample was also primarily oolitic limestone, but with a trace of bone to 15 mm and a lump of red sandstone to 100 mm.

Context 514, sample 514 [lens associated with top of post-hole 529?]

Mid orange- to yellow-brown, moist, crumbly (just working plastic), sandy silty clay with some stones 2-20 mm, charcoal and white flecks of ?mortar.

A tiny washover was obtained. It included some snails, a trace of charcoal to 10 mm, modern roots, traces of eggshell, cancellous bone and a little white 'glassy slag'. There were also a fragment of elderberry (*Sambucus nigra*) seed, a seed of deadly nightshade (*Atropa bella-donna*) and a charred sedge nutlet. The *Atropa* seed was very fresh and is likely to have been of recent origin; *Atropa* is a plant typically found at the foot of limestone walls and often associated with lime-rich rubble. The small snail assemblage consisted of *Cochlicopa lubrica* (1), *Vallonia* sp. (3), *Trichia hispida* (4) and *Cecilioides acicula* (12). These, as before, point to grassland in the vicinity.

The residue from this subsample comprised rather small oolitic limestone gravel and oolith 'sand'.

Context 517, sample 517 [?floor layer]

Mid grey-brown, moist to wet, crumbly (working plastic), clay sand with some stones 2-60 mm and 200-600 mm, charcoal/charred grain, ?decayed red sandstone and moderate amounts of ?mortar.

The tiny flot comprised a trace of charcoal to 10 mm, and a few snails; there was also a small vertebra.

The 3.1 kg subsample sieved to 1 mm also yielded a few snails and a trace of charcoal. There was a cow vertebra, some fragments of toad (*Bufo*) bone, 'glassy slag', eggshell, modern grass leaf and arthropods and a few poorly preserved charred barley and ?oat (cf. *Avena* sp.) grains. The residue was of angular oolitic limestone gravel (a little of it reddened by burning) and 'sand' with a trace of bone to 20 mm.

The snail assemblage from these two subsamples consisted of *Trichia hispida* (7), *Helicella itala* (2), with five *Cecilioides acicula*.

Context 519, sample 519 [deposit associated with ?inhumation 524]

Mid grey-brown, moist, crumbly (working plastic), sandy clay with some stones 2-20 mm

and bones. The whole sample of 1.55 kg was processed. No washover was performed and the residue was oven dried. There was no biological material other than a trace of charcoal and the human and other bone described below.

Context 520, sample 520 [deposit associated with ?inhumation 524]

Lithology as for 519; the whole sample of 1.53 kg was processed and treated as for 519 except that a washover was taken. This was tiny and included light bone fragments, a trace of charcoal to 10 mm, modern roots, some snails (*Pupilla muscorum*, three *Trichia hispida* and three *Cecilioides acicula*), a modern knotgrass 'seed' and a poorly preserved earthworm egg capsule. Bone from the residue is described below.

Context 522, sample 522 [?floor layer]

Light/mid buff to brown, moist, crumbly, slightly clay sand with moderate amounts of stones 2-60 mm.

The tiny washover consisted of a little charcoal to 10 mm, one tiny bone, a single *Cecilioides acicula*, and a very decayed dock (*Rumex* sp.) nutlet. The residue was mostly oolitic limestone gravel and 'sand' with some quartz sand. The 3.5 kg bulk-sieved subsample also produced gravel and sand, with a single mammal bone fragment to 15 mm.

Context 523, sample 523 [?floor]

Mid/dark grey-brown, moist, crumbly, clay sand with some stones 2-60 mm and abundant ?mortar.

The very small washover was of charcoal to 10 mm, with some snails (three *Trichia hispida* and a few *Cecilioides acicula*) and a trace of white 'glassy slag'. The residue was of angular oolitic limestone gravel and 'sand' , with a trace of bone to 20 mm.

The 2 kg subsample sieved to 1 mm gave the same kind of gravel and sand, though with quite a lot of red micaceous sandstone and a little bone to 30 mm.

Context 525, sample 525 [upper fill of post-hole cut; 'burnt layer']

Mid/dark grey-brown, moist, crumbly (just coherent when worked), ?humic, silty clay sand with some stones 2-20 mm and charcoal.

A small washover was obtained, much of it charcoal to 10 mm, with some modern roots, snails (one *Vallonia excentrica*, two *Trichia hispida* and a single *Helicella itala*), white 'glassy slag', four charred sedge nutlets and two fragments of unidentifiable charred cereal grain. The residue was oolitic limestone gravel and 'sand' with quite a lot of amorphous vesicular, slightly calcareous slag to 20 mm.

Context 540, sample 540 [layer]

Light/mid orange- to yellow-brown, moist, crumbly, clay sand with roots, some stones 2-20 mm including burnt (orange) limestone and charred grass culm fragments.

There was a small washover with modern roots, charcoal to 20 mm, a trace of cancellous bone and some white 'glassy slag'. A squarish fragment of grey pot to 20 mm was recovered from the residue which was otherwise of granular oolitic limestone gravel and sand.

Context 607, sample 607 [layer]

Mid yellow-grey-brown, moist, crumbly (just working plastic) mortar with a matrix of clay sand.

The test subsample gave a very small washover of modern tree roots and a modern crucifer seed, with a few snails and some glassy slag and tufaceous material. There was also a little charcoal to 15 mm and two charred spelt wheat (*Triticum spelta*) grains. The residue was of angular oolitic limestone gravel and 'sand'. The 14.5 kg subsample bulk-sieved to 1 mm also gave limestone gravel and sand with some glassy slag and burnt (reddened) limestone, with a trace of bone to 35 mm, pot to 15 mm and a few snails. It is unlikely that the mortar identified during inspection of the raw sediment was other than limestone gravel and 'sand'.

The snails from the test subsample proved to be rather richer than was usual for this series of samples, with *Cochlicopa lubrica* (1), *Carychium tridentatum* (1), *Vallonia* sp. (6), *Oxychilus alliarius* (1), *Trichia hispida* (9), *Helicella itala* (4), *Cepaea* sp. (1) and 10 *Cecilioides acicula*. As for the other samples, these are essentially grassland taxa. The bulk-sieved subsample yielded *Trichia hispida* (2), *Helicella itala* (1), and *Cepaea* sp. (1).

Context 807, sample 807

Light yellow-grey-brown, moist, soft (unconsolidated) ash or silt with stones 6-20 mm and some glassy slag.

The washover included quite a lot of modern tree roots, glassy white slag, a trace of charcoal, some snails and a single charred knotgrass nutlet. The residue was mostly ashy slag with some oolitic limestone gravel and 'sand' and some bright red burnt soil. The snails recovered were *Cochlicopa lubrica* (1), *Vallonia* sp. (1), *Trichia hispida* (4); five of the six snails were very eroded, which was atypical for this material.

The inhumation 524

Two contexts from the Orchard Fields excavations (519 and 520) produced numerous fragments of human bone which at the time of excavation were recognised as the remains of an infant or infants.

The skeletal remains are relatively fragmented and poorly preserved, as is usual with poorly calcified juvenile bones. Context 519 yielded fragments of femur, tibia, right and left fibulae and pelvis fragments, and a number of tarsals, vertebral centra and phalanges. Context 520 gave fragments of both right and left radii and ulnae, a single humerus fragment, both clavicles, fragments of skull (including frontal, petrous-temporal and even a single complete malleus), four developing tooth crowns and numerous vertebral arches, centra and ribs.

It is clear that the bones from these two contexts in fact represent the remains of a single individual. The overall size of the elements and, more specifically, the state of crown development of the upper central and lateral incisors and the single upper canine, indicates that the individual died at or shortly after birth, and certainly within the first two months of life.

In addition to human bone, a humerus fragment identified as an immature mouse (*Apodemus* sp.) and a sheep-sized vertebra fragment were also recovered from context 519. Also from 519 a tiny glass/faience bead, probably directly associated with the infant burial, was recovered.

A comment on the mollusc assemblages

Although all the species are habitually found in grassland, there are differences in the groups of species found in the samples which probably reflect different land use.

The range of taxa recovered from the Orchard Fields excavations is similar to those from recent excavations by M.A.P. on the Roman ditch and trackway at West Lodge, Malton (Milles 1992). Many of the samples from the present site contained very few land snails, principally some, but not all, of the following: *Cochlicopa lubrica*, *Pupilla muscorum*, *Vallonia excentrica*, *Trichia hispida* and *Helicella itala*.

The slightly more diverse assemblages (samples 417, 444, 512 and 607) contained most, if not all of these species, but also individuals of some of the following: *Carychium tridentatum*, *Vertigo pygmaea*, *Oxychilus alliarius*, *Vallonia costata* and *Cepaea* sp. At West Lodge, assemblages with this diversity of taxa occurred in the lower (Roman) parts of the sequences, more restricted faunas being recorded from later (?medieval) layers.

Conclusions

These deposits have yielded only rather limited 'environmental' information since, for the most part, preservation by waterlogging was effectively nil, and only small amounts of charred plant material had been incorporated into the deposits. This is consistent both with

the well-drained, limestone-rich substrate and the nature of the deposits. Apparently deposition of richly organic waste material was not a feature of human activity in this part of the fort complex during the time the deposits built up. The snail assemblages indicate that grassland was prevalent within the immediate vicinity of the deposits.

References

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