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**Assessment of biological remains from
excavations at Newport Road Quarry,
North Cave, East Riding of Yorkshire:
Phase 3 (site code: NCE2001)**

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Assessment of biological remains from excavations at Newport Road Quarry, North Cave, East Riding of Yorkshire: Phase 3 (site code: NCE2001)

by

Allan Hall, Deborah Jaques, Harry Kenward, John Carrott and Kathryn Johnson

Summary

Eleven sediment samples, a very small quantity of hand-collected shell and twenty-one boxes of hand-collected bone, recovered from deposits encountered during excavations at Newport Road Quarry, North Cave, East Riding of Yorkshire (Phase 3), were submitted for an assessment of their bioarchaeological potential. The excavation located features providing evidence for intensive late Iron Age/Romano-British settlement activity.

Plant remains preserved by anoxic waterlogging were abundant in some samples, and small amounts of charred material, including charcoal, cereals and remains indicative of burnt peat or turves, were present throughout. There was other good evidence for waste from human occupation, though mostly dilute. The deposit from ditch 2232 was exceptional in yielding a rich assemblage with a variety of well-preserved waterlogged and charred plant remains likely to have been litter of one kind or another. Other assemblages provided evidence for local environments in which scrub or hedgerow vegetation featured. Insects and other invertebrates (other than molluscs) often showed good to very good preservation. Most of the deposits from which invertebrates were recovered in appreciable numbers were clearly waterlain. Herbaceous vegetation was again indicated, with grassland, almost certainly grazed. Insects favoured by human occupation were conspicuously rare, though whether this was a function of deposit formation or reflected the character of the settlement (perhaps very isolated or seasonal) is uncertain.

The shell remains were very poorly preserved, of catholic taxa (where cautiously identified) and of no interpretative value.

A moderate-sized assemblage of animal bone of rather variable preservation was recovered from the excavated deposits. A limited suite of animals was identified, ostensibly the major domesticates—horse, cattle, caprovid and pig. Several animal burials were encountered, together with a number of possible part skeletons, some of which included burnt remains; possibly ritual or ‘special’ deposits.

These deposits clearly have a high potential for analysis of plant and invertebrate remains in order to recover archaeological information at the site and regional level. Also, further study of this rural vertebrate assemblage may allow insights into this crucial period of change and innovation.

KEYWORDS: NEWPORT ROAD QUARRY; NORTH CAVE; EAST RIDING OF YORKSHIRE; PHASE 3 EXCAVATION; ASSESSMENT; IRON AGE; ROMANO-BRITISH; PLANT REMAINS; CHARRED PLANT REMAINS; PEAT; CHARRED GRAIN; BURNT TURVES; INVERTEBRATE REMAINS; SNAILS; VERTEBRATE REMAINS; ANIMAL BURIALS; ‘SPECIAL’ OR RITUAL DEPOSITS

Contact address for authors:

Palaeoecology Research Services
Unit 8
Dabble Duck Industrial Estate
Shildon
County Durham DL4 2RA

Prepared for:

Humber Field Archaeology
The Old School
Northumberland Avenue
Hull
HU2 0LN

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Assessment of biological remains from excavations at Newport Road Quarry, North Cave, East Riding of Yorkshire: Phase 3 (site code: NCE2001)

Introduction

An archaeological excavation was carried out by Humber Field Archaeology, at Newport Road Quarry, North Cave, East Riding of Yorkshire (centred on NGR SE 8817 3153), for 20 weeks during the spring and early summer of 2001.

Newport Road Quarry is a large sand and gravel extraction site located to the south-west of the village of North Cave. This excavation was undertaken as part of phased works in advance of an extension of gravel extraction. Within the wider project, this was Phase 3 and the excavation site was in Area 2. The excavation located evidence for intensive late Iron Age/Romano-British settlement activity including several roundhouses, many phases of enclosure ditches, pits, corndriers and burials.

One hundred and forty-two bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992), a very small quantity of hand-collected shell and twenty-one boxes of hand-collected bone, were submitted to Palaeoecology Research Services Limited (PRS), County Durham, for an assessment of their bioarchaeological potential.

Methods

Sediment samples

The sediment samples were inspected in the laboratory. Fourteen were selected for the assessment and their lithologies were recorded using a standard *pro forma*—it was decided subsequently that three, from deposits with context numbers in the 4000s, would be more appropriately discussed together with those

from Areas 4 and 5 (site code: NCE2002). Subsamples of the selected samples were processed, following the procedures of Kenward *et al.* (1980; 1986), for the recovery of plant and invertebrate macrofossils.

Plant remains (and the general nature of the wet residues, flots and washovers) were recorded briefly by 'scanning', identifiable plant taxa and other components being listed directly to a PC using *Paradox* software. Notes on the quantity and quality of preservation were made for each fraction.

Insects in the flots were recorded using 'assessment recording' *sensu* Kenward (1992), creating a list of the taxa observed during rapid inspection of the flot, with a semi-quantitative estimate of abundance, and a subjective record of the main ecological groups. A record of the preservational condition of the remains was made using scales given by Kenward and Large (1998). This scheme provides scales for chemical erosion and fragmentation (0.5-5.5, the higher figure representing the greatest degree of damage), and colour change (0-4), in each case giving a range and a value for the position and strength of the mode (Kenward and Large 1998, tables 2, 3 and 5-7).

When the residues were primarily mineral in nature they were dried, weighed and the components recorded in brief.

Hand-collected shell

A very small quantity of hand-collected shell was submitted. The remains were identified as closely as possible and brief notes made on their preservation.

Hand-collected vertebrate remains

For the hand-collected vertebrate remains that were recorded, data were entered directly into a series of tables using a purpose-built input system and *Paradox* software. Records were made concerning the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Other information, such as fragment size, dog gnawing, burning, butchery and fresh breaks, was noted, where applicable.

Fragments were identified to species or species group using the PRS modern comparative reference collection. The bones which could not be identified to species were described as the 'unidentified' fraction. Within this fraction fragments were grouped into a number of categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), and totally unidentifiable. These groups are represented in Table 1 by the category labelled 'Unidentified'.

Results

Sediment samples

The results are presented in context number order by chronological grouping (as yet unphased deposits are given last). Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample number.

IRON AGE TO EARLY ROMANO-BRITISH

Context 1578 [fill of recut pit 3468]

Sample 74/T (2 kg sieved to 300 microns with washover and paraffin flotation; approximately 4 litres of unprocessed sediment remain)

Just moist, light brown to mid to dark grey (plus shades of grey-brown between), crumbly, soft, clay sand. Stones (2 to 6 mm) and wood were present (a piece of the wood was examined as a separate 'spot' sample).

The residue was very small (dry weight 0.17 kg) and composed of sand and chalk/flint gravel (to 30 mm).

There was a small washover of about 100 ml of woody fragments—mainly twigs to 20 mm, in maximum linear dimension, including (but not all) elder, *Sambucus nigra* L. Perhaps most of the wood fragments were also elder, since there were abundant elder seeds. Preservation was mostly good, although the content of identifiable macrofossils other than wood and twigs was quite low; some specimens showed silt coating. The herbaceous taxa present (none in more than 'trace' amounts) were mainly annual weeds, though there were a few indicators of wetland and one or two which might indicate less strongly disturbed semi-natural habitats, perhaps some scrub consistent with land overgrown with elder bushes.

The small flot, paraffin floated from the less than 2 mm fraction of the washover during botanical analysis, contained small numbers of somewhat decayed (E 3.0; F 2.0-5.0) remains; the material was identifiable, however. Decay may have taken place during deposit formation: soil nematode (*Heterodera* type) cysts were noted. A substantially larger subsample would be needed for detailed analysis, which would perhaps be worthwhile to build up site-level statistical data. There were appreciable numbers of insect remains in the residue (noted during botanical analysis) and careful paraffin flotation would be necessary.

ROMANO-BRITISH

Context 1729 [4th fill of pit 1757]

Sample 83/T (1 kg sieved to 300 microns with paraffin flotation; approximately 17 litres of unprocessed sediment remain)

Moist to wet, light grey-brown to very dark grey to black, brittle to crumbly (working soft), slightly sandy silt (the lighter coloured patches were more sandy), with some fine and coarse woody and herbaceous detritus. Wood and twigs (including chips and very large pieces to 200 mm), and marine mollusc shell (very rotted) were present.

The large residue of about 300 ml comprised twiggy debris and a little sand, the coarser fraction including some charred herbaceous material. It is suspected that much of the 'twiggy' material (up to 25 mm) was willow (*Salix*); at least one wood fragment seemed to have an oblique cut at one end. Amongst the smaller uncharred remains were traces of coriander (*Coriandrum sativum* L.) seeds but for the most part the taxa present as fruits and seeds are likely to have been weeds of various kinds. Charred remains included some herbaceous material, amongst which was one fine free-threshing wheat rachis (ear-stalk) fragment as well as

some charred moss, culm and ?basal root/rhizome fragments. With the exception of the wheat rachis, these are perhaps indicators of burnt turves. There were also some lumps of charred 'peat-like' material to 15 mm.

The rather large flot contained many achenes of stinging nettle (*Urtica dioica* L.) and some beetles and mites. There were also two charred bread/club wheat (*Triticum 'aestivo-compactum'*) grains: one almost whole and one broken. The herbaceous detritus present was a little worn, as if reworked or decayed since it had been deposited—this material included rootlets which were probably ancient and may therefore indicate soil inwash. Insect remains were quite common and rather well preserved (E 2.0-2.5, mode 2.0 distinct: F 2.0-2.5, mode 2.5 weak). Deposition was in water, for *Daphnia* ephippia (water flea resting eggs) were abundant, and a range of aquatic and waterside beetles noted. Terrestrial fauna was also abundant, with species from (probably natural) litter, from herbaceous plants, and from dung (several *Aphodius* of three species). There were hints of grassland but no more than traces of species associated with human occupation. One fossil of possible climatic significance (a fragment of ?*Sehirus* sp.) was noted. This material is worthy of analysis, using a larger subsample in order to refine interpretation of both depositional and terrestrial conditions. There were modest numbers of remains in the residue (noted during botanical analysis), and careful paraffin flotation would be required.

Context 2465 [fill of kiln 2466/2438]

Sample 104/T (3 kg sieved to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, mid grey-brown to mid to dark grey-brown, crumbly (working soft), clay silt, with patches of orange-brown crumbly sand. Stones (2 to 20 mm) were common and charcoal was present.

There was a small residue (dry weight 0.52 kg) of sand and chalk/flint gravel (to 50 mm), with a little charcoal (~3 g, to 12 mm). This sample produced several rather battered vertebrate remains, some of which represented fragments of a medium-sized mammal atlas. A small mammal incisor was also noted.

There was a very small washover of about 50 ml of charcoal, with some sand, and snails (mostly unidentified shell fragments but including one ?*Cepaea/Arianta* sp. and one small succineid). With this were a few poorly preserved charred cereal grains, including barley (*Hordeum*) and ?spelt (cf. *Triticum spelta* L.). Spelt was also positively identified via a single glume-base.

LATE 2ND TO EARLY 3RD CENTURY?

Context 2734 [primary fill of ditch 2735]

Sample 114/T (2 kg sieved to 300 microns with paraffin flotation; approximately 3 litres of unprocessed sediment remain)

Moist, light grey-brown to dark grey-brown (and shades between), crumbly, (working soft), humic, ?slightly clay, slightly silty fine sand. Stones (2 to 20 mm) and twigs (to 10 mm diameter) were present.

There was a large residue of about 550 ml of which all but about 30 ml was woody organic detritus, with just a little sand and chalk gravel. The woody debris included elder twigs (some perhaps with cut ends), and rather a strong component of heather (*Calluna vulgaris* (L.) Hull) remains as well as heathland moss. Overall, there was a distinct suggestion of material originating in heathland or grassland turf. Also recorded were traces of charred and uncharred bracken (*Pteridium aquilinum* (L.) Kuhn) frond and modest numbers of saw-sedge (*Cladium mariscus* (L.) Pohl) nutlets bearing their pericarp (perhaps originating in peat rather than from cut wetland vegetation). The annual weed seeds present were usually very much better preserved than the other remains and presumably arrived separately; the same is true of the elder seeds present. Somewhat unexpectedly, as quite far from the presumed nearest salt-marsh, at least one sea arrow-grass (*Triglochin maritima* L.) fruit was noted (though this taxon *has* been recorded from previous excavations at this site). A wide range of other habitats was represented, including wetland, grassland, cultivated land and waste ground. The only charred material from cereals was a single free-threshing wheat rachis fragment.

The flot was small, though containing quite a substantial invertebrate fauna, with variable but generally good preservation (E 1.0-3.0, mode 2.0 weak; F 2.0-3.5, mode 2.5 weak). Mites (Acarina) were present in unusually large numbers. There were rare aquatics, but no evidence of deposition in permanent clean water. Damp-ground and waterside species were present, however. A range of species associated with decaying matter was noted, with a modest proportion which suggested artificial conditions as created by human occupation. There were hints of grassland in the wider landscape. Analysis of a large subsample (perhaps combined with the present one) is desirable to allow reconstruction of local and wider environments, and particularly to investigate the strength of the synanthropic component indicative of buildings or artificial accumulations of decaying matter. Puparia and an assortment of beetle remains were found in the residue during botanical analysis, and careful paraffin flotation is probably essential.

MID 3RD TO MID 4TH CENTURY**Context 2510** [primary fill of ditch 2511]

Sample 106/T (3 kg sieved to 300 microns with paraffin flotation; approximately 4 litres of unprocessed sediment remain)

Moist, mid grey-brown, crumbly (working soft), clay sand to sandy clay, with patches of light grey to light grey-brown fine sand. Stones (2 to 20 mm, flint and chalk) were common and very rotted wood and twigs were present.

The small residue (dry weight of 0.58 kg) was of sand and chalk gravel (to 45 mm), with a little flint (to 35 mm) and a few fragments of unidentified land snail shell (<1 g). A few very tiny small mammal bone fragments were also recovered from this sample.

The washover of about 80 ml included some wood and twig fragments, much of rest being small shell fragments (of ?oyster, ?*Ostrea edulis* L.). There were also traces of snails (unidentified fragments only). The seeds present were moderately well preserved and included taxa suggestive of a shady ditch bank (perhaps by a hedge). This can be inferred from a prominent component of the woodland indicator three-nerved sandwort, *Moehringia trinervia* (L.) Clairv, but also several taxa of the biennial/perennial nitrophile 'edge' community (Artemisietea) are well-represented. Material from occupation was represented by two spelt glume-bases. Some charred ?heather root may represent material from burnt turves.

A small flot yielded modest numbers of insect remains and a few *Daphnia* ephippia. Preservation ranged from fairly good to poor, with some fossils pale and others very fragmented (E 2.5-4.5, mode 3.5 weak; F 2.5-4.5, mode 3.0 weak; trend to pale 0-4, mode 2 weak). Quite a lot of remains had not floated and were noted during botanical analysis. The *Daphnia* and a few water beetles suggest a waterlain deposit, although offering no evidence of permanence—the decay of the remains may imply occasional aeration when the deposit dried out during formation. Other habitats suggested by the insects were herbaceous plants (including grassland) and foul decaying matter. This assemblage was worthy of detailed analysis, but a further, larger, subsample is desirable.

LATE 3RD TO 4TH CENTURY**Context 2231/2229** [secondary fill of ditch 2232]

Sample 95/T (2 kg sieved to 300 microns with paraffin flotation; approximately 7 litres of unprocessed sediment remain)

Moist, mid to dark grey-brown to dark grey crumbly (working just soft), humic, clay fine sand. Stones (2 to 20 mm) and twigs were present.

There was a moderate-sized residue of about 400 ml, of which about 250 ml was organic debris, mainly twigs and bark in the coarser fractions, the rest chalk gravel and a little sand. There was also some charcoal (to 10 mm). The assemblage was rather rich in identifiable remains, including uncharred bracken stalk and both charred and uncharred bracken pinnule (frond) fragments, together with charred ?heather root, and charred and uncharred ?straw culms. All this perhaps originating from, for example, the partly burnt remains of a turf and straw thatched roof, although something like the mixed litter of stable manure is also a possible source. Other remains included traces of flax (*Linum usitatissimum* L.) capsule fragments and seeds, a well preserved whole charred barley spikelet, a single poorly preserved charred hexaploid wheat grain and charred and uncharred material which may be peat (though there was a single fragment of charred material which seemed to be fine herbaceous detritus, perhaps from herbivore dung, in which a seed of blinks, *Montia fontana* ssp. *chondrosperma* (Fenzl) Walters was embedded). A further possible indicator of charred roofing was leaf material of saw-sedge. As well as the grains mentioned above, there were some well preserved spelt glume-bases, and one ?emmer (cf. *Triticum dicoccon* Schrank) A wide range of other taxa was noted representing habitats such as standing water (in the ditch itself?), grassland, and heathland, as well as scrub and disturbed soils.

Preservation of plant material was mostly good, that of the charred material especially so, suggesting it was quickly deposited into the ditch after being burnt.

Five small fragments of bone were recovered from the wet residue, including small mammal cranium and shaft fragments, together with two fish vertebrae – one each of eel (*Anguilla anguilla* (L.)) and pike (*Esox lucius* (L.)).

The flot was of modest size, mainly herbaceous plant debris, but with numerous invertebrate remains. Preservation was good to average (E 2.0-3.5, mode 3.0 weak; F 2.0-3.5, mode 2.5 weak). Numerous *Daphnia* ephippia suggested formation in water, but there were very few other aquatics; this may have been only temporally under water, through the good preservation implies permanent dampness. Terrestrial beetles and bugs were present in quite large numbers, indicating herbaceous vegetation, plant litter, and dung (several individuals of at least three *Aphodius* species). There

were very weak hints of an occupation-site synanthropic component. This material is worthy of detailed analysis, using an additional or large subsample, to reconstruct local conditions. Rather a large quantity of remains were recovered from the residue during botanical analysis, suggesting the need for careful paraffin flotation.

NOT YET PHASED

Context 2157 [fill of kiln/oven 2158]

Sample 90/T (2 kg sieved to 300 microns with washover; approximately 6 litres of unprocessed sediment remain)

Just moist, light to mid grey-brown to black, crumbly to unconsolidated, stony, ashy sand, with lumps of mid brown stiff clay (to 30 mm). Stones (2 to over 60 mm) and ?charcoal (very rotted) were present.

The very small residue (dry weight 0.28 kg) was of sand and chalk/flint gravel (to 25 mm).

There was a small washover of charcoal and a little ?chalk 'sand' which was dried before being examined closely. It was found to contain some glume-wheat chaff—rather a lot of spelt glume-bases and some spikelet-forks, with a very few emmer spikelet-forks. There were also charred grass/cereal culm nodes and leaf fragments and traces of oats (*Avena*, including chaff) and barley (rachis internodes). The charcoal included ash (*Fraxinus*) roundwood fragments to 20 mm. A few unidentified fragments of snail shell were noted.

Context 2198 [upper/secondary fill of pit 2217]

Sample 92/T (2 kg sieved to 300 microns with washover and paraffin flotation; approximately 7 litres of unprocessed sediment remain)

Moist, dark, slightly grey-ish-brown, brittle and slightly sticky (working soft), humic, clay silt, with patches of mid-brown humic sand. Fine and coarse woody and herbaceous detritus and small stones (2 to 6 mm) were present.

The tiny residue (dry weight 0.09 kg) was of sand, with a little chalk and flint gravel (to 15 mm). Several small fragments of bone were recovered from this sample which included a number of amphibian vertebrae and shaft fragments.

This sample gave a large washover of about 350 ml of woody debris, mainly twig fragments in the greater than 4 mm fraction; it gave every appearance of a 'classic' ditch assemblage formed in the vicinity of a hedge or other woody vegetation. One of the trees must have

been ash, since fruits ('keys') of this plant were moderately common. Elder and aspen/poplar (*Populus*) were also present, as evidence by seeds and buds/scales respectively. Most of the other plant remains might well have originated in vegetation near a hedge or close to a woodland margin, notably the abundant fruits of rough chervil (*Chaerophyllum temulentum* L.). That there was disturbance is indicated by several weed taxa however, and there were indications of the deposition of waste from charcoal (to 10 mm), traces of charred cereal grains (barley and wheat), and some traces of glassy slag.

The flot, taken from the less than 2 mm fraction of the washover, was large and consisted mainly of fine herbaceous plant debris, making sorting for invertebrates rather time-consuming. Preservation of insects was good, though some remains were fairly fragmented (E 1.5-2.5, mode 2.0 weak; F 1.5-3.0, mode 2.0 weak). The most abundant remains by far were ephippia of *Daphnia*, and there were also significant numbers of aquatic, waterside and swamp beetles and bugs. Two caddis larval cases were recovered during botanical analysis of the residue. There were also significant numbers of beetle remains in the residue, and careful paraffin flotation would be needed in a detailed analysis. Deposition in water, though not necessarily permanent, seems certain. However, the very good preservation of many remains implies permanent waterlogging of the deposit during and since formation. Terrestrial forms may mostly have originated close to the deposit, from herbaceous vegetation, although there was a single bark beetle, *Leperisinus varius* (Fabricius), normally found in ash trunks. There were quite large numbers of dung beetles of two or three kinds, suggesting the possibility of grazing locally. Other kinds of decaying matter may have been restricted to natural plant litter. There was no distinctive fauna of human occupation. This material should be investigated in detail, preferably using a supplementary subsample (or a new, larger one) to provide the larger numbers of remains required to enhance interpretation.

Context 2331 [fill of pit 2330]

Sample 99/T (2 kg sieved to 300 microns with washover; approximately 16 litres of unprocessed sediment remain)

Dry, light to mid brown to black (through shades of grey-brown), brittle and indurated to crumbly, very ashy, sand and clay (perhaps mostly ash). Stones (2 to 20 mm, flint and chalk) and pot were present.

There was a small residue (dry weight 0.38 kg) of sand and chalk/flint gravel (to 40 mm).

The washover of about 50 ml consisted mainly of charcoal (to 15 mm) with some other plant debris—mainly very poorly preserved (holed, ‘dished’, and puffed) cereal grains (including wheat, oats and barley), with some ?heather root/twig fragments. As well as grains, there was some glume-wheat chaff—glume-bases and spikelet-forks (with at least one emmer glume-base)—and free-threshing wheat and barley rachis (some of the latter still bearing hairs). None of this material was exceptionally well preserved but much is probably identifiable more closely. Other charred remains included a few cornfield weeds and traces of some other taxa. Two small and unidentified land snail fragments were also present.

Context 2483 [fill of pit 2484]

Sample 105/T (3 kg sieved to 300 microns with washover; approximately ?5 litres of unprocessed sediment remain)

Just moist, light brown (mottled lighter and darker on a mm- and cm-scale), unconsolidated, slightly clay fine sand, with areas of dark grey to black ash. Stones (6 to 20 mm) and ?burnt large mammal bone were present.

The very small residue (dry weight 0.27 kg) was of sand and a little flint (to 25 mm), with some very small fragments of (unsorted) unidentified burnt bone (to 1 or 2 mm, <1 g). The assemblage of larger bone fragments was also mostly of burnt remains, presumably associated with the possible part skeleton of a caprovid recovered by hand-collection. This material included mandible, rib, shaft and vertebra fragments, together with a few upper and lower teeth.

The small washover consisted of about 50 ml of which largely comprised burnt and unburnt bone (forming the coarser material), and charred ?heather root/twig fragments (to 15 mm). There were also a few fragments of unidentified snail shell.

Context 5051 [organic primary fill of pit/ditch terminus 5046]

Sample 75/T (2 kg sieved to 300 microns with washover; approximately 4 litres of unprocessed sediment remains)

Moist, light brown to dark grey-brown (in shades of grey-brown), crumbly (working just soft), ?humic, very slightly clay sand. Stones (2 to 6 mm) were common and larger stones (20 to 60 mm), all flint and chalk, were present.

There was a small residue (dry weight 0.39 kg) of sand and chalk/flint gravel (to 30 mm).

The moderately large washover, of about 120 ml, was of woody plant debris with some chalk gravel with quite a lot of unwashed sandy silt matrix (probably forming much of the finest fraction). There was a rather low diversity of seeds, specimens mainly being rather worn. Some twig fragments present probably included *Prunus* (presumably blackthorn or wild plum or cherry). No very strong indication of the nature of the fill of this pit/ditch terminus was forthcoming from the plant remains; they might mostly have arrived by natural dispersal from habitats in the vicinity. There was certainly no evidence for dumping of occupation waste, for example.

Hand-collected shell

Very small quantities of hand-collected snail shell were recovered from each of six deposits (Contexts 2213, 2244, 2308, 2642, 2722 and 2937). The shells were very fragmented and where the general shape of the snail could be determined this was because the fragments were being held together by included sediment. In each case, these remains represented one or at most two individuals of *Cepaea/Arianta* sp.

Hand-collected vertebrate remains

In total, over 3,000 bones, representing 424 deposits, were recovered during the excavations in Area 2 at North Cave. Pottery spot dates provided by the excavator showed that the period of occupation at the site extended from the Iron Age through to the beginning of the 5th century. For this assessment, bones from those deposits with spot dates were recorded, whilst other material was quickly scanned.

The vertebrate assemblage assessed represented 264 deposits and amounted to 2240 fragments. Spot dates provided 84 different date categories by which the material could be grouped and so, for the purposes of this assessment, a broad chronological framework was produced. Table 1 shows the number of fragments by date group, from which it can be seen that most of the material was recovered from deposits broadly dated to the Iron Age/Romano-British period (some of these deposits were specifically Iron Age or Romano-British) and those of 3rd-4th century date (again, some were more tightly dated to either the 3rd or 4th century).

The group composed of material for which there was no dating information amounted to about 500 fragments; these remains were scanned but not counted. A number of the assemblages from this group would be worthy of further analysis if a tight dating framework could be achieved. It is possible that stratigraphic evidence and further artefactual analysis may allow this material, and

that from those deposits at present only rather broadly dated, to be attributed to particular periods.

Preservation of the material varied enormously, although there was little variation between the bones within the same deposit. Many fragments [from the entire assemblage] were of rather battered appearance; some showing extensive surface erosion. Additionally, some bones were rather fragile and brittle, and typically, the surface of these bones had split into layers. A high degree of fragmentation was characteristic of much of the assemblage, accounting for the presence of large numbers of unidentified fragments. Fresh breakage during excavation and/or post-excavation processes was responsible for much of this damage—although some of the bones appeared well preserved and robust, most were very fragile, which undoubtedly contributed to the extensive fragmentation observed. Burnt and scorched fragments were also fairly frequently encountered. Evidence of dog gnawing was noted throughout but was minimal. Butchery marks were not commonly recorded but the battered surfaces of some bones made any marks indistinct.

A limited suite of species was recorded, with cattle and caprovid remains being most numerous. A small number of the caprovid bones, including several horncores and phalanges, were more closely identified as goat (from Contexts 1010, 1059, 2777, 2860 and 2915). Horse and pig remains were also present in small quantities, and, in addition, 12 deposits each produced single fragments identified as dog. These last were mainly isolated teeth or mandible fragments, although a tibia fragment, together with a small number of human bones was recovered from the fill of grave 33, Context 28, and a humerus from a small canid was noted from Context 1708. Other species were rather sparsely represented. Cat bones (a pelvis and a vertebra) were recovered from Context 2826, and two chicken bones were identified from Contexts 2651 and 2971, whilst a single fragment of deer antler was noted from Context 2824. Part of a baby skeleton, including cranium and mandible fragments, upper and lower limb elements, pelvis and ribs, was recorded from Context 3154.

Several animal skeletons or part skeletons that may be of some ritual significance were recorded. Most were sheep/goat, almost all identified from pit fills and many were noted from the scanned, undated deposits. Few were complete and, in some cases, it could not always be determined whether the fragments were all from the same individual. Of the dated deposits, part caprovid skeletons were recovered from Contexts 1006 and 3013; the latter being mainly composed of burnt remains representing a very limited range of skeletal elements. Context 1231 produced fragments, mostly from a single sheep/goat, but with mandibles from at

least two other individuals, whilst a calf burial was noted from Context 2490. Similar remains were observed within the scanned material, including sheep/goat skeletons from Contexts 1283, 1593 and a part cow skeleton from Context 2439. Several undated pit fills (Contexts 2483, 2773, 2777, 2779 and 2999) also produced concentrations of bone that may have been incomplete skeletons, some of which included burnt fragments, whilst one deposit, Context 2214, produced sheep/goat remains associated with a cremation. An interesting collection of bones was also recovered from pit fill 3006 which included sheep/goat remains representing at least five individuals of different ages, and part of at least one pig.

Complete skulls are also often interpreted as being ‘special’ deposits, depending upon their location and association with other artefacts during the Iron Age/Romano-British period. Within this assemblage, a horse cranium was identified from Context 1847 and two cow skulls were recovered from Context 1717, a pit fill, and Context 2838, the primary fill of ditch 2839. Both cattle skulls showed evidence of butchery and horncore removal, perhaps indicating an origin as butchery waste rather than ritual deposition.

As a consequence of the extremely fragmentary nature of the material, mandibles with teeth *in situ* and measurable bones were not particularly numerous. The assessed material produced 94 measurable fragments, 48 mandibles and 37 isolated teeth of use for providing age-at-death and biometrical data. Approximately 20 additional measurable fragments and five further mandibles with teeth *in situ* are available from the scanned material (this does not include animal burials and possible ‘special’ deposits).

Discussion and statement of potential

Plant remains preserved by anoxic waterlogging were abundant in some samples, and small amounts of charred material present throughout. Apart from wood charcoal, the latter included small amounts of cereal grain, chaff (diagnostic for some of the cereals) and some remains thought likely to have originated in burnt peat or turves. There was other good evidence for human occupation, though none of the deposits was rich in waste from habitation and much of the material can probably be seen as a ‘background’ input into the deposits. The deposit from ditch 2232 was exceptional in yielding a diverse assemblage with a variety of well-preserved waterlogged and charred remains likely to have been litter

of one kind or another, including charred remains of saw-sedge, perhaps from roofing. Other assemblages provided evidence for local environments in which scrub or hedgerow vegetation featured.

Insects and other invertebrates (other than molluscs) often showed good to very good preservation and where they were decayed this probably occurred in antiquity, during deposit formation. Most of the deposits from which invertebrates were recovered in appreciable numbers were clearly waterlain. The surroundings appeared to support herbaceous vegetation, with grassland, almost certainly grazed. Insects favoured by human occupation were conspicuously rare, though whether this was a function of deposit formation or reflected the character of the settlement (perhaps very isolated or seasonal) is uncertain.

The few snail remains recovered (both from the samples and by hand-collection) were poorly preserved and mostly unidentified. The hand-collected snails could only be identified as far as *Cepaea/Arianta* sp., both widespread and catholic taxa of no value for the interpretation of ecological conditions at the site.

A moderate-sized assemblage of animal bone of rather variable preservation was recovered from the excavated deposits. Overall, the bones were extremely fragmented, mostly as a result of the extensive fresh breakage damage which had occurred during excavation and post-excavation processes. However, the fragility of the bones was largely responsible for this. A limited suite of animals was identified, ostensibly the major domesticates—horse, cattle, caprovid and pig. Fish remains from Context 2231/2229 provide some slight evidence for the utilisation of riverine resources. Several animal burials were encountered, together with a number of possible part skeletons, some of which included burnt remains. These were mostly caprovids, although one calf skeleton was also

identified. Skulls representing both cows and horses were also present.

Despite its shortcomings, the importance of this assemblage is that it represents material from continuous rural occupation from the Iron Age through to the later Roman period. Detailed interpretations of changes in species frequency, age-at-death and variation in size of the main domesticates through time could be used to identify, for instance, differing husbandry practises, the introduction of new/improved stock and changing dietary preferences at a crucial period of change and innovation.

Also of interest are the possible ‘special’ deposits, parallels of which have been identified from earlier excavations at North Cave (Gilchrist unpublished) and other sites in the East Riding of Yorkshire, e.g. Hayton (Jaques *et al.* 2000), Shiptonthorpe (Mainland 1988) and Goodmanham (Hall *et al.* 2003). All produced a range of complete and semi-articulated animal skeletons, mainly of caprovid and cattle and typically of young individuals. This type of deposit is a common feature of many Iron Age and Romano-British sites and their location and association with other artefacts has often resulted in their interpretation as ritual or ‘special’ deposits (Grant 1984; 2002), although there is some debate over this interpretation (Wilson 1992). Detailed study of the animal skeletons from this site may, therefore, afford the opportunity to explore the continuity of certain ritual activities.

Recommendations

These deposits clearly have a high potential for analysis of plant and invertebrate remains in order to recover archaeological information at the site and regional level. Certainly any deposits not processed during this assessment should be reviewed for consideration in any further study in addition to the following recommendation.

A high proportion of the samples assessed deserve detailed analysis for both plant and insect remains. It is particularly worth pursuing analysis of samples with evidence for plant litter, and checking further deposits not processed in this assessment to establish the extent of this kind of material across site, to investigate how far this is connected with areas of occupation (which are currently unknown to the authors). An important aspect of insect analysis at the site level would be to test for synanthropes (species favoured by human settlement) and for dung beetles. It is clear from this assessment that careful and thorough processing will be required in the extraction of insect remains from additional samples—multiple rounds of paraffin flotation will certainly be needed.

Data from these analyses would be useful both for site interpretation and in a planned synthesis of landscape evolution along the fringes of the Yorkshire Wolds.

Further detailed analysis of the vertebrate remains should be undertaken which should include the collection of biometrical and age-at-death data and a more comprehensive examination of the possible ‘special’ deposits. However, this would only be of value if dating/phasing can be refined for the more broadly dated deposits and obtained for those currently undated. Additional data is also available from previous excavations at the site (e.g. Gilchrist unpublished) and further remains are still being recovered during ongoing excavations. Analysis of animal bones can help to illuminate the social, economic and cultural development of the settlement and it is recommended that any study of this vertebrate assemblage should be undertaken in conjunction with those from other areas of excavation at North Cave.

Retention and disposal

All of the remaining sediment, together with the remains extracted from the processed subsamples, should be retained for the present.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

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Table 1. Hand-collected vertebrate remains from spot dated deposits from excavations at Newport Road Quarry, North Cave, East Riding of Yorkshire (Phase 3).

Species		IA/RB	1st/2nd	2nd/3rd	2nd/4th	3rd/4th	Total
<i>Canis</i> f. domestic	dog	4	2	-	3	2	11
<i>Felis</i> f. domestic	cat	-	2	-	-	-	2
<i>Equus</i> f. domestic	horse	30	4	10	10	19	73
<i>Sus</i> f. domestic	pig	10	11	2	3	15	41
Cervid	deer	-	-	-	1	-	1
<i>Bos</i> f. domestic	cow	95	17	18	75	87	292
Caprovid	sh/g	139	36	13	13	35	236
<i>Gallus</i> f. domestic	chicken	-	-	-	1	1	2
Unidentified		613	179	55	202	533	1582
Total		891	251	98	308	692	2240