

**Assessment of biological remains from excavations at Wath Quarry, Wath,  
North Yorkshire (site code 07-08-00)**

by

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**Summary**

*A series of sediment samples and one box of hand-collected bone from deposits revealed by archaeological excavations at Wath Quarry, North Yorkshire were submitted for an evaluation of their bioarchaeological potential. Preliminary studies suggested a mid to late Neolithic date.*

*The three processed sediment samples each produced small amounts of charred plant remains and small land snail assemblages. The snail taxa were indicative of dry grassland and woodland/scrub habitats.*

*Vertebrate remains recovered from the deposits (mainly from ditch and pit fills) were very poorly preserved and most fragments could not be identified to species. Material from pitfill 1083 showed slightly better preservation and included a range of species. Cattle, pig, caprovid, red and roe deer remains were identified, along with beaver and ?bear.*

*Given the early date of this material, an attempt should be made to look for evidence of plant remains relating to human activity in as many of the primary deposits (pit and ditch fills) as possible. Any snail assemblages recovered during the processing of the samples for the recovery of plant remains should also be examined to assess their potential for environmental reconstruction. The scarcity of bone assemblages of this date highlights the importance of the material recovered from this site. Despite the exceedingly poor preservation an archive of the vertebrate remains should be made.*

**Keywords:** WATH QUARRY; NORTH YORKSHIRE; ASSESSMENT; MID TO LATE NEOLITHIC; PLANT MACROFOSSILS; INVERTEBRATE REMAINS; VERTEBRATE REMAINS; PLANT MACROFOSSILS

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## Assessment of biological remains from excavations at Wath Quarry, Wath, North Yorkshire (site code 07-08-00)

### Introduction

An archaeological evaluation excavation was carried out by MAP Archaeological Consultancy Ltd at Wath Quarry, North Yorkshire, during August 2000.

A series of sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992) and 1 box of hand-collected bone (approximately 10 litres in total) were recovered from the deposits. Preliminary studies suggested a mid to late Neolithic date for the deposits.

All of the material was submitted to the EAU for an evaluation of its bioarchaeological potential.

### Methods

#### *Sediment sample*

The sediment samples were inspected in the laboratory and their lithologies recorded using a standard *pro forma*. Three of the samples were selected for investigation and processed, following the procedures of Kenward *et al.* (1980; 1986), for recovery of plant and invertebrate macrofossils.

The washovers and residues were examined for plant remains. The washovers were also examined for invertebrate remains, and the residues were examined for other biological and artefactual remains.

#### *Vertebrate remains*

Data for the vertebrate remains were recorded electronically directly into a series of tables

using a purpose-built input system and *Paradox* software. For each context (or sample) subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, where more than ten fragments were present, semi-quantitative information was recorded concerning fragment size, dog gnawing, burning, butchery and fresh breakage.

Where possible, fragments were identified to species or species group, using the reference collection at the EAU. Fragments not identifiable to species were grouped into categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), small mammal (rats, mice, voles etc), and completely unidentifiable.

### Results

The results are presented in context number order. Archaeological information, provided by the excavator, is presented in square brackets. No insect remains were recovered from the samples.

#### **Context 1062** [primary fill of ditch 1004]

Sample 10/T (3 kg sieved to 300 microns with washover)

Moist, varicoloured (a jumbled mixture from light brown through to black in shades of grey-brown and grey), crumbly and slightly sticky (working soft and slightly plastic), very gritty, slightly ?ashy, clay silt with stones (2 to 60+ mm) and some charred material present.

This subsample yielded a small washover

comprising a few cm<sup>3</sup> of charcoal, including oak (*Quercus*), to 10 mm and some land snails (including *Cochlicopa lubrica* (Müller), *Vallonia ?excentrica* Sterki, *Trichia* sp. and *?Oxychilus* sp.). The very large residue of about 900 cm<sup>3</sup> was of angular limestone gravel (to 50 mm) and limestone 'sand'.

#### **Context 1068** [fill of pit 1069]

Sample 12/T (3 kg sieved to 300 microns with washover)

Just moist, light to mid slightly reddish-brown, brittle to crumbly (working soft), gritty, ?slightly sandy clay silt. Stones (2 to 60+ mm), charcoal and land snails were present in the sample.

There was a small washover of a few cm<sup>3</sup> of charcoal (to 10 mm, none of it, apparently, oak), and some snails. Many of the snail remains were of *Cecilioides acicula* (Müller), a modern burrowing species, and probably intrusive to the deposit. Other land snail taxa present included *Cochlicopa lubrica*, *Pupilla muscorum* (Linnaeus), *Discus rotundatus* (Müller), *Trichia ?hispida* (Linnaeus), *?Oxychilus* sp., and *Vallonia* sp?p. (possibly two species, *V. ?excentrica* and *V. ?costata* (Müller)). A single fragment of charred hazel (*Corylus avellana* L.) nutshell was also noted.

The residue was large (about 750 cm<sup>3</sup>), almost all being limestone sand and gravel (to 50 mm).

#### **Context 1083** [fill of pit 1084]

Sample 14/BS (43 kg sieved to 300 microns with washover)

Just moist, mid grey-brown, crumbly (working soft and slightly sticky), clay silt (to silty clay). Stones (6 to 60 mm), fragments of bone and a

few modern contaminant seedlings were present in the sample.

The small washover of about 200 cm<sup>3</sup> consisted of modern roots, snails (the same taxa as were recorded from Context 1068, Sample 12 were present and, in addition a few *Cepaea/Arianta* sp. and *?Helicella itala* (Linnaeus) were noted), and a little charcoal (to 10 mm, none of which seemed to be oak); there was also a little very fragmentary bone, a trace of charred hazel nutshell (several fragments to about 10 mm) and some ?modern weed seeds. The very large residue of about 10 litres of angular limestone gravel (to 100 mm) and limestone sand, with a couple of fragments of ?pot, some charcoal and further charred hazel nutshell, as well as some bone (see below).

#### *Vertebrate remains*

Vertebrate remains were recovered from 23 deposits, eighteen of which represented fills from five ditches. The remaining bone-bearing contexts included several pit fills and a sub-soil deposit. Overall, the deposits produced a total of 695 (hand-collected) fragments, almost half of which came from pit fill 1083. Preservation of the vertebrate remains was extremely poor. The surface of many fragments had been entirely destroyed by the chemical action of the surrounding sediments. Tooth fragments, which typically survive in poor conditions, were equally badly preserved, with extremely pitted enamel surfaces.

#### **Ditch 1004**

Nine (Contexts 1003, 1023, 1024, 1026, 1030, 1031, 1037, 1042 and 1061) of the fills from this ditch produced bone, amounting to 117 fragments. Preservation of the material

was extremely poor and most bone surfaces were completely destroyed. The most damaged fragments were recovered from Contexts 1003, 1031 and 1042. Tooth enamel was also pitted and eroded, this being particularly noticeable on the teeth from Contexts 1023, 1024 and 1042. Fresh breakage was noted and was extensive within the material from Contexts 1042 and 1061. Most of the bones appeared to represent large mammal shaft fragments.

### **Ditch 1005**

Bone from three fills (Contexts 1006, 1019 and 1020) amounted to just 28 fragments, all of which were very poorly preserved. Large mammal fragments, mainly pieces of shaft and possibly pelvis, were noted, but the poor condition of the bones made further identification impossible.

### **Ditch 1007**

A single deposit, Context 1008, produced 18 fragments of long bone shaft (including humerus) and tooth enamel. All were very fragmented and poorly preserved, the tooth enamel being particularly eroded.

### **Ditch 1011**

Sixty-one fragments of bone were recovered from three fills (Contexts 1047, 1048 and 1049). As for the previous ditch assemblages, preservation of the bone was exceedingly poor, with material from Context 1047 being particularly battered and eroded. Most fragments represented the remains of large mammals, and whilst a number could be identified as cattle (including humerus and metapodial fragments), most were barely recognisable.

### **Ditch 1015**

Ditch fill 1051 produced 80 fragments of bone. Preservation was such that some teeth and a calcaneum could be identified as cattle, whilst a pig lower M3 was also recorded. However, preservation was not especially good and most fragments were recorded as 'large mammal' or remained unidentified. The large mammal fragments included fore limb elements such as scapulae, humeri and radii and probably represent cattle.

### **Pit 1069**

A single fill, Context 1068, contained nine fragments of bone. Poor preservation again characterised the assemblage. Identified remains consisted entirely of maxillary pigs teeth, which were probably all that remained of a single maxilla. The bulk of the 'unidentified' fraction was medium-sized mammal shaft fragments.

### **Pit 1071**

Vertebrate remains were recovered from one fill, Context 1070, amounting to 23 fragments. The bones were extremely eroded, with much surface damage. Tooth enamel fragments were only slightly better preserved. However, despite poor preservation, some teeth were identified to species. These included two cattle maxillary molars and a roe deer (*Capreolus capreolus* (L.)) maxillary premolar. A pig mandibular molar was also present, along with an upper canine representing a juvenile male. Seventeen fragments, mainly medium-sized mammal shafts, were noted, most too poorly preserved to identify further.

## Pit 1084

Over half (352) of the total number of fragments from the entire site were recovered from the fill (Context 1083) of this pit. A further 600 fragments were recovered from a sediment sample taken from the same deposit. As with assemblages from elsewhere on the site, preservation was poor and even tooth enamel was damaged and pitted in appearance. However, it is worth noting that the preservation of the material from this pit fill was slightly better than that of most of the assemblages from the ditches. Fragmentation was quite high, with 20-50% of all fragments being less than 50 mm in maximum dimension, with fresh breakage the probable cause. All of the bone from the sample was less than 45 mm in maximum dimension, with most fragments being less than 20 mm.

The better preservation enabled a wider range of species to be identified, although many of the recorded fragments were teeth. Pig remains made up the bulk of the identified bones and included mandibles and maxillae representing juvenile and sub-adult individuals. Many of the limb bones identified as pig were shaft fragments only with no epiphyses surviving. Identification of caprovid and cervid remains was more problematic as their shafts are, on the whole, less easily identified from fragments than those of pig and, could only be assigned to the medium-sized mammal category. The identifiable caprovid remains were mandibular teeth, although a few upper teeth and some pelvis, ulna and tibia fragments were also recorded. Teeth were also the prevalent element for cattle. Roe deer (*Capreolus capreolus* (L.)) was represented by a mandible, several phalanges and a pelvis fragment, whilst a shed antler burr and beam tine fragment were tentatively identified as red deer (*Cervus elaphus* L.). Another wild species present was the beaver (*Castor fiber*

L.), of which a single tooth was recorded. Additionally, two large phalanges were noted and have been tentatively identified as bear (cf. *Ursus arctos* L.). These fragments were very eroded and require further comparison with other reference specimens before identification can be confirmed.

Approximately 600 fragments were recovered from the sediment sample, of which 53 were identified to species or species group. Teeth again prevailed, most being deciduous and unworn permanent pig premolars. Roe deer were also represented by several teeth. Five small mammal fragments were recovered, of which three were voles; one almost certainly a bank vole (*Clethrionomys glareolus* (Schreber)).

## Statement of potential

Given the early date of this material (probably mid to late Neolithic), an attempt should be made to look for evidence of plant remains relating to human activity in as many of the primary deposits (pit and ditch fills) as possible, though it appears that such material is very sparse.

The recovered land snail assemblages (excluding *C. acicula* as likely to be intrusive to the deposits) were indicative of dry, calcareous grassland with some woodland/scrub habitat (represented by *D. rotundatus*, *T. ?hispidata* and *Oxychilus* sp.). The remains were rather sparse but, given reasonably tight dating for the deposits, might allow some investigation of changes in land use to be attempted (e.g. clearance of woodland).

The vertebrate remains recovered from this site were mostly very poorly preserved and fragmented— few were identifiable and none

were measurable. However, bone assemblages of this early date are highly unusual and rarely recovered. The assemblage from pit fill 1083 produced a substantial quantity of material, both by hand collection and from the sample. A diverse range of species were identified including beaver and ?bear. The remains of both species are seldom recovered from archaeological sites in this region. Beaver remains have been identified from Pleistocene through to medieval sites throughout Britain, but most records are from sites of Mesolithic and Neolithic date (Yalden 1999). Brown bear became increasingly scarce throughout the Neolithic period and there is little evidence for their continued existence in Britain after the Roman period. Later records of brown bear from the Anglo-Saxon and medieval periods are mainly restricted to finds of phalanges and claws which may represent the importation of skins rather than the presence of bears in the wild (Yalden op.cit.).

## Recommendations

Both the existing unprocessed samples and any material which is threatened by development should be examined for plant remains. With so much coarse clastic limestone, it may be advisable to undertake very gentle disaggregation with constant flushing to remove delicate charred plant material before it is crushed by the gravel. Any snail assemblages recovered during the processing of the samples for the recovery of plant remains should certainly be examined to assess their potential for environmental reconstruction.

Few excavations of Neolithic sites have been undertaken and assemblages of bone of this date are exceedingly rare (Huntley and Stallibrass 1995). Consequently, this period represents a significant gap in our

understanding of the exploitation of wild and domestic animals by early man. Although the current vertebrate assemblage is very poorly preserved, it should be recorded to archive level in order to enlarge the data set of vertebrate remains of Neolithic date recorded from this region.

## Retention and disposal

All of the current material should be retained for the present.

## Archive

All material is currently stored in the Environmental Archaeology Unit, University of York, along with paper and electronic records pertaining to the work described here.

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