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Evaluation of biological remains from excavations north-east of Goodmanham (site code: TSEP 907)

by

Allan Hall, Stephen Rowland, Deborah Jaques and John Carrott

Summary

A series of sediment samples, a small quantity of hand-collected shell, and seven boxes of hand-collected bone from deposits mostly of Romano-British date (where phased) revealed by excavations north-east of Goodmanham, were submitted for an evaluation of their bioarchaeological potential.

Plant remains were, for the most part, sparse, but consistently suggested that material originating in burnt heathland turves might well have become incorporated into most of these various fills, along with charred cereal remains. The rich assemblage from Context 1516 was exceptional in consisting very largely of silicified fine chaff.

The small quantity of hand-collected shell and the snails recovered from the sediment samples were of only limited interpretative value.

The vertebrate remains included bones of horse, cattle, caprovid, pig, canid, chicken, corvid, toad and human were identified. Further, unphased material, included a number of juvenile animal burials. If these contexts could be dated, they would compliment the information provided by the phased vertebrate material, and could shed light on the transitions of rural economy and society during the development of Roman Britain. The assemblage was characterised by a large proportion of fresh breakages, which must have occurred during excavation and post-excavation processes. It is likely that, had this not been the case, the assemblage would have contained more complete elements and shown a far greater potential for metrical analysis.

The evidence for human activity in the Romano-British period in this area is very limited and further work to make a proper record of the plant material and vertebrate remains is worth pursuing.

KEYWORDS: NORTH-EAST OF GOODMANHAM; EVALUATION; ROMANO-BRITISH (1ST-4TH CENTURY AD); PLANT REMAINS; CHARRED PLANT REMAINS; SHELLFISH; LAND SNAILS; VERTEBRATE REMAINS

Authors' address:

Palaeoecology Research Services
Environmental Archaeology Unit
Department of Biology
P. O. Box 373
University of York
York YO10 5YW

Prepared for:

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

Telephone: (01904) 433846/434475/434487
Fax: (01904) 433850

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Introduction

An archaeological evaluation excavation was carried out by Humber Field Archaeology north-east of Goodmanham (NGR: 48885 44373), in summer 2000, as part of a series of interventions along the line of the British Petroleum Teeside to Humber pipeline.

A series of sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992), a small quantity of hand-collected shell, and seven boxes (each of approximately 16 litres) of hand-collected bone, were recovered from the deposits. Preliminary dating evidence identified two Romano-British date groups for the deposits: 1st-2nd century (Group 1) and 3rd-4th century (Group 2) AD. Many of the deposits are as yet unphased, however.

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

Methods

Sediment samples

The sediment samples were inspected in the laboratory. Fourteen of the samples were selected for investigation and their lithologies were recorded, using a standard *pro forma*, prior to processing, following the procedures of Kenward *et al.* (1980; 1986), for recovery of plant and invertebrate macrofossils. The flot, washovers and residues were examined for plant remains. The flot and washovers were also examined for invertebrate remains, and the residues were examined for other biological and artefactual remains. One additional sample (Sample 94, Context 1631) was mostly of bone and these were also recorded.

Table 1 shows a list of the submitted samples and notes on their treatment.

Hand-collected shell

Brief notes were made on the preservational condition of the shell and the remains identified to species where possible.

For oyster (*Ostrea edulis* L.) shell additional notes were made regarding: numbers of left and right valves; evidence of having being opened using a knife or similar implement; measurability of the valves; damage from other marine biota (polychaet worms and dog whelks); encrustation by barnacles.

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 ('B' bones bones *sensu* Dobney *et al.* forthcoming) were grouped into categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal 1 (assumed to be caprovid, pig or small cervid), medium mammal 2 (dog-, cat- or hare-sized), unidentified bird, and completely unidentifiable.

Results

Sediment samples

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. Most of the samples gave small numbers of land snails and these are summarised in Table 3.

Context 1177 [Gully fill]

Sample 29/T (3 kg sieved to 300 microns with washover)

Dry, light to mid grey-brown, crumbly and brittle, slightly clay sandy silt. Pot, land snails (all those seen being *Cecilioides acicula* (Müller)), modern rootlets and a modern seedling were present in the sample.

The moderate- to large-sized residue of about 400 cm³ was mostly chalk gravel (to 45 mm in maximum dimension), with a little sand and a single sherd of pot (to 40 mm). The washover consisted of about 20 cm³ of modern rootlets, with some snails (mostly *C. acicula*) and a few uncharred (probably modern) weed seeds; there were two specimens which may have been very poorly preserved charred cereal grains.

Context 1198 [Fill of posthole 1197]

Sample 12/BS (7 kg sieved to 300 microns with washover)

Just moist, light to mid grey-brown and mid grey (mottled on a mm-scale), unconsolidated to crumbly, ?slightly ashy, slightly sandy clay silt. Stones (2 to 60 mm, mostly chalk) and patches of ?lime (to 30 mm) were present.

There was a moderate-sized residue of about 650 cm³ of chalk gravel (to 50 mm) and a little sand and bone (to 30 mm). The washover comprised about 40 cm³ of snails, modern root fragments, and some poorly preserved charred cereal grains, amongst which were a few rather better preserved wheat glume-bases and a single spikelet fork. The chaff appeared to be of spelt wheat, *Triticum spelta* L. There were a few other charred remains, probably mostly seeds of weeds, although some remains which may have been seeds of pea, *Pisum sativum* L., were noted.

The bone recovered (total weight 19 g) included several pig bones (including two unfused proximal femur fragments and one pelvis fragment), and a number of caprovid bones (including distal phalanx, two carpals and calcaneum). In addition, there were twenty medium-sized mammal fragments.

Context 1200 [Fill of slot 1199]

Sample 15/T (3 kg sieved to 300 microns with washover)

Just moist, mid brown to black, crumbly. Slightly sandy ashy silt with small lumps of indurated light to mid brown clay (to 20 mm). Stones (2 to 60+ mm), ?lime/?rotted mortar and modern rootlets were present in the sample.

This subsample yielded a large residue of about 650 cm³ of chalk gravel (to 50 mm) with some sand and ?baked clay/daub (to 40 mm). The rather large washover of about 90 cm³ consisted mainly of snails, charcoal (to 20 mm, some of it probably willow/aspens/poplar, *Salix/Populus*) and some rather well preserved charred cereal grains, identified as wheat and barley (*Hordeum*).

Context 1286 [Fill of pit/posthole 1287]

Sample 38/T (4.5 kg sieved to 300 microns with washover)

Just moist, light to mid grey-brown to light to mid grey, brittle to crumbly (working soft and sticky when wet), ?slightly sandy silty clay (to clay silt) with patches of red ?burnt soil (to 10 mm). Stones (2 to 60 mm), ?rotted mortar, charcoal (to 10 mm), mammal bone and ?modern rootlets were present in the sample.

The small to moderate-sized residue of about 300 cm³ comprised chalk (to 30 mm), burnt (reddened) chalk (to 25 mm) and sand, a trace of pottery (to 25 mm), and a little bone (to 30 mm—seventeen fragments of MM1 long bone shaft and two fragments of large mammal (LM) shaft. Total weight 9.2 g). The washover of about 20 cm³ consisted of modern rootlets, with some snails and charcoal (to 10 mm), and a few poorly preserved charred wheat grains. There was also a trace of charred hazel (*Corylus avellana* L.) nutshell.

Context 1390 [Fill of charcoal-rich slot 1389]

Sample 49/T (3 kg sieved to 300 microns with washover)

Just moist, dark grey to mid grey-brown to black, unconsolidated to crumbly (working soft), slightly sandy clay silt (?with some ash). Stones (2 to 60+ mm) were present in the sample.

The moderate- to large-sized residue of about 500 cm³ was chalk gravel (to 45 mm), burnt (reddened) chalk (to 30 mm) and sand. In the washover of about 40 cm³ there were moderate numbers of snails, with traces of charcoal (to 10 mm) and a few fragments of charred plant material which were tentatively identified as root/basal twig material of heather, *Calluna vulgaris* (L.) Hull. That this plant was present is perhaps confirmed by the identification of several small fragments of charred shoot of *Calluna*. The presence of some material (in clasts up to 5 mm) which may well be burnt soil perhaps indicates an origin for the heather in burnt turves. There was a single fragment of charred cereal grain.

Context 1423 [Fill of pit 1622]

Sample 73/T (3 kg sieved to 300 microns with washover)

Moist, mid grey-brown, crumbly (working soft and slightly sticky), sandy clay silt with stones (2 to 60+ mm) and modern rootlets present.

The moderate- to large-sized residue of about 350 cm³ consisted of chalk gravel (to 40 mm) with a little ?burnt soil (to 5 mm). The washover of about 30 cm³ contained snails, charcoal (to 10 mm), and modern rootlets. There were some small lumps of sediment which were obviously black and charred at one end and reddened at the other, which may have originated in burning of soil or turves. That the latter was the case is perhaps confirmed by the presence of traces of charred moss shoots, root/rhizome fragments, herbaceous detritus, ?tormentil (*Potentilla* cf. *erecta* (L.) Rauschel) achenes, and ?heather root/basal twig

fragments. There were also traces of charred weed seeds, at least one wheat grain, and some unidentified cereal grain fragments.

Context 1455 [Primary fill of ditch 0000. Probably prehistoric]

Sample 77/T (3 kg sieved to 300 microns with washover)

Moist, varicoloured (light yellow-brown, light blueish-grey, mid brown, mid grey and dark grey), soft and sticky (working more or less plastic), ?slightly silty, clay. Stones (2 to 20 mm), charcoal and land snails were present in the sample.

The small to moderate-sized residue of about 250 cm³ consisted of burnt chalk (to 50 mm), sand and undisaggregated sediment (to 5 mm); the washover of about 30 cm³ included snails, charcoal (to 10 mm), a little charred hazel nutshell and a few charred cereals, including barley and oats (*Avena*). There were also traces of charred root/rhizome and ?heather root/twig material. Two small fragments of medium-sized mammal rib, one of which was burnt, and one fragment of calcined medium-sized mammal longbone shaft (total weight 1 g) were also noted.

Context 1467 [Organic-rich spread]

Sample 65/T (3 kg sieved to 300 microns with paraffin flotation)

Just moist, mid to dark grey-brown, brittle to crumbly (working soft), slightly sandy clay silt with stones (2 to 60 mm) and land snails present.

The moderate to large-sized residue of about 350 cm³ was of chalk gravel (to 50 mm, most of it burnt), and a little sand, with traces of bone and pottery. The tiny flot comprised modern rootlets, with a little charcoal (to 10 mm), snails, and traces of poorly preserved cereal grains (including barley and oats). Also present were traces of charred hazel nutshell, root/rhizome fragments and ?heather root/twig fragments.

Context 1516 [Fill of ditch 1515]

Sample 100/BS (7.5 kg sieved to 300 microns with washover)

Just moist, varicoloured (light grey, light brown, mid brown and shades of grey-brown through to very dark grey), crumbly to unconsolidated, slightly clay silty sand (with some ?ash). Stones (6 to 60+ mm, mostly chalk) were present in the sample.

The large residue of about 1500 cm³ consisted of coarse chalk gravel (to 90 mm) with some sand and bone (to 35 mm— one caprovid mandibular condyle, one large mammal vertebra fragment, one fragment of unidentified medium-sized mammal bone. Total weight 3.7 g), the finer fractions including some amorphous calcareous material with the appearance of recrystallised calcium carbonate, and some ?burnt soil/daub. The large washover of about 350 cm³ included about 100 cm³ sand and ?burnt soil mixed with silicified cereal chaff (see below), the rest being rather poorly preserved charred cereal grains and rather well preserved chaff. The grains usually showed some blistering and puffing, but some had clearly begun to germinate prior to charring, having visible coleoptiles and/or a somewhat shrunken appearance. They were probably mainly wheat, but with some barley and oats also present. The coarser chaff consisted of glume bases and spikelet forks which were probably spelt wheat, with rachis fragments which included barley. Most of the 0.3-1 mm fraction comprised silicified chaff in the form (mainly) of awn (beard) fragments. There were some tens of cm³ of this material and it, and the charred remains, no doubt represent the burning of a large quantity of chaff containing some unwinnowed grain which had begun to germinate (perhaps because it had become damp prior to burning). There were remarkably few weed seeds: merely a few charred nutlets of corn gromwell, *Buglossoides arvensis* (L.) I. M. Johnston.

Context 1631 [Late Roman fill of posthole 1630]

Sample 94 (Record of vertebrate remains only)

This sample was not processed, but contained approximately seventy small fragments of calcined and heavily charred bone (total weight 164 g), several of which were identified as caprovid. Identifiable material originated from the mandible, axis, vertebrae, ribs, humerus, radius, femur, tibia, astragalus, calcaneum and phalanges. The presence of two axes fragments indicated that the remains of at least two animals had been deposited.

Context 1728 [Fill of shallow charcoal-rich depression 1727. Possible hearth]

Sample 82/T (3 kg sieved to 300 microns with washover)

Dry, light to mid brown to mid to dark grey-brown, brittle to unconsolidated, very stony, ?slightly sandy clay silt. Stones (2 to 60 mm), rotted charcoal, land snails and a modern seedling were present in the sample.

The large residue of about 550 cm³ consisted of chalk gravel (to 30 mm), with some flint. The washover of about 60 cm³ included snails and charcoal (to 10 mm) and a few charred and uncharred weed seeds, the latter probably modern.

Context 1736 [Fill of pit 1737]

Sample 89/T (3 kg sieved to 300 microns with washover)

Just moist, mid grey-brown, crumbly to unconsolidated, slightly sandy clay silt. Stones (2 to 60 mm), mammal bone and land snails were present in the sample.

There was a large residue of about 500 cm³ of chalk gravel (to 60 mm) with some bone (to 80 mm—two fragments of medium-sized mammal rib and one almost complete immature right pelvis of fox (*Vulpes vulpes* L.). Total weight 20 g) and sand; the washover of about 40 cm³ contained snails, charcoal (to 5 mm), coal (to 30 mm), and a few small bones.

Context 1738 [Secondary fill of pit 1724 containing a complete 4th century beaker]

Sample 86/T (3 kg sieved to 300 microns with washover)

Just moist, mid reddish-brown to mid grey-brown, brittle to crumbly (working more or less soft), slightly clay sandy silt. Stones (2 to 60 mm), very rotted charcoal and land snails (all those seen being *C. acicula*) were present in the sample.

The small to moderate-sized residue of about 250 cm³ consisted of chalk gravel (to 30 mm), a little bone (three fragments of unidentified mammal bone and one small mammal long bone shaft. Total weight 1 g) and sand. The washover of about 40 cm³ consisted of snails and charcoal (to 5 mm), with some coal (to 10 mm), and a few poorly preserved charred cereal grains, perhaps wheat. There were also traces of ?heather root/twig material (to 15 mm).

Context 1739 [Primary fill of pit 1724]

Sample 87/T (3 kg sieved to 300 microns with washover)

Just moist, mid grey to mid grey-brown to dark grey, crumbly (working more or less plastic), sandy clay silt (with some ?ash) with some ?rotted lime present.

The small to moderate-sized residue of about 300 cm³ was of chalk gravel (to 25 mm) with traces of bone (to 30 mm— a single small fragment of medium-sized mammal rib weighing 0.7 g) and sand. The washover of about 40 cm³ included modern rootlets, with snails, charcoal (to 10 mm) and a modest range of charred remains perhaps most likely to have originated in burnt turves: heather flowers and shoot tips, ?heather root/twig fragments, caryopses of heath grass (*Danthonia decumbens* (L.) DC. in Lam. & DC.), root/rhizome fragments (to 10 mm) and a seed of ribwort plantain, *Plantago lanceolata* L. There were traces of charred barley grains and of a seed which may have been pea.

Context 1743 [Fill of pit/ditch terminus 1742]

Sample 90/BS (7 kg sieved to 300 microns with wshover)

Just moist, mid brown, unconsolidated to crumbly (working soft), sandy clay silt. Stones (2 to 60+ mm, mostly chalk with some flint) and some bone (in a separate bag) were present in the sample.

The large residue of about 1600 cm³ comprised chalk (to 90 mm), some of it burnt, with a little flint and sand. The small washover of about 20 cm³ contained snails, a few poorly preserved charred cereal grains and fragments (including oats), and charred root/rhizome material and ?heather root/twig fragments.

The separately bagged bone comprised the fragmentary and incomplete remains of a human baby, including fragments of the humerus, radius, metacarpal, vertebrae and ten ribs (total weight 18 g). These bones appear to have been hand-collected from the deposit, as no other bone was recovered from the bulked sample.

Hand-collected shell

A small quantity of hand-collected shell was recovered from 23 contexts. Twelve of the contexts gave a few fairly well-preserved remains of only one land snail (*Cepaea* sp.) of no interpretative value. Context 1019 also gave *Cepaea* sp. (55 individuals) but additionally yielded the remains of twelve bleached but otherwise well-preserved individuals of *Helicella itala* (L.), a species typical of dry exposed places including calcareous grasslands, and three *Trichia* sp.

Ten of the contexts (two from 1st-2nd century deposits, five from 3rd-4th century deposits, and three unphased) gave single or a few remains of oyster. These were mostly well-preserved though there was some variability—Context 1323 gave a very poorly preserved valve and Context 1339 a curiously thickened valve that seemed to be partly fossilised—and some fresh breakage was noted on oyster valves from two contexts. Evidence of the oysters having been opened using a knife or similar implement was noted on eight of the sixteen oyster valves indicating their consumption by humans. No evidence of damage from other marine biota was seen.

Table 2 present a summary of the hand-collected shell remains by context.

Hand-collected vertebrate remains

Table 4 presents a summary of the hand-collected vertebrate remains by date group.

Group 1: 1st-2nd century AD

All material from this group was collected from negative features, with the majority of bone bearing contexts located in ditches, followed by postholes and pits. In all 38 contexts were examined but only three contained more than fifty fragments, and twenty had less than ten. Although bone preservation varied slightly between contexts, with the exception of Context 1327, it was described as ‘good’, the

remains being well mineralised and durable. Indeed, the bone quality strongly suggested that fresh breakages had arisen from rough handling rather than through any inherent brittleness. As a result, fragmentation was high in many contexts, with more than 50% of fragments measuring less than 50 mm in maximum dimension. Further damage, affecting bone from a number of contexts (almost exclusively ditch fills) was indicated by the degradation of the surface layer of cortical bone, lending a rather battered quality to the fragments. This degradation, which was observed in varying stages of severity, was most likely related to the mechanical and chemical action of roots, although in a number of cases, the destruction was so fresh as to imply over-zealous cleaning of slightly weakened bones. The colour of the fragments varied, but was most frequently described as 'beige' or 'variable', the latter generally ranging from beige to light brown. Colour variation within most contexts was not so great as to suggest that there was much mixing of bones within deposits.

Evidence of dog gnawing, burning and butchery was noted on a number of bones, but with the exception of Contexts 1086 (butchery), 1173, 1198, 1333 and 1646 (burning), did not reach 10% in any context. Butchery appears to have been most frequently carried out with knives, but the high proportion of fresh breakages, and the slightly rounded nature of the fragments, may have disguised other butchery techniques.

Of the 637 fragments attributed to Group 1, 119 were identified to species and included dog, horse, pig, cow, caprovid, corvid and human. Within this rather impoverished assemblage, cattle remains were slightly more common than those of caprovid, while pig and horse bones were much less frequent. A single juvenile human metatarsal was identified from Context 1305 (ditch fill) and the almost complete remains of a juvenile sheep was excavated from Context 1198 (posthole fill). The latter was of interest in that several elements, including a number of ribs, the left tibia and humerus, and the right scapula, seem to have been subjected to localised burning. Most other caprovid remains belonged to mature animals, with the exception of a very juvenile metacarpal from Context 1361 (gully/ditch fill), the two halves of which had barely started to fuse. A single juvenile rook/crow ulna was identified from Context 1328 (posthole).

With so few fragments it is difficult to observe any trends in the distribution of skeletal elements, but cattle distal limb elements, particularly the phalanges, were under represented when compared to the higher meat bearing limb bones. Pigs were mainly represented by isolated teeth and mandibles, a bias most likely related to taphonomic factors. There was a total of 38 measurable fragments and ten mandibles to which ages could be assigned.

Group 2: 3rd/4th century AD

A total of forty contexts were examined, seventeen of which contained less than ten fragments and eight contained more than fifty fragments. The majority of these deposits originated from ditches, gullies and pits, but there were also occasional spreads and hearths. Preservation and angularity was similar to Group 1 with proportions of fresh breakages frequently reaching 50% and above, and a commensurately high degree of fragmentation. Surface degradation through root etching did not seem quite so common but, where present, again mainly affected bones recovered from ditches and gullies. Colour was more commonly fawn, and variation was never so extreme as to suggest that bones within the same context were not contemporary. Dog gnawing, burning and butchery was present in small concentrations of less than 10%, with the exceptions of contexts 1517 (burning), 1290, 1467, (butchery) and 1253 (burning and butchery). Butchery was again most apparent as knife marks.

Of the 1317 fragments assigned to this group, 253 were identifiable to species and included dog, canid, horse, cow, pig, caprovid, chicken, rook/crow, toad and human. The proportion of cow remains to those of caprovid was greater than in Group 1, and the proportion of pig bones also rose. Horse remains were generally found in ditches, and were most frequently represented by teeth or distal limb elements. The canid remains from Context 1701 (pit fill) most closely resembled immature fox, and consisted of a number of bones likely to have originated from the same skeleton. Dogs were mostly found in ditch deposits, and included animals in a range of sizes and proportions, which seems typical of dogs of the

Roman period (Grant, 1989). One particularly short and robust femur is likely to have belonged to a small terrier-sized individual. Single long bones of newborn babies were identified from Contexts 1467 and 1738 and a proximal humerus fragment, most likely belonging to a mature adult male, was recovered from Context 1161 (ditch fill). Rook/crow was present in three separate ditch fills, most elements originating from the wings. The appearance of domestic fowl may be significant, but there were only five fragments, three of which were found in pit 1724 (Contexts 1738 and 1739). Ditches were likely to have acted as accidental pit traps for small animals, which would account for the single toad ilium from Context 1591 (primary ditch fill).

As with Group 1, there were not enough fragments to observe meaningful trends in the distribution of anatomical elements. In the case of cattle, the number of head elements, particularly horncores and mandibles, seemed relatively higher than in Group 1. Phalanges were again under represented. Context 1591 (primary ditch fill), contained a high proportion of head and distal limb elements from at least two individuals. One of these individuals suffered a severe arthropathy of the tarsals, and the remains of the affected lower left hind limb appear to have been deposited in articulation. Incisors from this context were extremely worn, resembling pegs, and it is likely that they had belonged to a particularly old cow. Pig bones were again predominantly from the head, while the distribution of caprovid elements was more even. There was a total of 83 measurable elements and eighteen mandibles to which ages could be assigned.

Unphased material

As yet, a large number of contexts are without phases and these were briefly scanned for potential. Overall preservation was good but fragmentation and fresh breakages were high, and some bones were also affected by root etching and commensurate surface degradation. No further species were identified with the exception of a single red deer metatarsal from Context 1092. In all, thirty fragments were measurable and there were three ageable mandibles.

A number of these contexts yielded human remains. Context 1671 (grave) contained the fragmentary remains of an adolescent child, including fragments of the unfused femur, tibia, pelvis, sacrum, lumbar vertebrae, radius and ulna as well as two developing premolars and long bone fragments. Grave 1245 also contained a few fragments of adult human bone, including skull, phalanges, ribs and teeth. Baby bones were identified in Contexts 1725 (pelvis, femur and humerus), 1752 (skull, proximal femur/ humerus, two fibulae and two ribs), 1366 (tibia, fibula, ulna and ribs), and 1247 (fragments including humerus and scapula).

Animal burials were also well represented among the unphased material. Context 1726 contained the almost complete remains of a juvenile cow (head missing) and Context 1523 also gave a complete calf of similar age. Another juvenile cow from Context 1357 lacked hind legs, while that from Context 1165 was the least complete. The long bones of all of these cattle were completely unfused, as were neural arches and vertebral centra in most cases. Where deciduous 4th premolars (dp4) were found, they were only lightly worn, indicating an age well under six months. Pit fill 1698 yielded the partial skeleton of an immature sheep, and Context 1216 may also have contained a part sheep burial.

Horse bones were frequent, and included a higher proportion of proximal limb bones than in the phased material. The horse radius, ulna, carpals, metacarpal and proximal phalanx identified from Context 1271 are likely to have been deposited in articulation.

Worked Bone

Context 1290 (Group 2) yielded a single caprovid rib fragment (approximately 50 mm long), onto the polished external surface of which three evenly spaced semicircular impressions with a central point had

been incised. Evidence of a fourth could be seen at one broken end. The artefact is of uncertain function but may be a trial piece.

Discussion and statement of potential

Sediment samples

Though plant remains were, for the most part, sparse, they consistently suggested that material originating in burnt heathland turves might well have become incorporated into most of these various fills, along with charred cereal remains (perhaps as likely to have come from straw as from grain crops *per se*). The rich assemblage from Context 1516 was exceptional in consisting very largely of fine chaff, much of it preserved in a silicified rather than charred form (and probably represents the attempted disposal of a mass of chaff rather than straw, for example). Although it appears at first sight rather unlikely that acid grassland supporting heather would have been located on the Chalk Wolds in the immediate environs of the site, heather is sometimes found on leached soils on the Chalk (*vide* Crackles 1990, 112), as is heath grass, so importation from, for example, the lower-lying sandy ground to the south and east of Market Weighton, need not necessarily be invoked.

The land snails (other than catholic taxa and *C. acicula*) recovered from the samples (and the *H. itala* hand-collected from Context 1019) were typical of an open landscape of short-turfed calcareous grassland very much the same at the area is today. The most abundant remains were of *C. acicula* but this is a burrowing snail and almost certainly intrusive to the deposits.

Hand-collected shell

The hand-collected shell remains have little interpretative value other than to indicate the importation of oysters to the site for food. This does imply that the settlement operated within a wider economic system, however.

Hand-collected vertebrate remains

Overall preservation of the vertebrate remains was good but almost half of the bones were affected by fresh breakages (drastically reducing the metrical data that may otherwise have been obtained). Although the current assemblage is only small, and as yet, not particularly tightly dated, it still has great potential to be informative about Romano-British rural economy and society, particularly considering the limited amount of study of low-status agrarian settlement of this period. As such, the site shares much in common with many Romano-British rural sites, and especially the larger, but contemporary assemblage from Hayton (Jaques *et al.* 2000), also in the East Riding of Yorkshire. The low species diversity and predominance of main domesticates over wild resources seems typical of low-status sites of the period (Grant, 1989), although the presence of a red deer metatarsal implies that hunting was not ignored at all times of the site's occupation. Other wild animals such as fox and rook/crow are unlikely to have been eaten, but may have been hunted as a means of pest control, or in the case of the fox, for its pelt. The number of rook/crow bones is too small to attach much meaning to the predominance of wing elements, but corvid bones are not uncommon in Iron Age deposits, where they are often thought to have ritual significance (Coy 1984; Grant *op. cit.*). A similar hypothesis in the succeeding period would not be inappropriate, considering the likely continuity of rural populations and their religious practices. The assemblage is also too small to attribute much meaning to the appearance of domestic fowl in the later period (Group 2), especially as specimens are known from earlier late Iron Age sites in the south of Britain (Coy *op. cit.*).

The possible increase in the proportion of cattle relative to that of caprovids may be significant in the light of observations made by King (1978, in Dobney forthcoming) regarding relationships between native (Iron Age) and early Romano-British settlements with high proportions of sheep, and later Romano-British settlements with higher proportions of cattle.

As the assemblage is so small, the animal burials account for a large proportion of identifiable fragments, but are mostly unphased. In essence, they share much in common with those from Hayton (Jaques *et al. op. cit.*) except that those from the latter site are predominantly of lambs, while those from TSEP907 are mainly of calves under the age of six months. The lamb with localised burning from Context 1198 was particularly analogous to those from Hayton but the incomplete remains of at least two caprovids from Context 1631 (Sample 94), were thoroughly charred, and are perhaps more likely to represent food debris. As such, it is improbable that these more complete deposits accurately reflect the economic strategies practised at TSEP907, and are more likely to relate to ritual activities. The fact that such propitiatory offerings, seemingly very common on Iron Age sites (Grant *op. cit.*), could reflect important aspects of the subsistence economy, may well be significant.

Overall, if phasing could be applied to the as yet undated contexts, the assemblage has considerable potential to deliver information regarding the nature and transition of Romano-British rural society and economy within a gradually growing body of comparative data that could allow examination on a site-specific and regional basis.

Recommendations

The evidence for human activity in the Romano-British period in this area is very limited and further work to make a proper record of the plant material (from Context 1516, at least) and vertebrate remains is worth pursuing. To this end a basic archive, including biometrical data, should be produced of all well-dated vertebrate remains and any other samples of well-dated deposits with a content of charred material or bone which were not included in this assessment should also be examined. In addition, every effort should be made to provide a dating framework for the currently unphased deposits in order to maximise the interpretative potential of this material.

No further study of the hand-collected shell or of the snails recovered from the samples is warranted.

Retention and disposal

All of the current hand-collected material and any sediment samples containing charred material and/or bone 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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Table 1. List of examined sediment samples with notes on their treatment.

Context	Sample	Notes
1177	29	3 kg sieved to 300 microns with washover
1198	12	7.5 kg sieved to 300 microns with washover
1200	15	3 kg sieved to 300 microns with washover
1286	38	4.5 kg sieved to 300 microns with washover
1390	49	3 kg sieved to 300 microns with washover
1423	73	3 kg sieved to 300 microns with washover
1455	77	3 kg sieved to 300 microns with washover
1467	65	3 kg sieved to 300 microns with paraffin flotation
1516	100	7.5 kg sieved to 300 microns with washover
1631	94	Record of vertebrate remains only
1728	82	3 kg sieved to 300 microns with washover
1736	89	3 kg sieved to 300 microns with washover
1738	86	3 kg sieved to 300 microns with washover
1739	87	3 kg sieved to 300 microns with washover
1743	90	7 kg sieved to 300 microns with washover

Table 2. Hand-collected shell by context.

Context	Terrestrial taxa		Oyster valves			
	<i>Cepaea</i> sp	Other	Left	Right	Knife	Notes
1019	55	<i>Trichia</i> sp (3) <i>Helicella itala</i> (12)				
1020	1	-	-	-	-	
1031	1	-	-	-	-	
1112	-	-	-	1	1	Not measurable
1122	8	-	1	1	0	Both measurable
1254	-	-	-	1	1	Not measurable. Fresh breakage
1271	3	-	-	-	-	
1290	-	-	-	1	0	Some measurements possible
1320	9	-	-	-	-	
1323	-	-	-	1	0	Not measurable. Very soft.
1333	1	-	-	-	-	
1339	-	-	-	1	0	Not measurable. ?part fossilised
1344	2	-	-	-	-	
1361	4	-	-	-	-	
1372	-	-	-	1	1	Measurable
1423	3	-	-	-	-	
1467	-	-	3	2	3	Some measurable. 3 large frags
1516	1	-	-	-	-	
1517	-	-	1	1	2	Not measurable. 1 frag
1548	1	-	-	-	-	
1671	1	-	-	-	-	
1701	3	-	-	-	-	
1725	-	-	-	-	0	1 indeterminate side valve

Table 3. Land snails recovered from the sediment samples. **Key:** f – few; s – some; m- many.

Taxon	Context													
	1177	1198	1200	1286	1390	1423	1455	1467	1516	1728	1736	1738	1739	1743
<i>Carychium</i> sp.							f						f	
<i>Cochlicopa ?lubrica</i> (Müller)										f			f	
<i>Cochlicopa ?lubricella</i> (Porro)		f									f	f		
<i>Cochlicopa</i> sp.									2					
<i>Vertigo ?pygmaea</i> (Draparnaud)									2				f	f
<i>Pupilla muscorum</i> (L.)								1						
<i>Vallonia ?excentrica</i> Sterki		s			f	f		f	f				s	
<i>Vallonia</i> sp.				f			f							
<i>Discus rotundatus</i> (Müller)													f	
<i>Cecilioides acicula</i> (Müller)	s	m	m		m	m	f	s		m	s	m	s	f
<i>Trichia ?hispida</i> (L.)											s			
<i>Trichia</i> sp.			f		f	f			m	f				
? <i>Cepaea</i> sp.							f				1		f	
unidentified		f		s		f						f		f

Table 4. Fragments counts and weights (in grammes) of hand-collected vertebrate remains by date group.

Taxon		Group 1		Group 2		Total fragments	Total weight
		Fragments	Weight	Fragments	Weight		
<i>Canis f. domestic</i>	dog	1	35.5	11	197.1	12	232.6
Canid	canid			1	45	1	45
<i>Equus f. domestic</i>	horse	3	72.8	11	458.2	14	531
<i>Sus f. domestic</i>	pig	11	148.5	31	499	42	647.5
<i>Bos f. domestic</i>	cow	53	1798.8	114	5428	167	7226.8
<i>Ovis f. domestic</i>	sheep	1	365			1	365
<i>Caprovid</i>	sheep/goat	48	374.2	71	658.5	119	1032.7
<i>Homo sapiens</i> (L.)	human	1	1.5	3	76.5	4	78
? <i>Homo sapiens</i>	?human			1	0.5	1	0.5
<i>Gallus f. domestic</i>	fowl			5	6.5	5	6.5
<i>Corvus frugilegus/ Corvus corone</i>	rook/crow	1	1	4	3.4	5	4.4
<i>Bufo bufo</i> L.	toad			1	0.5	1	0.5
	Total identified	119	2797.3	253	7373.2	372	10170.5
Unidentified bird		1	0.5	3	1	4	1.5
Medium mammal 1		215	412.8	469	1025.5	684	1438.3

Medium mammal 2				13	25	13	25
Large mammal		131	945.9	487	4157.5	618	5103.4
Unidentified		171	621.9	92	283.5	263	905.4
		637	4778.4	1317	12865.7	1954	17644.1