D4. Pottery, metalwork, human bone, land snails and other environmental evidence

D4.1 Pottery

_by Blaise Vyner_

D4.1.1 Introduction

The small prehistoric pottery collection consists of 2 sherds from surface collection at the triple-ditched round barrow, another from the outer ditch of the southern henge, and a total of 173 sherds from the excavation of the double pit alignment. The only Romano-British pottery is a single sherd from fieldwalking. A similarly small collection of medieval pottery was discovered during excavations at the central henge, the southern henge, and the double pit alignment. Only 1 sherd was found during surface collection. Post-medieval ceramics came from both fieldwalking and the excavations of the central henge, the southern henge, and the double pit alignment.

All sherds were carefully washed and allowed to dry slowly before bagging, although small fragments, with a surface area less than 100mm², were not washed. The pottery was examined and identified by eye, sometimes using a 10x lens, but no detailed fabric analysis of the non-prehistoric pottery was undertaken – given the current state of knowledge of medieval ceramics in this part of Yorkshire the identification of some fabrics has to be regarded as provisional. With the fabric description of the prehistoric pottery, the hyphenated colours indicate the variation in colour expected from poorly controlled firing conditions, the first colour being that most in evidence. The grits were identified by Ken Sedman and their sizes are expressed as small (<3mm), medium (3–6mm), large (6–9mm), and very large (10mm and over), with distinctive particles smaller than 0.02mm described as dust. As a general guide, grit quantities have been described in relation to the estimated average number of pieces visible per 100mm²: occasional (1), few (2), many (3 to 4), and numerous (5 or more). No thin section analysis was undertaken. Quantification has been by sherd count of pieces more than 100mm², the assemblage being too fragmentary to attempt a meaningful analysis of minimum vessel number. Most of the material comprises small sherds.
which indicate little of the original form of the vessel, and only a few sherds were selected for illustration. None of the pottery has been the subject of conservation.

A catalogue has not been provided, but the small find (SF) numbers of excavated prehistoric sherds are included to facilitate interaction with the archive of individual sites.

**D4.1.2 Prehistoric pottery**

**Introduction**

Excavation and surface collection have produced a surprisingly small collection of prehistoric pottery. It consists of 2 sherds of probable Neolithic pottery from casual surface collection at the freshly ploughed inner ditch of the triple-ditched round barrow, 2 fragments of similar pottery from the excavation of the outer ditch of the southern henge and the double pit alignment, and 172 early and middle Bronze Age sherds from the double pit alignment. With the exception of the middle Bronze Age pottery from the double pit alignment, it would be unwise to attach any great significance to the collection since even the stratified sherds could be residual.

**Neolithic**

The freshly ploughed inner ditch of the triple-ditched round barrow (field 29) produced two wall sherds from a probable bowl. They possessed a dark grey internal surface and an external surface spalled away. Their dark grey fabric was soft with numerous small cavities from which angular calcitic grits have leached. Many small and a few medium calcite grits remain. Original wall thickness is uncertain. The fabric is laminated but with a smooth internal surface. The subsequent excavation of the monument – during which no pottery was found – demonstrates that it dates to the second quarter of the 4th millennium (4.2), and given this, the pottery could have been deposited during its construction and use.

One small sherd of similar pottery from pit 966 (SF4) of the double pit alignment may also be Neolithic. Another very small fragment (SF153) of what is also possibly
Neolithic pottery was found in an area disturbed by burrowing during the excavation of the southern henge’s outer ditch (D4.6.2). With a dark grey internal surface, and a largely missing external surface, it possessed a dark grey fabric with numerous small and medium-sized dolerite grits and a clay matrix containing mica dust. Its unstratified context makes it of limited value.

These fragments are similar to sherds in larger assemblages from the middle Ure at Marton-le-Moor (Manby 1996), Nosterfield (Vyner 2011), and the southern part of the recent A1 excavations (Vyner forthcoming). Carbonised material associated with carinated bowls from Marton-le-Moor and Roecliffe has produced a range of radiocarbon dates and Manby has suggested a currency for early fineware assemblages in North Yorkshire of 3800–3600 cal BC (Manby 1996).

Bronze Age

The only Bronze Age pottery was from the double pit alignment. The single biggest find was the 167 sherds, with a total weight of 2,810g, from the upper fill of pit 918 (SFs1–5, 7–9, 10–37, 40–77, 96–7, 101, 103, 105, 107, 109). They were the remains of a jar, somewhat roughly made, its external surface varying from dark grey to grey-brown with patches of buff-brown, its internal surface dark grey, and its fabric dark grey merging, where present, to mid-brown surfaces. The fabric is distinguished by numerous medium-sized and many large angular dolerite fragments, with occasional very large pieces. A few small milky quartz grains are present, while the clay matrix contains mica dust. Wall thickness varies from 10–12mm. Most of the interior has a carbonised accretion, though this is less evident below the rim, and appears to be largely absent on the uppermost 20mm of the interior surface. Conversely, there is carbonised accretion on the uppermost 20mm of the vessel exterior, but seemingly not elsewhere.

The vessel form appears to be a straight-sided or bucket-shaped jar, although relatively few body sherds and no base sherds are present. The plain rim is near vertical and slightly inturned, and below the rim exterior is a low raised cordon 35mm in average width, and 2–3mm high at its centre (Fig D4.1). Running roughly along the line of the cordon is a single row of impressed jabs 25–33mm below the rim of the
vessel. The holes are 4–5mm in diameter at the outer surface, with centres 40–45mm apart. These extend almost through the wall of the vessel, but were clearly not intended to penetrate the wall, as in one instance the wall was pierced and a small piece of clay was luted onto the internal surface to seal the hole. One rim sherd (SF27) has two small patches of shallow impression, as if from a coarse rope or mat, which may have been acquired by chance when the vessel was newly formed. In the absence of base and significantly large body sherds the vessel’s height cannot be established. Sherds from perhaps 20% of the rim are present, suggesting a diameter of between 300mm and 400mm. In total there were 28 rim and near-rim sherds weighing 65g and 139 body sherds weighing 2,155g.

The surviving sherds do not allow a reconstruction of the vessel. It is likely that agriculture has destroyed the topmost levels of the upper pit fill and with it an unknown amount of pottery. As described above, the vessel has been differentially fired, with the result that some surface areas are dark grey while others are buff-brown. During excavation it was noted that two ceramic fabrics were present, one concentrated in the west side of the pit, the other on the east. Before being cleaned it would not have been possible to tell that this material all belonged to a single vessel, but the observation allows the suggestion that the vessel may have been complete up to the point of deposition, and was deliberately smashed, either by throwing it into the open pit or by breaking it up after deposition. The breaking up of a complete vessel with opposite sides differentially coloured would have resulted in the observed pattern of deposition. The presence of rim sherds and the absence of base sherds suggests that the vessel may have been deposited inverted, with the base and lower parts of the sides, being uppermost in the deposit, lost to post-depositional attrition.

That the vessel belongs to the middle Bronze Age – a period poorly represented in the ceramic record of northern England – is confirmed by the radiocarbon date of 1300–1120 cal BC (Beta-337402; D5) from its carbonised inner accretion. The row of point decorations below the rim of bucket- or barrel-shaped vessels is potentially a diagnostic trait (Longworth et al 1988, 41–9). Within the Yorkshire region few good comparisons can be found. At Flaxby, 22km south-east of Thornborough, an extensive monument complex may once have existed. Here the one surviving feature, a shallow pit around 3m in diameter, contained a bucket urn which has a pronounced
raised cordon beneath a row of pierced holes (Addyman et al 1964, 187–90, fig 2). A pit cut into a round barrow at Ganton, North Yorkshire, contained a barrel urn which has a raised cordon below the rim interior, below which is a row of pierced holes (Kinnes and Longworth 1985, 42). At Paddock Hill, Thwing, in East Yorkshire, the inner ditch of the 11th- and 10th-century BC enclosure contained bucket urn P39, which has a very similar style and decoration to the Thornborough vessel, though with a slightly more incurving rim (Manby 1988b; forthcoming). In the north-west of England a parallel may be found amongst the published ceramics from Mam Tor, Derbyshire (Challis and Harding 1975, figs 1.3 and 2.2). Comparison may also be drawn with the large plain jars of so-called Green Knowe style, found on settlements suggested to date from the late 2nd millennium BC in Northumberland and Scotland. These are in bucket and barrel forms with simple rims, some having shallow raised cordons similar to that seen on the Thornborough vessel, although lacking the row of pierced holes. They have been described as the domestic pottery of the period (Burgess 1995, 152), although they probably served a variety of functions, and are represented in assemblages from Green Knowe in Northumberland, Dalnaglar in Perthshire, and Culbin Sands in Morayshire (Halliday 1985, 243–5).

Also perhaps belonging to this chronological horizon is a sherd from pit 977 (SF148). It is difficult to identify, consisting of a single highly fired rim or edge piece with mid-grey surfaces and fabric, numerous small, and a few large, angular and rounded cavities in the light and porous fabric, and a typical wall thickness of 20mm. The cavities indicate the former presence of grits, now leached or burnt out, and the imprint of a sea shell and a fossil crinoid suggest that the grit was limestone. Also present in the clay matrix are mica dust and a small fragment of quartz. The exterior has slight traces of one, or perhaps two, moulded vertical ribs.

Four other pieces of probable Bronze Age pottery (SF22, SF23, SF24), from what is assumed to be a single vessel, came from the upper fill of 822. They possess an internal dark grey surface, a mid-brown external surface, a dark grey fabric with numerous small and medium dolerite grits, and a wall thickness which varied between 10mm and 13mm. A single sherd (SF22) had traces of impressed cord decoration, possibly decorative but perhaps accidentally acquired during manufacture. The vessel may be of early Bronze Age date.
Discussion

The small amount of prehistoric pottery recovered from Thornborough compares with the similarly small quantity recovered from the Ferrybridge henge in West Yorkshire, and contrasts with the larger pottery assemblages produced from ostensibly similar sites in southern England. At Ferrybridge three small plain sherds of probable carinated bowl were recovered from excavations at the henge, but regrettably not included in the published report (Roberts 2005; Vyner 2003b), as well as a small amount of Peterborough Ware and Beaker. Large-scale excavations on associated ritual sites nearby were similarly lacking in ceramics, although Beaker pottery was present (Vyner 2005). Closer to hand, excavation of a series of pits at Nosterfield has recovered a small quantity of sherds from Neolithic carinated bowls, although the site is more important for its assemblage of Grooved Ware (Vyner 2011). A larger assemblage of Neolithic pottery has been recovered from pit alignments at Marton-le-Moor, North Yorkshire, a little to the south of Thornborough (Manby 1996). The Thornborough pottery is thus a small addition to a growing number of recent discoveries which have finally extended the known distribution of this material north and west of the Vale of York.

The putative early Bronze Age pottery is not sufficiently diagnostic to justify extended discussion. Pottery of this period is not common in the Vale of York or the Pennines, and is largely confined to associations with burial mounds (Manby 1986, 69).

D4.1.3 Roman, medieval, and post-medieval pottery

Introduction

Excavations at the southern henge, the central henge, and the double pit alignment produced 130 medieval pottery sherds and 5 post-medieval pottery sherds. Only a single Romano-British and a single medieval sherd were found during surface collection, along with three pieces of post-medieval ceramics and fragments of roof tile. This small collection of largely medieval pottery is of greater interest than it
might otherwise be because of the limited number of published pottery assemblages from the area, and also for the evidence it provides about the continuing use of the henges where most of it was found. There is little information about the production and use of medieval pottery in the Ripon area. The two known centres of medieval pottery, at Winksley (Bellamy and Le Patourel 1970) and Grantley (Mainman 1997, 132), have been little studied. This reflects the absence of excavation on medieval sites in Ripon and its surrounding area, and the fact that this pottery seems not to have been distributed so far as the focuses of recent archaeological attention – to York to the south and the Tees Valley to the north. The fullest account of a medieval pottery assemblage from the Ripon area is also the most recent, the report on pottery from excavations in Low St Agnesgate, Ripon (Mainman 1997). In general the pottery from Thornborough is similar to that from Low St Agnesgate in having a wide representation of gritty wares produced in conservative traditions. The comparison is made only cautiously, however, because the Thornborough collection may have come about as a result of activities rather different from the rural agriculture which might be anticipated.

Pottery from excavations

The single largest collection was from the southern henge – a total of 115 sherds, mostly of medieval date, from its plough-disturbed horizon. The excavation of its outer ditch produced 3 fragments of glazed pottery, perhaps of Winksley ware (401, 402), an abraded rim sherd from a reduced greyware jug (401), 7 small abraded plainware sherds from various local medieval industries (401, 402, 409), a small piece of post-medieval glazed earthenware bowl, and a few scraps of tile.

Larger amounts were found during the excavation of its inner ditch, largely from its tertiary ditch fill and disturbed contexts (Fig D4.2). This included 37 sherds of glazed pottery, mostly small and in a variably abraded state. A range of wares is present, but the limited representation makes identification uncertain. Nine sherds of jug with simple vertical rouletted decoration are glazed in brown or green over a buff-brown to orange fabric (602, 609, 614). These are probably Winksley products. Four plain brown glazed jug sherds and 1 with an incised cordon are also in the same fabric (609, 614), as are 2 fragments with green glaze (609, 614), and a base fragment with
internal glazing (609). Five sherds have green glaze over a white slip, a fabric which is fine and sandy, and decoration including simple rouletting and incised cordons. These may be from north-east Yorkshire, but may be more local, as has been suggested for similar pottery from Ripon (Mainman 1997, 132). Rouletting is also seen on a sherd in a sandy fabric with olive-green glaze, probably a local product, found on the spoilheap. Additionally, part of a rod handle in gritty ware, and a smaller one in a finer sandy fabric, are from jugs (614), with another piece from the handle join to the jug body (602). Three sherds in reduced grey gritty fabric with olive-green glaze may also be local (614). Fragments of jug in a fine buff sandy fabric with olive-green glaze and decorated with incised cordons, one with simple rouletted cordon, may be from further afield in North Yorkshire (614, 617). Four battered sherds with brown-green glaze over a pink fabric may be from Brandsby or nearby in the Howardian Hills (608, 614). At least five sherds in buff sandy fabrics have splash glazing (609, 614). Found also at Ripon, the source of this pottery is not yet known (ibid, 136).

Some 63 plainware sherds over 100mm² in size were also found during the excavation of the southern henge’s outer ditch. Only 3 rim sherds are present, 2 probably from the same vessel, while the material in general is undiagnostic, comprising for the most part pottery in sandy fabrics in varying shades of orange-brown. A similar range of pottery was present at St Agnesgate, Ripon (ibid, 130–2). Three body sherds are Winksley products (613, 614), while the jar rim sherds may also be from this source (614). Two abraded sherds in buff-white fabric (602, 614) are perhaps from the Hambleton Hills area (Jennings 1992, 18). Three sherds of probably the same small black-glazed jug were present (609), dating from the late 19th century or perhaps more likely early 20th century.

Another 14 sherds were retrieved during the excavation of the plough-disturbed horizon and secondary and tertiary ditch fills of the central henge’s outer ditch. They included 11 sherds of medieval plainware pottery. Local Winksley pottery is represented only by a single sherd from a thin-walled jar (710), although four gritty ware sherds in colours varying from white to pink may also be local (705, 710), as this material was being produced at Grantley. Five sherds are in a finer buff fabric, from an unknown source (705, 710), while a sherd in a fine grey-brown fabric appears
to be from a Humber Ware drinking jug (702). Two sherds from glazed vessels were present; there was part of the rim of a reduced grey ware jug (705) and a body sherd in glazed gritty ware (710). As with the plain gritty wares, the source of this pottery is not clear. Post-medieval pottery was limited to a scrap of purple-glazed redware and a number of pieces of roof tile.

Only five medieval sherds were found during the excavation of the double pit alignment, all probably deposited during agricultural operations. Two were from the truncated uppermost level of pit 929 along the central section of the monument. One was the single sherd of a jug with orange surfaces and a gritty fabric with numerous small mixed quartz grits and ferruginous sands. Its external surface was once glazed green, but this now survives only in a row of rouletted impressions. This Brandsby-type ware is likely to belong to the 13th or early 14th century (Jennings 1992, 24–5). Similarly perhaps of 13th- or 14th-century date was a single recently broken jug sherd with orange surfaces, but with no added grits to its smooth dusty orange fabric. Its source is uncertain. Two more came from the similarly disturbed context of pit 966, at the southern end of the monument; one had a hard oxidised fabric with very common medium to coarse quartz sand, the other was lead glazed and with a very hard reduced fabric with sparse and very fine sand and sparse medium to coarse limestone. Excavations at the northern end of this monument produced a single unstratified olive-green glazed sherd, probably of later medieval date, so overfired as to be almost stoneware.

Pottery from surface collection

The small collection from fieldwalking is dominated by pieces of rustic earthenware, mostly roof tile, but perhaps some brick or field drain: there were 22 pieces from field 22, single fragments from field 8 and field 25, and 1 piece of daub or burnt clay from field 26. These are all probably of 19th- or early 20th-century date. From fields 9 and 25 came two pieces of earthenware vessels probably of 19th-century date, including the lower part of a heavy purple glazed redware bowl or pannikin. Surprisingly, only a single medieval plainware sherd was recovered, in field 2B, and there was a single sherd of Romano-British pottery from field 22, a rim sherd from a light bowl of Huntcliff Ware of 4th century AD.
The limited quantity of pottery, its fragmentary nature and context on a prehistoric site, and the lack of comparative material, means that the examination of the collection is necessarily limited. A substantial number of medieval vessels are represented at both the central and southern henges, principally by single sherds, the majority of which are small in size. Most of the unglazed plainware pottery appears to be the product of local industries, of which Winksley and Grantley, 6km and 8km west of Ripon respectively, are currently the only known examples. Glazed vessels were also produced locally and among the few imports from the wider region are vessels from industries in the Hambleton and Howardian Hills of Yorkshire to the east and north-east. No more exotic material was present and the collection, whilst containing a high proportion of sherds of glazed jugs, is a conservative one. It is probably largely 13th- and 14th-century in date.

The very small amount of ceramic material collected during fieldwalking is interesting for a number of reasons, principally the fact it does not reflect in any way the assemblage of excavated material. Medieval pottery is completely absent, as is later medieval pottery, while the amount of post-medieval material is very small. This suggests that the areas walked were distant from medieval or later settlement and/or that rubbish was disposed of other than through field manuring. Yet the excavated collection highlights activity at two of the henges. The central henge was the subject of limited excavation in 1952, when an unspecified quantity of medieval pottery was recovered (Hodges 1955). To judge from the published section drawing, at least 29 sherds were found, of which 4 were rims (ibid., figs 3–4). By comparison, the 1998 excavations suggest that the southern henge was more of a focus for medieval activity, resulting in the deposition of fairly large amounts of pottery, 50% of which derived from glazed jugs. By comparison, limited excavation at the medieval village of High Worsall, North Yorkshire, recovered plainware which varied from 80% to 100% of the assemblage from ‘low-status’ areas such as the village green to between as little as 22% and 50% in ‘high-status’ areas near the church and presumed manorial site (Vyner 2009). If the southern henge was not adjacent to settlement – the nearest was most likely at East Tanfield and Thornborough around 0.8km distant – then some
other explanation has to be sought for the use on or near the site of pottery which includes a large proportion of what is usually seen as high-status vessels.

The medieval use of prehistoric sites for fairs, races, and other assemblies is well-documented in the literature (Grinsell 1976, 52), but less so in excavation evidence, when medieval material may well be seen as irrelevant to the understanding of the site. Sites which feature in medieval use include burial mounds and, more frequently, hillforts, such as the well-known example at Yarnbury, Wiltshire. Prominent enclosing earthworks, like the Thornborough henges, would also seem ideal as a public gathering place, and in this connection it may be instructive to recall the local tradition of the central henge having been the location of a tilting field or ‘charging-ground’ (Thomas 1955, 443). A fair might well result in the accumulation of medieval plainware pottery, and could, when combined with jousting pursuits, go some way to explaining the pottery which has been recovered.

D4.2 The Brooch
by Lindsay Allason-Jones

The small amount of metalwork collected during the VMNLP and ALSF Project was, with one exception, either modern or unidentifiable. The exception was a Roman brooch from the tertiary fill (614) of the inner ditch of the southern henge. The brooch was covered in soil and powdery bright green corrosion products prior to conservation. There was evidence of iron corrosion where the hinge would have once been. It was cleaned, stabilised, and protected by Karen Barker of the Antiquities Conservation Service, Newcastle upon Tyne (Lab. Number 97/608).

It is an incomplete copper-alloy brooch with a flat head which is missing its hinge (Fig D4.3). The hinge groove still survives. The head has been decorated with two circular holes less than 1mm in diameter. A narrow rib separates the head from the heavily arched strip bow. The edges of the bow are damaged but there is a suggestion of a narrow marginal groove. A broad centre rib runs down the tapering bow, separated from the incomplete, narrow, forward-curving foot by a small panel of two confronted triangles. The catchplate only survives as a shallow rib. The total length of
the brooch is 42mm, the maximum width of its head 13mm, and the width of its bow 4–8mm.

This is a basic version of the ‘Aucissa’-type bow brooch which was introduced into Britain at the time of the Roman invasion but appears to have ceased production around AD 65 (Snape 1993, Type 1.5). In Britain this type is mostly confined to the south of the country and is rarely seen in the northern counties: up to 1993, for example, only one had been identified in the area of Hadrian’s Wall (Allason-Jones and Miket 1984, 109, no 3.102). In recent years, however, the Portable Antiquities Scheme has recorded a number in North Yorkshire, indicating that this example is within its geographical range. This particular brooch was probably well worn before it was lost or deposited and appears to have been one of the plainer examples as neither the centre rib nor the edges show notched decoration. The pierced holes at the head can be compared with the stamped dot-and-ring motifs seen on an ‘Aucissa’ brooch from Hod Hill (Brailsford 1962, fig 10, no. C49), but pierced holes are known on a number of similar brooches found in Germany, eg Augst (Riha 1979, taf 23, nos 603–7; no 603 is particularly close in form and decoration to the Thornborough brooch).

D4.3 Human bone from the triple-ditched round barrow

by Sarah Groves and Simon Mays

4.3.1 Introduction

The stratified skeletal material from the triple-ditched round barrow consists of a cranium, a mandible, and 30 small finds of human and animal bone and teeth. The majority of the skeletal material originates from 032, the fill of pit 031, and consists of a substantially complete cranium and mandible in a state of semi-articulation, fragments of cranial vault, teeth, hand and foot bones, rib fragments, vertebrae, and animal (principally rodent) bones and teeth. Only four pieces of bone, a cranial fragment, two medial hand phalanxes, and a distal hand phalanx came from 037, the context into which pit 031 had been dug. Skeletal material from disturbed contexts consisted of 225 finds bags containing a wide variety of human bone and tooth fragments, and a number of animal bone and tooth fragments (from 001, 012, 013 and the top of 039).
4.3.2 Taphonomy

The level of preservation of both the stratified and disturbed material is very varied. Some bone is very well preserved, conforming to Grade 1 (slight and patchy erosion) of the system for recording erosion and abrasion to human bone proposed by McKinley (2004). Other fragments are so heavily eroded and damaged by root action and soil acidity as to be almost unidentifiable. Some elements show variable preservation, which may be due to the manner in which they were buried. The skull from 032 is substantially complete but the ectocranial surface of the cranial vault shows considerable erosion and discolouration (Grade 5; *ibid*), and the facial bones and palate are fragmentary. The posterior of the mandible and posterior portions of the cranium are in a much better state of preservation. This variation is most likely due to the position of the skull in the ground: the areas that are most poorly preserved are those that were in direct contact with the soil. Many of the bones from 032 are damaged, but the majority of the breaks appear to be old rather than as a result of excavation. One fragment of parietal bone from 032 fits with a cranial fragment (SF623) from 037. The movement of these bone fragments may indicate redeposition of the skeletal material from the earlier pit when 031 was dug.

The hands and foot bones from disturbed contexts tend to be complete and well preserved, some of the larger long bones are generally fragmentary but some are substantially complete, while other bones are very fragmentary and eroded. Where possible, the fragments of each element were identified and refitted, but in many cases the bone fragments were too small or degraded to be identified beyond bone type (ie long, short, flat, irregular). In several cases fragments of bone were found to fit with fragments from different bags and different contexts, suggesting that some bones from one individual may have moved from one context to another. Many of the bones from disturbed contexts are broken into fragments; some of these breaks are fresh, identifiable by the light colour of the broken edges, having no doubt been caused by recent ploughing or during excavation. However, some breaks appear less recent, the broken edges being the same colour as the rest of the bone, indicating the considerable age of the break, and some of these could be refitted to fragments from other contexts, ie the tibia fragments in SF130, from 001, fit with those in SF177, from 013. This
suggests that some of the bones may have been redeposited after the initial burial. There may also be evidence of weathering. The tibia shaft from 001 (SF130) is very heavily eroded with some longitudinal cracking of the bone which may be due to exposure to the elements. However, there is little evidence for bleaching of the bone so it is possible that this poor preservation is due to soil conditions and ploughing.

The presence of gypsum at the site may also be responsible for the state of preservation of some of the material: it could cause desiccation, discolouration, and cracking of bone (Anderson 1997). The degree of root damage on most of the elements is minimal, suggesting either that the burial was initially deep enough to avoid exposure to root intrusion or that the soil conditions at the site prevented root intrusion. The colour and pattern of cracks in the bone suggest that some small fragments of material from disturbed contexts may have been burnt or exposed to heat, but this is uncertain and may also result from taphonomic changes.

No cut marks were identified on any of the elements, but this may be due to the poor preservation and fragmentation of the material. Rodent gnawing was identified on SF425, the left ramus of a mandible from 003; a semicircular area c 30mm long and c 20mm wide had been removed (Fig D4.4; see White and Folkens 2000). This area is stained the same colour as the rest of the mandible, suggesting that the gnawing took place either at the same time as the element was buried, or at some time during burial – it is not recent. In a living individual this part of the mandible is covered by a relatively thin layer of skin and tissue, so could be easily accessed by scavenging animals. However, rodents tend to gnaw on dry bone so it is possible that this is evidence for exposure of the bone prior to burial, or rodent burrowing into the burial environment.

Other possible evidence for exposure of the skeletal material prior to burial is the under-representation of distal hand and foot phalanges and other small bones of the hands and feet, which has been seen as indicative of excarnation (Scott 1992). Long bone joint surface and pelvic bones were also under-represented in the sample. Smith (2006) argues that the pelves and ends of long bones suffer the most damage from scavenging and gnawing of bones by canids, and that the destruction of these elements may be indicative of excarnation. Although the state of preservation of the
material from the triple-ditched round barrow, particularly the long bones, prevents the identification of damage caused by canids, it is possible that some of the damage to the bones and the destruction of some elements was due to scavenging animals.

4.3.3 Minimum Number of Individuals (MNI)

The stratified skeletal material from 032 and 037 appears to represent a minimum of 2 adult individuals and possibly 1 juvenile or infant, represented by a cranial fragment (SF540). One adult is represented by the skull and mandible, while the other adult cranial fragments represent at least 1 other adult individual. Although it is not possible to be certain that the cranium and mandible are from the same individual, the semi-articulated position of the bones at excavation, and the similarities in the morphology, suggests they are likely to belong to the same person. Some of the cranial fragments may represent a middle-aged or older individual based on the degree of fusion of the sutures, while some of the teeth and the unfused rib end represent a younger adult individual. This suggests there may be 2 older adults and 1 younger adult, giving a possible total of 4 individuals, although as suture closure is not very reliable as a method of ageing, an MNI of 2 adults is the most conservative estimate.

Due to the fragmentary nature of the unstratified remains and the considerable admixture of the material, it is difficult to sort it into discrete individuals. However, it would appear that this material represents a minimum of 3 adults and 1 juvenile, with the majority of the material representing 1 adult individual, several teeth and bone fragments representing a second adult, one axis (second cervical vertebra) representing a third adult, and 1 tooth and a pair of fragmentary clavicles representing a juvenile. It must be stressed this is a minimum number, based upon the number of elements present, and it is possible the remains represent more than 4 individuals.

4.3.4 Age

Many of the criteria required for assessing age at death are not present in either the stratified or disturbed material, making an accurate assessment problematic. It is also very difficult to assess age accurately without data relating to the biological sex of the individual (see below). The stratified cranium and mandible do not have any teeth
remaining (Table D4.1); however, the fact that some teeth were lost prior to death suggests that this is an older adult, probably between 40 and 60 years of age (Mays et al. 1995). The unfused rib end (SF606) appears to be of adult size, although small, so it is likely that this bone represents a young adult, below the age of 24 years (McKern and Stewart 1957). The level of wear to the right second molar (SF613) is indicative of a young adult below the age of 25 (Brothwell 1981).

With the collection from disturbed contexts, the wear patterns on the teeth in the mandible (SF422, SF425; Fig D4.5) and maxilla (SF430A and SF361; Fig D4.6) can be analysed to give an indication of age. On first inspection this appears to be a younger adult (under 30 years) due to the low levels of wear on the pre-molar and molar teeth and the fact that the third molar (wisdom tooth) appears not to be fully erupted. However, the canines and incisors show a great deal of wear in unusual patterns (Fig D4.7). This suggests that either the individual suffered some damage to the teeth, had used their teeth in an unusual manner (as a tool), or could not bite normally leading to unusual patterns of wear. The third molars may also be impacted, as there are indications of infection and bone resorption around the teeth. Therefore, this may be a somewhat older individual.

The teeth of SF219, SF199, SF484 and SF 418 may all represent the same individual. These teeth show patterns of wear that indicate an older adult, over 45 years of age (Fig D4.8). The unerupted molar crown (SF483) indicates the presence of a juvenile, possibly around 5 to 7 years old.

The unfused clavicles (SF331) also indicate a juvenile or young adult, as these bones may not fuse until the mid-20s. However, due to the size of the bones, and the lack of any epiphyses, it is likely that these represent a child of under 15 years. They may come from the same individual as the tooth SF483.

4.3.5 Biological Sex

The skull and mandible from 032 are sufficiently well preserved for an assessment of biological sex to be made (Fig D4.9). The heavy brow ridges, prominent mastoid processes, robust nuchal crest, and morphology of the mandible indicate it is most
likely to be a male. Metric analysis of the skull gave a cranial length of 194mm and a breadth of 145mm (measurement definitions after Brothwell 1981), giving a cranial index of 74.7. This measurement is an indication of the broadness or roundness of the skull. Variation in the shape of the cranial vault has been noted between populations, and the transition from the Neolithic to the Bronze Age is accompanied by a shift towards higher values, and hence more rounded skulls. This skull is neither particularly long nor broad, falling more within the range seen in the Bronze Age (Brodie 1994, 59). However, many factors can affect the shape of the skull, including disease and genetic factors, and the cranial index of one individual is not a reliable basis for dating this skeletal material.

The fragmentary and incomplete nature of the rest of the skeletal material makes it difficult to assign biological sex, with no complete long bones surviving. It is also difficult to assign biological sex to the adult individuals as there are no diagnostic pelvic bones. It is not possible to sex juveniles. However, the morphology of some of the cranial bones, occipital and temporal, suggests a male individual. Furthermore, many of the surviving long bone fragments are quite large and robust with pronounced muscle attachments, characteristics that are more likely to be seen in males than females.

4.3.6 Pathology

There is little evidence for pathological change in the stratified material, aside from in the skull and the teeth. The orbits of the skull show the pitting and porosity characteristic of cribra orbitalia (Fig D4.10). Although the exact cause of this change is uncertain, it has been associated with diseases such as iron-deficiency anaemia, scurvy, and rickets (Stuart-Macadam 1989). This condition may also be an indicator of general stress, particularly resulting from poor nutrition. In this case the lesions appear to be healing, suggesting that the individual may have suffered from nutritional stress or disease earlier in life.

The appearance of the tooth sockets and alveolar bone from the skull indicates that some of the teeth were lost prior to death. Ante-mortem tooth loss may be caused by dental disease such as caries or abscesses (Fig D4.8): the surviving tooth sockets are
shallow, indicating resorption of the alveolar bone, often associated with dental disease. The second molar (SF613), from the younger individual, has some supragingival calculus on the buccal and lingual surfaces. The presence of calculus can be indicative of a diet rich in starches, and poor oral hygiene.

There is evidence for dental disease and abnormal wear—caries and calculus were observed on both sets of unstratified teeth. The presence of dental enamel hypoplasia on some teeth from the mandible (SF422 and SF425) and maxilla (SF430A and SF361) indicate periods of stress or disease during early childhood.

Osteoarthritis is present in the articular facets of several of the vertebrae (SF115, SF536; Fig D4.11). This condition is a degeneration of the joint surface and may be the result of normal ageing and wear and tear to the joint. It may also be caused by trauma. The cervical or upper thoracic vertebra, SF535, shows signs of degeneration to the superior surface of the vertebral body. This may be due to ageing or the result of trauma or infection.

The distal tibia, SF177, has a small depression in the joint surface. This may be due to osteochondritis dissecans, a joint condition where a traumatic event or circulatory disorder causes a region of the joint surface to die or break away. This bone is either reabsorbed or remains in the joint as a free body. This condition is most commonly seen in the knee and in young males. It may also have a genetic component to its aetiology.

The cranial fragment, SF509, has a small (c 10mm by 5mm) oval depression in the ectocranial surface. This may be a well-healed depressed fracture to the skull, caused by a fall or by interpersonal violence. There are also some breaks to other bones of the skull that appear somewhat unusual and may be the result of peri-mortem breaking of the skull. Several of the teeth from the mandible (SF422 and SF425) and maxilla (SF430A and SF361) are broken: the wear to these teeth suggests that they may have been broken during life, perhaps as the result of trauma or interpersonal violence (Figs D4.12–D4.13).
Many of the larger long bone fragments show enthesopathies, areas of new bone growth at the muscle and ligament attachment sites. These changes are seen in some older adults, and can be caused by high levels of physical activity or repeated stress or trauma to a muscle, or as the result of some diseases such as diffuse idiopathic skeletal hyperostosis (DISH). As there is no other signs of DISH in this skeletal material it is most likely that these enthesopathies are due to normal ageing or are an indication that this individual carried out a high level of physical activity during life. As it is uncertain which individual these remains belong with it is not possible to conclude the most likely cause of these changes.

There is an unusual growth on the 4th right metacarpal from SF225. This may be ‘normal’ non-metric variation in this individual, but it may be caused by an infection or by trauma, although there is no evidence for an active infection at the time of death. It may also be due to a neoplasm, either cancerous or benign.

4.3.7 Conclusion

It is possible that much of this material represents the remains of an inhumation or inhumations placed in pit 031 and cut into the earlier pit 036. However, the remains are incomplete and commingled with skeletal material that may have been deposited in the earlier pit fill. The relationship of this material with that from the disturbed contexts of 001, 012, 013, and 039 is uncertain, but it would appear that there was some movement of human remains at the site, possibly from discrete graves to pit contexts. The variable state of preservation of the human skeletal material may be due in part to exposure of the material to the elements and to damage from scavenging animals, possibly as part of mortuary practice. However, some of the changes to the bones could also be due to unfavourable soil conditions, damage from intercutting features, or from ploughing of the site.

D4.4 Land snails from the triple-ditched round barrow

by Eva Laurie

4.4.1 Introduction
Shells of land molluscs were recovered from the triple-ditched round barrow by hand during excavation (Table D4.2) and by the subsequent flotation of bulk soil samples (Table D4.3). The minimum number of individuals (MNI) was calculated by apex count and any shells without complete apices were designated fragments. Very small numbers of molluscs were recovered by hand excavation from six different contexts (011, 012, 013, 021, 025, 032). Identifiable shells were limited to three species: *Cepea hortensis* (Müller), *Cepea nemoralis* (Linné), and *Cecilioides acicula* (Müller), with two *Helix* species apices, making a total of twenty specimens. The flotation samples yielded larger numbers and a wider variety of species from five contexts (013, 021, 025, 032, 037): *Cepea hortensis* (Müller), *Cecilioides acicula* (Müller), *Discus rotundatus* (Müller), *Columella aspera* (Waldén) and *Helix, Zonitidae* and *Vitrinidae* species, totalling 272 specimens. Unidentified fragments were found in all samples.

### 4.4.2 Deposition and preservation

The very few snail remains is probably due to the acidic nature of the sediments rather than an original lack of snail presence. The species with the largest representation is *C. acicula*. This is a very small snail of about 4.5mm length (Kerney 1999) and it was found in only four contexts with the highest number being in the flotation samples. Of the contexts where it was found, 013 was the ploughzone, and therefore disturbed, whilst 021 and 025 were undisturbed ditch fills, with the cobble backfill of the latter producing by far the largest number of specimens. The species was also relatively common in 037, and the gypsum found in this pit fill may have created a localised environment with a less acidic matrix, thereby explaining the higher number of molluscs from here. Conversely, this is a burrowing species and may be a more recent introduction (see below). There is one unexplained anomaly: 032 failed to produce any *C. acicula* specimens. This was the fill of a pit which cut into 037, and like the earlier feature, it contained human bone. Given that the latter is a favoured location for the species (Janus 1965), and the intimate association between these two features, one could reasonably expect to find it in 032.

### 4.4.3 Discussion
The most common species overall, *C. acicula*, is a small, blind burrowing snail that has been found alive to a depth of 2m (Evans 1972). As mentioned, this snail also has an affinity with buried bone and is frequently found in graveyards (Janus 1965). It has a widespread distribution mainly in grassland (Cameron and Redfern 1976), except when associated with man. Evans (1972) is inclined to think that it is a relatively recent introduction, primarily spread through anthropogenic agency. Despite its abundance and the fact that it is often found on archaeological sites (Kerney 1999), its deep burrowing habit makes it an unreliable archaeological guide. So despite its frequency at Thornborough it is not a species that can be used as a positive archaeological environmental determinate.

The other species are evenly split between shade-loving woodland animals and those of a more catholic nature, that is species at home in a wide variety of habitats ranging from shaded to open. Both *C. hortensis* and *C. nemoralis* are in the latter category. Modern distributions of these species show a split in habitat with *C. hortensis* having a more northerly range and preferring lower ground like valleys (Evans 1972), whilst *C. nemoralis* prefers a warmer, drier habitat and is generally found at higher elevations in more southerly areas of Britain and Ireland (ibid). However, these two species are relatively adaptable and it is more likely to be competition that limits their range rather than their inclination (ibid), with both often found together (Kerney 1999). From the Mesolithic through to the Bronze Age there appears to have been no such distinction of range, with both species frequenting the same habitats, and again, often found together. Evans (ibid) has argued that the change in range may be connected to extensive forest clearance at around 4000 BC. If this is so, then the occurrence of both species may suggest a less open, more wooded environment. There are only 9 specimens from the triple-ditched round barrow, of which 8 are *C. hortensis* and only 1 *C. nemoralis*. This number of specimens is too small to be used diagnostically.

The other identified species, *D. rotundatus* and *C. aspera*, number only 3 specimens in total. Both species favour a moist and sheltered habitat such as woods or forests (Kerney and Cameron 1979), but it is not unknown for them to be found in undisturbed grassland, especially *C. aspera* (ibid). Both species have widespread
distributions over most of Britain and Ireland (Kerney 1999). Again, the numbers found are far too low to give any statistically significant information.

The other apices can only be assigned to general families due to incomplete morphology. *Zonitidae* and *Vitrinidae* families are present with three *Helix* specimens but the numbers are far too low to indicate anything other than their presence. There are unidentified fragments from seven contexts. No analysis can be made of these.

**4.4.4 Conclusion**

Evans (1972) suggests that a minimum of 200 specimens are required for meaningful molluscan analysis to be possible. Although there are more than that number from the triple-ditched round barrow the largest component is *C. acicula*, which, because of its burrowing nature, cannot be attributed reliably to the same age as the archaeological deposits and consequently has to be disregarded. This leaves just 33 specimens, including some from disturbed contexts, which is far too few to provide conclusive environmental evidence.

**D4.5 Other environmental evidence**

**D4.5.1 Introduction**

Bulk soils samples, usually of 10–50 litres, were taken from what were believed to be undisturbed contexts during the excavation of the triple-ditched round barrow (013, 014, 016, 019, 021, 025, 026, 028, 032, 035, 037, 039), the Three Hills round barrow (004), some of the features which make up the double pit alignment (901, 903, 918, 927–9, 942, 956–7, 959, 979), and the inner ditch of the southern henge (619, 620, 622). The results, including those relating to small finds, are integrated into the Chapter 4 site reports wherever appropriate. The discussion below only covers the palaeoenvironmental evidence.

**D4.5.2 Methodology**
All the bulk soil samples were subjected to a system of flotation in a Siraf-style flotation tank with flot collected in a 250μm sieve and, once dry, examined using a binocular microscope. Retent was wet-sieved through a 1mm mesh, air-dried, and then sorted by eye. The flotation and subsequent identification were carried out by Graeme Brown, Mhairi Hastie, Samantha Hatrick, and David Masson under the supervision of Tim Holden, all of Headland Archaeology Ltd.

**D4.5.3 Results**

The material recovered from each of the sites was similar in both quantity and in the variety of material present. Its origin is unclear, although in the majority of cases it could have been introduced during deliberate or natural infilling. Soil samples from the double pit alignment produced 1 cereal grain of possible barley (*Hordeum* sp) (92706) and 2 charred monocotyledon rhizomes (92907/8, 97901). A small amount of wood charcoal was present in some samples (92701/2, 92703, 92801, 92906, 95701). The only material from the inner ditch of the southern henge was a tiny quantity of charcoal from 620. These results from both sites are fully described in Hastie (2000).

Soil samples from the triple-ditched round barrow produced low quantities of rodent bone (013, 028, 032, 037), poorly preserved fragments of burnt mammal bone (013, 021, 026), 3 fragments of barley grain (019, 032), and 1 carbonised weed seed (019). Charcoal was sparse, with only low concentrations present in the majority of samples. The Three Hills round barrow produced 1 small fragment of burnt mammal bone (004), low quantities of barley grain (008), and occasional weed seeds (004, 008). A small quantity of wood charcoal was present in all the samples. The results from the double-ditched round barrow and the Three Hills round barrow are fully described in Hastie (2003).