# Fin Cop Excavation Archive Report for 2009

Trench 1 under excavation with the rock cut ditch beginning to be exposed in the foreground.

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**February 2010**

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***EXECUTIVE SUMMARY***

*A programme of archaeological investigation took place on the hillfort at Fin Cop during 2009 by the Longstone Local History Group under the direction and supervision of Archaeological Research Services Ltd. The project was funded by the Heritage Lottery Fund and further in-kind support was provided by the Peak District National Park Authority and English Heritage. The hillfort itself has never been subjected to scientific excavation although there have been antiquarian diggings in several stone burial cairns thought to date to the Beaker period situated around the highest part of the hilltop.*

*The excavations reported here followed directly on from a desk-based assessment, earthwork survey and geophysical survey which have been reported on separately. The excavations took the form of 16 test pits and four excavation trenches, one of the latter of which (Trench 3) was reinstated after the removal of the turf because it became clear there was not sufficient time to excavate it.*

*Trench 1, cut over the hillfort rampart, revealed a stone-faced rampart that had clearly stood to a considerable height in its original form, probably in excess of 2m. The stone face appears to continue around the rampart perimeter as further evidence for a stone face was revealed in Trench 4, which was excavated over an area of active erosion. Outside the rampart was a rock-cut ditch which had a vertical inner face and flat base and extended over 2m in depth. The trench revealed a ditch terminal and what is thought to be a short section of causeway before the ditch resumes, suggesting that a blocked-up entrance may be situated in the section of rampart opposite the causeway. This hypothesis was not able to be tested during the 2009 excavations but it is hoped to return in 2010 to test this possibility. The excavation showed the Fin Cop wall and ditch to have been of a considerable scale and clearly built for a defensive purpose. The skeletal remains of a woman aged between 20 and 30 years old was found dumped amongst the destruction deposit in the rock-cut ditch. Her skeleton was twisted and haphazardly positioned amongst the stone infill from the levelled rampart. Radiocarbon dating of one of her long bones indicates that she lived sometime in the 4$^{th}$-3$^{rd}$ century cal BC. Small fragments of animal bone from the primary ditch silt indicate that the inhabitants of the hillfort ate cattle, pig, sheep and perhaps goat. Two radiocarbon dates from short-lived charred wood species from the primary ditch silt have produced dates of the Beaker period 2350-2040 cal BC which could either suggest that both dates are from residual material or that there is a much earlier enclosure on the site, part of which has been incorporated into the hillfort defensive circuit. The defensive character of the Iron Age monument and the preliminary evidence for a violent end to the site appear to justify the site's appellation as a 'hillfort' and the radiocarbon dates provide a mid Iron Age date for the abandonment of the monument.*

*Trench 2 was a small cutting inside the hillfort which produced evidence for several rock-cut features including pits and post-sockets together with over 200 sherds of late prehistoric pottery. Radiocarbon dating of the residues on two separate ceramic sherds returned dates of 820-550 cal BC indicating occupation in the Late Bronze Age-Early Iron Age which may relate to an early phase of the hillfort or to pre-hillfort occupation on the site.*

*The test pits were excavated in an east-west transect across the interior of the hillfort. They produced 1800 chipped stone artefacts of which all but five were made from the locally outcropping chert. This prodigious assemblage is all consistent with a Mesolithic date given the concern for blade production and the occasional diagnostic core and tool including scrapers and a microlith. The majority of the assemblage is from the primary stage in the core reduction sequence indicating that in the main the assemblage represents a raw material extraction site where preliminary flaking took place.*

## 1. BACKGROUND

Excavations took place at Fin Cop hillfort over a three week period during July-August 2009 in accordance with the Scheduled Monument Consent Project Design submitted by ARS Ltd to English Heritage. The excavations were directed by professional staff from Archaeological Research Services Ltd with the assistance of 78 volunteers from the Longstone Local History Group. In addition, several university students participated together with members of the Sheffield Young Archaeologists Club, 'A' level students from Lady Manners School and other volunteers. All the school children from Longstone Primary School, 160 in all, participated in the excavation of the test pits. All the work was overseen by professional staff from Archaeological Research Services Ltd.

The excavations followed on from the previous phases of work which included a desk-based study of the hillfort and its environs (Brightman 2009), a detailed earthwork survey (Burn and Brightman 2009) and a geophysical survey (Smalley 2009). The overarching aims of the project were to:

- Assess the current condition of preservation at Fin Cop, particularly with regard to erosion, in order to protect and preserve the site and to establish the condition of preservation of surviving deposits and archaeological residues. This will allow the site to be better managed, conserved and interpreted to the public.

- Characterise the extent, date, form and function of the site.

- Encourage participation and train local groups in archaeological investigation and field skills, with particular emphasis on including people who have never been involved with archaeological heritage before (e.g. Longstone School with over 170 pupils, Longstone Youth Group, Longstone Local History Group, volunteers from all sectors of the local community and so forth).

- Raise public awareness, understanding and enjoyment of a nationally important site and bring it into public access.

The programme of excavation sought to address the following specific questions:

- Establish the form of the enclosure

- Determine whether the site really is a 'fort' or some other kind of enclosure

- Establish whether occupation took place inside the fort

- Determine the chronology of the site and its sequencing

- Establish the condition of preservation of the fort remains and its interior

As the site and its environs have been described fully in the earlier desk-based study and earthwork survey reports an in-depth description of the site is unnecessary here, and so only a very brief summary follows. The site is located on the crest of a steep sided bluff around the 330m contour with steep scarps dropping off over 170m to the floor of the deeply incised valley known as Monsal Dale. The site commands panoramic views in all directions and the other Peak District hillforts at Burr Tor and Ball Cross are intervisible from the site together with the Gardom's Edge enclosure. This is no doubt very salient as it would have allowed for rapid communication between these sites which would have linked the valley-based communities along much of the length of the Derwent and Wye valleys given that Burr Torr also has visibility extending to Mam Tor and Carl Wark. This question of fort intervisibility, which is really only relevant if it can be demonstrated that they were occupied contemporaneously, is a fascinating research topic in its own right and could form a study of its own and so is not explored further in this report.

The site lies directly on the Carboniferous Limestone laid down around 350 million years ago. This has given rise to base-rich fertile soils which have been used for farming from the Neolithic to the present day. The depth of soil cover over the site varies considerably and this will be discussed further below. Although springs occur across the limestone plateau the closest supply of fresh running water is the relatively fast-flowing river Wye which snakes along the floor of Monsal Dale to the north and west of the site, although a spring line occurs *c.*150m beyond the hillfort on its eastern approach.

The visible remains comprise a discontinuous bank and ditch rampart which define a scarp-edge enclosure with a short section of a second bank and ditch at the north end of the east-facing section of the circuit forming the one area of bivallate defences (Figure 1). Although turf-covered, the bank is actually a predominantly stone-made rampart and the ditch is rock-cut. The banks have been heavily robbed in the past for stone, both for marling the fields and construction of the dry stone field walls, and therefore the size of the ramparts are much reduced from their original form. A faint trace of a possible boundary running along the scarp edge itself shows on some aerial photographs but the existence of such a feature needs to be tested by further excavation. Some possible hut scoops are visible on the west side of the fort beyond the recent dry stone wall. A cluster of what are thought to be Beaker-period – Early Bronze Age stone cairns are situated around the highest point on the hilltop along the crest where visibility from below would have been maximised, whether stood in Monsal Dale itself, approaching from the east or from other high points roundabout such as Longstone Edge. There may be some additional cairns towards the corner of the bluff still within the area defined by the hillfort circuit. Other surface remains visible on the site include a post-medieval limestone quarry and kilns in the southern part of the fort interior. The outlying bank and ditch to the east of the fort that was subject to previous excavation (Wilson and English 1998) was cored to retrieve a sediment sample from the ditch. Although organic material was recovered from the basal fill there were no samples suitable for radiocarbon dating.

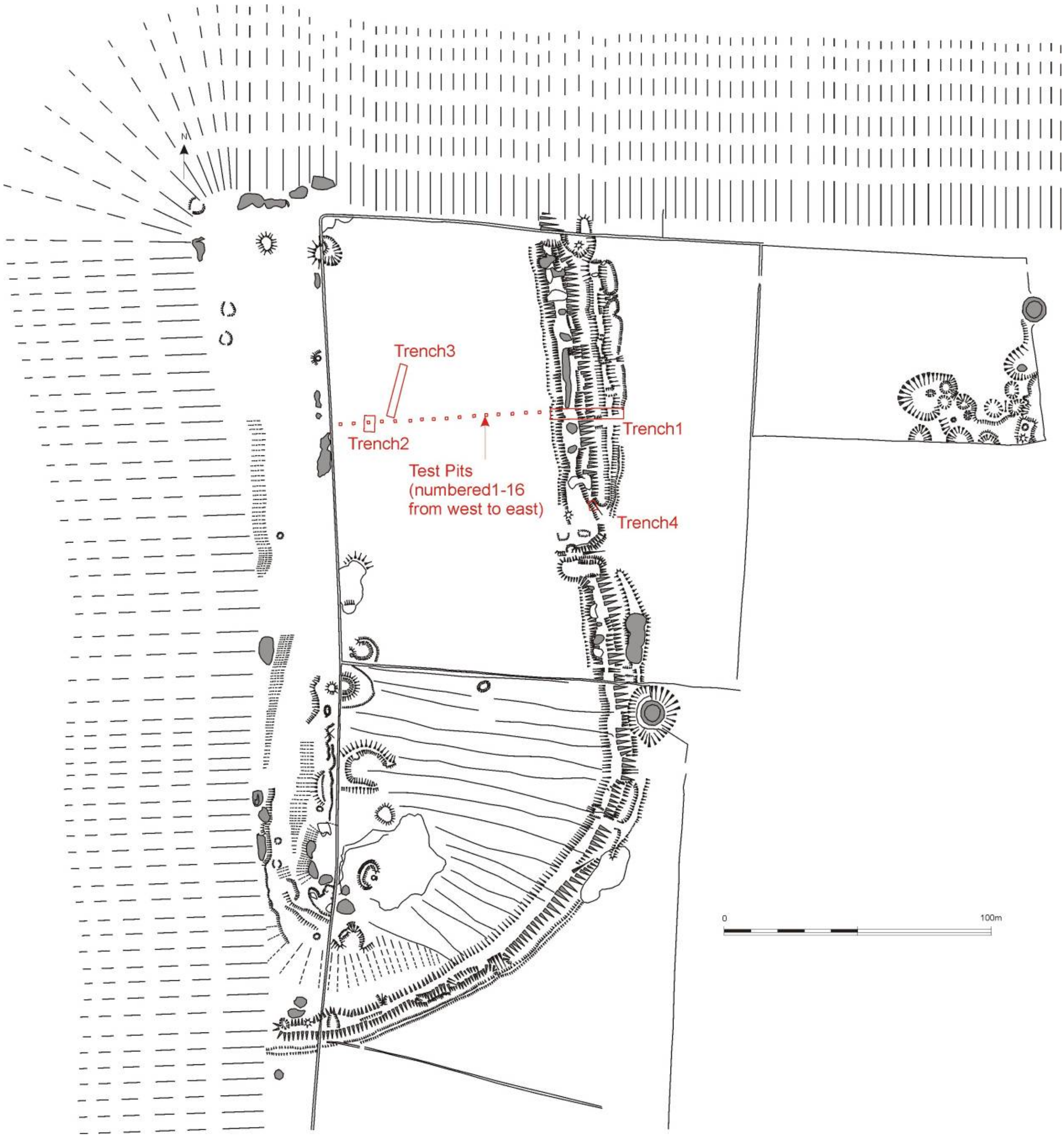


Figure 1. The earthwork survey of Fin Cop with the location of the test pits and excavation trenches shown in red.

## 2. TEST PITS

A total of 16 one metre square test pits were excavated by hand in a single line across the hillfort interior. The test pit transect ran in an east-west direction with the aim of establishing:

1. the soil character and depth across the hilltop and the depth at which bedrock was encountered
2. whether artefacts survived in the soil horizons and, if so, their type and broad date range
3. whether sub-surface features survived in-tact in the interior of the fort

The test pits were surprisingly productive yielding 1800 chipped stone artefacts, of which 1795 were made from the locally available chert and only five made from flint. As flint is not native to this area this material has clearly been imported to the region. In addition to the chipped stone lithics, 66 sherds of late prehistoric pottery were recovered from test pit 3 (TP3), most of which is typologically attributable to the 1st millennium cal BC. As nearly all the late prehistoric ceramics came from TP3 and the trench (Trench 2) that was subsequently opened around it the discussion of the ceramic finds is provided in the specialist report section of this report, suffice to say here that the ceramic material survived in the basal five centimetres of the topsoil horizon that appears to have escaped earlier ploughing. In addition to the pottery, seven pieces of slag, four pieces of burnt limestone and one piece of glass were retrieved from the test pits (see Table 1 for summary).

| Test pit number | Burnt limestone | Slag | Prehistoric pottery | Glass | No of chert artefacts | No of flint artefacts | Total Chipped lithics |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 4 | 0 | 0 | 42 | 1 | 43 |
| 2 | 0 | 1 | 0 | 0 | 38 | 0 | 38 |
| 3 | 0 | 0 | 66 | 0 | 31 | 1 | 32 |
| 4 | 0 | 0 | 0 | 0 | 56 | 2 | 58 |
| 5 | 2 | 0 | 0 | 0 | 78 | 1 | 79 |
| 6 | 0 | 0 | 0 | 0 | 63 | 0 | 63 |
| 7 | 2 | 0 | 0 | 0 | 210 | 0 | 210 |
| 8 | 0 | 0 | 0 | 1 | 141 | 0 | 141 |
| 9 | 0 | 0 | 0 | 0 | 296 | 0 | 296 |
| 10 | 0 | 2 | 0 | 0 | 204 | 0 | 204 |
| 11 | 0 | 0 | 0 | 0 | 158 | 0 | 158 |
| 12 | 0 | 0 | 0 | 0 | 125 | 0 | 125 |
| 13 | 0 | 0 | 0 | 0 | 121 | 0 | 121 |
| 14 | 0 | 0 | 0 | 0 | 176 | 0 | 176 |
| 15 | 0 | 0 | 0 | 0 | 40 | 0 | 40 |
| 16 | 0 | 0 | 0 | 0 | 16 | 0 | 16 |
| Total | 4 | 7 | 66 | 1 | 1795 | 5 | 1800 |

Table 1. Summary of find quantities by test pit.

The test pits revealed an interesting sediment sequence across the site. In some test pits the turf mat and topsoil layer was thin measuring just 0.17m thick and directly overlay the limestone bedrock (e.g. Fig. 2). The pits with the shallow soil tended to cluster at the west end of the test pit transect on the higher ground where the bedrock, unsurprisingly, lay closer to the surface. In the other test pits towards the lower east end of the transect, the depth of soil was considerably more than had been anticipated with the deepest pit, TP12, having a soil depth of 0.55m (Fig. 3). In all the test pits a distinct topsoil horizon could be identified, characterised by a humic-rich dark soil. In the areas of shallow soil cover this topsoil lay directly on the limestone bedrock but in the areas with a thicker soil cover this layer overlay a distinct subsoil layer. The subsoil layer was easily identified on account of its orange-brown colour, which denotes a ferruginous or iron-rich content (see Fig. 3) and this then overlay the bedrock. The bedrock surface was variably weathered and in some chert nodules could be identified. The chert could in some cases be easily prized out from the limestone and in some places it appeared as though chert nodules had already been removed. It is just possible, therefore, that in such cases we may be witnessing the remains of shallow chert-winning pits for stone tool production. The majority of the lithic finds came from the organic topsoil horizon or the top 10cm or so of the orange-brown subsoil horizon, but below that very few lithics were encountered in what is a natural sediment unit with little evidence for bioturbation.


Figure 2. Test pit 5 showing the thin topsoil immediately overlying limestone bedrock on the higher part of the fort interior.


Figure 3. Test pit 12 showing the distinct upper topsoil horizon and the distinct lower subsoil horizon which overlay the limestone bedrock.

The chipped stone artefacts were by far the dominant finds from the test pits. However the sheer volume of material is surprising with 1800 pieces from just 16 one metre square pits. This is an average of 113 lithics per pit, although in reality the range varied from 16 pieces in TP16 to 296 pieces in TP9. The range of material is revealing as the vast majority of the assemblage (over 96%) includes material from the primary and secondary stages of the core reduction sequence indicating that it is the primary chipping of raw materials that took place in this area of the site. Although accounting for less than 4% of the lithic assemblage the number of finished tools and utilised pieces shows quite a diversity of types. The tools are predominantly edge trimmed and utilised blades and flakes (57 pieces) but there are also a handful of scrapers (3), a microlith (1), piercers (2) and a burin (1) (see Table 2).

| **Test Pit No.** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | |
| Nodules | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bashed lumps | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Flakes | 11 | 23 | 12 | 20 | 20 | 32 | 108 | 70 | 190 | 105 | 94 | 64 | 76 | 100 | 14 | 2 |
| Blades | 20 | 11 | 14 | 27 | 51 | 21 | 55 | 61 | 76 | 82 | 43 | 46 | 42 | 63 | 21 | 12 |
| Cores | 6 | 1 | 4 | 7 | 3 | 7 | 31 | 7 | 19 | 12 | 16 | 7 | 2 | 9 | 3 | 0 |
| Core rejuvenation flakes | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Bipolar flake | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Edge trimmed blades | 3 | 1 | 1 | 2 | 2 | 2 | 4 | 1 | 9 | 2 | 4 | 3 | 0 | 2 | 2 | 1 |
| Edge trimmed flakes | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 |
| Utilised blades | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Utilised flakes | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| Scrapers | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Microliths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Piercers | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Burins | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | |
| Total | 43 | 38 | 32 | 58 | 79 | 63 | 210 | 141 | 296 | 204 | 158 | 125 | 121 | 176 | 40 | 16 |

Table 2. Summary of lithic types by test pit.

The lithic assemblage from the test pits clearly relates to a blade-based manufacturing technology (see Fig. 4), although this concern for blade production is undoubtedly affected by the constraints imposed by the raw material. The chert is very coarse grained and flakes off in thick chunks giving rise to stubby blade and often irregular blade forms, but blade forms nonetheless. The chert has to be struck very hard to detach a flake and therefore there is ample evidence for hard hammer working. Most notably several cores, blades and flakes have detachment scars on their surfaces resulting from bipolar flaking. The use of bipolar flaking is typical in areas where the locally available raw materials tend to occur in small-sized nodules and where coarse material is used. Some of the flakes have been modified and this usually takes the form of light edge-trimming rather than more controlled retouch. The edge-trimming could have been carried out using a soft hammer but this remains only speculative. There are a few cores present in the assemblage, suggesting that most cores were removed from the site for secondary blade production elsewhere, but those present tend to be irregular multi-platform cores, although two flint cores, one a tiny opposed platform core and one a pyramidal core, were also found. Overall, the assemblage reveals a chert-working area close to where chert-bearing limestone outcrops on the scarp edge and close to the surface. The knapping strategy is oriented around a blade-based manufacturing tradition with opportunistic knapping common that takes account of the irregularities of the raw material available.

The chert comes in a variety of colours although the material on and around Fin Cop tends to be various shades of grey which can be loosely classified into light, medium and dark. The most common colour is a medium grey material that is typically coarse grained and opaque and accounts for 1541 pieces in the assemblage (86%). The light grey material forms the next most common colour and again this tends to be coarse grained and opaque and accounts for 221 pieces (12%). The dark grey material ranges from a typical dark grey to an almost black colour. The darker the material the more the material tends towards a finer grain. There is much less of this higher quality material in the assemblage which accounts for just 38 pieces (2%).

Lithic scatters in topsoil horizons are typically 'mixed' with chipped stone elements dating to different periods. This is because locales regularly returned to over time become foci for discarded material which accumulates to form scatters of material that represent a palimpsest of human activity, sometimes over several thousand years. The lithic assemblage so far recovered from the test pits across the Fin Cop topsoil is remarkably homogenous and can be confidently ascribed to the Mesolithic period. However, the Mesolithic itself extends over a long time span, around eight thousand years, and it remains unclear whether or not the assemblage represents a relatively short period of chert exploitation on this hilltop or whether it represents hundreds or thousands of years of repetitive activity with hunter-gatherer groups visiting the site over many generations to obtain supplies of chert for tool production. The Mesolithic attribution for the assemblage is based on the occurrence of a handful of diagnostic artefacts types such as microblade cores (Figs. 6 and 7), microliths (Fig. 8), piercers (Fig. 9), scrapers (Fig. 11), retouched blades of various types (Fig. 10), piercers (Fig. 5), a possible burin (Fig. 5) and so forth together with the ubiquitous concern for producing blade forms on which to produce tools. Other areas of northern Britain where primary flint deposits are absent show a pattern of raw material use whereby locally available rocks are heavily utilised during the Mesolithic, as for example in the Milfield area of north Northumberland where agates, chert and quartz are utilised (Passmore and Waddington 2009), or in north Yorkshire around Killerby (Waddington 2009) where local cherts were the favoured material.

Figure 4. A group of crude and irregular chert blades.

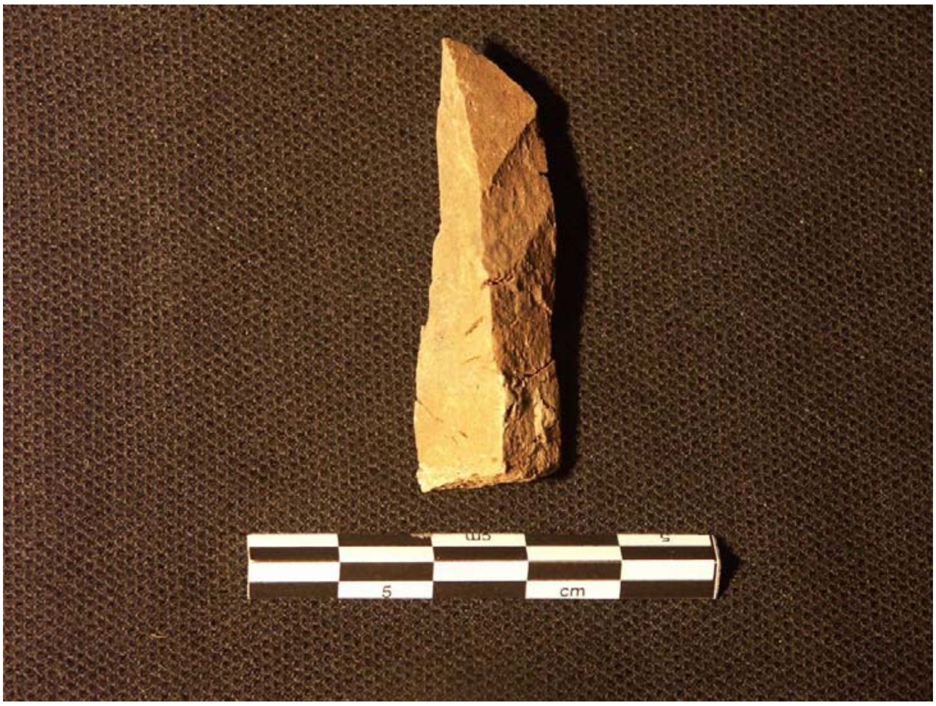


Figure 5. A probable burin.


Figure 6. Irregular platform cores made from chert.


Figure 7. A pyramidal core made from flint.


Figure 8. An irregular microlith (left) and a microburin (right) both made from chert.

Figure 9. Chert piercers.

Figure 10. A variety of retouched irregular chert blades.


Figure 11. Chert scrapers, mostly irregular in shape, but note the abrupt retouch on the right centre example – a typical characteristic of Mesolithic scrapers.

## 3. EXCAVATION

The excavation comprised four excavation trenches of which one, Trench 3, only had its turf cover stripped before being abandoned as there was insufficient time to excavate it. The turf for this trench was replaced and the trench closed down with no further record made.

### Trench 1

Trench 1 measured 33m by 4m and was laid out in an east-west direction across the main rampart (see Figs. 1 and 12). The turf was removed by hand and stacked on plastic and the archaeological layers were excavated by trowelling, occasional use of mattocks and selected stone removal. The stratigraphic matrix for the trench is provided in Appendix 1.

Figure 12. Trench 1 viewed from the air looking north.

The trench exposed a rock-cut ditch terminal outside the rampart which had a vertical face on the rampart-side of the ditch making it a formidable defence (Figures 13 and 14). The ditch had a flat base and the ditch measured up to 2.2m deep below the pre-rampart ground surface. The ditch measured 5m at its widest point and 2.5m at its base. The ditch contained a primary silt (1012) from which radiocarbon dates are awaited. This deposit comprised a clay silt, orange-brown in colour, with organic inclusions. Some small fragments of animal bone were recovered from the primary fill including the remains of cattle, pig, sheep and possibly goat. Two radiocarbon dates on single entity samples of hazel charcoal and apple family charcoal have returned statistically consistent dates spanning 2350-2040 cal BC at 95% probability. These dates belong to the Beaker period and could therefore result from being incorporated into the ditch silt as residual material, but given that these two separate samples are statistically consistent this is perhaps unlikely. If they are not dates on residual material this means that they do relate to the earliest phase of the ditch and if so, then it would mean that there is an early ditched enclosure feature on the site that has been subsequently incorporated into the hillfort defensive circuit – a not unknown phenomenon as witnessed at other sites such as Maiden Castle, Hambledon Hill, Crickley Hill and Harehaugh. Above the primary silts the ditch fill comprised the stone rampart material (1004) that had evidently been thrown into the ditch as part of what appears to be the deliberate destruction of the hillfort defences (see Figs. 14 and 15). During the excavation voids were frequently encountered between the large irregularly pitched blocks with fine-grained clay sediment adhesing to the rocks as a result of material subsequently washing in. There was no evidence for the rocks having slipped in or the wall face having collapsed with rampart core material above. Rather the deposit comprised a homogeneous blocky fill of irregularly pitched rampart stone that appears to have formed as a single event. Many of the rocks had been partially dressed so that they had at least one flat face and these shaped pieces no doubt formed part of the original wall face (e.g. Figure 16). Above the rampart destruction material was the subsoil horizon which comprised an orange-brown ferruginous clay silt and varied between a few centimetres and 0.5m thick. Above the subsoil was the modern topsoil and turf horizon (1001) which averaged 0.1m thick and consisted of a dark grey-brown humic horizon. The excavation trench had been placed so that half of it lay over a low area of rampart and half over a higher section of surviving rampart. When the trench was excavated the ditch terminal was revealed in the north half of the trench and an area of solid bedrock forming no doubt a causeway in the other half. Explaining the presence of this ditch terminal remains only tentative at this stage but it is possible that the causeway may have led to a blocked up entrance through the rampart. If this is the case and the rampart was blocked the slumping of the looser blocking could account for why the surviving rampart is lower in this section of the defensive circuit. This possibility can only be tested by recourse to further excavation of the causeway area and the adjacent section of rampart.

The rampart (1002) consisted of a stone-faced wall constructed primarily from the limestone won from the excavation of the defensive ditch (Fig. 13). Some blocks of other rock types were also found but these were rare and consisted of other locally available material. The rampart, in this section at least, had been formed with an outer face of dressed stones (Fig. 17) with the facing stones keyed back into the body of the rampart that consisted of a rubble dump consolidated with the redeposited silty clay subsoil. The rampart core was not, however, homogeneous. The section shown in Figure 14 shows areas of the rampart core where there was a greater quantity of compact stone and a central area where there was a looser earthy fill. Whether this variation in the rampart dump was deliberate or whether it reflects different dumps of material introduced during the construction process remains unresolved. If the rampart width has not been spread since antiquity, which appears to be the case, then the base of the rampart had a width of around 11m. It is difficult to estimate height but given that the amount of rampart material in the ditch fill that has evidently come from the front of the rampart it would not be unlikely that the rampart face attained a height of 3m or more. Given that the ramparts have also been robbed for stone, probably to burn in the limekiln and to build the dry stone walls, the rampart may have been of yet greater proportions.

Within the main ditch fill resulting from the reducing of the ramparts an articulated skeleton was encountered partly positioned in the north baulk of the trench. The skeleton was located at a depth of 0.8m below the modern ground surface of the ditch. The skeleton was moderately well preserved although small bones were generally absent and part of the skull was removed during stone removal and this led to the discovery of the skeleton. The corpse appeared to have been thrown into the ditch without ceremony as the bone positions showed that the body was twisted to the right with the head turned away with the left arm trailing and the right arm to the front. The legs were hunched towards the chest. The legs were lower down in the ditch fill and the body and head higher up. The skeleton was entirely covered all around by large blocks of stone from the rampart that appear to have been dropped on top and around the individual. The circumstances of the skeletons deposition are consistent with the deposition of an unwanted corpse shortly after death while the legs were still flexible so that they bent on impact. Analysis of the skeletal remains (see specialist section below) revealed the skeleton to be that of a woman aged 20-30 years who was around 5 feet in stature. In addition a fragment of a juvenile scapula suggests that she may have been accompanied by a neonate or was perhaps heavily pregnant at the time. Her cause of death remains unknown. Radiocarbon dates of her long bones indicate that she lived sometime during the 4$^{th}$ and 3$^{rd}$ centuries cal BC. Although the contextual circumstances of the corpse's deposition are consistent with the dumping of a body it should be borne in mind that deposits of human remains, as well as animals and other artefacts, in ditch terminals is a practice that has been noted at other Iron Age sites and in these circumstances the placed remains are more satisfactorily explained as some kind of dedicatory or ritual deposit. Nonetheless, the Fin Cop skeleton does not appear to fit well into this category, particularly as ditch terminal deposits usually comprise selected body parts rather than a complete rotting corpse.

There was no obvious evidence for a rear retaining wall and, given the grading down of the stone rampart in this direction, it seems that the rampart may have sloped up from the land surface on its inner side. This would have provided a fighting platform, with or without a timber breastwork, which the residents of the fort could have simply run up if danger approached. Excavation over a greater width of the rampart would be required in order to more fully resolve the rampart form.

Beyond the rock-cut ditch the second 'rampart' or possible 'counterscarp' was encountered as a low bank (1003) comprising an orange-brown silty clay that contained frequent medium and large stone inclusions. The bank dump was found to contain occasional artefacts that were clearly derived from earlier activity on the site, and must therefore be considered residual. This included six small and very crumbly and abraded sherds of prehistoric pottery (Table 3) together with a fine Beaker period thumbnail scraper (Fig. 19). The ceramics are discussed further in the specialist report below. Over much of this low bank a layer of stone was noted which appears to have formed a capping to the bank. Again, without further excavation over a wider section of this feature this preliminary observation must remain only tentative. The bank material (1003) was overlain by the subsoil layer (1005) which in turn was overlain by the topsoil (1001). Cut into the top of the bank (1003) was an irregular pit feature (F1008) that had maximum dimensions of 0.7m by 1.15m. This feature was shallow, with a depth of just 0.25m, although a small stone-defined socket was observed in its base. The purpose of this feature remains unknown although it appears to have served a structural purpose. Given that it is cut into the top of the bank it is structurally later and therefore could be a relatively modern feature, perhaps a post for part of a boundary, or alternatively it could have supported a similar type of structure contemporary with the hillfort's use. No small finds or datable material was recovered from this feature.


Figure 13. Trench 1 looking west with the rock-cut ditch terminal in the foreground and stone rampart above (scales = 2m).

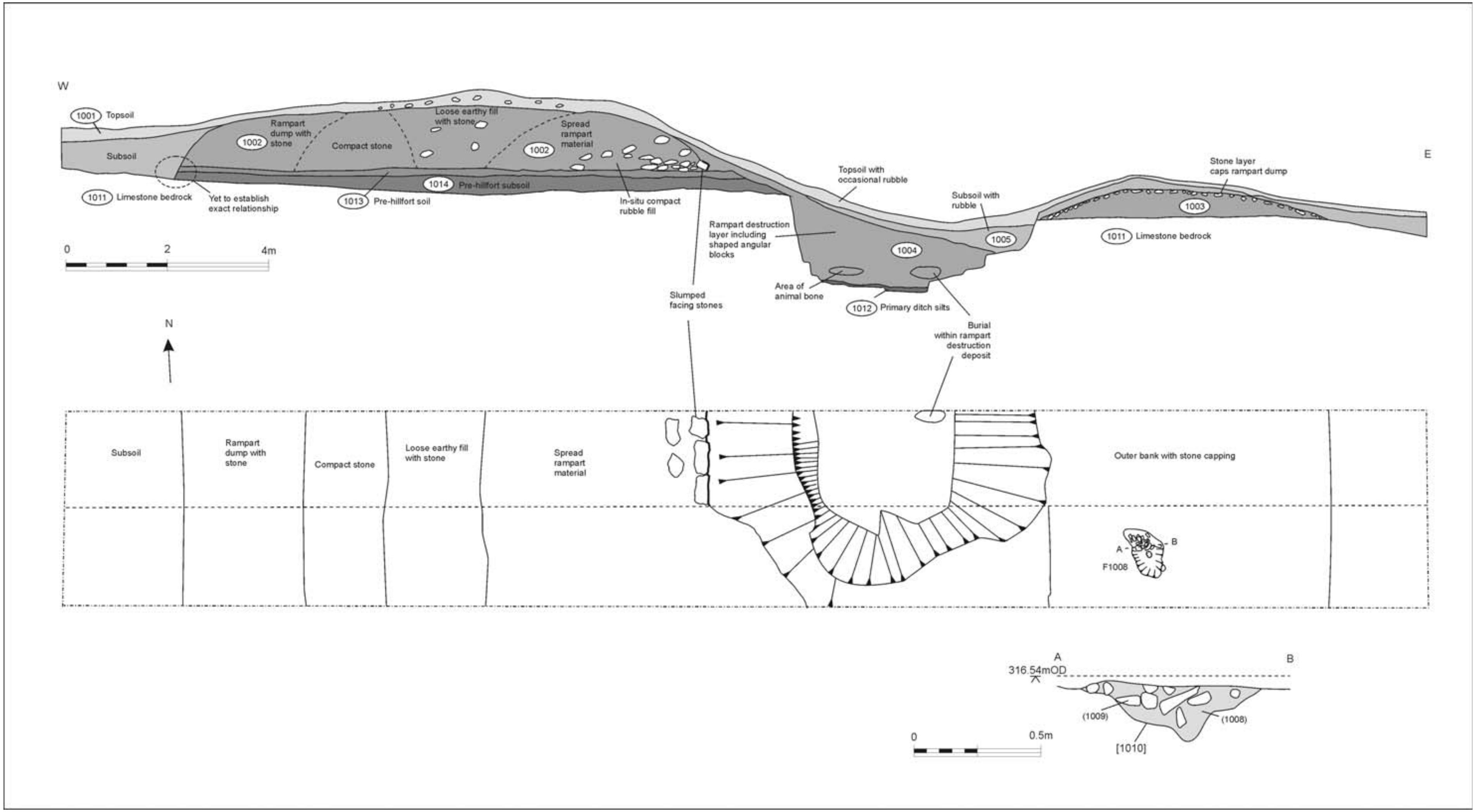


Figure 14. Plan and south-facing section of Trench 1. Note that the relationship between the rampart material and the soil horizon of the hillfort interior has not yet been established with certainty.

Figure 15. View of the section through the rock-cut ditch showing the terminal in the foreground and the fill of rampart material with the overlying turf and topsoil horizon.

Figure 16. An example of a facing stone from the rampart, tapered to the rear, recovered from the ditch fill.

Figure 17. The surviving slumped face of the rampart wall. As the soil was removed a final basal coarse of faced stone was identified below the visible coarse (scale = 2m).

Figure 18. The pelvic bones and femurs of the skeleton still in situ amongst the stone of the destroyed rampart.


Figure 19. Two thumbnail scrapers, both made from flint, dating to the Beaker period found as residual material in Trench 1. The scraper to the right was found in the outer bank material (1003). The scraper to the left was also found in Trench 1 in the overlying topsoil.

| Find No | Context No | Fabric | Sherd Type | Body Thickness | Residues | Weight [g] | Size | Condition |
|---|---|---|---|---|---|---|---|---|
| 1001 | 1003 | F1A | P | ---- | ---- | 1 | Sm | Fg |
| 1002 | 1003 | F1A | P | 5m | ---- | 3 | Sm | Fg |
| 1003 | 1003 | F1A | P | 8m | ---- | 7 | Md | Av |
| 1004 | 1003 | ---- | ---- | ---- | ---- | 1 | Sm | Fg |
| 1005 | 1003 | F1A | P | ---- | ---- | 1 | Sm | Fg |
| 1006 | 1003 | F1A | P | ---- | ---- | 1 | Sm | Fg |
| 1007 | 1004 | F1A | P | ---- | ---- | 2 | Sm | Fg |
| 1008 | 1005 | F1A | P | ---- | ---- | 3 | Sm | Fg |

Table 3. Trench 1 List of ceramics.

## Trench 2

Trench 2 was formed by extending test pit 3 on account of it having produced 66 sherds of late prehistoric pottery. An area measuring 6m by 4m encompassing the test pit was opened up and the turf removed by hand (Fig. 20). The stratigraphic matrix for the trench is provided in Appendix 1.

Figure 20. Trench 2 after the removal of the turf and initial cleaning.

After being completely excavated down to bedrock this trench, including the initial test pit, produced a combined total of 227 pottery fragments from the topsoil zone together with several pit features cut into the bedrock (Figs 21 and 22). A total of four features were noted cut into the bedrock. These included two linear pits F2004 (Figs 23 and 24) and F2006, together with two small elongated sockets F2008 and F2010. Each of these features had a silty fill different from the overlying topsoil horizon and in each case the vertical and smooth sides of the limestone bedrock around these features contrasted with the more jagged and unsmoothed natural voids and joints that occurred in the limestone pavement elsewhere in the trench. The two large linear pits also contained jumbled limestone cobbles in their fills which were lying at unusual angles inconsistent with the jointing in the bedrock. In other words this was introduced material lying haphazardly in the feature fills.

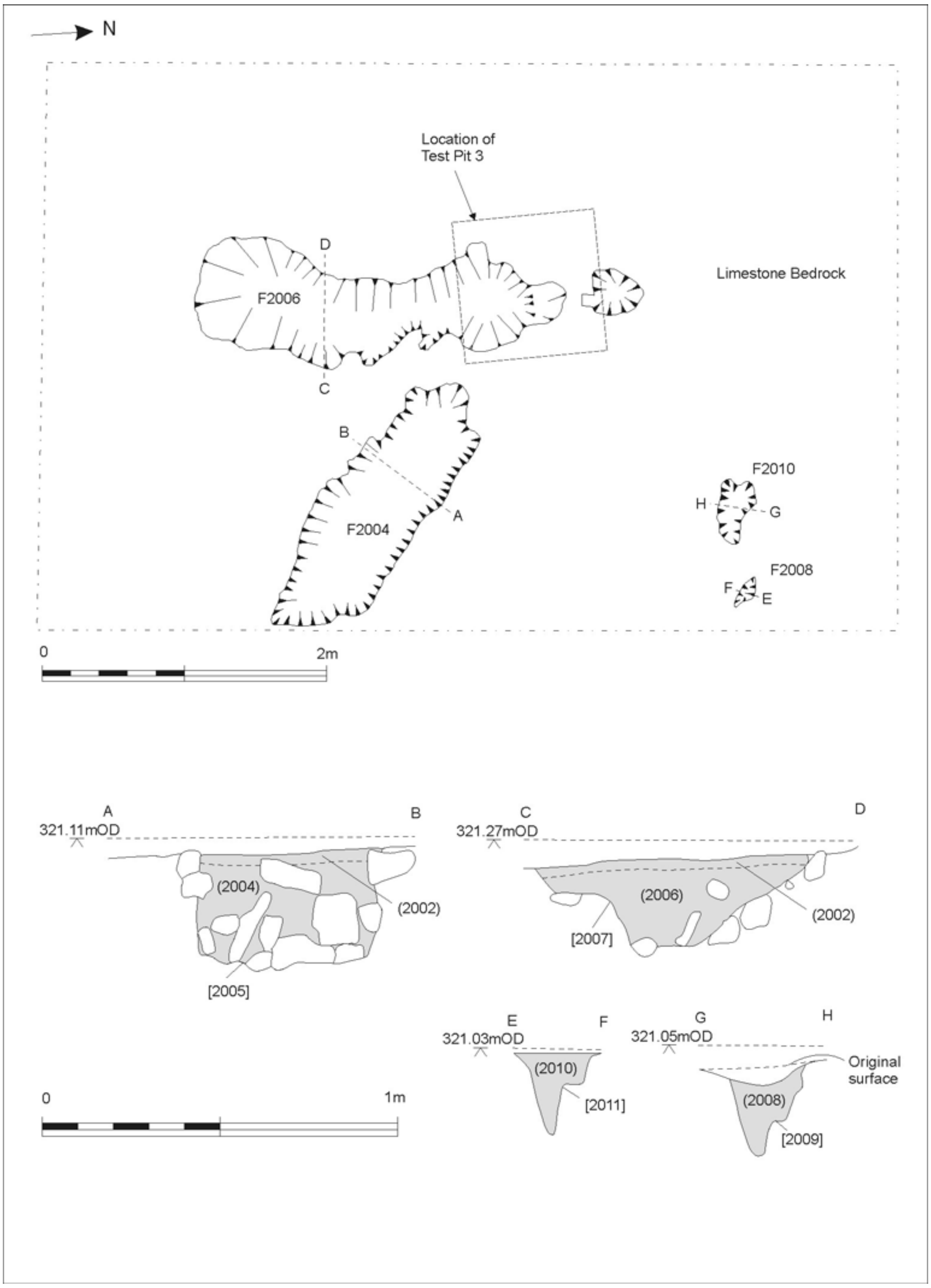


Figure 21. Plan of Trench 2 showing the various pit features and section drawings through their fills.

The distribution of the pottery sherds is shown in Figure 22 where the material appears to be concentrated in the north and central areas of the trench. An additional 66 pottery sherds were recovered from the area of the test pit but the individual findspots of these pieces were not recorded. The presence of the pottery and the pit features implies the presence of a structure in this locale within the hillfort. In order to test this suggestion, though, further excavation would be required over a larger area so that any patterning of potential structural features could be reliably identified. The pottery is discussed in more detail in the specialist report below.

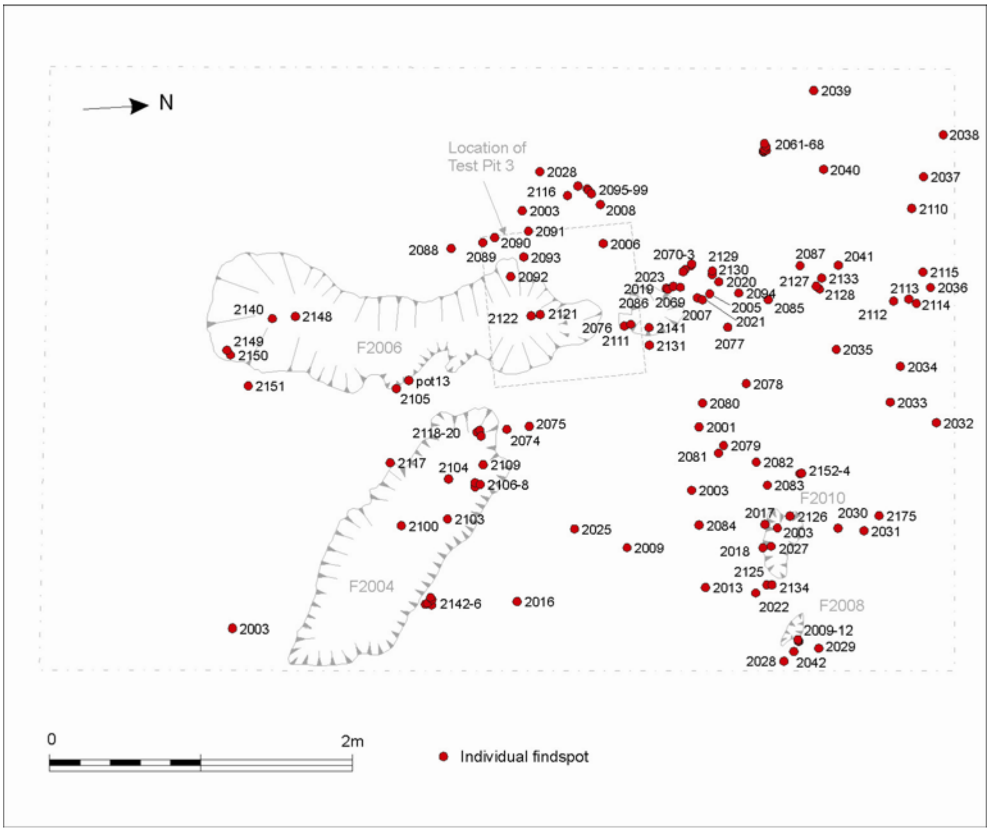


Figure 22. Plan of Trench 2 showing the distribution of pottery sherds superimposed over the pit features.


Figure 23. View of the section cut through pit feature F2004 looking south-east.


Figure 24. Pit F2004 after complete excavation looking north-east.

Within the topsoil of Trench 2 were several small sherds of prehistoric pottery (see Pottery section below) together with two fragments from a ground and polished stone axe head made from what appears to be Langdale Tuff from Cumbria. The larger of the two pieces (see Fig. 25) has blade scars on its surface showing where the axe head has been rechipped to produce blade blanks. This is a type fossil associated with the Neolithic and demonstrates not only Neolithic activity at Fin Cop but also links into extensive trade/exchange networks at this time stretching as far afield as Cumbria.


Figure 25. Two fragments of tuff from a re-chipped Neolithic stone axe head found in the topsoil of Trench 2.

**Trench 4**

A small trench (Trench 4), measuring 3.15m by 4.1m at its maximum extent, was placed over an area of disturbed stone rampart that was under active erosion as a sheep scrape. After the turf and topsoil was removed an area of slumped rampart face was exposed (Figures 26 and 27). The stones were roughly dressed and some showed the marks of where they had been quarried. All of the material was limestone and it included some very substantial-sized blocks that had formed the basal courses of the rampart face in this section of wall. The material had all slumped forward with some of the facing stones having slid over the underlying course so that they were pitched forward. The exposed material was planned and photographed and the soil and turf reinstated and fenced off to allow for the turf cover to grow back.

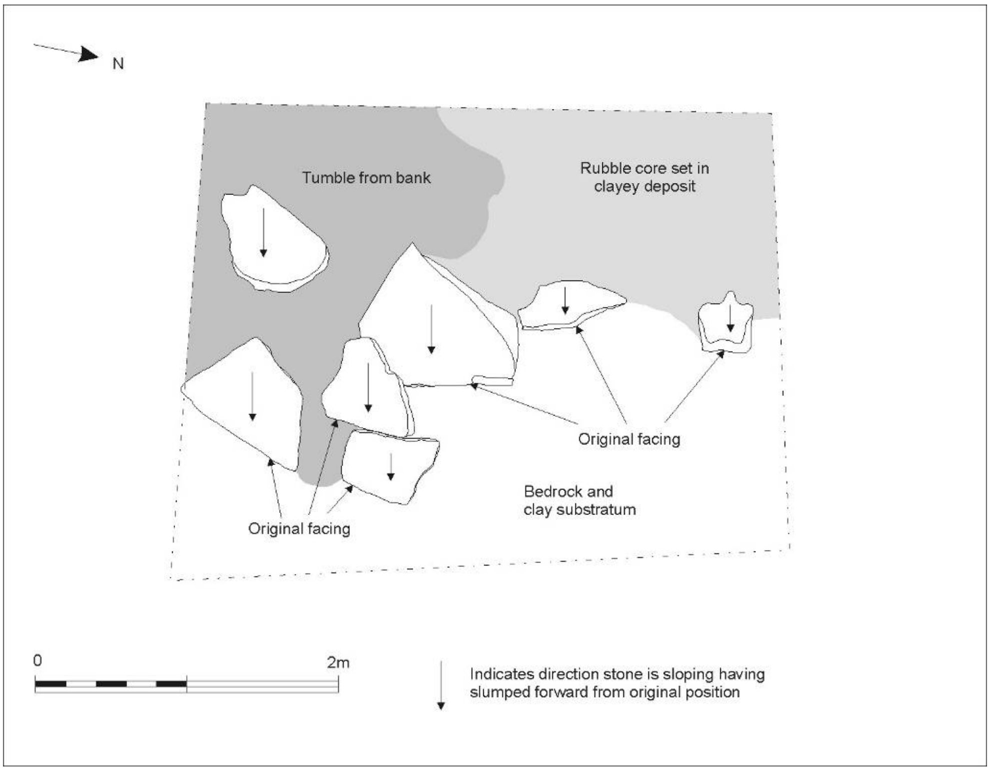


Figure 26. Plan of Trench 4 showing the pitch of the slumped facing stones of the rampart.

Some of the slumped facing stones showed both quarrying and tooling marks indicating how the rock had been won and then shaped for use in the rampart. The rampart construction indicated by these stones is an outer wall with a smoothed stone face made from many courses of shallow, but wide and deep, flat limestone slabs. Behind their face the stones tapered so they keyed into the rampart core which consisted of stone rubble and clay, an observation also borne out by the two courses of surviving slumped face in Trench 1. As the stone face had, in this section, slumped forward it was not possible to establish whether the rampart face originally had a batter or whether it was built closer to the vertical.

Figure 27. Trench 4 looking west after the area had been exposed, cleaned and planned. No further excavation took place and this area of erosion was backfilled and turf relaid.

# 4. RADIOCARBON DATES

Peter Marshall, John Meadows and Clive Waddington

The samples were dated by Accelerator Mass Spectrometry (AMS) at the Scottish Universities Environmental Research Centre in East Kilbride (SUERC; procedures are described by Vandenputte *et al* (1996), Slota *et al* (1987), and Xu *et al* (2004)), or at the Oxford Radiocarbon Accelerator Unit at Oxford University (OxA; laboratory methods are given by Bronk Ramsey *et al* (2002; 2004a; 2004b)). Internal quality assurance procedures at both laboratories and international inter-comparisons (Scott 2003) indicate no laboratory offsets, and validate the measurement precision quoted.

The results are conventional radiocarbon ages (Stuiver and Polach 1977). Calibrated date ranges have been calculated by the maximum intercept method (Stuiver and Reimer 1986), using the program OxCal v4.1.0 (Bronk Ramsey 1995; 1998; 2001; 2009) and the IntCal09 data set (Reimer *et al* 2009), and are quoted in the form recommended by Mook (1986), with ranges rounded outwards to decadal endpoints. The probability distributions of the calibrated dates, shown below, were calculated using the probability method (Stuiver and Reimer 1993), and the same data.

In both Table 4 and Figure 28, the weighted mean has been calculated (2231 ±22BP) of the two results for 1004, as this is the best estimate of this individual's radiocarbon age (Ward and Wilson 1978). The results narrowly fail Ward and Wilson's test of statistical consistency at the 95% confidence level (T'=3.9, T'(5%)=3.8, ν=1), but this will happen occasionally, and there is no doubt in this case that the two results apply to the same individual.

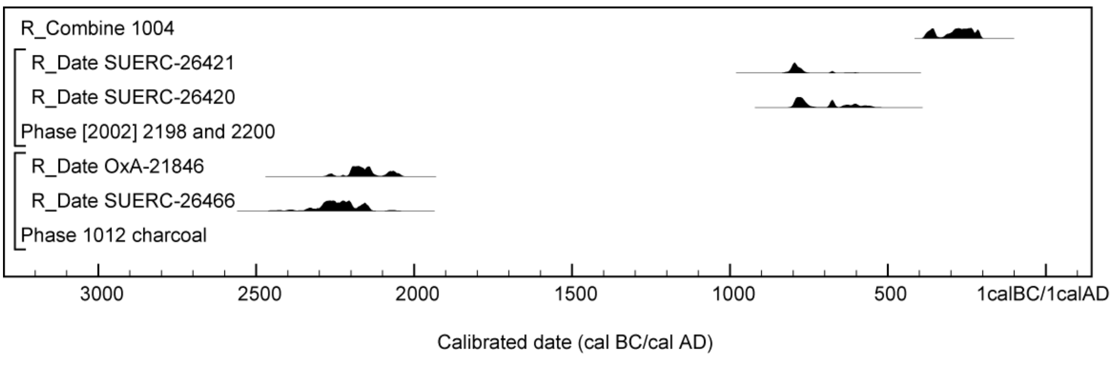


Figure 28. Calibration of radiocarbon results by the probability method (Stuiver and Reimer 1993).

The measured C/N ratios for 1004, 3.0 and 3.5, fall within the range normally used to indicate good collagen preservation (2.9–3.6; DeNiro 1985). The stable isotope measurements ($\delta^{15}N$ and $\delta^{13}C$) for 1004 are typical of bone collagen in human adults whose dietary protein was obtained mainly or exclusively from terrestrial sources, such as ruminants (e.g. Schoeninger *et al* 1983). It is therefore very unlikely that this individual's radiocarbon age is influenced by reservoir effects caused by consumption of protein from aquatic sources, such as fish. The date of this individual, and by extension of the destruction layer in which she was buried, should therefore fall in the fourth or third century cal BC.

The carbonised residues, and therefore the potsherds, from context 2002, are considerably earlier. Both could date to the eighth century cal BC; the results are statistically consistent (T'=0.7, T'(5%)=3.8, ν=1; Ward and Wilson 1978). The charcoal fragments from the primary ditch silts, context 1012, are earlier still, falling in the late third millennium cal BC. Again, the pair of samples from this context gave results that are statistically consistent with a single radiocarbon age (T'=1.4, T'(5%)=3.8, ν=1; Ward and Wilson 1978).

Both laboratories maintain continual programmes of quality assurance procedures, in addition to participation in international inter-comparisons (Scott 2003) which indicate no laboratory offsets and demonstrate the validity of the precision quoted.

Table 4: Fin Cop radiocarbon results

| Laboratory Number | Sample Number | Material & context | Radiocarbon Age (BP) | $\delta^{13}C$ (‰) | $\delta^{15}N$ (‰) | C:N ratio | Weighted mean | Calibrated date range (95% confidence) |
|---|---|---|---|---|---|---|---|---|
| OxA-21387 | FIN09 [1004B} | Human bone, femur; from articulated skeleton within the destruction layer formed by the pushing of the rampart into the ditch (1004). | 2198±27 | -20.2 | 10.0 | 3.0 | 2231±22 BP (T'=3.9; ν=1; T'(5%)=3.8; | 390-200 cal BC |
| SUERC-26419 | FIN09 [1004B} | As OxA-21387 | 2285±35 | -20.5 | 9.6 | 3.5 | | |
| SUERC-26420 | [2002] 2128 | Carbonised residue on pot sherd | 2560±35 | -28.9 | | | | 810-550 cal BC |
| SUERC-26421 | [2002] 2200 | Carbonised residue on pot sherd | 2600±35 | -26.1 | | | | 820-670 cal BC |
| SUERC-26466 | 1012A | Charred wood, *Corylus* sp. | 3800±35 | -25.8 | | | | 2350-2130 cal BC |
| OxA-21846 | 1012B | Charred wood, cf. Maloideae | 3748±26 | -26.5 | | | | 2280-2040 cal BC |

## 5. PREHISTORIC POTTERY

Pauline Beswick

A total of 218 pieces, weighing 1328g, was recovered (Table 5), mainly from Test Pit 3 and its extension as Trench 2. Evidence was found here for at least seven vessels of Late Bronze Age/Early Iron Age style in two fabrics types. In addition one sherd and a few of fragments, probably of Neolithic Peterborough Ware, were found in Trenches 1 and 3, but no Late Bronze Age/Early Iron Age pottery apart from one small sherd in Trench 3.

Each piece of pottery was examined using a hand lense (x10 and x20) and weighed to the nearest gram (fragments weighing less than 1g are excluded from final weight totals, and sherds used for residue analysis and dating are omitted). Fabrics were analysed using the system recommended by the Prehistoric Ceramics Research Group (1997) and some thin section analysis was undertaken. Size and condition codes were given for each piece (details in archive) to help determine what their excavated contexts might represent in terms of past activities (Orton *et al.* 1993, 168).

| Trench | Sherds (including fragments) | Weight (g) |
|---|---|---|
| Trench 1 | 7 | 9g |
| Trench 2 + Test Pit 3 | 207 | 1309g |
| Trench 3 | 4 | 10g |
| | | |
| **Totals** | **218** | **1328g** |

Table 5: Pottery quantities from Fin Cop 2009.

### Fabric

Three fabric types were recognised and their relative quantities are presented in Table 6. Fabric identification was uncertain or unidentifiable in only 6% (14) of the pieces.

*Fabric 1* - Sandy fabric, grey brown to buff surfaces with main inclusions sparse to moderate degraded basic igneous, up to 8mm in size and poorly sorted. Late Bronze Age/Early Iron Age; at least three vessels (two in Test Pit 3 and one in Trench 2, an extension of Test Pit 3; also a single sherd in Trench 3) .

*Fabric 2* - Coarse sandy fabric, dark brown and red to buff surfaces with sparse quartzite angular inclusions, up to 5mm in size, and rare to sparse degraded basic igneous inclusions, up to 7mm in size, and all poorly sorted. Late Bronze Age/Early Iron Age; at least four vessels (all in Trench 2).

*Fabric 3* - Fine soapy-feeling fabric, brown to pink surface with rare angular inclusions in flint, chert and quartzite up to 7mm in size and poorly sorted. Probably Neolithic (compares with Peterborough Wares from Derbyshire and elsewhere for example see references in Makepeace and Beswick 2006, 8-9); at least one vessel (sherd and fragments in Trench 3 and fragments in Trench 1).

| Fabrics | Sherds (including fragments) |
|---|---|
| F1 | 130 |

| | |
|---|---|
| ? F1 | 5 |
| F2 | 66 |
| ?F2 | 1 |
| F3 | 8 |
| ?F3 | 1 |
| ?F | 7 |

Table 6: Pottery fabrics from Fin Cop 2009.

**Petrography**

All samples analysed by Kevin Cootes were from Trench 2 and included sherds representative of both Fabrics 1 and 2. The detail will be given in his PhD thesis (Cootes in prep.) but a summary of the interim results is given below (Kevin Cootes pers. comm.).

All clays used are non-calcareous and shale is present in several Fabric 1 sherds and sandstone in one Fabric 2 sherd, suggesting possible clay sources in the Dark Peak (gritstone geologies) rather than the White Peak (limestone geologies). Rhyolite, present in three Fabric 2 sherds, is not known to Kevin from any White Peak igneous source. In hand specimens of Fabric 1, in particular, look remarkably similar to pottery excavated from a Late Bronze Age/Early Iron Age site on Gardom's Edge on the gritstone Eastern Moors (Beswick 1995; 1999; 2003), but the sand content of the Fin Cop sherds implies a different origin.

One piece analysed was found to be a small lump of weathered basic igneous rock and there are other rock pieces among the collection which still need to be identified. Caches of weathered igneous rock excavated at Gardom's Edge are interpreted as evidence for on-site pottery manufacture (Cootes in prep.).

**Forms**

Illustrated sherds (Fig. 29) are described below in numerical order of Find Numbers:

1 Decorated Shoulder sherd (2001; fresh): fingertip/nail pinched decoration. Late Bronze Age/Early Iron Age style. Fabric 2, Trench 2 (context 2003). Compare with sherd number 6 (2043) – probably same vessel.

2 Rim sherd (2003; average): everted and flattened and possible evidence for fingertip decoration on break. Late Bronze Age/Early Iron Age style. Fabric 2, Trench 2 (context 2003).

3 Decorated body sherd (2008; abraded): fingertip decoration. Late Bronze Age/Early Iron Age style. Fabric 1, Trench 2 (context 2001).

4 Rim sherd (2021; abraded): ? upright and flat topped. Late Bronze Age/Early Iron Age style. Fabric 2, Trench 2 (context 2001).

5 Rim and shoulder sherd (2028; abraded): everted and slighty beaded rim. Late Bronze Age/Early Iron Age style. Fabric 2, Trench 2 (context 2002). Compare with sherd number 7 (2096) – possibly same vessel.

6 Decorated shoulder sherd (2043; abraded): fingertip/nail pinched decoration. Late Bronze Age/Early Iron Age style. Fabric 2, Trench 2 (context 2003). Compare with sherd number 1 (2001) – probably same vessel.

7 Rim sherd (2096; abraded): everted and slightly beaded. Late Bronze Age/Early Iron Age style. Fabric 2, Trench 2 (context 2001). Compare with sherd number 5 (2028) – possibly same vessel.

8 Wall and base angle sherd (2175; abraded). Fabric 1, Test Pit 3 (topsoil - later extended into Trench 2).

9 Rim sherd (2176; abraded): upright and flat topped, *c.* 20cm internal diameter. Fabric 1, Test Pit 3 (no context – later extended into Trench 2) .

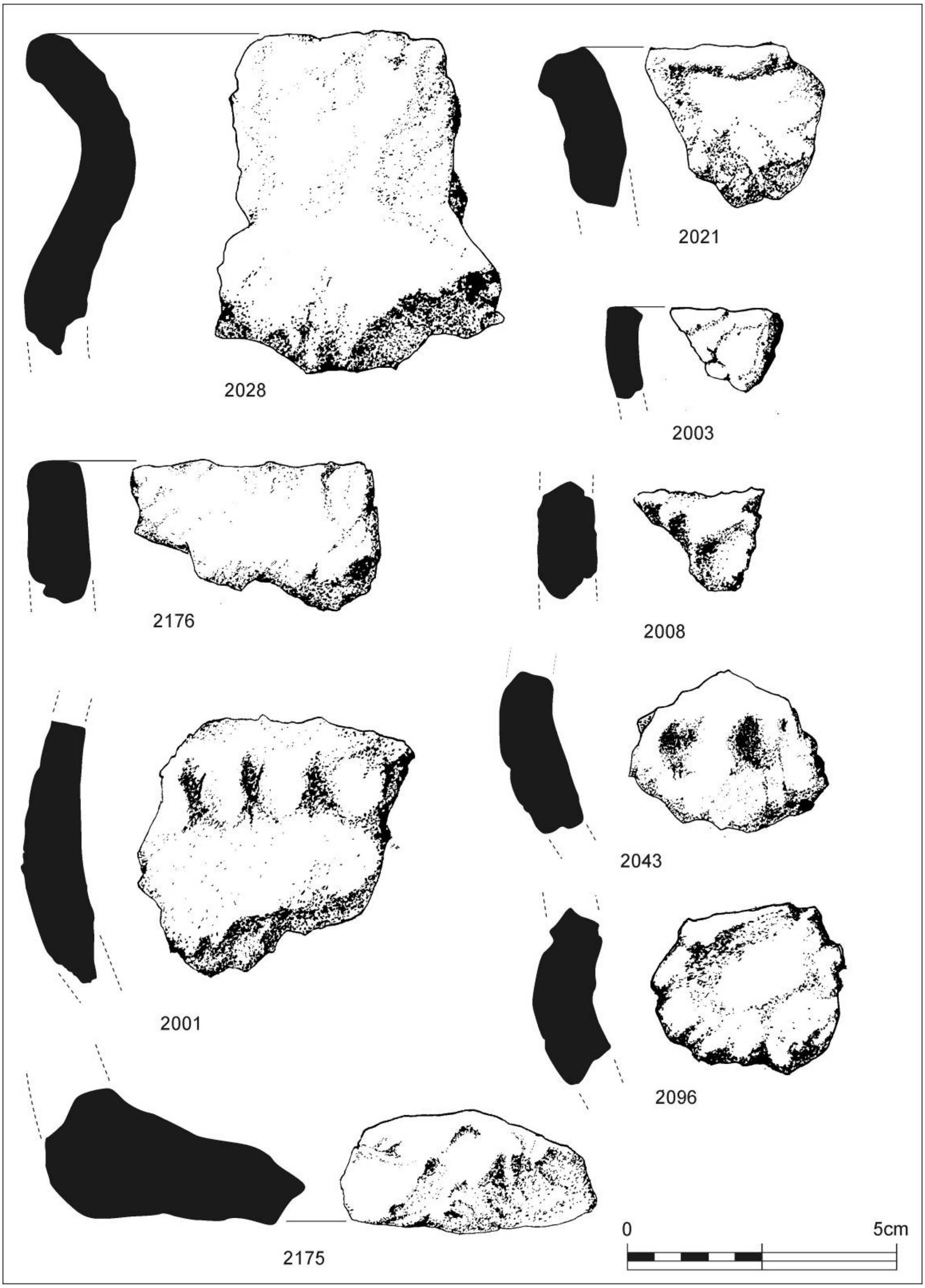


Figure 29. Selected illustrated ceramics from Fin Cop


Figure 30. Rim sherds 2021 and 2003.


Figure 31. Rim and shoulder sherd 2028 with everted and slightly beaded rim.

These 9 sherds representing at least seven Late Bronze Age/Early Iron Age vessels, three in Fabric 1 and four in Fabric 2, are stylistically similar. For instance decoration on sherd no. 3 in Fabric 1 is similar to sherds nos. 1 and 6 in Fabric 2; and the rim sherd no. 4 in Fabric 2, although from a smaller vessel, is close in shape to that of rim sherd no. 9 in Fabric 1. The differences between Fabrics 1 and 2 may represent different family or tribal groupings obtaining clays and tempers from different sources and possibly at different periods of time, but such variation is not unusual on hillfort sites. For instance at Mam Tor hillfort petrological thin-sectioning demonstrated comparable fabric differences between sherds all with igneous inclusions in that some, but not all, also contained quartz inclusions (Guilbert and Vince 1996, 53).

The pottery assemblage from Mam Tor also provides closely comparable forms to the vessels represented at Fin Cop (Coombs and Thompson 1979). For instance, compare the shoulder decoration of sherds 1 and 6 with Mam Tor jars (*ibid.*, figs 18.1; 19.1 and 9; 25.1); and the everted rim and shoulder sherd 5 with Mam Tor examples (*ibid.,* Figs. 17.6; 20.1). Old radiocarbon dates from Mam Tor house platforms (*ibid.*, 44), suggesting a late 2nd millennium cal BC date for their occupation, are now discredited because of the collecting and counting methods used. However, John Barrett in his discussion of the pottery (*ibid.,* 44-47), suggested it was related to a plainware pottery tradition recognisable in southern Britain (Barrett 1980) and in the north (Challis and Harding 1975) beginning *c.*1000 BC and ending with decorated wares in *c.*800 BC. Subsequent work on dating associated metalwork of this period has raised the possibility of an earlier date in the 10th and 9th centuries cal BC for 'decorated' wares but in some areas of Britain they may have continued into the 5th or 4th centuries BC (Knight 2002, 127).

Closely comparable pottery forms were also excavated from house sites on Gardom's Edge (Beswick 1995; 1999; 2003) from which a series of radiocarbon dates indicate activities spanning several hundred years from the late 2nd to the mid 1st millennia BC (John Barnatt *pers. comm.*). Unfortunately, poor stratigraphy in the thin moorland soils at Gardom's Edge and the well-known difficulties in dating ceramic styles of this period in the north and Midlands (Barrett in Coombs and Thompson 1979, 44; Knight 2002, 127) forestalled any closer dating of elements of this assemblage.

Many of the sherds (13% - 27) from Trench 2 and Test Pit 3 have visible burnt food residues adhering, usually on their internal surfaces, indicating that the jars and bowls they represent were used in the cooking and serving of food. These activities are likely to have taken place within or close to Trench 2 because of the density of pottery sherds found here in comparison with the other trenches (Table 5), and because of the overall condition of the sherds. Of the 207 sherds found here 17% (35) were large (i.e. over 10g in weight) and 13% (28) in average condition (27: i.e. slight abrasion on surfaces and edges) or fresh (1: i.e. no abrasion on surfaces and edges; this example (2001) was found protected by a rock crevice), suggesting there had been no movement (fresh) or relatively little movement (average) since initial breakage and discard.

**Discussion**

The most significant pottery evidence from the 2009 excavations at Fin Cop is the Late Bronze Age/Early Iron Age assemblage from Trench 2 and Test Pit 3 close to the hill's summit, attesting to occupation in the 8th-7th centuries cal BC. Several fragments of daub (Find nos. 2142-2146) amongst these finds also suggests the possibility of a structure such as an oven or house wall in the vicinity.

The one sherd (Find no. 3002) and fragments of probable Neolithic Peterborough Ware (Fabric 3) in Trenches 1 and 3 imply Neolithic activity on the hilltop sometime from the mid 4$^{th}$ to at least the early 3$^{rd}$ millennia cal BC (Woodward in Beamish 2009, 96) but all are from disturbed, residual contexts. Neolithic and later flints have also been found on the hill both, for example in these excavations, and in previous work (e.g. Wilson and English 1998, 90).

## 6. HUMAN REMAINS

Alexandra M. Thornton

During the excavations a discrete articulated human skeleton was discovered. The body was located within the secondary ditch fill (1004) of the fort defences within a mass of large stones derived from the reduced rampart. The skeleton was prone with the legs crumpled beneath the rest of the body, suggesting that it may have been thrown into the ditch and then covered, possibly during the sacking of the fort. The remains were lifted for osteological analysis and radiocarbon dating.

### Methods

The methods which were applied for the analysis of the skeleton correspond to those recommended within Brickley and McKinley's '*Guidelines to the Standards for Recording Human Remains*' (2004). A skeletal inventory of the remains excavated was produced in order to determine the minimum number of individuals within the assemblage. The completeness of the skeleton was also recorded and a dental inventory was produced using the Zsigmondy system (van Beek 1983, 5).

Surface preservation of the remains was graded from 0 to 5+. A Grade 0 bone would be described as having a 'surface morphology (which is) clearly visible… (a) fresh appearance…and no modifications' (Brickley and McKinley 2004: 16). A bone valued as Grade 5+ would have been described as having 'heavy erosion…across (the) whole surface, completely masking (the) normal surface morphology…with extensive penetrating erosion resulting in modification of (the) profile' (2004: 16).

The age at death of the skeletal remains was determined using pubic symphysis degeneration (Brooks and Suchey 1990), the auricular surface morphology (Lovejoy *et al.* 1985), sternal rib end degeneration (Iscan *et al.* 1984), fusion of the medial clavicle (Cox and Mays 2000; 65) and dental attrition (Miles 1963, 2001). Due to the assembage lacking most of the skull, the method of cranial suture closure (Meindl and Lovejoy 1985) could not be applied to age the skeleton.

The sex of the skeleton was established using appropriate sexing methods for the skeletal assemblage. As most of the skull was missing, the pelvis was used to determine the sex of the skeleton. The overall shape of the pelvis, the greater sciatic notch shape, pubic symphysis height, the sub-pubic angle, the sub-pubic concavity and medial ischio-pubic ridge were all examined to aid with sexing the skeleton.

Analysis of the stature of the skeleton was undertaken on the femur and tibia using equations developed by Trotter and Gleser (1952, 1958). Furthermore, all of the bones were examined in order to identify any pathological lesions on the bone.

The bone assemblage recovered from the ditch at Fin Cop was identified as completely human given that no animal bone was intermingled with the remains. The burial was of an articulated skeleton which was prone upon excavation with its legs crouched behind it. It was almost certainly thrown into the ditch rather than placed in this position as a burial.

### Surface preservation

The surface preservation of the skeleton was deemed to be, on average, Grade 3 where 'most of bone surface (was) affected by some degree of erosion (by root action); (the) general morphology (was) maintained but (the) detail of parts of (the) surface (was) masked by erosive action' (Brickley and McKinley 2004, 16). The graded preservation of each bone can be seen in Table 1. The moderately poor preservation of the remains was probably due to high levels of bacteria in the soil and invasive root action. Furthermore, evidence of bacterial action was identified upon the skeletal elements. The condition of the bone, particularly the surface preservation, is recorded in order to establish the processes that have affected the assemblage, such as ritual mortuary practices. Post depositional action which occurs through bacterial or root action must be recorded as this can be used to ascertain the likelihood that pathological lesions will be visible on the bone for analysis. In this case, the moderate preservation of the skeletal assemblage suggests that some of the pathology which might have been observable on the skeleton may have been eroded or may be disguised. This may give a false impression that the human remains were pathology free. The shafts of the third to fifth left metatarsals were more heavily degraded than the rest of the skeleton as they were graded at Grade 5. The bones showed 'heavy erosion…across (the) whole surface (which) completely mask(ed the) normal surface morphology…(and there was) some modification of (the) profile'. This may be due to acute infection of this area of the skeleton or simply more intensive invasive bacterial action at this site.

**Skeletal inventory**

A skeletal inventory was made identifying all of the bone which was recovered from the assemblage (see Fig. 32). A list of the skeletal elements can be found in Table 7. The skeleton was in a fragmentary condition although approximately 65% of the skeleton survived. The right and a fragment of the left scapula from a non-adult were also part of the deposit. None of the adult bones were duplicated within the deposit and therefore, the minimum number of adult individuals is one.

| Skeletal Element | Preservation |
|---|---|
| 6 x fragment of skull (unidentified cranial bones | 3 |
| 2 x fragment of skull (occipital bones) | 3 |
| Fragment of skull (parietal bone) | 3 |
| Fragment of mandible | 3 |
| Right clavicle | 3 |
| Left clavicle | 4 |
| Glenoid fossa of left scapula | 4 |
| Fragment of glenoid fossa of right scapula | 4 |
| Fragments of scapulae | 4 |
| Inferior two thirds of right humerus | 3 |
| Head of left humerus | 4 |
| Third of the mid shaft of right radius | 3 |
| Superior two thirds of the left radius | 3 |
| Superior third of right ulna | 2 |
| Head of left ulna | 3 |
| Fragments of ribs including first right and left, third right and left, fourth right, fifth left, eighth right and left, ninth right and left, tenth left and right | 3 |
| Superior third of axis vertebra | 4 |

| | |
|---|---|
| Superior fifth of atlas vertebra | 2 |
| 5 x cervical vertebrae | 3 |
| 11 x thoracic vertebrae | 4 |
| 4 x lumbar vertebrae | 4 |
| Superior quarter of sacrum | 4 |
| Left pelvis | 3 |
| Fragment of right pelvis | 3 |
| Left femur | 3 |
| Right femur | 3 |
| Right patella | 3 |
| Right tibia | 2 |
| Left tibia | 3 |
| Inferior two thirds of right fibula | 3 |
| Left fibula | 2 |
| Left first metatarsal | 2 |
| Shaft of right first metatarsal | 3 |
| Shafts of third to fifth left metatarsals | 5 |
| Shaft of right fourth metatarsal | 4 |
| Left first phalanx | 2 |
| Fourth distal phalanx | 3 |
| Right and left talus | 3 |
| Left calcaneus | 4 |
| Fragment of right calcaneus | 3 |
| | |
| **Average skeletal preservation** | **3** |

| Skeletal element | Preservation |
|---|---|
| Right scapula (non-adult) | 4 |
| Fragment of left scapula (non-adult) | 4 |
| | |
| **Average skeletal preservation** | **4** |

Table 7. Skeletal inventory for the human bone assemblage.

Figure 32. General photograph of the surviving human bone assemblage (scale = 20cm).

**Dental inventory**

The dental inventory indicates that the maxilla and maxillary teeth are missing, as are the first and second right incisors, the right first premolar, left second premolar and the second and third left molars of the mandible (Figure 33). The second and third left molars were lost during life as the sockets had been remodelled.

Right Left

--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

8 7 6c 5c ~~4~~ 3 ~~2 1~~ 1 2 3 4 np 6 x x

Right Left

Key

| Symbol | Meaning |
|---|---|
| ~~1~~ | Scored through the tooth number with a double line indicates the tooth was lost post mortem |
| - | Scored through with a horizontal line indicates the tooth is present but the socket is missing |
| x | Tooth lost ante mortem |
| np | Tooth not present |
| --- | Jaw and teeth not present |
| c | Caries (cavity) in tooth |
| b | Broken tooth |
| a | Abscess |
| e | Tooth erupting |
| u | Tooth unerupted |

Figure 33 The permanent dentition of the adult skeleton.


Figure 34. Two of the teeth from the Fin Cop adult skeleton.

The adult skeleton was fairly complete and was found articulated. It was therefore deposited as a complete body in the ditch. The neonatal or young juvenile skeleton was only represented by the scapulae. This is almost certainly due to the difficulty in recovery of small fragmented bones during excavation. It is highly unlikely that only a small section of the young skeleton was deposited.

**Stature**

Using the stature estimation equations developed by Trotter and Gleser (1952, 1958), the left femur and the left tibia were used to calculate that the skeleton's approximate stature was 1.48 metres tall. Using the equation for the right femur only the skeleton was calculated to be 1.51 metres tall. Therefore the person was approximately five feet in stature.

Figure 35. The pubic syphysis.

**Determining the sex of the skeleton**

The sex of a skeleton is established by using many sexing methods which particularly focus on the pelvis and the skull. These areas of the skeleton are used as the morphological changes of the pelvis and the skull are of primary importance in the determination of sex (Brinkley and McKinley 2004: 23). It is not recommended to sex human remains unless the pelvis is present (Roberts 2009, 129) as the skull is more variable with regard to its morphology. The pelvis from the Fin Cop adult skeleton survives and has been used to determine the probable sex of the skeleton. The skull does not survive sufficiently to be used, however, the partial fragments of the mandible have been examined and show some morphological features that can be used in sex estimations. The observations made regarding the sex of the morphological features of the pelvis and the mandible are shown in Table 2 and indicate that the skeleton is probably a female.

| Skeletal element | Observation | Sex |
|---|---|---|
| Pelvic girdle | Heart shaped and yet narrow | ?Female |
| Sub-pubic angle | Wide and u-shaped | ?Female |
| Sub-pubic concavity | Visible | Female |

| | | |
|---|---|---|
| Ventral arch on pubis | Not pronounced | Male |
| Inferior pubic ramus | Ridge visible | Female |
| Sciatic notch | Partially u-shaped | ?Female |
| Long bones | Small size and low robusticity | ?Female |
| Gonial angle of mandible | Not projected | Female |
| Mandibular shape | Rounded | Female |
| | | |
| **Sex determination** | | **Female** |

Table 8. The morphological features used to determine sex.

In some cases 'parturition scars' (Cox 2000, Roberts and Manchester 2005) have been used to determine biological sex. These scars are used to indicate evidence for childbirth and are associated with stress on the ligaments of the pelvis. They are scars located at the pre-auricular sulcus near to the ilium's auricular surface, pitting on the pubic symphysis, particularly on the posterior side, and exaggeration and pitting on the pubic tubercle (Roberts and Manchester 2005, 32-3). Studies undertaken by Cox on skeletons from Christ Church, Spitalfields, has suggested that these scars cannot always be taken as definite evidence for the biological sex of a skeleton (Cox 2000). In some cases known male skeletons have been identified with a pre-auricular sulcus and some female skeletons have an extended pubic tubercle even though they have not had children (Roberts and Manchester 2005, 33). The skeleton from Fin Cop did display pitting on the pubic sympyhsis but did not appear to have an exaggerated pubic tubercle or a pre-auricular sulcus. Therefore the person represented by the skeleton may have given birth, possibly to the juvenile present in the assemblage but this is not certain.


Figure 36. Sciatic notch.

**Age at death**

Determining the age at death of a skeleton can be problematic, especially as osteologists can only analyse the biological age at death of a skeleton and not necessarily the chronological age at death. This is due to the fact that human beings age at different rates depending on genetics, activity levels and diet. Generally, in order to determine a skeleton's age at death, the pubic symphysis degeneration (Brooks and Suchey 1990), the auricular surface morphology (Lovejoy *et al.* 1985), the degeneration of the sternal rib ends of the fourth ribs (Iscan *et al.* 1984), the fusion of the medial clavicle (Cox and Mays 2000; 65), the dental attrition (Miles 1963, 2001) and the level of cranial suture closure (Meindl and Lovejoy 1985) are analysed. In this case, cranial suture closure could not be used as the skull was too incomplete and the degeneration of the sternal rib ends was not suitable as the ends of the fourth ribs were not present in the assemblage. The other techniques were undertaken on the adult skeleton from Fin Cop. Firstly the skeleton was identified to have fully fused epiphyses in the femoral head and in the humerus indicating that they were adult. Furthermore, the medial clavicle was fused, which is the last skeletal element to fuse in the body, verifying that the skeleton was over 21 years of age. The auricular surface and pubic symphysis morphology of the pelvis indicate that the skeleton was between 21 years and 53 years of age. Using the dental attrition methodology, the teeth were aged at between 20 and 30 years old. Therefore the skeletal bone morphology suggests the skeleton is no more than 50 years of age although the dental wear indicates that the skeleton is probably more likely to be a young adult aged between 21 and 30 years old.

Figure 37. left pubic symphysis shows the level of wear on the symphysis surface due to ageing.

The right scapula of the non-adult was partially ossified. This was almost certainly also the case with the left scapula although the only section of the bone that was present was the blade and so this cannot be confirmed. The head, neck and base of the acromion process of the right scapula were formed and ossified. This occurs before birth indicating that the bone was from a neonatal baby or older. The glenoid cavity and acromion process were missing but as these components are cartilaginous until the age of 15 years, this is to be expected. The bones were definitely not from a child aged over 5 years as they were too small and therefore the bones have been aged as either a neonate or a very young juvenile.


Figure 38. Juvenile scapula to the right with a portion of adult scapula shown to the left.

**Pathology**

The skeletal remains, as previous stated, were fairly complete and were only moderately degraded on their surface. Due to the post mortem action on the bones, some of the pathological lesions on the bones might not have survived. However upon careful analysis of the bones, particularly those which were less degraded on their surfaces, most of the bones did not have pathological lesions. This suggests that the individual was fairly healthy upon death. Women tend to have stronger and more effective immune systems and are therefore better at resisting the impact of disease (Roberts and Manchester 2005, 34). This may be a reason why there are so few lesions on this female skeleton.

The lack of pathological evidence means that it is difficult to determine how the individual died but it is possible that a fast working, acute disease was the cause. This type of illness would have left no trace upon the skeleton. Alternatively the individual died due to other reasons rather than disease. There was no evidence of weapon trauma identified on the bones or any evidence of animal gnawing or bite marks and therefore if the individual was killed, the process of death has not left any trace upon the skeleton.

There was evidence of periostitis in the form of longitudinal striations on the left clavicle, the left tibia, the distal shaft of the right fibula and on some of the ribs. These types of lesions are formed due to non-specific inflammation and are most often found on the frontal section of the tibia as this area lies close to the skin's surface and is subject to recurrent minor injury (Roberts and Manchester 2005, 172). The striations on the Fin Cop skeleton are unhealed as there is no evidence of bone remodelling either on the surface, nor within the cortex of the bone, and therefore the initial response to the inflammation did not occur. It appears that the inflammation had time to cause the striations but there was not enough time for the body to recover from the inflammation and thus heal the lesions. It is unlikely that the inflammation was the cause of death and therefore, the lesions may have been caused by minor knocks to the body either just before death or when the corpse was thrown into the ditch.

Only three of the vertebrae from the Fin Cop skeleton had Schmorl's nodes and osteophytes. These indicators of osteoarthritis are expected to be found on skeletons from Iron Age populations as they are associated with activities conducive with spinal joint disease such as planting, cultivating, harvesting and processing crops (Roberts and Cox 2003, 96). The lack of evidence for osteoarthritis suggests that the skeleton was fairly young, that is middle aged or younger, or did not undertake such physical activities, which if this is the case implies a person of rank.

The second and third left mandibular molars have been lost in life as the socket has been remodelled. This was probably due to an infection in the gums. It appears that there may have also been some periodontal disease of the gums prior to death as there is calculus and a large amount of pitting on the surfaces of some of the teeth. A dental cavity was identified on the first right molar on the right hand side of the tooth which was mirrored by the right second premolar. These are caused by infectious disease as the result of fermentation of food sugars or less frequently starches in the diet (Robert and Manchester 2005, 65). Furthermore enamel hypoplasia was identified on the buccal surface of the left mandibular canine and second incisor. These enamel defects are more easily seen on the cheek surfaces of the incisors and canines (Roberts and Manchester 2005, 75) suggesting that the defects were present in the other teeth but less visible upon the surfaces. Enamel hypoplasia is a 'non-specific indicator of stress' (Roberts and Manchester 2005, 75) of a nutritional deficiency which probably occurred in childhood.

**Conclusion**

The human remains from Fin Cop, Derbyshire, consisted of the almost complete skeleton of a female aged between 21 and possibly 35 years and the right and left scapulae of a neonatal baby to young juvenile child. The female had localised areas of inflammation on her clavicle, ribs, left tibia and right fibula which had not healed. This suggests that the inflammation was caused shortly prior to, or just after, death but they are unlikely to have been the cause of death itself. It is possible the inflammation occurred when the body was thrown into the ditch. There was no evidence of trauma, cut marks or animal gnawing on the bones and therefore the cause of death must not have left any trace on the skeleton. The skeleton did not have evidence for a significant degenerative disease, possibly indicating that she did not do much physical labour in life. She also had a cavity and periodontal disease possibly caused by a sugary diet. This combination could imply that she was of a higher rank in her society and perhaps she and the baby, whether it was hers or not, were despatched and deposited in the ditch when the hillfort was sacked.

## 7. ANIMAL BONE

Andy Hammon

The animal bone discussed below derives from context 1002 (primary ditch silts), and was hand-retrieved. While the majority of fragments were unidentifiable (mainly consisting of small shaft fragments from medium-sized mammals), it was possible to identify the following specimens:

- human humerus (fused distally) – right
- sheep mandible, including third premolar, fourth premolar (wear stage 6A*), first molar (8B*), second molar (6A*) and third molar (1B*) – left
- sheep / goat third mandibular molar (11G*) – left
- sheep / goat / roe deer metacarpal shaft fragment
- cattle metacarpal shaft fragment
- cattle metatarsal shaft fragment
- pig mandibles (left – first incisor, second incisor, canine; right – first incisor, second incisor, canine, third premolar) – male

* Wear stage assigned using Payne (1987).

Preservation was generally poor, although the sheep and pig mandibles and cattle metacarpal were moderately-well preserved. All specimens demonstrated extensive root etching, and in many instances bone surfaces were severely eroded. Many of the identifiable specimens consisted of several newly broken fragments, resulting from their poor state of preservation.

It was possible to fully speciate the sheep (*Ovis aries*) mandible using the morphological criteria of Halstead, Collins and Isaakidou (2002) to distinguish the molars. Based on tooth eruption and wear, the animal was approximately two to three years old when it died (following Payne 1973).

Based on the morphology of the canines in the pig mandibles, it was possible to ascertain that the individual was male.

No butchery marks or pathological lesions were noted, although the poor state of preservation of the specimens will have inhibited their identification.

Several of the unidentifiable fragments demonstrated evidence of burning.

Due to the small size of the assemblage, and its poor state of preservation, no meaningful inferences can be made regarding agricultural practices and socio-economic conditions at Fin Cop. This assemblage has, however, proved useful in demonstrating the nature of the animal remains at Fin Cop, and any future large-scale excavations could produce useful assemblages.

## 8. BOTANICAL MACROFOSSILS

By Lorna Elliott and Louisa Gidney

Environmental samples were taken from a single trench, Trench 1, which cut through the hillfort defences. The contexts represented are (1004) the main fill of the hillfort ditch, (1006) a possible in situ charred stake in the top of the outer bank, (1012) the primary ditch silt layer of the hillfort ditch, and (1013) the relict land surface beneath the hillfort ramparts. This report presents the results of assessment of four bulk samples and six small finds of charred material collected from the above contexts.

The objective was to assess the potential of the environmental remains in the samples to provide information about the diet, economy, agricultural practices and palaeoenvironment at the site, and to identify any material suitable for radiocarbon dating.

**Environmental Sediment Samples**

The four bulk samples were processed by manual flotation and sieving through a 500μm mesh. The flots and residues were dried slowly, and scanned for charred botanical remains at up to x60 magnification using a Leica MZ6 stereomicroscope. Where necessary, the small finds of charred material were also gently washed over a 500μm mesh.

Where possible, charcoal fragments were identified from the various contexts. The transverse, radial and tangential sections were examined at up to x600 magnifications using a Leica DM/LM microscope. Identifications were assisted by the descriptions of Schweingruber (1978) and Hather (2000), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Material recommended for dating was cleaned of adhering roots and other organic material, wrapped in foil and put in labelled plastic bags.

All four bulk samples produced small flots containing small amounts of insect fragments, insect egg cases, snails and modern roots. A few frog/toad-sized bones were recorded in the residue of sample <1>. Uncharred sclerotia of the soil fungus Cenococcum geophilum were noted in the flot of sample <4>. Tiny fragments of charcoal were present in the flots and residues of samples <1>, <2> and <4>. Due to the small size of all the charcoal fragments it was not possible to distinguish whether the material was roundwood or timber. Sample <1> contained several fragments of yew (14mg) and hazel (11mg) with an additional 21mg of indeterminate charcoal. Sample <2> comprised a fragment of yew (22mg) and a fragment of diffuse-porous (short lived species) charcoal (28mg), with additional fragments of yew (68mg) and indeterminate charcoal (25mg), also noted. Sample <4> also comprised a fragment of yew (31mg) and hazel (16mg), with additional fragments of yew (36mg) also present. Sample <3> contained no datable material. Of the six small finds of charred material, cm <6> contained a fragment of yew (7mg) and an assortment of tiny charcoal fragments (12mg) that included hazel and ash. A minute fragment of indeterminate charcoal (<1mg) was noted in cm <1>. The possible 'charred stake' (cm <4>), was in fact a compact soil. No datable material was recorded from samples cm <2>, cm <3> and cm <5>. The results of assessment of the bulk samples are presented in Table 9, with a full list of material available for radiocarbon dating given in Table 10.

| Context | | 1012 | 1012 | 1012 | 1013 |
|---|---|---|---|---|---|
| Sample | | 1 | 2 | 3 | 4 |
| *Material available for radiocarbon dating* | | ✓ | ✓ | x | ✓ |
| *Volume processed (l)* | | 3 | 2 | 1.5 | 3 |
| *Volume of flot (ml)* | | 3 | 2 | < 1 | 6 |
| *Volume of flot assessed (ml)* | | 3 | 2 | < 1 | 6 |
| *Residue contents (relative abundance)* | | | | | |
| Bone (unburnt) | frog/toad-size | 1 | - | - | - |
| Charcoal | | 1 | 2 | - | 2 |
| Snails | | 1 | - | - | - |
| *Flot matrix (relative abundance)* | | | | | |
| Charcoal | | 1 | 1 | - | 2 |
| Insect fragment | | 1 | - | 1 | - |
| Insect egg case | | 2 | - | - | - |
| Roots (modern) | | 1 | 1 | - | 2 |
| Snails | | 1 | - | 1 | 1 |
| *Uncharred remains (relative abundance)* | | | | | |
| *Cenococcum geophilum* (Soil fungus) | sclerotia | - | - | - | 1 |

Table 9. Results from the environmental assessment of the bulk samples. Relative abundance is based on a scale from 1 (lowest) to 5 (highest).

**Charred Material**

Charcoal for radiocarbon dating was noted in four samples from two contexts: the primary ditch fill (1012) and the pre-hillfort land surface (1013), which comprised small fragments of predominantly yew, with hazel, ash and diffuse-porous fragments also observed.

Charcoal for radiocarbon dating was noted in four of the ten samples <1>, <2>, <4> and <6> submitted, although the small size of the samples and presence of long-lived species means that they are not ideal dating material. Datable material from the remaining samples was either insufficient or absent (see Table 10 below).

| Site | Context | Sample | Context info | Charcoal | Weight | Backup material | Weight | Notes |
|---|---|---|---|---|---|---|---|---|
| FIN09 | 1012 | 1 | Near terminal end of ditch | Yew * | 14mg | Hazel * | 11mg | Yew not single entity, Hazel not single entity (Also 21mg of indeterminate charcoal) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FIN09 | 1012 | 2 | Base deposit onto bedrock | Yew * | 22mg | Diffuse-porous * | 28mg | Yew single entity; Diffuse-porous single entity (Also additional 68mg of Yew fragments and 25mg of indeterminate fragments) |
| FIN09 | 1012 | 3 | Primary ditch silt | - | - | - | - | No material to date |
| FIN09 | 1013 | 4 | Pre-hillfort land surface | Yew * | 31mg | Hazel * | 16mg | Yew single entity, Hazel single entity (Additional 36mg of Yew fragments) |
| FIN09 | 1012 | cm 1 | Primary ditch silt | Indeterminate * | < 1mg | - | - | Too small to identify and too small for dating |
| FIN09 | 1004 | cm 2 | Main ditch fill | - | - | - | - | No material to date |
| FIN09 | 1004 | cm 3 | Main ditch fill | - | - | - | - | No material to date |
| FIN09 | 1006 | cm 4 | Possible charred stake *in situ* | Organic soil | 3.36g | Organic soil | 2.25g | Compact soil, unlikely to provide a date |
| FIN09 | - | cm 5 | Outer ditch | - | - | - | - | No material to date |
| FIN09 | 1013 | cm 6 | Pre-hillfort land surface | Yew * | 7mg | Indeterminate * | 12mg | Yew single entity, Indet is not single entity (includes a tiny fragment of Ash & Hazel 1mg each) |

cm – small samples of charred material * No roundwood charcoal was identified due to small size of fragments

Table 10. Material for radiocarbon dating

**Discussion**

Charcoal fragments that are probably sufficiently large enough for radiocarbon dating, were noted in four of the ten samples, <1>, <2>, <4> and cm<6> from contexts (1012) and (1013). This included fragments of yew, hazel and ash, which are native species and are likely to have grown in the local vicinity. Ash was an important structural timber in prehistory (O'Donnell 2007), while hazel was traditionally used for wattling due to the flexibility of the young stems (Orme & Coles 1985). Yew was a useful wood, being both dense and tough but also elastic, and makes good firewood (O'Donnell 2007). Yew has also often had ritual associations, particularly relating to death and burial. For example, charred yew fruitstones were found in a Bronze Age cist at the hillfort site at Mellor, Greater Manchester (Archaeological Services 2008), and yew leaves and wood were preserved alongside a bronze dagger in an Early to Mid Bronze Age barrow and inhumation at Amesbury, Wiltshire (Gilmour & Bolton 1931). Yew would not usually be recommended for radiocarbon dating, as it is a long-lived species, and therefore caution should be taken when interpreting the results if this material is sent for dating.

The compact soil, cm <4>, did not contain charcoal, plant remains, or other macrofossil material suitable for radiocarbon dating. However, the dark colour of the soil may indicate an organic content, and therefore a sample has been included for assessment by the radiocarbon laboratory, however it is unlikely that this will be considered suitable for dating.

Unburnt fragments of frog/toad-sized bone observed in sample <1> from context (1012) are too small for radiocarbon dating, and due to the presence of snails, insects and roots may be modern introductions.

The soil fungus *Cenococcum geophilum* recorded in sample <4> would probably have lived in the upper layers of a woodland soil. It is an ectomycorrhizal species which has mutualistic associations with some tree roots, particularly members of the Fagaceae, Pinaceae and Betulaceae (which includes hazel and alder) (Hudson 1986). These are not suitable for radiocarbon dating, and may be modern material introduced through bioturbation.

Charcoal for radiocarbon dating was noted in four of the ten samples <1>, <2>, <4> and cm<6>, although the small size of the samples and presence of long-lived species means that they are not ideal dating material. Datable material from the remaining samples was either insufficient or absent. No further plant macrofossil analysis is required for the samples.

## 9. DISCUSSION

### Site Taphonomy

The test pits across the interior of the fort have shown that the soil cover is generally deeper in the downslope area of the fort grading to very shallow on the upslope area of the fort. At the crest of the hill the limestone bedrock outcrops and these outcrops form the western circuit of the defences. Where the soil is thin there is only an organic topsoil horizon with a turf cover. In the downslope areas where the soil thickens out there is an obvious subsoil with a high iron content that lends it a bright orange-brown colour. Soil development is an ongoing process but the areas of deeper soil appear to be of considerable age given that chipped Mesolithic chert artefacts are only found in the upper lenses of this horizon and not further down in its profile.

Ploughing of the interior of the fort appears to have ever only been to a shallow depth of 0.1 – 0.2m in the northern field, whilst the impact of the ridge and furrow agriculture in the southern field remains to be established. This means that over much of the fort interior, in the northern field at least, there is good potential for the truncated remains of structural features to survive where they have been cut down into the subsoil or where the limestone bedrock has been modified to create pits, postholes and so forth. Furthermore, the limited ploughing depth also means that beyond the top 10cm or so artefact assemblages can be found relatively intact within the basal lenses of the topsoil horizon and the upper lenses of the subsoil horizon, as has been most aptly demonstrated by the ceramic distribution in Trench 2 and the chert chipping areas encountered in many of the test pits. These unexpectedly good conditions of preservation could also allow for floor deposits and occupation debris from buildings to survive.

Given that the parent material is the principal driver determining soil development the limestone bedrock in this case has produced a calcareous soil which means that organic material survives well. This is a rare circumstance in northern Britain where acidic soils tend to predominate resulting in few prehistoric sites yielding faunal or skeletal assemblages for scientific study, unlike the well-preserved samples from the chalk downlands of southern and central England. At Fin cop these excellent preservation conditions have resulted in the survival of both human and animal bone from the ditch fill as well as snail shells, though it is not known if the latter are modern intrusions.

### Archaeological Summary

Prior to this investigation the time depth of activity known on the hillfort site comprised the Beaker period burial cairns, the presumably Iron Age hillfort and the post-medieval limestone quarry and lime burning kiln. As a result of this work the time depth has been significantly extended so that there is now clear evidence for Mesolithic, Neolithic, Beaker period, Iron Age, medieval and post-medieval activity on the hillfort site.

The use of the site during the Mesolithic as a place to obtain chert and undertake preliminary chipping is a highly significant, and very rare, discovery. It indicates the reliance that Mesolithic groups had on locally available material for meeting their stone tool needs. It implies, for at least the part of the Mesolithic that they represent, a strategy of self-reliance and perhaps a tethering down to a smaller territory that did not encompass areas where flint occurs naturally. In the earlier Mesolithic when groups would have had to range over considerable distances in order to find sufficient resources to live off in the ice wastes and tundra flint probably was imported to the area for use, as the flint-bearing regions of the Lincolnshire and Yorkshire Wolds probably formed part of the annual round of such early peoples. As the climate warmed, the landscape changed and new types of flora and fauna populated the landscape and this new world would have allowed Mesolithic groups to adopt new lifestyles and economic practices, and it is perhaps one of their early raw material acquisition locales and associated chipping floors that we can observe at Fin Cop. This is a genuinely exciting discovery that should be followed up with further work and hopefully some further evidence of occupation such as hearths or structural remains that could allow for radiocarbon dating of this phase of activity

There is mounting evidence for Neolithic activity on the hilltop. A fine flint scraper recovered by a previous excavation over a short stretch of bank and ditch further downslope outside the fort (Wilson and English 1998) had hinted at a Neolithic presence on Fin Cop. Evidence for Neolithic activity inside the fort has now been demonstrated by the discovery of recycled polished stone axe head fragments from Trench 2 which have a green lustre typical of Group VI Langdale axes. In addition some probable Neolithic pottery sherds, albeit small fragments, were also recovered from Trench 2 that could belong to the Peterborough Ware tradition. Further work should hopefully reveal more about this phase of activity on the site.

Beaker period and early Bronze Age activity has long been known since the explorations of Rooke in the late 18th century (1796) and the investigation of a cairn on Fin Cop was undertaken by Major Harris in the early 1920's (Harris 1925). Three burial cairns have been located on the crest of the hilltop together with some possible new ones previously unrecorded. Although these were not investigated as part of this project two classic Beaker period thumbnail scrapers were discovered as residual material in the Iron Age deposits of Trench 1 suggesting that Beaker period and perhaps Early Bronze Age activity extended beyond the cairns and included activity elsewhere across the hillside that may not have been funerary in nature. This view has found further support in the two Beaker period dates from separate shortlived specie samples from the primary ditch silt in Trench 1. These early dates could potentially still be residual, but given that there are many other known examples throughout the country where hillforts incorporate earlier, usually Neolithic, bank and ditch monuments into their circuits, as for example at Harehaugh, Maiden Castle and Hambledon Hill, this could equally be the case at Fin Cop. Further excavation is required to test this unexpected possibility.

Relatively little archaeological work has been undertaken on the hillforts of the Peak District although recent excavations at Gardom's Edge (Barnatt *et al.* 1998) and Mellor (Hearle 2010) have added significant new information about these respective sites. Fin Cop appears to be a true 'hillfort', being perched on a prominent hilltop, enclosing a substantial area and having an undeniably defensive circuit. The excavation showed that the main rampart was stone built and faced and judging by the amount of wall tumble found in the ditch could have easily stood up to 3m or more in height. In front of this a rock-cut ditch over 2m deep and 5m wide had been constructed with a vertical inner face. Outside the rock-cut ditch a second bank and outer ditch can be recognised as surface features at the north end of the east-facing circuit. Together these features describe a defensive circuit consistent with hillfort defence. The radiocarbon dates currently available from the fort itself only allow a terminus post quem for the hillfort to be advanced at this stage. The dates from the female human corpse found in the ditch indicate that the fort went out of use sometime in the 4th – 3rd centuries BC.

The discovery of a female skeleton in the ditch fill suggests that the hillfort met a violent end. The unhealed bruising noted on the skeletal remains indicates that the body was still able to bruise when it was thrown into the ditch suggesting that the woman was despatched and then thrown into the ditch before being covered with rocks from the dismantled rampart. This discovery provides a rare glimpse of the types of activities that took place at hillfort sites. The martial nature of the site and the violent end implied by the discovery of the corpse stands as a corrective to the pacification of these monuments, and the Iron Age groups who inhabited them, in the academic literature of the past decade or so. It should be stressed however, that special deposits of people, animals and artefacts can be found in ditch terminals during the Iron Age. In this case though, the clear lack of interest shown in positioning the corpse and the undeniably casual way her body had been dumped into the ditch so that it rested at an uneven angle with arms trailing and legs bunched up suggests that this was not a specially placed deposit. Rather it speaks of rapid disposal of a corpse given that it was immediately covered over with more rocks from the destroyed rampart. Furthermore, the deliberate reducing of the rampart and the disposal of the stone into the rock-cut ditch also shows that the fort was slighted and effectively levelled after which it went out of use as a fort. Perhaps such destruction followed the sacking of the fort by a powerful enemy who sought to remove the site as a foci for resistance. It is prescient to note that the same type of destruction deposit was noted during the excavations at Ball Cross (Stanley 1954), the nearest neighbouring hillfort to Fin Cop and also situated overlooking the Wye valley.

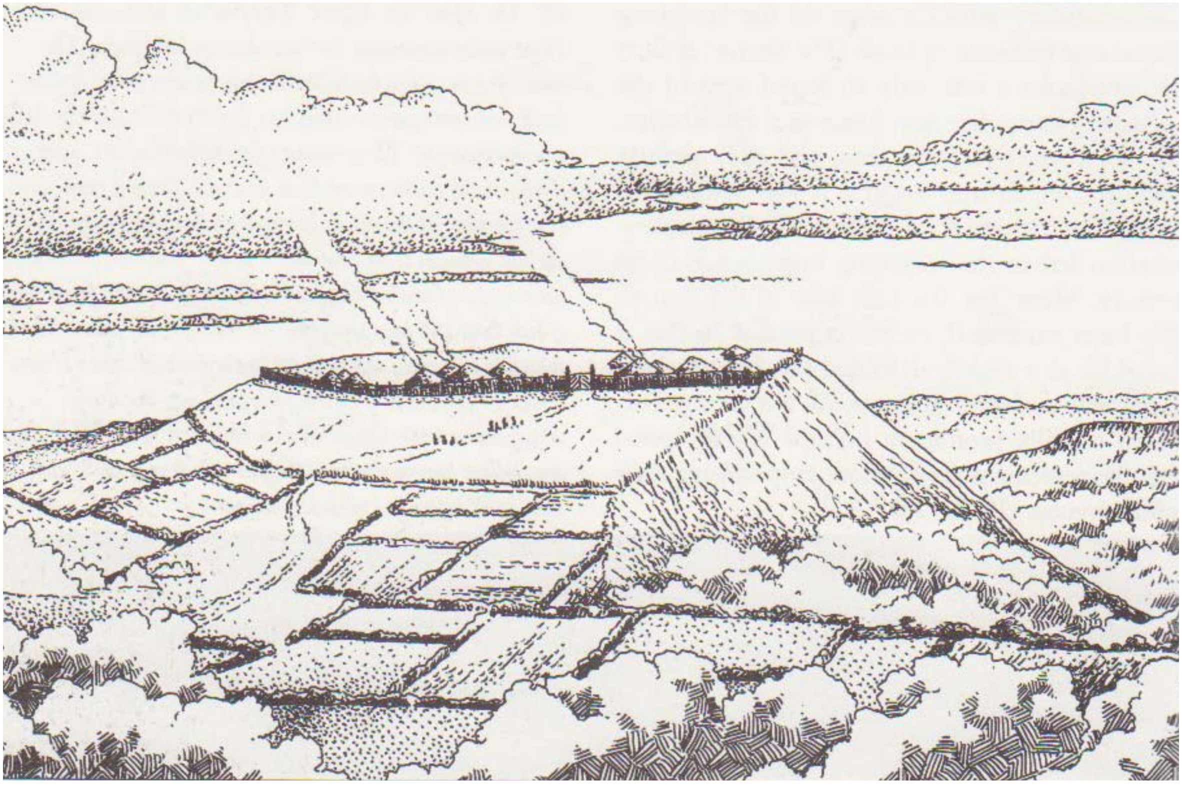

Figure 39. An artists reconstruction of Fin Cop hillfort reproduced from Barnatt and Smith (2004). This image is useful although the lower enclosure bank is unlikely to be contemporary and the rampart we now know is made from stone, although whether it had a timber breastwork still remains to be tested.

Whether Fin Cop was permanently occupied or used as a refuge remains to be tested by further field investigation. The discovery of a concentration of ceramic material inside the fort indicates that activity took place inside the fort. Evidence for internal structures should survive and establishing the location and state of preservation of such remains should remain an urgent priority.

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## 11. REFERENCES


Barnatt, J., Bevan, B., and Edmonds, M. 1998. *A prehistoric landscape at Gardom's Edge, Derbyshire: excavations 1998*, Archaeology Service, Peak District National Park Authority and Department of Archaeology and Prehistory, University of Sheffield. Fourth Interim Report.

Barnatt, J. and Smith, K. 2004. *The Peak District. Landscapes Through Time.* Macclesfield, Windgather Press.

Barrett, J. 1980. The Pottery of the later Bronze Age in lowland England. *Proceedings of the Prehistoric Society* 46: 297-319.

Beamish, M.G. 2009. Island Visits: Neolithic and Bronze Age activity on the Trent Valley floor. Excavations at Egginton and Willington, Derbyshire, 1998-1999. *Derbyshire Archaeological Journal* 129: 17-182.

Beswick, P. 1995. *Gardom's Edge pottery and shale 1995*. Unpublished report in Peak District National Park Authority Archive.

Beswick, P. 1999. *Gardom's Edge pottery and shale etc. 1998*. Unpublished Report in Peak District National Park Authority Archive.

Beswick P. 2003. *Gardom's Edge pottery and shale 1999 and 2000*. Unpublished Report in Peak District National Park Authority Archive.

Brickley, M. and McKinley, J.I. (eds.) 2004. *Guidelines to the Standards for Recording Human Remains*. London: BABAO.

Brightman, J. 2009. Fin Cop Hillfort, Derbyshire. An Archaeological Desk-Based Assessment. Unpublished report by Archaeological Research Services Report No. ARS2009/37.

Brooks, S.T. and Suchey, J.M. 1990. Skeletal age determination based on the os pubis: A comparison of the Acsadi-Nemeskéri and Suchey-Brooks methods. *Human Evolution* 5: 227–238.

Bronk Ramsey, C, 1995. Radiocarbon calibration and analysis of stratigraphy: the OxCal program. *Radiocarbon* 37: 425–30.

Bronk Ramsey, C, 1998. Probability and dating. *Radiocarbon* 40: 461–74.

Bronk Ramsey, C, 2001. Development of the radiocarbon calibration program OxCal. *Radiocarbon* 43: 355–63.

Bronk Ramsey, C, 2009. Bayesian analysis of radiocarbon dates. *Radiocarbon* 51: 337–60.

Bronk Ramsey, C, Higham, T, Bowles, A, and Hedges, R E M, 2004a. Improvements to the pre-treatment of bone at Oxford. *Radiocarbon* 46: 155–63.

Bronk Ramsey, C, Higham, T, and Leach, P, 2004b. Towards high precision AMS: progress and limitations. *Radiocarbon* 46: 17–24.

Burn, A. and Brightman, J. 2009. An Analytical Earthwork Survey of the Hillfort at Fin Cop, Derbyshire. Unpublished report by Archaeological Research Services Report No. ARS2009/34.

Challis, A.J. and Harding, D.W. 1975. *Later Prehistory from the Trent to the Tyne.* British Archaeological Reports, British Series 20. Oxford.

Coombs, D. G. and Thompson, F. H. 1979. Excavation of the Hillfort of Mam Tor, Derbyshire 1965-69. Derbyshire Archaeological Journal 99: 7-51.

Cootes, K. (in prep.) *Ceramic Production, Distribution and Prehistoric Society in the Peak District.* PhD Thesis for University of Sheffield.

Cox, M. 2000. Assessment of Parturition. In Cox, M. and Mays, S. (eds), *Human Osteology in Archaeology and Forensic Science.* Greenwich Medical Media, London: 131-142.

Cox, M. and Mays, S. (eds.) 2000. *Human Osteology in Archaeology and Forensic Science.* Greenwich Medical Media, London.

Gilmour, J.S.L., and Bolton. 1931. Vegetable matter. In R.S. Newall, Barrow 85, Amesbury. *Wiltshire Archaeological and Natural History Magazine* 45: 432-4.

Guilbert, G. and Vince, A. 1996. Petrology of some prehistoric pottery from Mam Tor. *Derbyshire Archaeological Journal* 116: 49-59.

Halstead, P., Collins, P. and Isaakidou, V. 2002. Sorting Sheep from Goats: Morphological Distinctions between the Mandibles and Mandibular Teeth of Adult *Ovis* and *Capra*. *Journal of Archaeological Science* 29: 545-553.

Harris, T.A. 1925. Tumulus on Fin Cop. *The High Peak News 19.09.25*, 6.

Hather, J.G. 2000. *The identification of the Northern European Woods: a guide for archaeologists and conservators*. London. Archetype Publications Ltd.

Hearle, J. 2010. Mellor. A Hillfort in the garden. *British Archaeology* 110: 28-32.

Hedges, R.E.M. Law, I.A., Bronk, C.R. and Housley, R.A. 1989. The Oxford Accelerator Mass Spectrometry facility: technical developments in routine dating, *Archaeometry* 31: 99–113.

Hudson, H.J., 1986. *Fungal Biology*. London. Arnold.

Iscan, M.Y. and Loth, S.R. 1984. Determination of age from the sternal rib in white males: A test of the phase method. *Journal of Forensic Sciences* 31: 122–132.

Katzenberg, M.A., and Krouse, H.R. 1989. Application of stable isotopes in human tissues to problems in identification. *Canadian Society of Forensic Science Journal* 22: 7–19.

Knight, D. 2002. A Regional Ceramic Sequence: Pottery of the First Millennium BC between the Humber and the Nene. In A. Woodward and J. D. Hill (eds.) *Prehistoric Britain: The Ceramic Basis*: 119-142. Prehistoric Ceramics Research Group Occasional Publication 3. Oxford. Oxbow Books.

Law, I.A. and Hedges, R.E.M. 1989. A semi-automated bone pretreatment system and the preatreatment of older and contaminated samples. *Radiocarbon* 31: 247–53.

Longin, R. 1971. New method of collagen extraction for radiocarbon dating, *Nature* 230: 241–2.

Lovejoy, C.O., Meindl, R.S., Pryzbeck, T.R. and Mensforth, R. P. 1985. Chronological metamorphosis of the auricular surface of the ilium: A new method for determination of adult skeletal age at death. *American Journal of Physical Anthropology* 68: 15-28.

Makepeace, G. and Beswick, P. 2006. An Early prehistoric site at Aldwark, near Brassington, Derbyshire. *Derbyshire Archaeological Journal* 126: 5-11.

Masters, P.M. 1987. Preferential preservation of non-collagenous protein during bone diagenesis: implications for chronometric and stable isotope measurements. *Geochimica et Cosmochimica Acta* 51: 3209–14.

Meindl, R.S. and Lovejoy, C.O. 1985. Ectocranial suture closure: a revised method for the determination of skeletal age at death based on the lateral-anterior suture. *American Journal of Physical Anthropology* 68: 57–66.

Miles, A.E.W. 1963. The dentition in the assessment of individual age in skeletal material. In D.R Brothwell (ed.) *Dental Anthropology*. Pergamon, Oxford: 191–209

Mook, W.G. 1986. Business Meeting: recommendations/resolutions adopted by the twelfth international radiocarbon conference. *Radiocarbon* 28: 799.

O'Donnell, L, 2007. Charcoal and wood. In Grogan, E., O'Donnell, L. and Johnston, P. *The Bronze Age landscapes of the Pipeline to the West, an integrated archaeological and environmental assessment*. Wicklow. Wordwell Books.

Orme, B.J. and Coles, J.M. 1985. Prehistoric woodworking from the Somerset Levels: 2. Species selection and prehistoric woodlands. *Somerset Levels Papers* 11: 7-24.

Orton, C., Tyers, P. and Vince, A. 1993. *Pottery in Archaeology*. Cambridge, Cambridge University Press.

Payne, S. 1973. Kill-Off Patterns in Sheep and Goats: The Mandibles from Asvan Kale. *Anatolian Studies: Journal of the British Institute of Archaeology at Ankara* 23: 281-303.

Payne, S. 1987. Reference Codes for the Wear States in the Mandibular Cheek Teeth of Sheep and Goats. *Journal of Archaeological Science* 14: 609-614.

Prehistoric Ceramics Research Group. 1992. *The Study of Later Prehistoric Pottery: Guidelines for Analysis and Publication*. PCRG Occasional Paper No.2.

Reimer, P.J., Baillie, M.G.L., Bard, E., Bayliss, A., Beck, J.W., Bertrand, C., Blackwell, P.G., Buck, C.E., Burr, G., Cutler, K.B., Damon, P.E., Edwards, R.L., Fairbanks, R.G., Friedrich, M., Guilderson, T.P., Hughen, K.A., Kromer, B., McCormac, F.G., Manning, S., Bronk Ramsey, C., Reimer, R.W., Remmele, S., Southon, J.R., Stuiver, M., Talamo, S., Taylor, F.W., van der Plicht, J., and Weyhenmeyer, C.E. 2004. IntCal04 Terrestrial radiocarbon age calibration, 0–26 Cal Kyr BP. *Radiocarbon* 46:1029–1058.

Roberts, C. and Manchester, K. 2005. *The Archaeology of Disease.* Gloucestershire, Sutton.

Roberts, C. 2009. *Human Remains in Archaeology: a Handbook*. York: Council for British Archaeology.

Rooke, H. 1796. Discoveries in a barrow in Derbyshire. A letter from Hayman Rooke to Mr. Gough. *Archaeologia* 12: 327-331.

Schoeninger, M.J. and DeNiro M.J. 1984. Nitrogen and carbon isotopic composition of bone collagen from marine and terrestrial animals. *Geochimica et Cosmochimica Acta* 48: 625–639.

Schweingruber, F.H. 1978. *Microscopic wood anatomy*. Birmensdorf. Swiss Federal Institute of Forestry Research

Scott, E.M. 2003. The third international radiocarbon intercomparison (TIRI) and the fourth international radiocarbon intercomparison (FIRI) 1990 – 2002: results, analyses, and conclusions. *Radiocarbon* 45: 135–408.

Slota, Jr P.J., Jull, A.J.T., Linick, T.W. and Toolin, L.J. 1987. Preparation of small samples for $^{14}C$ accelerator targets by catalytic reduction of CO. *Radiocarbon* 29: 303–306.

Smalley, R. Geophysical Survey Report for Fin Cop Hillfort. Unpublished report by Stratascan (Job No. J2591) for Archaeological Research Services Ltd.

Stanley, J. 1954. An Iron Age fort at Ball Cross Farm, Bakewell. *Derbyshire Archaeological Journal* 74: 85-99.

Stuiver, M., and Kra, R.S. 1986. Editorial comment. *Radiocarbon* 28(2B): ii.

Stuiver, M. and Polach, H.A. 1977. Reporting of $^{14}C$ data. *Radiocarbon* 19: 355–63.

Stuiver, M. and Reimer, P.J. 1986. A computer program for radiocarbon age calculation. *Radiocarbon* 28: 1022–30.

Stuiver, M. and Reimer, P.J. 1993. Extended $^{14}C$ data base and revised CALIB 3.0 $^{14}C$ age calibration program. *Radiocarbon* 35: 215–30.

Trotter, M. and Gleser, G.C. 1952. Estimation of stature from long-bones of American whites and negroes. *American Journal of Physical Anthropology* 16: 79-123.

Trotter, M. and Gleser, G.C. 1958. A re-evaluation of estimation of stature based on measurements of stature taken during life and long-bones after death. *American Journal of Physical Anthropology* 16: 79-123.

Tuross, N., Fogel, M.L. and Hare, P.E. 1988. Variability in the preservation of the isotopic composition of collagen from fossil bone. *Geochimica Cosmochimica Acta* 52: 929–35.

University of Manchester Archaeological Unit. 2008. Shaw Cairn, Mellor, Greater Manchester; plant macrofossil assessment. Unpublished report 1985, for University of Manchester Archaeological Unit, Archaeological Services Durham University.

Van Beek, G.C. 1983. *Dental Morphology: An Illustrated Guide.* Oxford,Wright.

Vandeputte, K., Moens, L. and Dams, R. 1996. Improved sealed-tube combustion of organic samples to CO2 for stable isotopic analysis, radiocarbon dating and percent carbon determinations. *Analytical Letters* 29: 2761–2774.

Ward, G.K. and Wilson, S.R. 1978. Procedures for comparing and combining radiocarbon age determinations: a critique. *Archaeometry* 20: 19–31.

Wilson, J. and English, E. 1998. Investigation of a ditch and bank at Fin Cop at Monsal Head, Ashford, Derbyshire. *Derbyshire Archaeological Journal* 118: 86-93.

Woodward, A. 2009. Dating: Peterborough Ware. In Beamish, M.G. 2009, 96-7.
Island Visits: Neolithic and Bronze Age activity on the Trent Valley floor. Excavations at Egginton and Willington, Derbyshire, 1998-1999. *Derbyshire Archaeological Journal* 129: 17-182.

Xu, S., Anderson, R., Bryant, C., Cook, G.T. and Dougans, A., Freeman, S., Naysmith, P., Schnabel, C. and Scott, E.M. 2004. Capabilities of the new SUERC 5MV AMS facility for $^{14}C$ dating. *Radiocarbon* 46: 59–64.

## Appendix One – Harris Matrices for Trenches 1 and 2