



The University of Bradford Institutional Repository

<http://bradscholars.brad.ac.uk>

This work is made available online in accordance with publisher policies. Please refer to the repository record for this item and our Policy Document available from the repository home page for further information.

To see the final version of this work please visit the publisher's website. Access to the published online version may require a subscription.

Link to publisher's version:

Citation: Simpson DDA, Gibson AM, Malazarte-Smith G et al (2015) The Excavation of Barrow III, Irton Moor, North Yorkshire. *Yorkshire Archaeological Journal*. 87(1): 11-36.

Copyright statement: © 2015 Taylor & Francis. The Version of Record of this manuscript has been published and is available in the *Yorkshire Archaeology Journal* in 2015

<http://dx.doi.org/10.1179/0084427615Z.00000000048>.

THE EXCAVATION OF BARROW III, IRTON MOOR, NORTH YORKSHIRE.

By D.D.A.Simpson, A. M. Gibson & G. Malazarte-Smith

With contributions by Carole Keepax & Susan Limbrey

Preamble (AMG)

At his untimely death in 2006, Prof Derek Simpson left a number of unpublished excavation projects in Ireland, Scotland and England, many undertaken whilst he was working at Devizes Museum and then as lecturer in Archaeology at the University of Leicester. The Scottish backlog was largely cleared by a team of colleagues and post-excavation assistants working with Derek in his last academic post at Queen's University, Belfast, where he retired from the Chair of Archaeology in 2005. Some of these major excavation reports, most notably the Beaker settlement at Northton, Harris were, unfortunately, published posthumously (Simpson *et al.* 2006). With the aid of a small grant from English Heritage, and the help of Derek's widow, Nancy Simpson, the English material was recovered from QUB and from Derek's home (by AMG) and the archives assessed and collated. Archives relating to excavations at Rainham (Essex), Kings Newnham (Warwickshire) and Borough Hill (Leicestershire) were forwarded to the Museum of London, Warwickshire Museum Service and Leicester University Archaeological Services respectively as each of these organisations was engaged in related projects. The excavation archives of Irton Moor and Seamer Moor were retained at Bradford University as it was felt that they would be easy projects to complete and bring to publication.

The Irton Moor archive has clearly suffered over the years largely from inadequate storage at Leicester and QUB. Some artefacts are missing, some photographs are deteriorating and the main excavation plans survive on brittle and rapidly disintegrating plastic drawing film. These have been scanned and re-drawn (by GM-S). Some drawings of artefacts survive, some specialist reports had been previously commissioned and received, and a site notebook provides basic stratigraphic information. These archived materials have been used to provide the following account. Work on the Irton Moor archive not only flagged missing material but also identified wrongly attributed material and some pottery previously labelled as coming from Irton Moor was in fact identified as the substantial Impressed Ware assemblage from Grandtully in Perthshire (Simpson & Coles 1990). This has been returned to the National Museums Scotland.

Introduction (DDAS & AMG)

Irton Moor Barrow III lies some 5km west of Scarborough, North Yorkshire (TA/004876) (*Fig. 1*). It lies at a height of 168m O.D. in an area which had been moorland and rough grazing up to a few years (c.1966) before the excavation and is so marked on early editions of the 1:10560 O.S. maps. The underlying rock comprises the Upper Jurassic Age Corallian Series, forming the Tabular Hills (Kent, P. and Gaunt, G.D. 1980, 63-81) but unlike Tabular Hills range to the west of the River Derwent this Irton/Seamer Moor upland block has a thin covering of gravelly moraine (Elgee, 1912, 136 & Fig 62). The barrow is one element of a dispersed cemetery spread over Irton, Seamer and Ayton Moors. A number of the so-called 'tumuli' are probably natural, notably that on Seamer Beacon but others appear superficially to be of earthen construction, while others are cairns and the majority show traces of earlier

excavations. Few records survive of this earlier work although the adjacent cairn on Hagworm Hill was opened by Lord Albert Coyningham, later 1st Baron Londesborough (Conyngham 1849). Barrows I and II were excavated by T.C.M. Brewster in 1971 (Brewster 1972: 1973) and Barrows IV (Hagworm Hill) and V by David Coombs in 1973 (Coombs 1994).

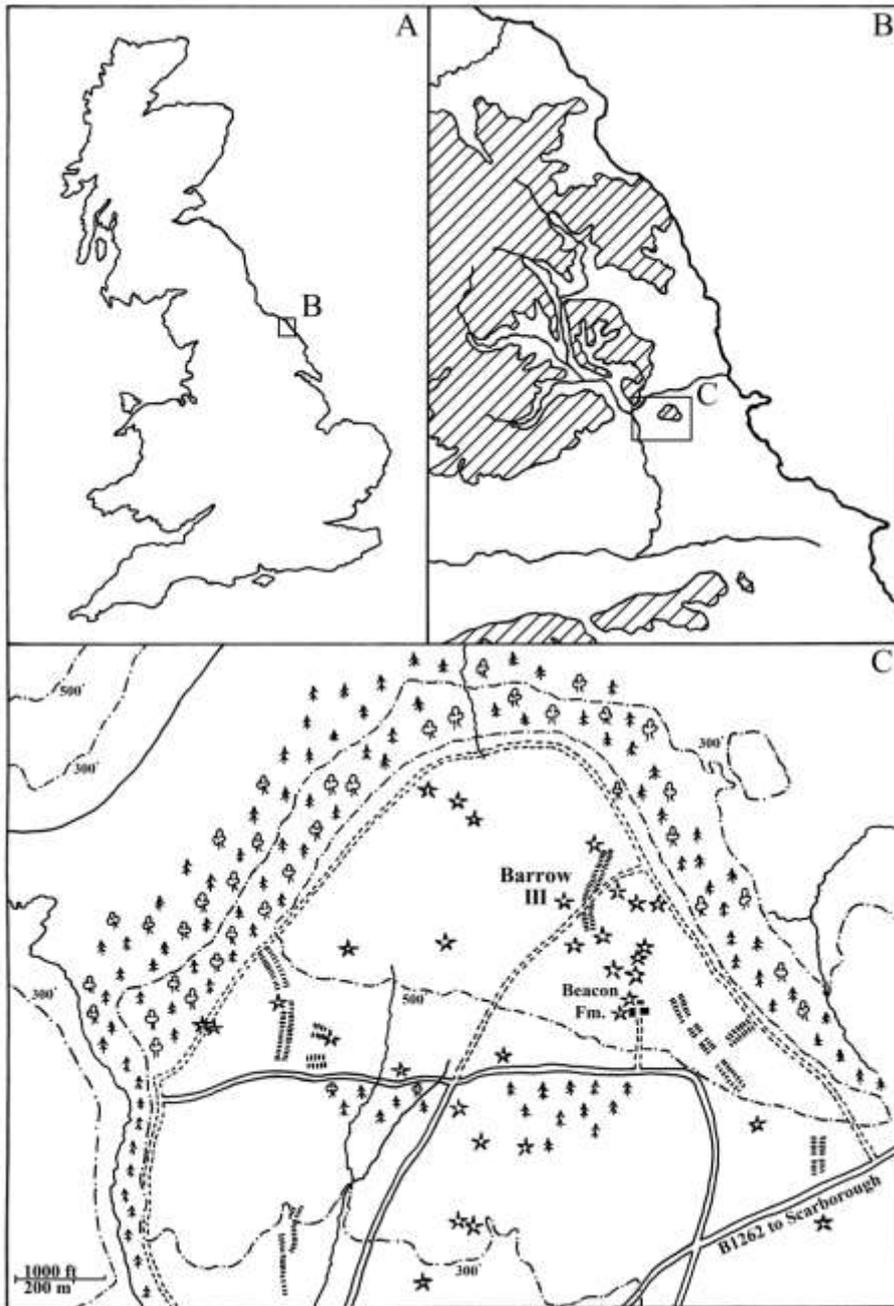


Fig 1: Location of Irton Moor Barrow 3.

Before excavation barrow III had the appearance of a turf covered mound up to 0.8m high and 14m in diameter. A number of large peripheral stones suggested the presence of a kerb, particularly on the west side and further stones projecting through the turf indicated a cairn structure. There was a marked depression at the centre of the mound (though this is not noted on the section, fig 5 – AG). The site lay at the centre of an extensive field which had

only recently (1969) been deep ploughed. Because of its central position, which made ploughing difficult, the landowner wished to level the site and this was the reason for the rescue excavation conducted, on behalf of the Department of the Environment, in March and April 1973.

The site was initially laid out for excavation by the quadrant method but this was abandoned at an early stage in favour of a single cross-balk through the site. The excavation was planned in two principal stages: firstly, the complete exposure of the cairn structure and the stripping of the area around it down to the old land surface to reveal any features beyond the mound (Fig 2 upper); and secondly, the removal of the cairn itself to subsoil level (Fig 2 lower). The structural features recorded during the course of the excavation were recorded by means of a series of vertical photographs used to construct two photo-mosaics from which the plans of the site were drawn (Fig 3). These photographs were taken and the mosaics constructed by Marius Cooke then of the University of Leicester's Department of Archaeology. The photo-mosaic of the pre-cairn features is missing from the archive. Most of the individual small finds were recorded on a grid system, but unfortunately the base points of the grid are not recorded on the surviving plans or in the site notebook.

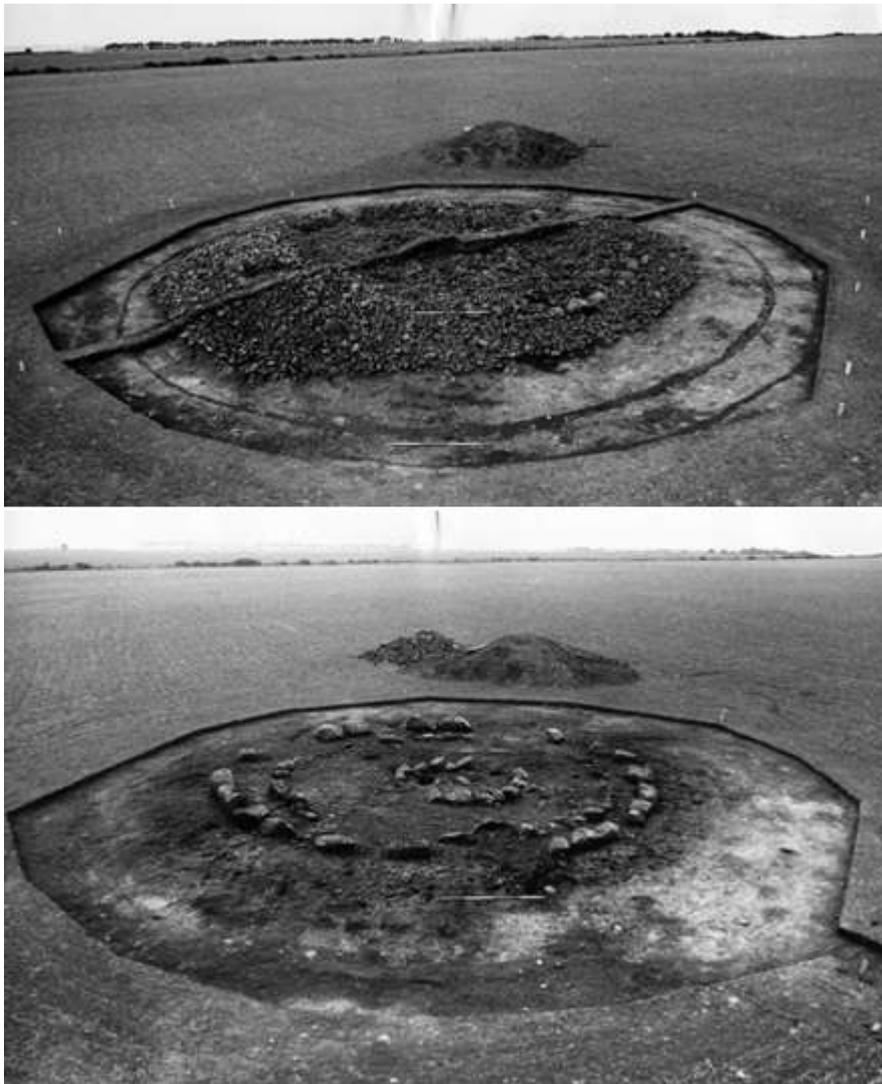


Fig 2: Irton Moor Barrow III – Upper with cairn in situ, Lower with cairn material removed.



Fig 3: Surviving photo-mosaic of the cairn material at Irton Moor Barrow III

The Structure (by DDAS)

The features uncovered will be described in the sequence in which they were excavated from the periphery to the centre of the site. These consisted of two concentric ditches, the cairn, a double kerb, and inner stone setting and a pit.

1. Ditches A & B (Figs 2 - 5)

The two outermost features consisted of two slight concentric ditches set 1.25m apart. The outer, Ditch A, had a diameter of 19.5m and the inner, Ditch B, a diameter of 18.25m. Ditch A was the more ephemeral and was only traceable, even on the top of the subsoil, as a darker streak on the north, west and south. It had a maximum depth of 10cm and a maximum width of 25cm. The fill consisted of a stone free, wormed plough soil. No traces of any post or stake holes were detectable in either of the ditches. Ditch B was slightly more substantial although variable from 15-5cm in depth and 12-30cm wide. In the better preserved portion on the south and south-east, Ditch B had a pronounced groove at its base and was generally V-sectioned, the outer face being gentler in its angle than the inner (Fig 5). Such a feature might suggest that this structure was designed to accommodate a timber or stone setting but again no trace of this was detectable in the uniform, earthy fill. It is doubtful if either of the ditches were ever substantially larger than their appearance when excavated. Ploughing might have accounted for their existing shallow form but the minimal difference between the height of the protected subsoil beneath the cairn and that outside it, only some 4cm, suggests that this was not so. Neither ditch produced any finds.

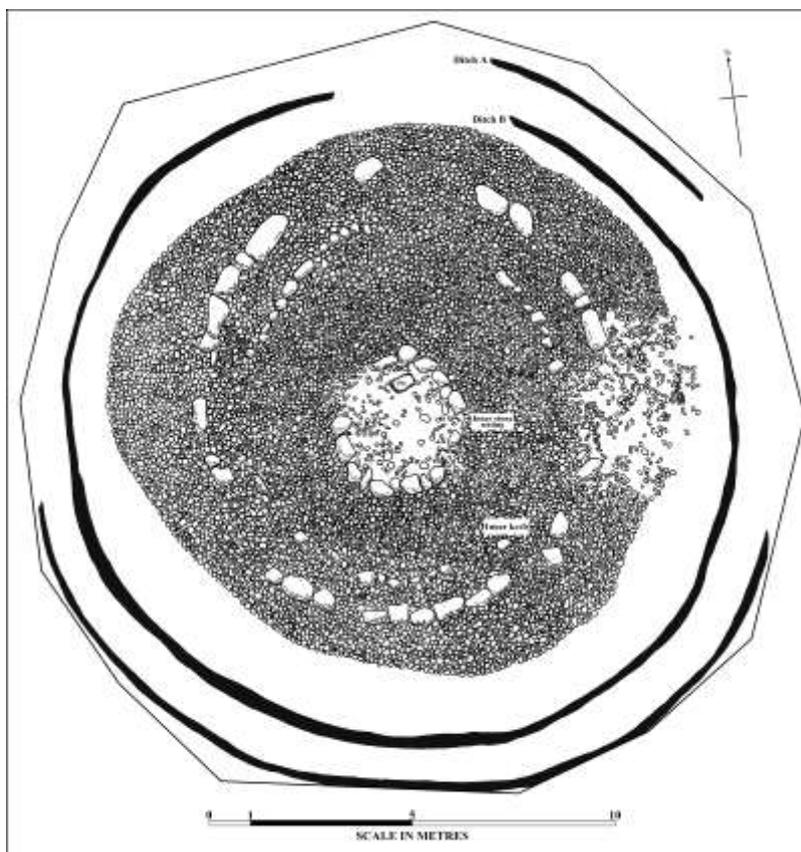


Fig 4: Irtton Moor Barrow III – plan of cairn

2. The Cairn (Figs 2 – 5)

The cairn lay at varying distances from 0.4m to 2.3m inside ditch B. Although superficially circular, excavation showed that it was in fact pear shaped in plan (Fig 4) and it is unlikely that ploughing alone would have produced this configuration. The surviving limits of the cairn also appeared to reflect its true and original extent as the lower stones of the structure had been deeply impressed into the subsoil and, even if these had been removed, the impressions and the iron concretions formed at their bases would have been detectable. There was also a general absence of stone debris in the ploughsoil in the vicinity of the site.

Apart from a number of small, waterworn quartzite pebbles, the majority of the stones of the cairn were of sandstone with an average diameter of 15cm. The only clear peripheral disturbance was on the east where there appeared to have been extensive stone robbing. It is strange that this disturbance, which involved the removal of the stone from the site, not associated with its excavation, should have taken place on an axis unrelated to existing trackways and farm buildings if in fact the object of the removal of the stones was for building purposes. Although there is no mention in the site notes, it would appear that turves had been laid over and around the outer kerb (inf from Susan Limbrey and see the comments on the 'turf stack' below). The turves had been cut from the surrounding area and were of the same soil as that of the old ground surface. The extent of this turf cover, however, is not recorded. The only finds from the mass of the cairn were two struck flint flakes, one body sherd of grey, sandy ware and a stone with a single cup mark on each side (Fig 10). The latter lay with the better of the 2 cup marks facing downwards on the old land surface.

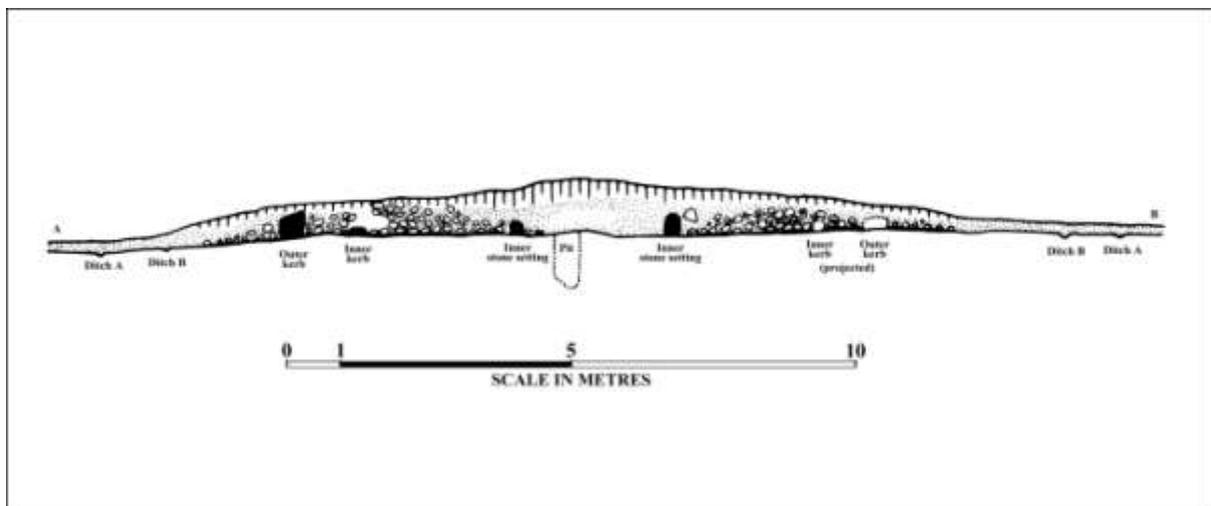


Fig 5: Section through Irtton Moor Barrow III

3. The Kerbs (Figs 2 – 6)

Three incomplete lines of kerbing were encountered during the excavation, These are referred to as the outermost kerb, middle kerb and innermost kerb in the following description. Particularly on the west and north sides, some of the stones of the outermost kerb were visible before excavation projecting through the cairn material and further members of the kerb were revealed when the cairn was removed. There were no traces of stone holes, the kerb stones having been placed on the old land surface which was

preserved beneath them although their weight had compressed the fossil soil and produced impressions in the subsoil in some places. The stones of the outermost kerb did not form a continuous ring (Fig 6) and although the gaps on the east side are probably to be associated with stone robbing in that area this argument cannot be applied to the south and south-west sectors where the cairn itself showed no sign of disturbance and had completely covered a number of surviving kerb stones. It would therefore appear that it had never been intended to have been a complete ring of contiguous stones. Nor does the outermost kerb appear to have served as a revetment to the cairn itself but rather to have been deliberately buried within its core as the sections and the extra kerb material in no way suggested slipping of cairn stones. The kerb stones varied from 0.4 – 1.3m in length and from 0.2 – 0.6m in height. There was a noticeable grading of the stones, the largest and tallest being on the west and south-west decreasing in size to the north and east, although only a few stones survived in the latter sector.

The middle kerb lay 0.5m within the outermost and was of even more interrupted construction, particularly on the north and east. Again the stones were placed on the old land surface and were considerably smaller than those of the outermost kerb, the largest being 0.75m long. On the south-west the stones of the middle kerb were inturned to form an apsidal feature (Figs 6 & 7) with a maximum diameter of 1m.

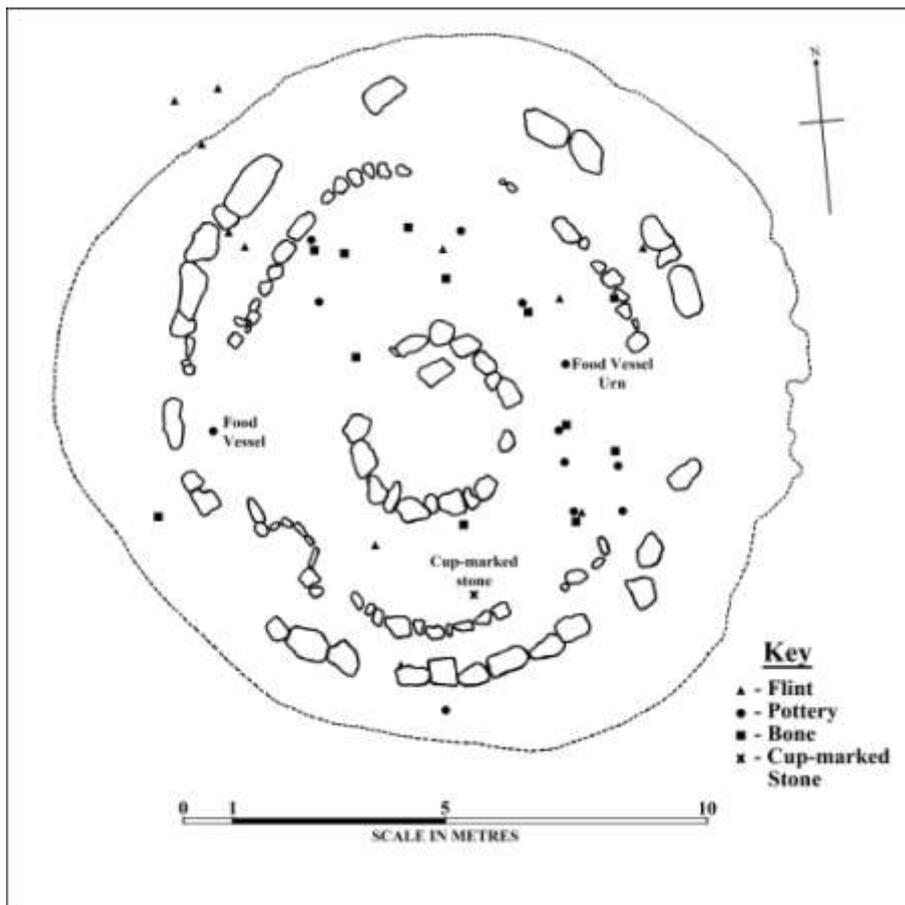


Fig 6: Irton Moor Barrow III - kerbs and inner stone setting



Fig 7: Irton Moor Barrow III – apsidal stone setting.

At distances varying from 1.8m to 3m from the middle kerb was a roughly central oval setting of large rounded boulders up to 3m in diameter constituting the innermost kerb and again resting on the old land surface. This innermost kerb appeared to form the inner limit of the cairn. The area within this feature showed clear signs of disturbance but it is unlikely that the cairn originally covered the centre of the site. The central area as defined by the innermost kerb of boulders was filled with relatively stone-free and probably wind-derived soil containing a fragment of nineteenth century glass but at no point in the area concentric to this kerb was there any indication of up-cast cairn material as might be expected if the central part of the cairn had been disturbed by antiquarian activity.

4. The Pit (Fig 5)

Within the innermost kerb but not central to it was a rectangular pit dug into the subsoil. This measured 0.55m long and 1m deep with steeply cut sides and a tapering base. The fill consisted of alternating layers of dark soil and clean sand and gravel. Although two fragments of nineteenth century bottle glass were found in the fill the nature of the deposit did not suggest modern disturbance and the presence of the glass may be more readily explicable in terms of worm action. No other finds were recovered from the pit. Its shape suggested that it may have originally held a post but if so this must have been withdrawn rather than having been allowed to decay *in situ*.

Overview of the Finds (DDAS)

Apart from two struck flakes and a body sherd from the cairn material all the finds came from the old land surface with a noticeable concentration in the north and east sectors in the area between the middle and innermost kerbs (Fig. 6). (The finds are recorded on a N x E grid system but the base points of this grid do not survive in the archive so it has not been possible to reconstruct the distribution of specific finds – AG)

Throughout this area there was a general scatter of cremated human bone fragments varying from minute pieces 2mm in length or less to substantial portions of skull up to 4cm across (see below). In no case were complete cremations represented and in only two areas were there sufficient concentrations to suggest specific deposits. Because of the scattered nature of the skeletal material it was impossible, with one exception, to relate the cremated bone to other finds from the old land surface. The exception was bone deposit 3 where, admixed with the cremated material, were sherds of Neolithic pottery and a laurel leaf shaped flint arrowhead (Figs 8 & 9).

The flint material consisted of twenty-three struck flakes, three scrapers, a laurel leaf shaped arrowhead, a fabricator and a plano-convex flint knife (see below). The majority of the flint is tabular, dark grey in colour and probably derived from glacial deposits of the easy coast. Some of the struck flakes show traces of weathering and have a pale grey patina. Only one flake appears to have been burnt.

The pottery (as recorded by DDAS) exhibits considerable variety in form and fabric and, in the absence of stratigraphy can only be classified on the basis of its formal characteristics. DDAS identified five major groups.

- Group 1 A group of plain rim and body sherds, the latter simple, slightly thickened, or rolled over. This pottery is smooth externally, well fired and burnished with a slightly corky texture and appears to belong to Developed Carinated Bowls or the Grimston/Heslerton series of Neolithic Yorkshire Neolithic. From the old ground surface.
- Group 2 Biscuit textured buff wares decorated on the internal rim bevels and exterior surfaces with twisted cord and in one case whipped cord impressions.
- Group 3 Large, undecorated thick walled body sherds; Bronze Age in character.
- Group 4 Single rim sherd of Beaker pottery.
- Group 5 Food Vessel and Food Vessel/Urn.

On the old land surface was a general spread of charcoal (no identification appears to have been undertaken – AG) but in only one case could it be related to a specific deposit and therefore of value in producing a radiocarbon determination, and that was with the Food Vessel/Urn (Group 5) and associated cremated material. The sample yielded a radiocarbon date of 3120±90 BP (I-7294). Ashmore (1998, 140) has highlighted the accuracy problems of these early dates and has recommended multiplying the margin of error by 1.4 or rounding up the error to ±110 whichever is the larger. Using this adjustment, the margin of error in the present sample would be increased to ±126 Using OxCal 4.2.3 (Bronk Ramsay 2013) and the IntCal13 atmospheric curve (Reimer *et al.* 2013), this calibrates to 1665 – 1026 Cal BC (95.4%) and probably 1526BC – 1215 cal BC (68.2%) which is rather late for Food Vessels

and Food Vessels and Urns in Northern Britain (Sheridan 2004) and may well represent a *Terminus Post Quem* for the construction of the mound rather than a date strictly associated with the Food Vessel/Urn.

The Pottery (Fig 8) (AMG)

The pottery assemblage has become fragmented and dispersed since 1973. Material was found at both QUB (with the original archive and subsequently – thanks to Eileen Murphy) and Leicester (thanks to Nick Cooper). It was possible to match some of DDAS's original descriptions above but not always particularly satisfactorily. The descriptions below have tried to match and adhere to the original groupings but include considerable alterations to vessel identifications.

Group 1 - Developed Carinated Bowl

Over two hundred sherds (207g) of small sherds, the majority 10mm or less across were recovered from the old ground surface. The fabric is generally pale buff to dark grey in colour with a black core. The surfaces, where present, are smooth and, in the few instances where opening agents break the surface, they lie flush with it. Inclusions consist of small crushed limestone fragments, occasional quartz and some possible mica. There are two rim sherds and six shoulder sherds amongst the assemblage suggesting at least 3 vessels based on fabric and surface finish (Fig 8).

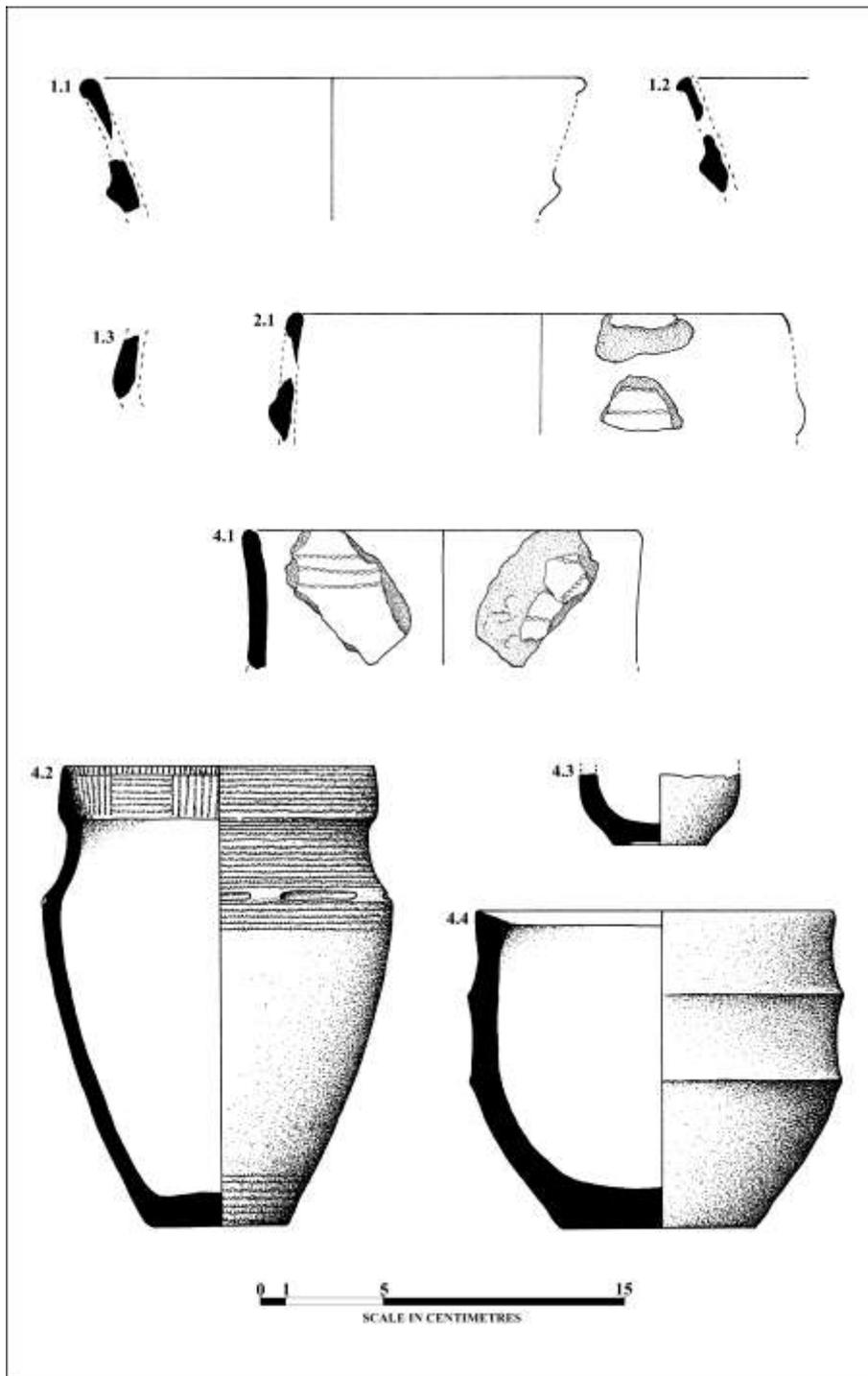


Fig 8: Pottery from Irton Moor Barrow III

Group 1: 1 (Fig 8, 1.1) Carinated bowl with an estimated rim diameter of 200mm. The rim and shoulder sherds do not conjoin but the similarity of fabric and finish suggests the same or comparable vessels. The rim is badly damaged but everted, perhaps with a slight external lip. The carination exhibits a join void resulting from the moulding and application of at least parts of the shoulder.

Group 1: 2 (Fig 8, 1.2) Carinated Bowl but too small a sherd to permit the estimation of the diameter. The rim is everted and has an external lip but the inner surface of the rim

sherd is missing. Once again, the shoulder sherds do not join with the rim but the similarity of fabric and finish suggests the same or comparable vessels.

Group 1:3 (Fig 8, 1.3) Carinated Bowl, represented only by shoulder sherds. The shoulder is rounded suggesting a slack carination and is thus markedly different to vessels 1 and 2.

It is likely that the rest of the small sherds in this fabric belong to the vessels above but there are few obvious joins and the material is extremely fragmentary.

Group 2 – Collared Urn (?)

Group 2:1 (Fig 8, 2.1) Two rim sherds possibly matching DDAS's description were found within the surviving assemblage but they are undecorated and badly damaged. They also have no internal rim bevel. None of the sherds in this fabric exhibit the whipped cord impressions mentioned by Simpson. The rim is damaged but appears to be simply rounded with a smooth internal finish and with an estimated internal diameter of 200mm. Two sherds in a comparable fabric are decorated with horizontal twisted cord impressions. At first these appeared to be damaged rim sherds without inner surfaces but closer inspection of the smaller of the two sherds suggest that they represent the base of a collar or carination. The fabric and decoration is consistent with Collared Urn but may also be from a shouldered Food Vessel.

Group 3 – Collared Urn (?)

Twenty six sherds (154g) can be attributed to this fabric group. The fabric is heavy and measures up to 14mm thick. The surfaces are dark brown, the core black and the fabric contains substantial grog inclusions. One grog fragment measures up to 20mm across and the smoothness of its surface suggests it is part of the rim of an earlier vessel. The sherds are undecorated. The fabric is consistent with Collared Urn.

Group 4 – Food Vessel (?) (Fig 8, 4.1)

Small Find 7 is noted in the site notebook as Beaker, however the fabric is quite coarse and the external twisted cord arrangement is much more in keeping with Food Vessel or Collared Urn than with the usual cord or comb-decorated Beaker. The fabric measures up to 9mm thick, is quite soft and appears to have grog inclusions. The inner surface is quite well-finished. The rim is simple and rounded, though damaged, with an estimated diameter of 160mm. It is decorated internally with three horizontal lines of fine, well-defined, twisted cord impressions. The outer surface is much more abraded and there are traces of two horizontal and one diagonal line of twisted cord impressions perhaps indicative of an original zone of filled chevron motif.

The profile of the sherd is slightly concave externally. This might suggest a slightly hollow/upright neck of a bipartite vase Food Vessel.

Group 4 – Urn and Cup, Food Vessel

(Fig 8, 4.2) Described as a Food Vessel/Urn by DDAS, this vessel fits more comfortably into the Collared Urn than Food Vessel class though there is clearly a degree of hybridization between the two forms. DDAS described the vessel as fragmentary, but now only 23 sherds

(155g) could be found within the assemblage comprising 2 rim sherds and 19 body sherds. No traces of the base could be located. The rim diameter as reconstructed is 130mm, the base diameter 55mm and the height 194mm. The fabric is in a hard well fired buff ware with black core and containing finely crushed quartz and limestone. The fabric averages 7mm thick. The rim has a narrow internal bevel and below this the inner part of the collar is rounded and slightly concave. The bevel is decorated with short radiating lines of very fine whipped cord impressions whilst the concave interior is decorated with a hurdle pattern in the same technique. The outer surface, on the upper part and a short distance from the base, is decorated with encircling lines of the same extremely fine whipped cord impressions. A narrow shoulder groove is undecorated but interrupted by 10 regularly-spaced small unperforated stops.

(Fig 8, 4.3) Cup. Base fragment from a small cup (or possibly Food Vessel) in a hard, well-fired and dark brown fabric, 7mm thick and with crushed stone inclusions. The base is 37mm in diameter and has a well-defined footring. The internal profile is smoothly curved and traces of fingernail impressions resulting from the forming process can clearly be seen. The internal curvature of the highest portion of the wall suggests that the cup has had a closed form. This is recorded as having been found within 4.2.

(Fig 8, 4.4) Food Vessel. Undecorated tripartite vase Food Vessel of dark brown coarsely tempered clay badly weathered on both base and rim. Height 140mm, rim diameter 145mm, base diameter 70mm. The Food Vessel has broken along poorly bonded coils or straps and further join voids are noted in the sections. The base is very abraded and worn.

Discussion

The fragmentary nature of the earlier Neolithic material suggests that it is very much residual material and does not seem to have been part of any specific deposition other than, perhaps, the deposition of domestic material. The flint debitage (see below) may also support this hypothesis. The absence of middle and later Neolithic ceramics and the chronological gap between the early Neolithic and earlier Bronze Age material does not suggest that the occupation at the site was continuous and therefore the siting of the barrow over an area of earlier activity may have been purely coincidental.

The undecorated Food Vessel (4.4) is a poorly made tripartite vase but this allows us to reconstruct the technology used in its construction. The vessel has broken along poorly bonded coils possibly being a result of the clay having been too dry when the vessel was formed. Indeed, some 12 coils or rings have been identified in the fabric and the vessel is illustrated as an example of coiled construction in Gibson & Woods (1997 figs 12 & 13 – NB the wrong base has been attributed to this vessel in fig 13). The tripartite form is common in Northern Britain and the National Museums Scotland's radiocarbon dating programme has established a currency for these vessels in graves between c. 2100 – 1550 BC (Sheridan 2004).

The Collared Urn (4.2) is an interesting hybrid vessel. The form of the deep collar and neck has unequivocal Collared Urn affinity as do the decorative technique and motif. The vessel sits comfortably in Longworth's Primary Series (1984) and in the early Collared Urn group as defined by Burgess (1986). The height and the stopped shoulder ridge, however, also find parallel within the Food Vessel class and especially the 'Yorkshire Vases'. Shoulder

grooves, however, are also occasionally found on Collared Urns. Longworth illustrates a vessel with twisted cord herring bone decoration from Stanton Harcourt, Oxfordshire (1984, pl 46d, No. 1387). Another, from Charlton in Hereford & Worcester combines twisted cord lines inside and outside the collar with rows of stabs over the shoulder and at the base (ibid pl 22a, No. 653). Whilst the decorative techniques are not exactly comparable with the Irton Moor vessel, the decorative scheme is with the majority of the body of the vessel being undecorated save for a narrow zone at the base. An urn from Pentraeth, Gwynedd matches the form of the Irton Moor Vessel well and also uses whipped cord as the decorative technique (ibid Pl 6c, No. 2148). Here the rim form is very close to the present vessel though the shoulder groove is rather more broad. Of course other vessels within the Collared Urn group have depressions, rather than grooves, at the shoulder but the two types of feature must surely be related. Urns from Rudston, East Yorkshire and Allerston, North Yorkshire may be called upon here (ibid Pl 24d & c, Nos. 757 & 1078). Both also employ hurdle motifs and the latter is associated with a small undecorated bowl-shaped cup not dissimilar to that from Irton Moor.

The decorative technique employed on this vessel comprises extremely fine whipped cord less than 2mm in diameter. This is also illustrated in Gibson & Woods (1997, fig86 – though erroneously attributed to Seamer Moor, the archives having already become confused). Whipped cord impressions such as this illustrate the range of fibre technologies existing in the Early Bronze Age and indicate the existence of composite strings: perhaps bow strings or even strings from musical instruments.

Cups associated with Collared Urns exhibit a variety of shapes and forms. They range from elaborate and exotic types such as the perforated wall cups (Longworth 1983) and standardised, often highly decorated forms such as the biconical cups to rather more plain and simple forms such as that from Irton Moor. The footring base on the present example does, however, hint at a degree of sophistication in its construction. A review of Bronze Age cups is underway but suffice it to say that the instances of firing wasters noted in the Scottish material (Gibson 2004) are also being encountered south of the border and in Wales and it may be that these vessels are being made specifically for the funerary ritual, possibly even fired as part of the associated pyro-ritual activity. There are 14 instances of cups being associated with Collared Urns in East and North Yorkshire with a further 12 unspecified 'Urn' associations. Food Vessel/cup associations number only 8 but it is noteworthy that more cups are associated with Food Vessels in Yorkshire than in any other part of northern England (inf Debbie Hallam).

The Flint Artefacts (Fig 9) (DDAS, GM-S, AMG)

No	Description	Location
Worked		
1	(Missing) Laurel leaf flint arrowhead, it has been carefully retouched along the whole convex surface, along with a few secondary flakes removed. (length 51.2mm, width 17.8mm, axial length 6.1mm).	OLS
11	Flake, retouched to form an end scraper. It has also been laterally retouched to form a burin. (length 24.3mm, width 12.9mm, axial length 5.0mm).	OLS
15a	Possible fabricator, the proximal end has been laterally retouched to form a narrow convex point, may have been a thick piercer. The distal end shows signs of a possible, partially complete end scraper. (length 58.1mm, width 17.7mm, axial length 8.7mm).	OLS
19	Retouched flint flake. It may represent an early stage in the manufacture of an arrowhead	Topsoil

	abandoned when thinning resulted in a hinge termination. (length 68.0mm, width 46.0mm, axial length 16.3mm).	
25	Modified flint flake, retouched to produce a scraper. (length 33.5mm, width 39.8mm, axial length 10.1mm).	OLS
26	Flint flake with possible retouch to produce an end scraper. (length 34.8mm, width 28.8mm, axial length 9.5mm).	OLS
27	Flint flake fragment. Apparent poor quality denticulate retouch and two lateral notches may actually be plough damage. (length 36.2mm, width 22.6mm, axial length 10.2mm).	OLS
28	Flint flake with partial distal end abrupt retouch and possible retouch to the left edge of the distal end forming a piercer. (length 23.6mm, width 26.8mm, axial length 11.1mm).	OLS
36	(Missing) Flint plano-convex knife with invasive retouch along the edges and the whole convex surface. (length 62.4mm, width 24.9mm, axial length 8.5mm)	OLS
47	Flint end scraper with a gently convex side, formed by steep retouch. (length 31.4mm, width 21.0mm, axial length 12.0mm)	N.W. Quadrant scatter
Unworked		
12a	Flint flake. (length 21.8mm, width 19.5mm, axial length 6.1mm).	Topsoil.
12b	Flint flake. (length 22.3mm, width 16.3mm, axial length 3.4mm).	Topsoil.
12c	Flint flake fragment. (length 14.6mm, width 8.8mm, axial length 6.1mm).	Topsoil
13a	Flint flake, small block fragment. (length 25.4mm, width 23.3mm, axial length 11.0mm).	Topsoil
13b	Flint flake, mid-section. (length 12.9mm, width 33.6mm, axial length 12.3mm).	Topsoil
14	Flint flake, fragmentary distal end. (length 25.4mm, width 23.3mm, axial length 11.0mm).	In soil covering the cairn
15b	Flint flake. (length 32.1mm, width 24.3mm, axial length 7.9mm).	OLS
15c	Flint flake. (length 30.1mm, width 21.9mm, axial length 9.1mm).	OLS
16	Flint flake, possibly a failed attempt at a burin. (length 36.5mm, width 29.0mm, axial length 5.1mm).	OLS
17	Flint flake with platform modification. (length 42.2mm, width 36.4mm, axial length 20.6mm).	Topsoil
18a	Large flint flake with possible retouch. (length 66.3mm, width 51.0mm, axial length 13.9mm).	OLS
18b	Large flint flake. (length 72.9mm, width 56.7mm, axial length 18.9mm).	OLS
20	Flint flake mid-section. (length 16.8mm, width 26.4mm, axial length 5.9mm).	OLS
21a	Flint flake, no indication of reworking. (Dimensions: length 25.5mm, width 12.9mm, axial length 4.7mm).	OLS
21b	Flint flake. (length 20.4mm, width 14.2mm, axial length 6.1mm)	OLS
22	Flint flake, fragmentary and burnt. (length 24.2mm, width 25.7mm, axial length 7.2mm).	OLS
23	Flint flake with partial cortex coverage. (length 39.7mm, width 19.2mm, axial length 5.1mm).	Topsoil
24	Proximal end flint flake. (length 16.3mm, width 12.8mm, axial length 3.7mm).	Topsoil
29	Flint flake. (length 17.9mm, width 26.8mm, axial length 11.0mm).	

Table 1: Catalogue of flint from Irtton Moor Barrow III.

The lithic material, initially examined by Derek Simpson, was re-examined with the help of Dr R Donahue (Uni of Bradford) in order to cross match artefacts and ascertain any missing pieces. It was found that two of the major lithic finds, a laurel leaf and a plano-convex knife, are missing from the archive however drawings of both artefacts (by DDAS) survive. The following table is arranged by Small Finds (SF) number as recorded in the site notebook. Occasionally more than one flint was present in the bags marked with SF numbers and these have been subdivided alphabetically here. OLS refers to the pre-cairn land surface.

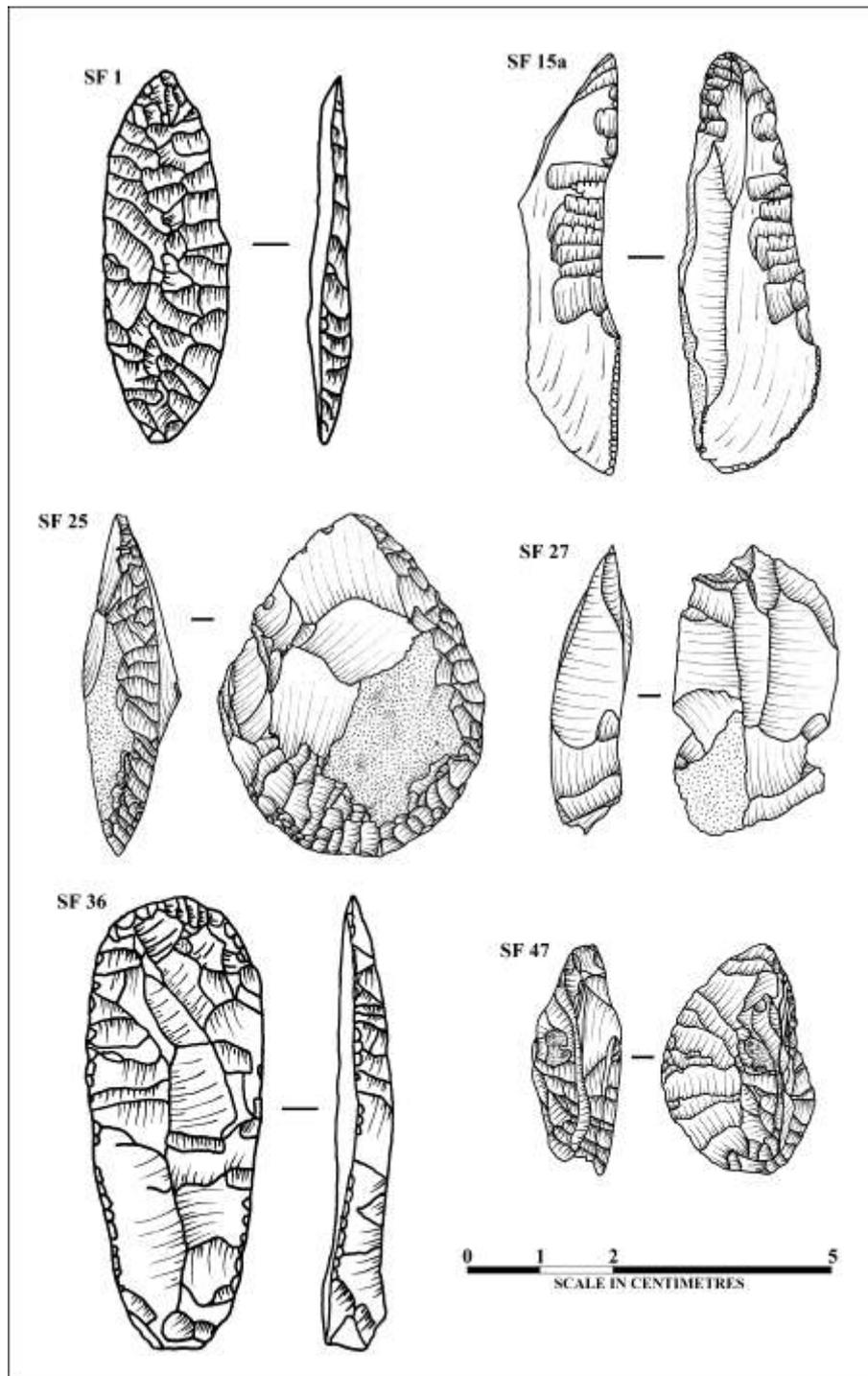


Fig 9: Flint artefacts from Irton Moor.

Discussion

The few flint artefacts are in keeping with the date range suggested by the ceramics. The early/middle Neolithic laurel leaf seems to have been found in the same general area as the Neolithic bowl in the pre-cairn soil. The majority of the flint is tabular, dark grey in colour and is derived from the glacial deposits of the east coast. Some of the struck flakes show traces of weathering and have a pale grey patina suggesting that, like the early Neolithic ceramics, they may be residual. The large end and side scraper (Fig 9, SF25) and the plano-convex

knife (Fig 9, SF36) can be seen as contemporary with the Food Vessel and Collared Urn use of the area.

The Cup-marked stone (AMG)

The cup-marked stone (Fig 10) was located due south of the centre of the cairn and close to the inner edge of the middle kerb (Fig 6). The stone has been lost but two photographs survive to indicate that it was a small sandstone cobble (note that one of the photographs has been cropped). The stone has had a well-defined cup mark, some 6-7cm in diameter and it is recorded that this side was lying face down on the old ground surface. The other side has traces of a small pecked depression possibly representing the start of the creation of a second cup.

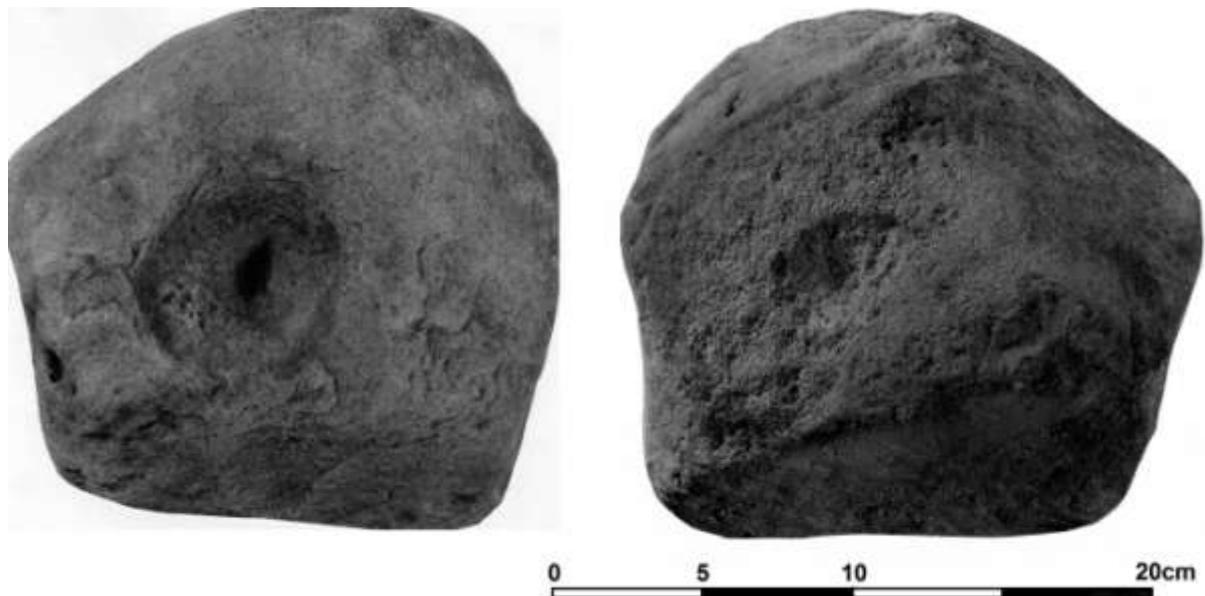


Fig 10: The cup marked stone from Irton Moor barrow III (note left hand view is cropped on the surviving photograph)

Report on the Buried Soil Beneath Irton Moor Barrow III (Susan Limbrey)

Author's note: This report was written in 1973. I did not then have laboratory facilities, so apart from pH determinations, no analyses or soil micromorphology were undertaken. I feel, however, that interpretation of the history of the soil on the basis of field description, together with investigation of the present day soils in the surroundings, is valid. It shows what can be done if close examination is informed by understanding of soil processes. It should also be noted that that the soil of turves in the turf stack, as well as the buried soil under another barrow in the neighbourhood, were examined at the same time, giving a view of variability of the soil of the moor.

The buried soil beneath Irton Moor Barrow III may be described as follows:

- | | |
|--------|--|
| 0-12cm | Variable, discontinuous layers, locally, where sampled for pollen analysis comprising: |
| | 1cm Black amorphous humus with some sand. |

- 4cm 7.5YR 5/2 moist, pinkish grey, 7.5YR 6/2 dry, fine sand, structureless, slightly hard, friable.
- 0.5cm Black amorphous hums
- 2cm Brown to pinkish grey, 7.5YR 6/2 moist and dry, sine sand.
- 1-4cm Black amorphous humus with some fine sand.
- 0-3cm Brown to pinkish grey, as above, with some ochreous mottling and much black staining.
- At 12cm Thin iron pan, traces only, represented in part only by staining in the soil above.
- 12-22/37cm Brown to dark yellowish brown, 7.5YR - 10YR 4/4 moist, light yellowish brown, 10YR 6/4 dry, sand to sandy loam with stones, fine granular to fine angular blocky structure, porous, soft, friable. The upper 4cm variably iron stained and strongly mottled with black concretions of manganese dioxide, the staining and concretion fading out downwards from the thin iron pan. Overall colour and texture varied by interiors of blocky peds being slightly clayier and pinker, and ped faces being yellower and sandier, this sand being almost white in the upper few centimetres. Boundary slightly merging and strongly undulating, there being areas of pinker, more clayey soil above the general level of the boundary.
- 22/37-52cm Mottled and variable in texture, with a gradual change from yellowish red, 5YR 4/6-5/6 moist, 5/6 dry, clay loam to more strongly mottled, yellowish red, 5YR 5/8, reddish brown, 4/4, and yellow brown, 10YR 5/6, moist (7.5YR-5YR, 10YR 6/4 dry), sandy clay to sandy loam, fairly firm, sticky, plastic, slightly swelling. The fine angular blocky structure is marked by the yellowish red soil in the interior, with pinker (reddish brown) fine clay lining fine pores and spreading into the fabric from them, and more sandy, browner soil adjacent to major ped faces. These associated contrasts of colour and texture increase with depth within the horizon. Boundary even, fairly sharp.
- 52-70cm Reddish brown, 5YR 4/4 moist, 7.5YR 6/4 dry, mottled with brown, 10YR 5/3 moist, 7/4 dry, with some diffuse redder areas, becoming increasingly brown, to 10YR 4/3 mottled with reddish brown, in the lower part. Texture is sand with abundant stones, the redder areas having a more clayey texture. Black concretions of manganese dioxide appear and increase with depth to a concentration about 2cm deep at the base of the horizon. Boundary even, sharp.
- 70cm + Brown to reddish brown sand, 7.5YR-5YR 4/4 moist, 7.5YR 5.5/4 dry, with abundant stones.
- pH measurements gave a steady increase from 4.4 at the top of the profile to 5.2 at the bottom.

This profile shows characteristics of an argillic soil developed from an acid brown soil or a brown podzolic soil, the illuvial clay horizon (37-52cm) being imposed upon the pre-existing colour B horizon in the form of a spread of fine colloidal material into the fabric from the fine pores of the fine granular structure, clay depletion in the upper part of the B horizon leaving ped faces sandy and pale in colour. Subsequent to the development of the illuvial clay horizon, development of its blocky structure and slight gleying resulted in some dispersion and loss of clay on structural faces. In the sandy, clay-depleted upper part of the profile, podzolisation occurred, but the podzol profile is thin and appears disturbed and eroded. There is much irregular admixture of the humic and eluvial horizons, and cobbles and pebbles protrude through the surface, so that the horizons are discontinuous, and the mor humus occurs only in pockets among the stones. The soil appears to be that of a stony, eroded heath.

Soils of the turf stack and the other buried soil, and soils in the neighbourhood today, show similar features. The illuvial clay horizon is a constant, but the depth at which it occurs varies considerably, and in places it is immediately subjacent to the humic horizons, suggesting considerable erosion. Gleying is variably expressed, but is everywhere more intense than in any of the buried profiles, and in some places has obliterated the former colour of the B horizons, giving intense mottling of yellow and grey. Where the soils are under pasture the humic horizon shows evidence of earlier cultivation, a stone free, worm sorted soil of 5cm depth having developed in the upper part of 20cm of humic, stony plough soil. The evidence of sufficient worm activity to produce a stone free layer, together with the fairly high quality of the pasture, suggests some application of fertilizer, and a pH of 5.5/6.0 in the humic soil in comparison with 5.2 in the B horizon, and values of 4.4 increasing to 5.2 at depth on the the buried profiles, tends to confirm this. The arable land around the barrows had also been improved, and traces of lime were seen in the plough soil, but the standing crop of barley appeared somewhat sparse. In contrast to the agricultural soils, in those under woodland and heathland podzolic characteristics have persisted. There is some variation in the nature of the humic horizon according to vegetation, soils under bracken a thin mor humus and those under oak, birch and rowan trees in the narrow strips of woodland which have developed alongside and over a neglected trackway having a mull form, which is well developed under birch and less so under oak and rowan. Where mor humus occurs it overlies some 24cm of moder humus, which obscures the podzol eluvial horizon, and where mull humus occurs it has developed in the upper part, up to 10cm, of the moder, suggesting that heath and woodland soils have differentiated from a more uniform soil cover.

In the heath and woodland soils traces of thin iron pan occur at the upper boundary of the illuvial clay horizon. In the buried profiles, that beneath barrow IV shows very little evidence of iron panning, there being only very slight traces of iron oxide deposition around some fine root holes, and there is no iron panning in the turf stack, whereas under barrow III there is a distinct iron pan in the profile beneath a large stone, and within and beneath the turf structure iron panning is very strongly developed. That this intense iron panning occurred subsequently to construction of the barrow is indicated by the continuity of pan around features of the barrow, such as the annular ditches and a stake hole which was observed passing down into the buried soil, and that some of the panning is quite recent is shown by its plating rabbit holes and plough furrows. The absence of this post-barrow panning in the buried soil and turf stack of barrow IV is consistent with its better drained situation, and the

nature of its curves clearly indicates that the soils of the area were quite strongly podzolised but not markedly iron panned when the barrow was built.

The history of the soils of Irton Moor may be outlined as follows:

1. Development of a brown forest soil under under the post-glacial forests.
2. Leaching, leading to the development of a brown podzolic soil. Under the rather high rainfall of the area, and on such porous and base-poor parent material this could have occurred under undisturbed forest, or it could have been the first response of the soils to loss of bases as a result of human interference with the forest.
3. Change in soil moisture regime leading to development of a sol lessivé. The dispersion of the soil colloid, its migration and flocculation further down the profile may require the alternation of intense leaching in winter and the halting of downward movement, with partial drying of the soil in summer, which would occur more markedly under open conditions than under forest in this climatic zone, and may thus imply forest clearance.
4. Concurrent with or subsequent to 3, podzolisation in the clay-depleted upper part of the soil, with superficial erosion preventing full development of podzol horizons, exposing stones at the surface and mixing humic and leached materials. It is not possible to say whether cultivation occurred and the podzolisation took place after abandonment or impoverished and eroded soils, or whether intensive grazing of the cleared land led to impoverishment of the soil and podzolisation, with erosion of the soil under degraded pasture.
5. Building of barrows.
6. Continuation of podzolisation conditions and, at some unknown time, marked increase of soil wetness, with intensification of gleying and development of iron pans.
7. Localised growth of woodland; localised cultivation.
8. Recent agricultural improvement of pasture and arable land.

Report on the Human Bone (Carole Keepax (AML) – submitted July 1973)

Fifteen small groups of cremated bones were submitted for study. Five of these (31, 33, 46, 32 and 34) consist of only a few long bone fragments, and cannot be definitely identified as human.

There is little variation in the general appearance of the bones. They are well calcined and light in colour, but there is little fissuring and distortion. This would seem to indicate that no very high temperatures were reached during cremation, although burning was very thorough. The average size of fragments is about 10-12mm squared. In most cases (particularly in 39 and 40) the broken edges are worn and eroded.

Most groups consist mainly of long bone shaft fragments and some skull vault fragments. The cranial sutures are open in all cases, except in 40 (in which some are closed), but the

thickness of the bone is comparable with that of adult individuals. In the following groups, other parts of the body are also represented:

3. Fragments of rib and orbital margin.
35. Fragments of the left jaw condyle, right zygomatic bone, and zygomatic arch.
37. 5 tooth roots (permanent teeth).
40. Fragments of orbital margin, humerus/femur head, 1 tooth root.
42. Fragments of rib, vertebra, jaw condyle (right?), middle hand phalanx, tooth root.
43. Fragments of rib, mandible.
44. Chin part of mandible.

The amount of bone submitted for study (total weight approximately 690gms.) is no more than might originate from a single cremated adult individual and indeed there is no evidence to suggest that the fragments represent more than one individual. It is not possible to estimate the age or sex of the individual (or individuals) present on the scanty evidence available.

(Unfortunately there is nothing within the documentation to locate any of these bone groups nor is it possible to determine which bone group was associated with the Food Vessel, Food Vessel Urn and cup – AMG).

Discussion (AMG)

The excavation of Irton Moor Barrow III proved it to be a modest barrow with extremely shallow and narrow encircling outer ditches, three broadly concentric kerbs and central pit.

The mound was built in an open landscape when soils were becoming podzolised and depleted. The area had seen Neolithic activity as witnessed by the laurel leaf and debitage and the Developed Carinated Bowl pottery but the nature of this activity must remain uncertain: there appears to have been no structural elements associated with this material, it does not appear to have come from a pit deposit and none of the cremated bone can be associated with any certainty. The small fragmentary nature of the ceramics and the patinated flint debitage may suggest that it is residual, possibly even discarded as part of a manuring process though arable agriculture is by no means certain at the site. The nature of the early Neolithic presence must remain enigmatic but it demonstrates a human presence in the area in the early Neolithic, probably c.3900-3500 BC in round terms. A similar ephemeral Early Neolithic presence was noted at Sawdon Moor Barrows 1 and 2 (Brewster & Finney 1995) where some Bowl sherds were incorporated into the mound material (Barrow 1) and found on the pre-barrow land surface (Barrow 2). Small Early/Middle Neolithic Bowl fragments in the Towthorpe style were also recovered from the old ground surface at Seamer Moor (Brewster & Finney 1995, 26) where an Early Neolithic pit and hearth also predated the barrow.

There is no evidence for a later Neolithic presence but instead a gap of some 2 millennia before the building of the cairn. (Although flint, pottery and bone are marked on Fig 6, the archive does not allow us to match these findspots to any of the actual finds – AMG).

During this time, the soils continue to become depleted until the cairn is constructed in the early Bronze Age associated with Food Vessel and Collared Urn ceramics lying in the soil below the cairn. Associated with a radiocarbon date (albeit derived from bulked and unidentified charcoal), this appears to have happened in the second half of the 2nd Millennium Cal BC. The Food Vessel and Collared Urn were not associated, but located in different parts of the cairn (Fig 6): the Food Vessel to the West and the Urn and Cup to the East. The vessels appear to have been incomplete when deposited and it is not certain whether either of them were directly associated with a burial. The spread of calcined bone may suggest disturbance of human remains associated with one or either of these pots but this cannot be stated with certainty from the surviving records. Whilst a Beaker presence has been noted at some barrows on the North Yorkshire Moors, it is with Food Vessels and Urns that all seven of the barrows reported by Brewster and Finney (1995) were associated and the Irton Moor Barrows IV and V were also associated with Food Vessel ceramics (Coombs 1994).

Interestingly the cup-marked stone was deposited, decorated side down, on the old ground surface in the South. It may be stretching the evidence too far but this might suggest a relationship to the cardinal points and, if so, implies solar observance as might the SW-orientated apsidal setting in the middle kerb. The re-appropriation of Galician or Atlantic rock art is common at this time as demonstrated by its reuse in single graves (Simpson & Thawley 1972). Both mobiliary art and quarried outcrop panels are incorporated into sepulchral contexts after 2200 BC, Needham's post-Fission horizon (Needham 2005) and usually have their decorated surfaces face down within the mound context or facing into the cist if used structurally as at Balbirnie in Fife (Ritchie 1974), and Witton Gilbert, Co Durham (Baker & Wright 2013). At Balbirnie, the re-use of this rock art was dated to the beginning of the 2nd quarter of the 2nd Millennium (c. 1740 – 1620 [GrA-24860 - 3335±40 BP & GrA-26151 - 3320±40 BP]) (Gibson 2011) and Witton Gilbert was also associated with a post-Fission horizon radiocarbon date of 2200-1960 cal BC (95% - 3695±40 BP, OxA-7600 [Baker & Wright 2013]). Small cup-marked stones similar in size to that from Irton Moor were found at Barrows 1 and 2 on Sawdon Moor, 8km to the West of Irton (Brewster & Finney 1995) where they formed part of the kerb at each site. A much larger stone with a large cup-mark and several satellite cups also formed part of the kerb at Hutton Buscel 2 (Brewster & Finney 1995). This was one of nine decorated stones within the kerb. At Irton Moor V a cup-marked stone of a different geology to the rest of the cairn, was found with the cups facing outwards in the NE arc of the middle kerb. This seems to contradict the earlier observation that the art was hidden from view except that it is between the middle and outermost kerbs at Irton Moor V that the majority of cairn material is located: the space between the middle and innermost kerbs being occupied by a turf stack (Coombs 1994).

This Bronze Age re-appropriation of rock art is regarded as irreverence by Waddington (1998) who discusses this phenomenon at length and argues convincingly for a change in the meaning of rock art in the Early Bronze Age. He suggests that it represents a deliberate attempt to remove some panels and art from the domain of the living to the domain of the dead.

These deposits were probably made as the kerbs were laid out. These kerbs are irregular and incomplete and, given that they protruded through the main cairn and no disturbance was noted in the areas where kerbstones are absent, it must be concluded that this was intentional as was the central open area. The kerbs are neither circular nor concentric. They are closer together in the southern arc but distance themselves from each other in the north. This might suggest sequential construction as the innermost kerb is less oval than the other two.

The innermost kerb can be regarded as a revetment as it keeps the central area stone free. The outermost kerb cannot be so regarded because it is incorporated into the body of the cairn: there is no evidence to suggest that the cairn material outside of this kerb was a later addition. It is notable that most of the finds were recovered from the area between the innermost and middle kerb suggesting that this area might have seen more intensive activity than the rest of the site footprint. The incorporation of a kerb within the cairn was also noted at Irton Moor IV (Coombs 1999).

As the middle and outermost kerbs are not structural, the deliberate partial construction may instead suggest a sequence though this sequence is difficult to interpret. The larger stones in the outermost and innermost kerbs suggest their relative importance to the original plan. The middle kerb was constructed using considerably smaller stones. This may be because they had run out of larger stones in the immediate vicinity in which case this kerb is secondary. It may also represent the staged construction of the mound marking, for example, the expected target for the first season's construction. These hypotheses must remain speculative.

There were also three kerbs at Irton Moor V (Coombs 1999). The cairn material (or rather a low rubble spread) was restricted to the area between the middle and outermost kerbs whilst the space between the middle and innermost kerbs and the central area were occupied by a turf stack. These kerbs also seem to have been intermittent, even allowing for the disturbance on the E side and, as at the present site, the middle kerb is of a different construction to the other two resembling more a low stone rubble bank than a kerb or wall.

The apsidal setting of stones in the SW arc of the middle kerb must again be seen as a deliberate feature but must once more remain enigmatic. No finds were recorded from this area and there is no mention of cremated remains from the setting. It may have been intended for a burial that never took place but its location, opening to the SW, may also have a solar implication, perhaps related to the midwinter sunset.

Even if part of the original design and concept, the cairn material was added to these kerbs though it did not quite bury them. No burials seem to have been incorporated in this phase so it may well be seen as a completion and closing of the monument. Though clearly visible in the landscape, closing the site in this case removes it from ongoing rituals and consigns the monument to the past.

The encircling ditches also remain enigmatic and their function remains elusive. Simpson searched for traces of posts or stakes but found none. Similarly, had they originally held kerb stones as, for example, at Irton Moor barrow 1 (Brewster 1973) then one would have expected traces of stone sockets or ground compression to have survived even if the stones had been removed. Their concentricity with the cairn and their shallowness suggests that

they are later than the outer kerb but broadly contemporary with each other. The space between each ditch is probably too great to result from modern ploughing around the mound. It may have been an intention of the builders to extend the cairn and these ditches may have been excavated to receive stones in a kind of upright kerb seen at Barrow 1 but if this is the case, then the project was abandoned. This is admittedly speculative and the reason for these narrow shallow trenches must remain uncertain. A single narrow and shallow encircling ditch was located at Sawdon Moor 2, some 8km to the west of Irton Moor (Brewster & Finney 1995). This, like the Irton moor ditches, had a slightly asymmetrical section with a slightly steeper side on the inside. The ditch was larger than those at Irton Moor and measured some 0.97m across at the old ground surface and some 0.3m deep. Despite its small size, it was considered the quarry ditch for the phase 3 mound. No such interpretation seems appropriate for the ephemeral outer ditches at the present site.

The final phase seems to have been to cover the mound in a layer of turf (the turf stack in SL's report above) derived from the surrounding soils and placed grass side down over the cairn. It is possible that the concentric ditches relate to this activity, especially if we envisage the turf-stripping being concentric with the cairn. This final act of construction would act as a sealing or capping to the mound: it would seal the activity and consign the monument to the past.

Irton Moor Barrow III bears comparison with the other excavated sites on the Moor in that it seems to have been a small mound covering relatively few burials and associated with Food Vessel ceramics of the Early Bronze Age.

Acknowledgements

Disentangling the remaining archive has involved a degree of detective work and interpretation. AMG is grateful to English Heritage for financing the recovery of the material and an initial archive sorting and to Nancy Simpson for her hospitality and help during the recovery. Barrie Hartwell kindly arranged access to the QUB stores. Nick Cooper (University of Leicester) and Eileen Murphy (QUB) helped locate some missing material and Katarina Becker (University of Bradford) helped repatriate some of the pottery. Randy Donahue (University of Bradford) assisted GM-S with the flint identification. The site drawings are by DDAS, re-drawn by GM-S, the flint drawings are by DDAS and GM-S, the pottery drawings are by AMG and DDAS and the photographs are by Marius Cooke (formerly of the University of Leicester). Prof Susan Limbrey (University of Birmingham) is thanked for taking the time to up-date a report that she originally wrote some considerable time ago and for shedding some extra light on the barrow sequence. Finally thanks are extended to the anonymous referee(s) who highlighted some omissions and inconsistencies in the original draft.

Bibliography

Ashmore, P. 1998. Radiocarbon Dates for Settlements, Tombs and Ceremonial Sites with Grooved Ware in Scotland, in Gibson, A. & Simpson, D. D. A. (eds) *Prehistoric Ritual & Religion*, 139–47. Stroud: Sutton Publishing.

Baker, F. & Wright, J. 2013. Excavation of a Late Neolithic Burial Site at Fulforth Farm, Witton Gilbert, County Durham. *Durham Archaeological Journal*, 2013, 1-21.

-
- Brewster, T.C.M. 1972. Irton Moor. *Archaeological Excavations 1971*. London: Dept of the Environment.
- Brewster, T.C.M. 1973. Two Bronze Age Barrows in the North Riding of Yorkshire. Excavations at Irton Moor Barrow 1 and Wykeham Forest Barrow. *Yorkshire Archaeological Journal*, 45, 55-95.
- Brewster, T.C.M. & Finney, A.E. 1995. *The Excavation of Seven Bronze Age Barrows on the Moorlands of North-East Yorkshire*. Yorkshire Archaeological Report No1. Leeds: Yorkshire Archaeological Society Prehistory Research Section.
- Burgess, C.B. 1986. 'Urnes of no Small Variety': Collared Urns reviewed. *Proceedings of the Prehistoric Society*, 52, 339-351.
- Conyngnam, A.D. Lord, 1849. Accounts of Discoveries made in Barrows near Scarborough. *Journal of the British Archaeological Association*, IV, 101 – 107.
- Coombs, D. 1994. The Excavation of Two Bronze Age Round barrows on Irton Moor, Yorkshire, 1973. *Yorkshire Archaeological Journal*, 66, 21 – 50.
- Elgee, F. 1912. The Moorlands of North- East Yorkshire. London, Hull & York: A. Brown & Sons.
- Gibson, A.M. 2004. Small but Perfectly Formed? Some Observations on the Bronze Age Cups of Scotland. In A Gibson & A. Sheridan (eds), *From Sickles to Circles: Britain and Ireland at the Time of Stonehenge.*, 270 – 288. Stroud: Tempus.
- Gibson, A.M. 2011. Dating Balbirnie: recent radiocarbon dates from the stone circle and cairn at Balbirnie, Fife, and a review of its place in the overall Balfarg/Balbirnie site sequence. *Proceedings of the Society of Antiquaries of Scotland*, 140 (2010), 51–77.
- Gibson, A.M. & Woods, A.J. 1997. *Prehistoric Pottery for the Archaeologist*. 2nd edn. Leicester: Leicester University Press.
- Kent, P. and Gaunt, G.D. 1980. *British Regional Geology: Eastern England from the Tees to the Wash*. London: HMSO.
- Longworth, I.H. 1983. The Whinny Liggate perforated wall cup and its affinities. In O'Connor, A.C. & Clarke, D.V. (eds) *From the Stone Age to the Forty Five*, 65-86. Edinburgh: John Donald.
- Longworth, I.H. 1984. *Collared urns of the Bronze Age in Great Britain and Ireland*. Cambridge: Cambridge University Press.
- Needham, S. 2005. Transforming Beaker culture in north-west Europe; processes of fusion and fission. *Proceedings of the Prehistoric Society*, 71, 171-217.
- Reimer, P. J., Bard, E., Bayliss, A., Beck, J. W., Blackwell, P. G., Bronk Ramsey, C., Grootes, P. M., Guilderson, T. P., Hafliðason, H., Hajdas, I., HattĹ, C., Heaton, T. J., Hoffmann, D. L., Hogg, A. G., Hughen, K. A., Kaiser, K. F., Kromer, B., Manning, S. W., Niu, M., Reimer, R. W., Richards, D. A., Scott, E. M., Southon, J. R., Staff, R. A., Turney, C. S. M., & van der Plicht, J., 2013. IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0-50,000 Years cal BP. *Radiocarbon*, 55(4).

Ritchie, J.N.G. 1974. Excavation at the Stone Circle and Cairn at Balbirnie, Fife. *Archaeological Journal*, 131, 1-32.

Sheridan, A. 2004. Scottish Food Vessel Chronology Revisited. In A Gibson & A. Sheridan (eds), *From Sickles to Circles: Britain and Ireland at the Time of Stonehenge.*, 243-269. Stroud: Tempus.

Simpson, D.D.A. & Coles, J. 1990. Excavations at Grandtully, Perthshire. *Proceedings of the Society of Antiquaries of Scotland*, 120, 33 – 44.

Simpson, D.D.A., Murphy, E.M. & Gregory, R.A. 2006. *Excavations at Northton, Isle of Harris*. BAR British Series 408. Oxford: Archaeopress.

Simpson, D.D.A. & Thawley, J. 1972. Single Grave Art in Britain. *Scottish Archaeological Forum*, 4, 81-104.

Waddington, C. 1998. Cup and Ring Marks in Context. *Cambridge Archaeological Journal*, 8:1, 29-54.