

Excavations at Boltby Scar Hillfort 2011

An Interim Report (draft)



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Excavations at Boltby Scar, North York Moors National Park 2011

An Interim report

Context of the excavations

Boltby Scar 'Hillfort' is situated on a west facing limestone promontory overlooking the Vale of Mowbray towards the western edge of the North Yorkshire Moors National Park, at an elevation of 320-335 metres AOD. As it survives today, the site is divided in two by a dry-stone field wall. A narrow strip about 35m wide, with surviving earthworks and some internal earthwork features, lies to the west of the field wall and is bounded to the north-west by the high cliffs which define the western limit of the promontory. A much larger area up to 60 metres wide and 130 metres in length lay to the south and east of the field wall, but was levelled on the basis of 'agricultural improvement' during 1961 despite its being a scheduled monument.

The monument had formerly contained two round barrows, one of which was also levelled in 1961, and has a long history of antiquarian and archaeological investigation which probably began in the 18th century. Boltby Scar, the two principal barrows it contained, and the Cleave Dyke were described by the Leeds based antiquarian Henry Denny in 1868. The 'oblong tumulus' described by Denny survives in the upstanding segment of the monument and, given its form, the attribution of this feature as a tumulus is in some doubt. The two barrows had clearly already been dug into before he visited the site and Greenwell who must have visited not long afterwards also identified them as disturbed and not worthy of further excavation.

"At Boltby Scar, 1,075 feet above the level of the sea, and on the summit of a steep precipice, is an indication of an oblong tumulus, and two circular ones, situated within a semicircular intrenched camp, which has been protected by a ditch, known by the name of the *Cleave Dike*, extending north and south for about two miles. These tumuli bear marks of having been previously examined, but with what success I have not been able to ascertain. From their position, however, they may probably have been the last resting-places of an early British chieftain and his family, interred within his own camp; as the site is peculiarly that of a stronghold, defended in front by the rocky declivity, and overlooking the country for many miles, by which the distant approach of any hostile force could be perceived and timely guarded against, while, by the sunken intrenchment or dike alluded to, the encampment could be equally protected from any surprise attempted by crossing the moors.

There is a peculiarity in the construction of the Cleave Dike intrenchment to which my attention has been called by Mr. Verity, which consists in its being divided by the soil left standing about a yard thick across the trench, so as to form a raised partition at every three yards. These divisions are best seen in the north part of the Training Ground, adjoining Hesketh Farm; at other parts of the dike they have been more or less obliterated by the surrounding soil falling down during centuries of exposure. For what purpose have these numerous divisions been left standing? Could they have been for the safety of separate defenders along the whole line of intrenchment, like the sunk pits or earthworks in modern warfare, to command an important position? Mr. Verity suggests " that these cavities, walled in by the continuous mound of earth on both sides, and covered with wattle-boughs, might have been the rudimentary huts of this populous Ancient British village, and with the adjoining camp and tumuli made up probably what Caesar calls their *Oppida*, which in this instance was a long one-sided street of defensive habitations; and as there are other lines of dike crossing the hills in different directions, they may indicate the jurisdiction of the various petty chieftains of the Hambleton, Kewick, and Hawnby tribes, between whom, probably, feuds would frequently take place; so that sites which are now almost deserted may have been busy scenes of savage polity in pre-Roman times."

The most significant archaeological excavations prior to the levelling were undertaken in 1938 and 1939 by G F Willmot, who examined the defences and parts of the interior of the enclosure including the two upstanding round barrows. Little detail is known regarding these excavations although a sketch plan survives (Figure 1); amongst Willmot's finds a pair of gold 'basket earrings' or hair loops of Early Bronze age date found 'on the old turf line beneath the rampart' survive in the British Museum (Figure 7).

There is some confusion regarding the description of the barrows examined by Willmot; his description of a barrow excavated in 1938 comprising a small mound covering 'a circle of stones set at intervals, in the centre of which was a primary cremation in a large cinerary urn set upright in a hole in the old ground surface', seems to relate to the small barrow that was removed by the bulldozer in 1961 and identified in his sketch plan as Barrow 1 (Figure 1). This barrow, despite being severely truncated, was identified during the 2011 excavations. The mound had clearly been cut through by a number of trenches and a small pit cut through the buried turfline probably represents the pit containing the Collared Urn noted by Willmot. Although there was an arc of small stones around part of the perimeter it does not seem to match his description; it may of course have been totally removed when the monument was levelled. The second and still upstanding barrow (Barrow 2 in Willmot's sketch plan) examined by Willmot the following year clearly did incorporate a circle of large stones placed upon a ring of pebbles, which was not noted in Willmot's report. Willmot's activities here included cutting a single trench right through the barrow from South-East to North-West, during which it appears that the stone ring, which was a substantial component of the early phases of the monument's development, was removed, perhaps initially unnoticed on the eastern side of the monument but left substantially in-tact on the western side of the monument. A visitor to the 2011 excavations remembered seeing Willmot's trench as a child and described seeing the trench which was cut through the mound from the Eastern side of the mound with finds displayed 'on shelves' in the section.

The description by Willmot of the defences of the promontory fort as having a stone rampart was later modified to reflect a view that the rampart comprised largely of the upcast from the ditch rather than a stone faced rampart of the sort identified by Blaise Vyner at the similarly sized promontory fort of Eston Nab, Cleveland. Willmot records the presence of a hearth in the ditch in Cut 1, which is also considered the location of the gold hair loops (Figure 1), it is most likely that these accompanied a burial which had not survived the aggressive environmental conditions that prevail at Boltby. The poor match between the Willmot sketch plan and the detailed modern survey by English heritage, particularly in the southern part of the site means that the location of the Willmot trenches identified in the sketch plan cannot be relied upon; air photographs taken in 2011 do however appear to show the location of Willmot's Cut 1 (Figure 1).

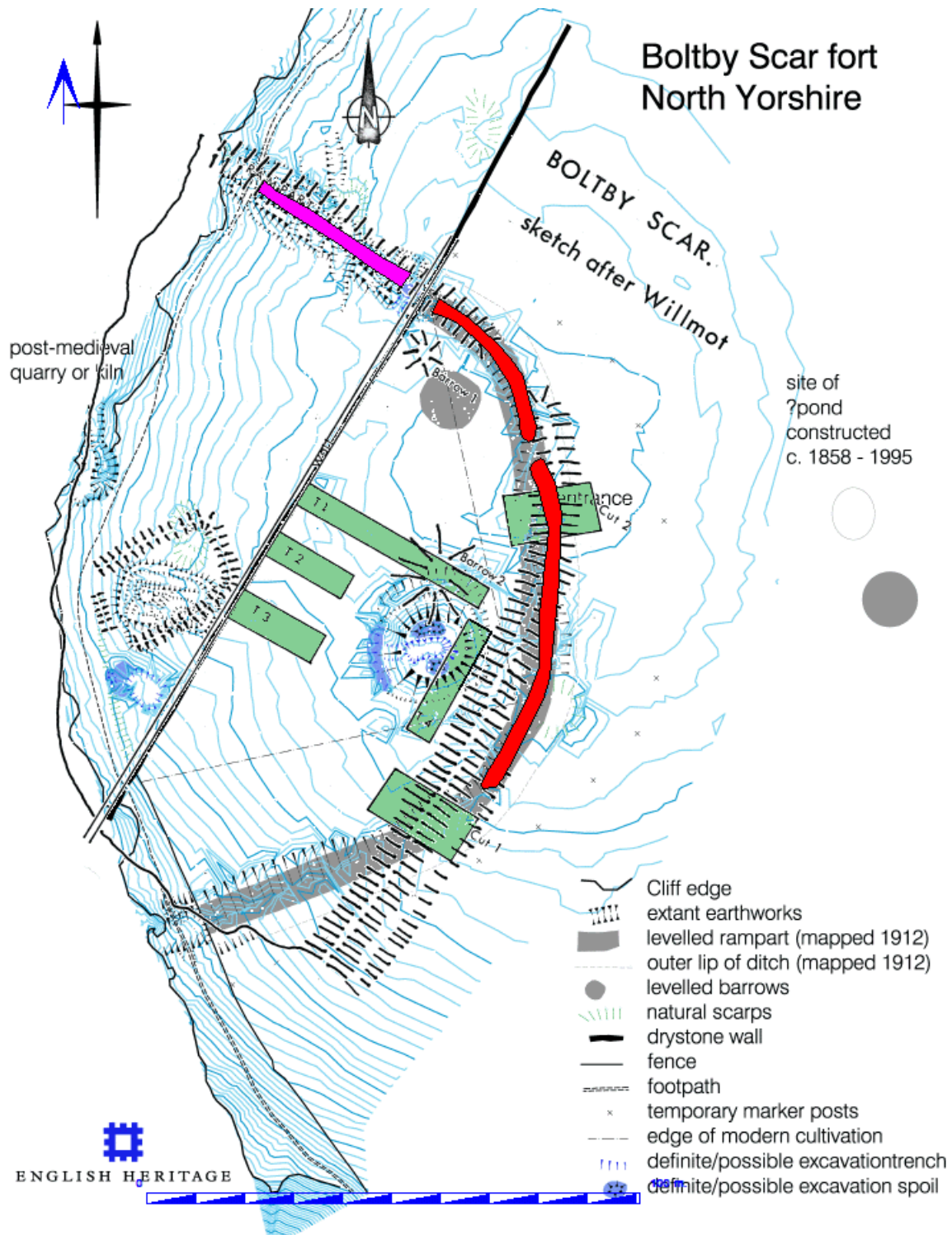


Figure 1: The Willmot sketch plan and defensive ditch as identified through geophysical survey superimposed with a best fit on a recent high precision topographic survey carried out by Alastair Oswald of English Heritage.

A new programme of archaeological research was initiated in 2009 through collaboration between the North York Moors National Park and the Landscape Research Centre. The initial excavations were designed to assess the degree of damage resulting from the 1961 levelling, to assess the potential for the recovery of environmental evidence, to secure dating evidence and identify the potential for re-establishing the monument as a more visible component in the landscape where it was levelled and thus enhance visitor appreciation of the monuments position

in the landscape. The excavations were undertaken within the HLF/EH/NYMNP funded Lime and Ice Project designed to enhance public understanding of and engagement in the archaeology of the National Park through a volunteer supported research excavation programme.



Figure 2: View across the entrance to the Hillfort taken from on top of the surviving earthworks in 1958 with local archaeologist Tony Pacitto standing on the edge of the ditch.

It had initially been thought that the scale of the bulldozed earthworks, shown in archive photographs taken in 1958 (Figure 2), were rather larger than we now know to be the case, and that the 1961 backfill of the ditch might easily be removed to re-establish a bank reflecting the location and scale of the monument. The 1961 levelling of the earthworks included the truncation of large areas of the old ground surface in the interior which had subsequently been further damaged by ploughing. Although the monument had been severely damaged by the levelling event, the filling in of the top of the ditch had sealed peat deposits which had formed in the ditch long after the Hillfort had been built. This preserved environmental evidence gives a detailed picture of the changing landscape from the 5th to 10th centuries AD. The 2009 excavations were limited in scale but showed that despite the combined damage by bulldozer and plough there was still much that could potentially be learned through further excavation. A geophysical survey undertaken as part of the research undertaken in 2009 revealed the location of the entrance recorded in the 1958 photographs and this was partly exposed in order to examine the ditch on the western side of the entrance as well as ditch sections on the eastern and southern parts of the defences. On the eastern side, part of the old ground surface had survived the bulldozer damage where it appears the bulldozing had been less aggressive, perhaps in order to avoid damaging the still upstanding barrow.

It was not possible to resume excavation in 2010 but an extensive programme of excavation was undertaken during May and June of 2011. This was altogether a much larger excavation than had been possible in 2009, on account of

the addition of 30 York university first year undergraduates who joined the core National Park Volunteer group for 14 days of training excavation.

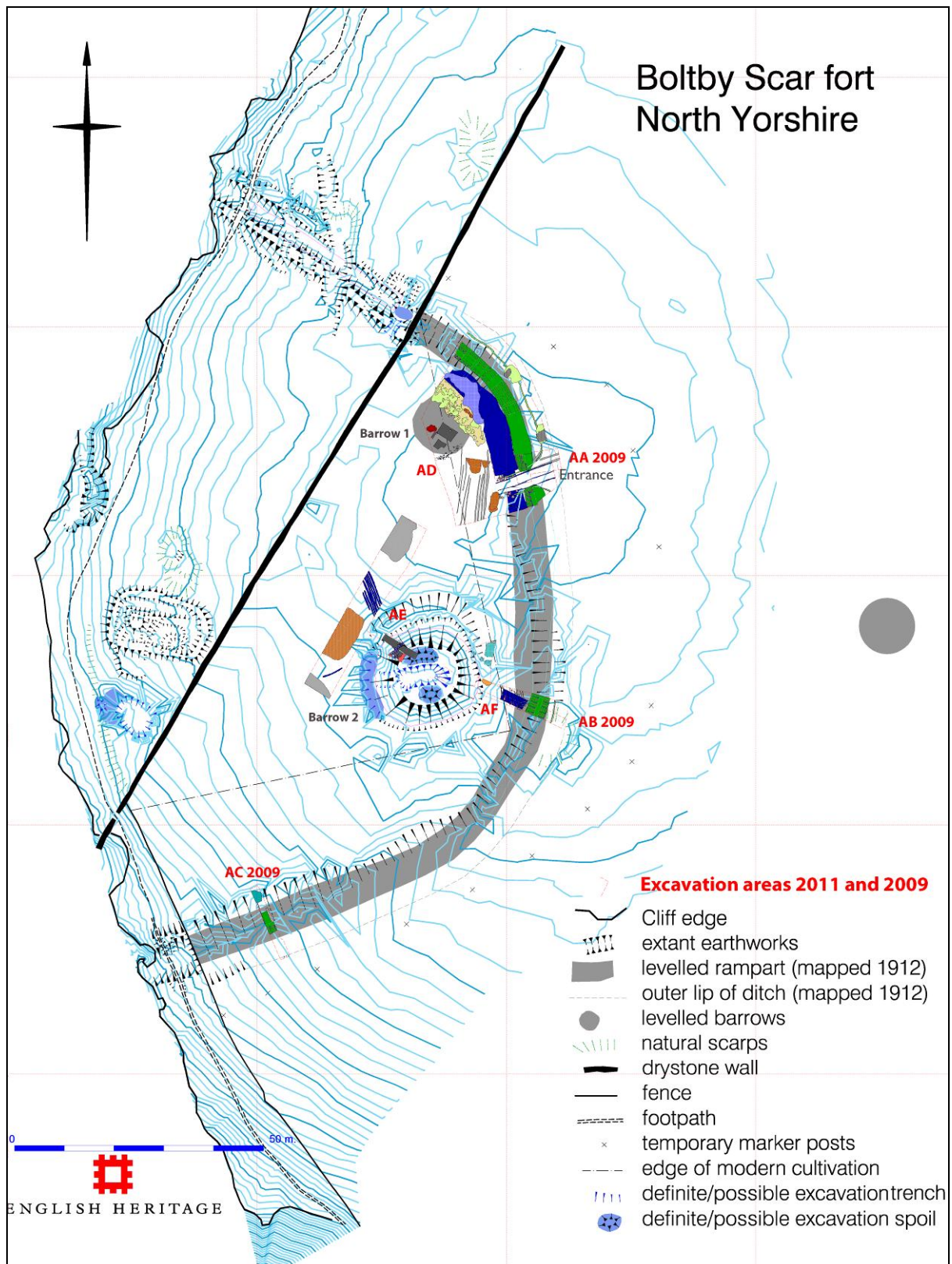


Figure 3: Plan of Boltby Scar Hillfort showing the locations of the 2009 and 2011 trenches overlaying the English Heritage topographic survey.

Objectives

In the knowledge that we would have a larger work force three principal objectives were identified for excavation: (1) the examination of a large area incorporating the entrance a 35m length of the defences and the supposed location of the smaller Middle Bronze Age barrow examined by Willmot (Area AD); (2) a 40m x 7m area in the interior where it was unclear whether the site had been bulldozed and parts of the larger and still extant barrow situated just inside the rampart on the eastern side of the monument (Area AE); and (3) the examination of the barrow was primarily concerned with trying to recover environmental evidence and dating material, this included cutting into the upstanding mound from the east by extending the trench opened in 2009 (Area AF) and western sides with a new cutting from the western side of the mound (Area AE). For trench locations see Figure 3.

Examination of Barrow 2

The upstanding barrow, identified in Willmot's sketch plan as Barrow 2, measuring some 20m in diameter and still standing a little over 1.5m is situated just inside the line of the defences of the Hillfort on the eastern side. Boltby Scar Barrow 2 is like many of the large upstanding round barrows that stand out in the landscape around Boltby Scar. The shallow dome with a dished impression left by antiquarian investigators who probably devoted no more than a day or two with a large workforce to dig a hole in the centre in the hope of finding the grave goods, pottery, worked flint knives or in exceptional cases jet necklaces or Early Bronze Age metalwork. The robbing pits were either left open or only partially backfilled and the spoil heaps around the mound extended and flattened the profile of the surviving mound, as is the case in Barrow 2 which has clearly visible dumps of spoil against the southern side.

When investigated prior to excavation a number of large and irregular stones were observed both in the central depression and elsewhere on the surface of the mound. There was no obvious sign of the location of Willmot's trench, which we were later to learn, must have been backfilled very carefully to re-establish the shape of the robbed mound where it went through the centre of the monument. A JCB with a back-actor and ditching blade was used to strip the turf from the mound in a trench measuring c. 3x2m, on the western side of the mound. When setting up the trench a number of large limestone fragments were observed in the mound and so the trench was re-located to avoid these. As the trench was cleaned, following the removal of the turf, a cut was observed a couple of centimetres inside the northern section of the trench which it was realised was the southern edge of Willmot's backfilled trench, the limestone fragments observed had been in Willmot's backfill. Following discussions with Keith Emerick (English Heritage) and Graham Lee (National Park Archaeologist) it was agreed that the Willmot trench should be emptied at this point to enable us to examine the sections and see what he had left intact. The identification of a pre-Willmot robbing trench in the western side of the mound, quite independent of the central robbing pit, was partly examined by extending the initial trench to the south of the Willmot trench a further two metres into the mound. On the eastern side of the mound the Willmot trench followed the line of the 2009 trench and here again some five metres of the Willmot trench was emptied by hand.

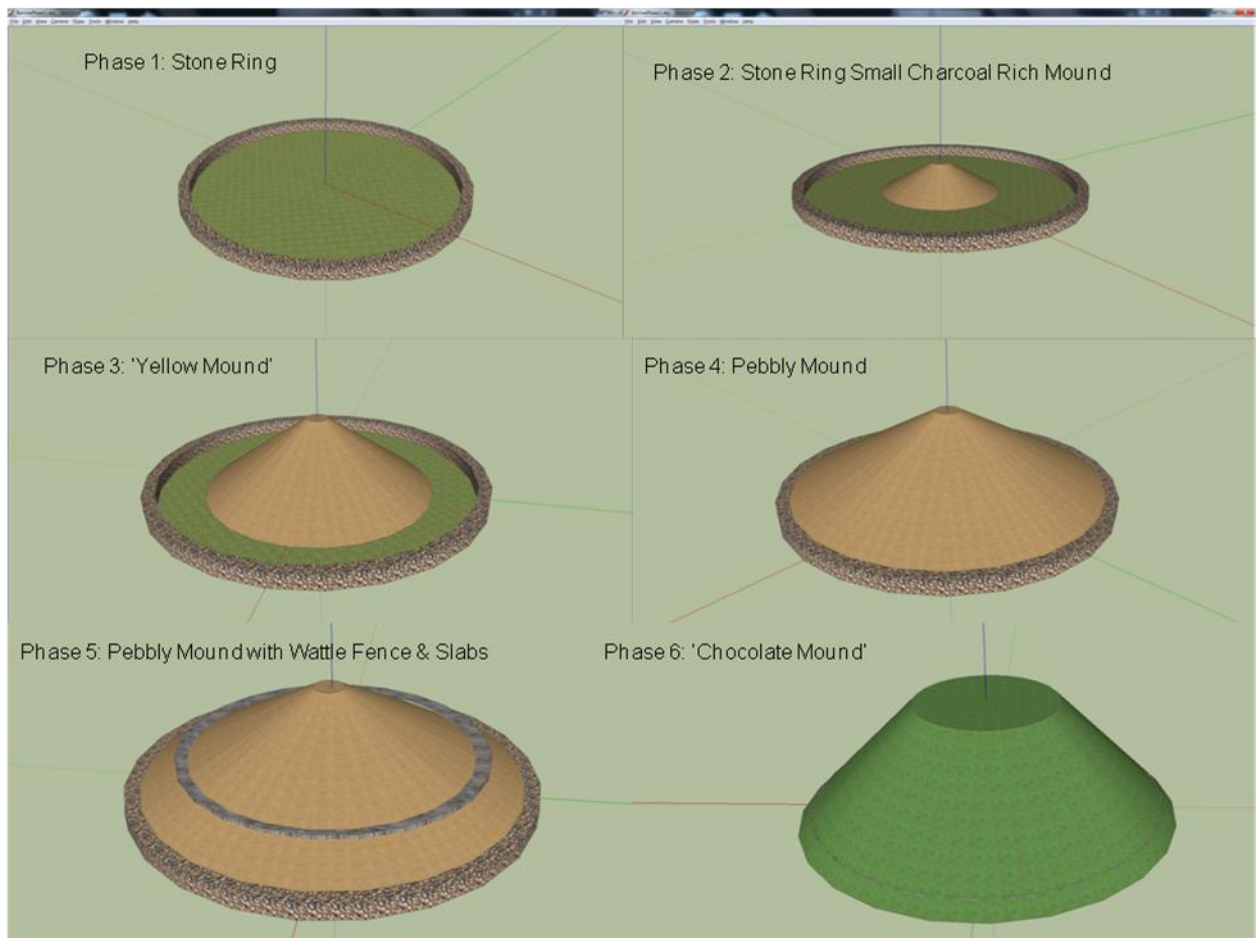


Figure 4: Basic development phases for The Boltby Scar Early Bronze Age barrow

The examination of the sections of Willmot's trench both in the western and eastern half of the mound, and the small trench excavated on the western side of the mound revealed a long and complex history of both construction and robbing. This is particularly important since often we only have the opportunity to examine monuments of this type which have been truncated by agriculture. It would not be unreasonable to see the sequence of the Boltby Barrow as representative of the many upstanding barrows surviving on the North York Moors and indeed the many others that have been lost due to erosion and agriculture over the last 3000 years.

Figure 6 shows a 3D point-cloud generated using the ARC3D Webservice as part of ongoing experiments in the application of digital photography for creating 3D models of archaeological deposits during excavation. It allows us to view the excavated trench AE from a viewpoint not possible during the excavation and although the point-cloud lacks the detail recorded in the photographs it enhances the conventional drawn and photographic record by allowing us to view the trench from any position using 3D viewing software.

Despite the large number of robbing events, three of which could clearly be identified in plan and in section during the excavation, evidence survived which allowed us to identify six potential construction phases; with such a limited amount of excavation it is not entirely clear whether the two phases 1 and 2 were separate events or part of the same sequence.

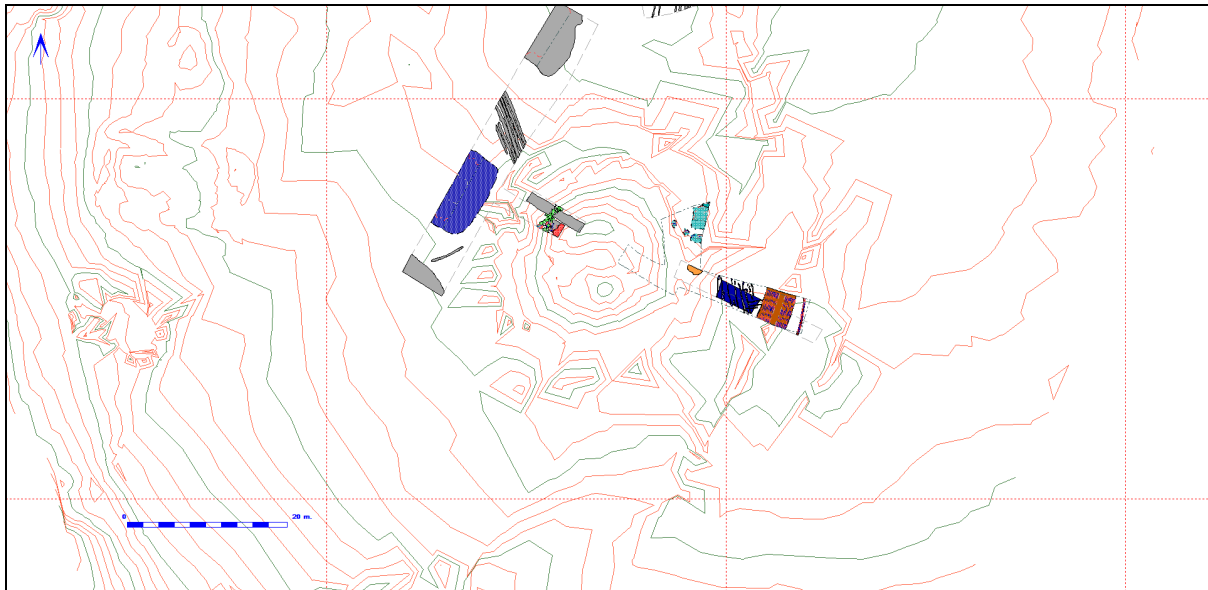


Figure 5: Contour Plan showing the upstanding Barrow and 2011 archaeological trenches at Boltby Scar

Phase 1: The Stone Ring

Although Willmot had removed the evidence for the stone ring identified on the western side of the monument, on the eastern side evidence surviving in section and some large limestone fragments in the backfill indicate that the stone ring had been there. It appears that the first phase of activity included the definition of a burial area using a ring of large but irregular blocks of limestone laid on a bed of smaller pebbles. The exact form of the stone ring when established was not entirely clear as it appears that the ring was disturbed during the final phase of development when it was sealed by a thick layer of clean silty clay soil (described on site as the 'chocolate mound'). In addition a number of the larger limestone blocks were out of position. These perhaps represent a deliberate or ritual act of closure or destruction. This was clear from the distribution of burning on a number of the stones which must have been ex-situ when they were buried. Without further evidence upon which to interpret the nature of the stone ring we have assumed that this may have defined an open area used initially for a flat cemetery.

A single burnt post-hole situated c.50cm outside the stone ring and extending back into the excavated section, contained considerable quantities of charcoal in what appeared to be the post-pipe of post c.25cm in diameter which had been held in position by stone packing and had been burnt in situ. Burning around the post-hole and particularly on a number of the stones in the stone ring suggests that the burning was considerable and it is possible that this relates to some sort of funeral pyre structure. The distribution of the burning on the stones of the ring confirms that these were not in situ and that they may have been disturbed during the final phase (6) of the development of the barrow.

Phase 2: The charcoal rich mound

Despite the many intrusions which had cut into the monument at relatively recent dates, it appeared, from evidence visible in the undisturbed north facing section of trench AE (towards the centre of the monument), that

the first made mound occupied only the central area within the stone ring. This mound appeared to have been built using turfs that were filled with large amounts of charred material. A radiocarbon sample from this material returned a date of 1920-1730BC (94.4%). One assumes that this mound covered one or more burials, although within such small excavations, largely comprising the removal of earlier excavator's backfill, it should not be surprising that this was not confirmed through observation. The distinctive charcoal rich and highly compacted material that seems to have formed the body of the Phase 2 mound was very distinctive and hard, with lumps observed in the backfill of Willmot's trench during excavation, it was also observed in the sections of trench AF (where again it was constrained towards the centre of the monument). It was not possible to properly assess the scale of this mound, which was truncated by later intrusions and extended into the unexcavated part of the monument. As it was not possible within the resources available, to remove all of Willmot's backfill and the central section of his trench measuring c.5.9m was left unexcavated. On the basis of the observed sections the mound may have covered an area 8-9 metres in diameter and had a height of not much more than a metre.

The turf used to create this mound was filled with carbonised material (both charcoal and carbonised Hazelnut shells). The turf may have been stripped from the surface within the stone ring as here the thickness of the buried soil indicating the original land-surface was truncated and observed in section was only c.2cm thick. The presence of carbonised Hazelnut shells in the turf is important as these are an indicator of domestic activity from the Mesolithic period until the Bronze Age. Although the Neolithic period from c.5000BC to 2500BC is the period when settled agriculture is introduced hunting and gathering remained a key part of the food economy within which Hazel nuts remained an important food source. The carbonised shells which survive remarkably well in the soil result from burning when the gathered nuts were dried for storage. Whilst this evidence is important as it shows there must have been some domestic activity on the top of the hill at an early date we have to be slightly cautious about the relationship of the date of this deposit and the construction of the mound; that said the radiocarbon date returned is quite consistent with what we might have expected from a round barrow of this type.

Phase 3: The Yellow Mound

The charcoal rich turf mound was covered with a thick deposit of much cleaner yellow brown clayey silt, the lack of intermixing suggests that this represents a separate phase of construction with a free-standing mound created which did not extend as far as the stone ring leaving a gap of 1-2 metres between the edge mound and the stone ring.

Phase 4: The Pebbly mound

The phase 4 mound, sealed the earlier phase 3 mound and extended as far as the stone ring. Comprising very clean silty soils this was clearly defined by a thin layer of pebbles on its surface, a feature observed in both the excavated trenches. It is assumed this pebbly surface is the result of erosion of the surface of the earthen mound in which the silts were eroded by wind and rain leaving the pebbles exposed and concentrated on the surface. This effect was clearly visible in areas of topsoil that were exposed during the excavation around the excavated trenches.

Phase 5: A decorative screen

Phase 5 represents an unusual feature of this barrow, in which a narrow v-shaped slot was cut into the surface of the pebbly mound just inside the line of the stone ring. This slot appears to have contained a wattle fence, with stake-holes observed in the old ground-surface beneath the line of the slot. More intriguing was the presence of a number of flat weathered limestone slabs which from their position seemed to have originally been placed vertically against the wattle fence. This limestone is not available from the area of the hill fort itself but closely matches the material into which the Cleave Dyke pit-alignment was cut some 400 metres to the south-east of Boltby Scar. If we have interpreted the evidence correctly this phase would have left the mound bounded at the base by the stone ring with the fence and ring of upright white limestone slabs appearing from the distance to sit on the top of the stone ring, above any long grass growing around the mound and clearly visible from a considerable distance. The details of this arrangement and whether it represents a burial phase or purely decorative phase amplifying the established monument as a landscape feature could only be understood with far more extensive excavation.

Phase 6: The 'chocolate' mound

In the final phase of development the whole mound and the stone ring were buried beneath a thick layer of remarkably clean fine silty soils, (hence the description as the 'chocolate' mound). This silty material whilst not available in the area immediately around the mound, (where the soils are far more stony), occurs in patches nearby and a potential source was mentioned by the landowner within 50 metres of the mound. In contrast with the activity related to phase 5 - which appears to relate to amplifying the visibility of the mound, the final phase activity, which includes demolishing the limestone slab 'fence' may relate to 'closing' the monument, diminishing its visibility at the same time as increasing the scale of the mound.

The Life of the Barrow

Given the very limited extent of excavation of undisturbed deposits the story that has emerged is of a monument that developed, probably over hundreds of years, starting life in the early Bronze Age shortly after 2000BC. Fragments of Beaker and Food Vessel pottery incorporated in the turf/soil used to construct the mound and the backfill of one of the early robbing trenches indicate that the monument continued to be used for burial until c.1800BC at the earliest. Apart from the depression in the centre of the mound and the partially excavated intrusion examined in trench 517AE on the western side of the mound late intrusions could clearly be seen in the sections of Willmot's trench on the west and eastern side of the Barrow (Figure 8, Figure 9, Figure 10, Figure 12, Figure 13)

Barrow 1

In contrast with Barrow 2, Willmot's Barrow 1 was extensively excavated by Willmot and then effectively completely removed when the site was levelled (for the location of Barrow 1 see Figure 25). Although there was only limited evidence left, the excavation did expose the base of Willmot's trenches, and the location of an excavated pit which was probably the location of the Urn he extracted. A few tiny fragments of cremated bone, too small to retrieve, were observed, as well as quantities of charcoal associated with the truncated old ground surface which may relate

to Willmot's description of a charcoal spread beneath the mound. A very small fragment, probably from a collared urn was recovered but no other finds relating to the use of the barrow. A concentration of small stones in an arc on the eastern side of the mound may have been all that was left of the ring of stones described by Willmot, but given the small scale of the stones this seems unlikely, they may simply have reflected material that had been eroded from the mound. Assuming that the pit that had held the pot was central in the mound the barrow had been originally about 10 metres in diameter.



Figure 6: Image of 3D scan viewed from the north-west generated from photographs using the ARC3D Webservice

A probable burial

The gold hair-loops described by Willmot as being underneath the rampart are unlikely to be the result of casual loss or as he indicated deliberate placement beneath the rampart. A far more likely source for these is a burial which was not identified during excavation. They are significant because they are of a type now precisely dated following the discovery of a pair with the recently excavated 'Amesbury Archer' (and a second pair from another grave nearby) which have been dated to 2400-2200BC. The dates for the two Amesbury burials are consistent with an early Beaker period date and would make them broadly contemporary with a fragment of Bell Beaker incorporated in the turf on the old ground surface underlying Barrow 2. The inference is that the burial tradition at Boltby goes back to the very beginnings of the Bronze Age, and it is possible that the stone ring defining Barrow 2 could be this early.



Figure 7: A pair of gold basket ear-rings or more likely hair loops recovered during G F Willmot's excavations in 1939 (Image © The Trustees of the British Museum Registration number: 1940,0404.2)

Barrows in the landscape

As an example of one of the many Early Bronze Age Barrows that feature in the landscape in the western part of the North York Moors National Park, it is unlikely that the complex story of the development over time of Boltby Scar Barrow 2 is in any way exceptional. Despite considerable later disturbance the construction sequence has remained visible in the archaeological record within what is left of the upstanding mound. Had the barrow suffered the fate of most of the barrows in the landscape and been levelled by agriculture it is unlikely that the sequence would have remained readable in the ground and features such as the phase 5 fence with standing slabs could not have been recognised. The upstanding barrows that remain a feature of the landscape to the north and south of Boltby Scar are most likely to have similar development stories as well as similar stories of antiquarian and later robbing. In the case of the Boltby Scar barrow, a number of robbing events were clearly visible showing that quite apart from the massive hole dug into the centre of the mound, others had been dug into the sides prior to Willmot's trench being cut through the centre. The activity of the various antiquarian excavators, which has left all the upstanding mounds with large dents in the tops of the mounds is also an important story, a story which would be exceptionally difficult to understand in the case of ploughed out monuments. The robbing of the mounds has of course in many cases removed the burial evidence and grave goods that would allow us to investigate the people buried in the mounds, and sadly in most cases the material recovered during these investigations has subsequently been lost as appears to be the case at Boltby. The story however is no less important than that related to the construction of the

monuments as it reflects the beginnings of archaeology as a subject driven initially towards the recovery of 'things' rather than the human and environmental story that we seek today. The barrows that we see in the landscape today are those which for some reason or other, primarily by chance, have survived as visible features, we know of a number that were levelled through 'land improvement' schemes and modern agriculture. In contrast with barrow building traditions on the Yorkshire Wolds and in the Vale of Pickering where the mounds were usually bounded by ditches which provided a source of material for constructing the mound this is frequently not the case on the north Yorkshire Moors. The lack of encircling ditches in the two barrows from Boltby, the barrows near the Cleave Dyke and we assume many others, means that these monuments once ploughed flat are not visible from the air as crop-marks, and thus we need to be careful to remember there were probably many more that are now completely lost.

The location of these large earthen monuments has in the past been taken as an indicator of the 'wealth' or 'status' of the buried individuals. This interpretation is largely based around concepts of visibility within the landscape with barrows placed on the horizon. This interpretation is now is considered to be less likely. In the case of the barrows on the edge of the moors at and around Boltby it is far more likely to reflect the positioning of barrows along a long-distance ridge-way. The prehistoric ridge-ways, like that which is later defined by the creation of the Cleave Dyke, defines the eastern boundary of a major north-south ridge-way following the edge of the moors. These were the principal prehistoric routes across the landscape which give commanding views across the landscape and are thus more secure than lowland routes where visibility was often poor. The long periods of use of barrows like Boltby Barrow 2 are less likely to reflect the burial of single important individuals than their use as family or extended family burial monuments over several generations. In this case this is best seen through the multiple phases in the physical form of the monument. There is a temptation to view the barrows at Boltby as deliberately contained within the Hillfort; this should be avoided - the barrows were simply there already. It is possible that Barrow 2 may have provided the base for a lookout tower or been used as such; any evidence to test this idea was almost certainly destroyed when the central robbing pit was dug.

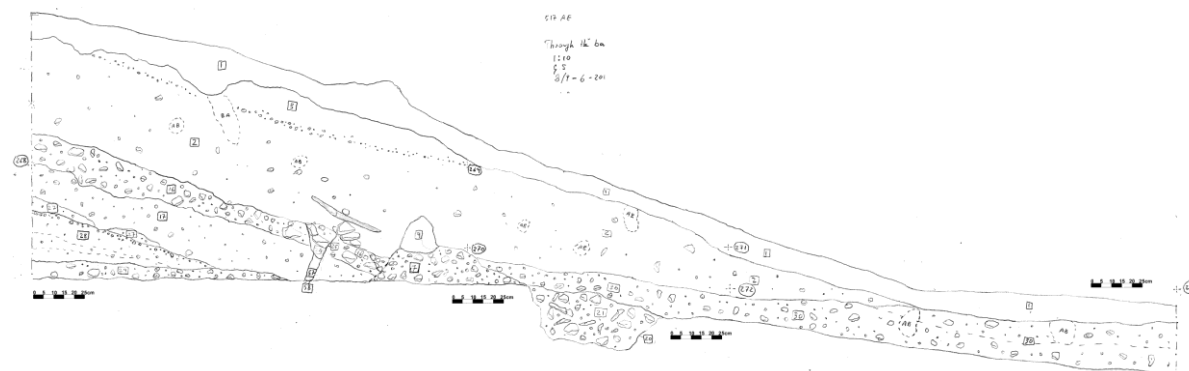


Figure 8: North-east facing section of Trench 517AE (Barrow Mound)

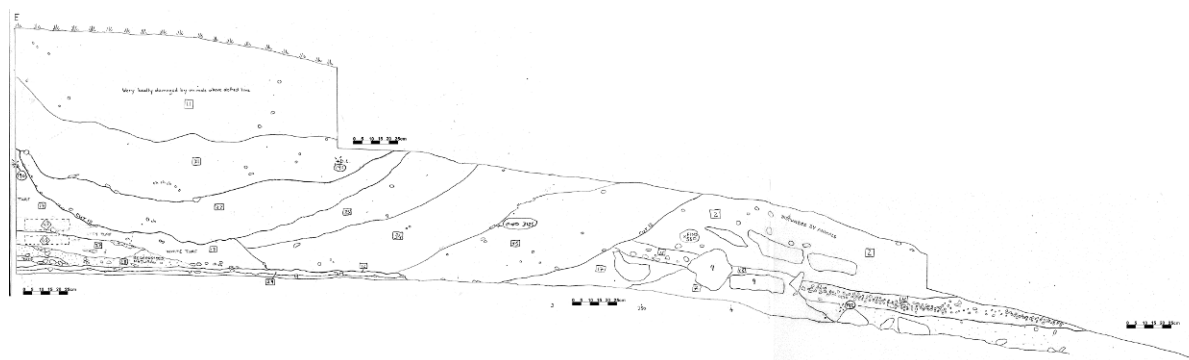


Figure 9: North-east facing section of Willmot's trench through Barrow 2 (517AE)

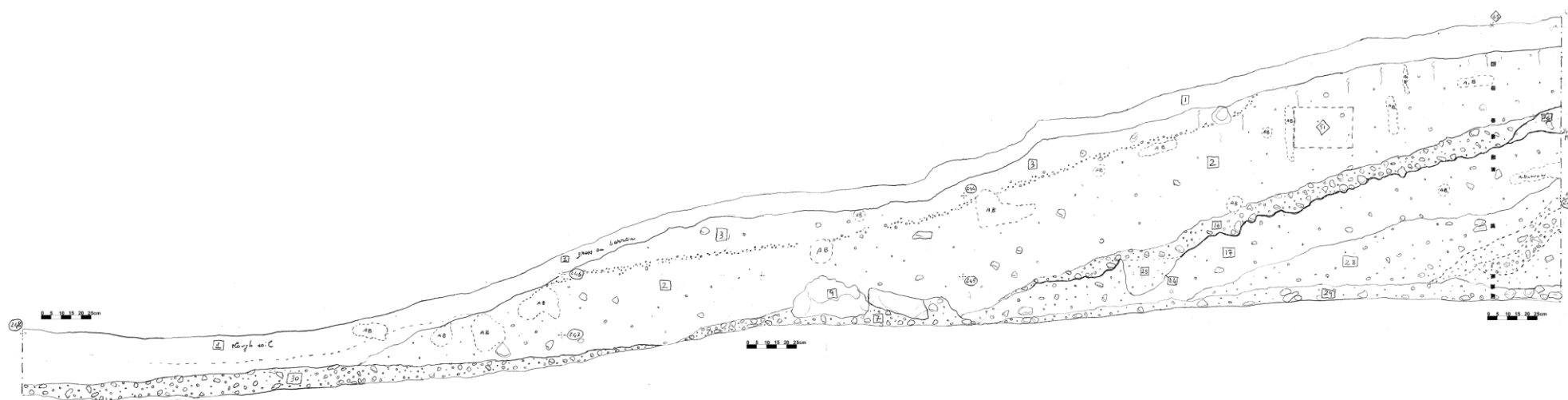


Figure 10: South-west facing section of Willmot's trench through Barrow 2 (trench 517AE)



Figure 11: 3D Image showing the stone ring on the western side of Barrow 2 (trench 517AE) viewed from above (Image generated using the ARC3d Webservice)

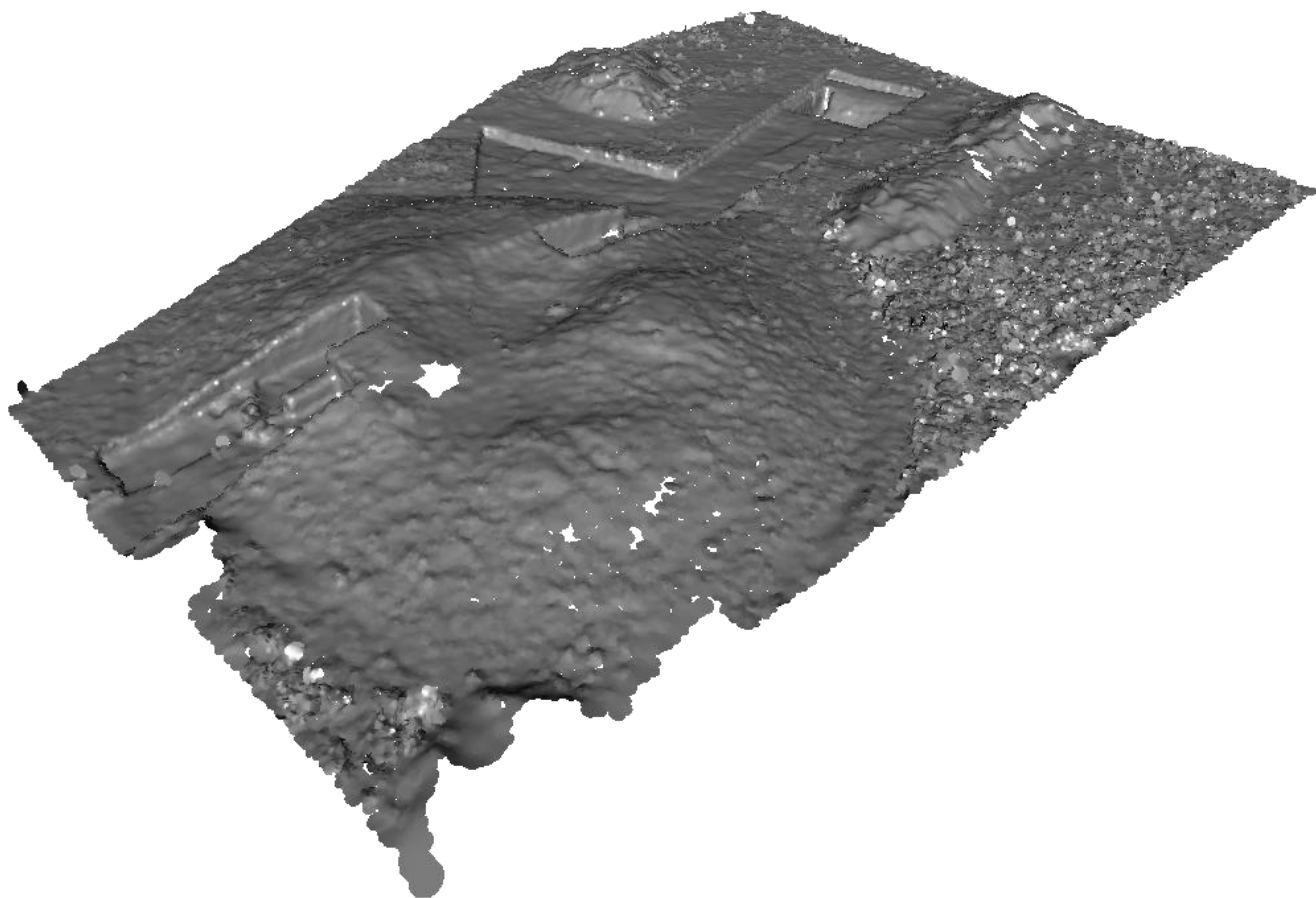


Figure 14: 3D model showing Boltby Scar Barrow 2 constructed using a sample of a high resolution laser scan carried out using a Leica High definition Laser Scanner, note the depression in the top of the mound.



Figure 15: Bronze Age ceramics from Boltby Scar: from left to right a Late Bronze Age sherd decorated with finger-nail impressions from the Hillfort entrance, two Early Bronze Age Beaker sherds and a sherd from a Food Vessel.

Investigation of the Hillfort

The results of the very limited sampling undertaken in 2009 when a small area on one side of the entrance was opened and two ditch sections (areas 517AA, AB and AC) indicated that the ramparts and much of the interior of the Hillfort had been severely truncated or entirely removed in 1961. It was decided to open two much larger areas, Area 517AD was designed to fully investigate the entrance a long length c.45m of the ditch and line of the rampart, to locate the removed Barrow 1, and an area behind the ramparts where any occupation evidence might reasonably be located.

Area 517AE, the interior of the Hillfort

A second area 517AE to the west of Barrow 2 was opened to investigate whether the levelling had covered the area between the barrow and the field wall which divides the remaining upstanding part of the Hillfort on the cliff edge and the main body of the monument. Area 517Ae comprised a trench some 38x6m in area and the small extension trench into Barrow 2. It was realised following stripping of the ploughsoil and cleaning of the main open area that this area had been truncated by the bulldozer and subsequently by ploughing, with the exception of one or two worked flints no finds or features indicative of domestic or other structures were identified. It is just possible that with a very considerable investment of time and labour that some features could have been isolated. Observation over several weeks following rain did not reveal any features as drying marks and indeed the location of Willmot's trenches known to cross the area did not survive as clearly visible features. The excavation strategy at the outset was to open two large areas and then excavate in response to what was found, although area 517AE was positioned on a relatively level surface within the centre of the monument the lack of any evidence was good justification to abandon activity in this area in favour of area 517AD where most of the work was undertaken.



Figure 16: Plan of Boltby Scar Area 517AD overlain on a part of a rectified aerial photograph

Area 517AD, The entrance of the Hillfort, ditch and rampart

Excavation in area 517AD was designed to investigate the entrance, the defensive ditch and any evidence that would allow the structure of the rampart to be studied. An area of the interior exposed to precisely locate Barrow 1

and the interior of the Hillfort, behind the defences which might have evidence of domestic activity. Information from the geophysical survey indicates only a single entrance to the Hillfort on the north-eastern side. Excavation in this area in 2009 was limited, bisecting the entrance and restricted to a linear half section of the ditch terminal on the western side. No trace of any surviving metalled surface could be found in the entranceway and although the ditch incorporated an extraordinary sequence of peats in the upper fills it was not possible to excavate it to its full depth in the limited space of the half section as excavated. The entrance and a 36 metre length of the ditch was exposed by JCB using a straight edged back actor blade, the trench was extended behind the entrance and the rampart to cover an area with maximum dimensions of 37 x 22m (Figure 16). It was immediately clear that the area inside the entrance had been very badly damaged by the bulldozer, which had left 15cm deep slots where the tracks had sunk into ground which must have been very wet when the levelling took place. Modern material such as cartridge caps confirmed the recent date of these slots, which were concentrated in the area just inside the Hillfort entrance (Figure 25).

The ditch showed clearly on exposure with the central part of the ditch filled with 1961 backfill surrounded by a peat halo, this had been interpreted in 2009 as an indicator of the level of truncation that occurred when the monument was levelled. It later became clear that this could be explained through an alternative and more significant interpretation. The level of damage was not at all uniform with the most damaged confined to the area inside the entrance. In the north-western part of the trench it first appeared that the old ground surface and turf beneath the rampart had been completely removed by the bulldozer, however as the excavation progressed it was realised that the clean 'natural' exposed here was part of the rampart body that had sunk into a Gryke, a crack in the underlying limestone geology.

The rampart had been up to 5m wide, fronted with a ditch with a maximum width of just over 3m and a depth of 1.5m (to the stripped surface) at the entrance, reducing to a depth of not much more than a metre away from the entrance. More importantly the rampart and ditch were preceded by an earlier monument comprising a palisaded enclosure with closely set stone packed posts in a narrow slot or palisade trench (c.25cm wide and up to 35cm deep) with the entrance maintained when the palisade was replaced by the rampart and ditch (Figure 17).



Figure 17: Part of the palisade trench during excavation showing the stone packing rammed in between the posts to secure them in position.

A series of timbers set in post holes inside the entrance may have provided the uprights for timber shuttering retaining the rampart to either side of a timber gateway; no evidence could be found for additional timbering along the line of the rampart. A collapsed segment of the rampart where it had sunk into the Gryke revealed that the rampart had been fronted by a stack of turf, which seems to have been set at a slight angle (Figure 18, Figure 19).



Figure 18: The collapsed turf stack at the front of the rampart during excavation.



Figure 19: The old ground-surface beneath the rampart and layers of collapsed turf (dark organic layers overlaying leached silty soils) where the rampart revetting had slumped forward.

There was no evidence of turf revetting at the back of the rampart although large irregular stones had been placed at the base along the inside edge, these may have reduced the tendency of the rampart to slip or erode within the fort. The turf revetting indicated that there had been a narrow berm between the rampart and ditch, outside the

ditch a low counter-scarp bank can be identified in the area to the west of the field boundary wall, where the monument remains as a standing feature. It was the presence of this counter-scarp bank that had allowed the peat to develop contained between the two banks and rising to a height higher than the general ground level. This gave rise to the visible halo effect in the ditch as exposed. In two small areas eroded patches of small pebbles which had filled former depressions may have been surviving fragments of the base of the counterscarp bank in which the pebbles may have been eroded either by animal activity or simply as a consequence of rain weathering an exposed area. Critically in both these areas the pebble 'surfaces' sealed the palisade slot beneath, confirming that this enclosure pre-dated the larger Hillfort. The lack of any evidence of turf revetting at the back of the rampart suggests that the rampart comprised a dump of material against the sloping turf face and that it is likely that it tailed gradually off in the interior of the fort, we can assume that some sort of timber palisade was set into the top of the rampart but any evidence for this had long been lost; even in the area of upstanding rampart it is likely that erosion will have removed any evidence for the palisade of the top of the rampart. It is difficult to estimate the scale of the rampart structure as built, but given the scale of the ditch and internal quarry pits a bank rising between 2.5 and 3 metres with a 1.5m high palisade on the top would have formed a formidable set of defences.

We remain uncertain as to whether there was only one entrance to the Hillfort as the southern part of the Hillfort defences did not show well in the geophysical survey and it is possible that there was a another entrance facing to the east. The entrance was just over 3m wide at its narrowest point and nearly 10m deep in its earliest form, the palisaded enclosure (Figure 20). The palisade trench, which was cut away partially by the terminals of the later ditch, was twice as deep in the neck of the entrance, perhaps here it had incorporated more substantial posts. It is alternatively possible that here, where there was no surviving post packing, the trench had become deepened by erosion from water running down the exposed gully draining into the later ditch; this might explain the very smooth base of the palisade trench at this point.



Figure 20: Looking into the entrance of the Hillfort, with the ditch on either side where it had cut away the earlier palisade slot, and the post holes of the successive gatehouse? Structures between the leached remains of the old ground surface beneath the rampart to either side.

Two phases of a timber structure or possible gatehouse could be detected based on groups of post-holes on either side of the entrance in the interior of the fort (Figure 21). In the first phase these were situated at the end of the neck of the palisade trench defining the entrance, where the post holes, including one with a perfectly preserved post-pipe indicating it had held a quartered tree trunk, most likely supported and strengthened a timber gate, it is possible that in the second phase a more elaborate structure enclosed the entrance bridging across the rampart.

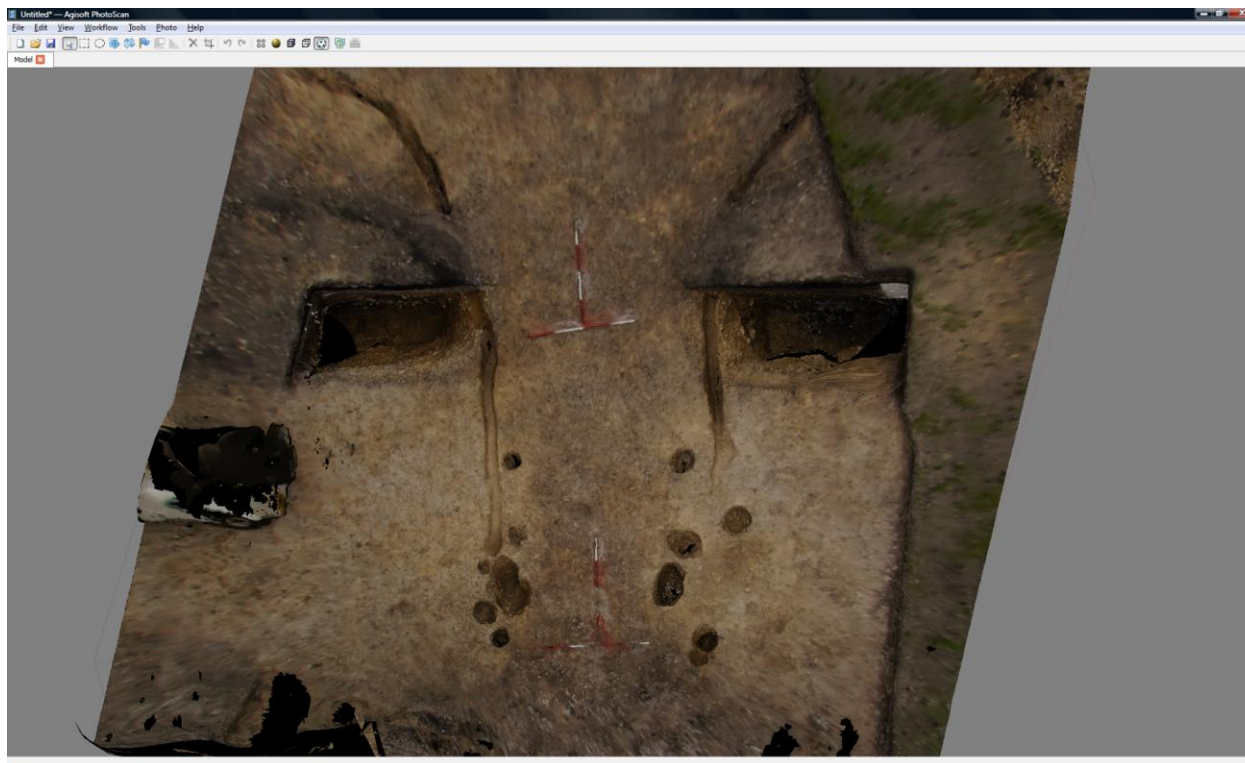


Figure 21: Plan view of the Hillfort gateway generated using computer based 3D modelling of multiple oblique photographs; note the deeper segments of the palisade trench in the neck of the entrance.

The scale of the shallow v-sectioned ditch (where examined away from the entrance) was relatively slight, with a depth of c.1.5m to the contemporary ground level, but amplified by virtue of the existence of the rampart and counterscarp bank (Figure 22). At the entrance the nature of the ditch was completely different with the ditch cut vertically to a depth of nearly two metres the lower metre of which was cut into the limestone bedrock, the upper part of the ditch sides had collapsed relatively quickly leaving a weathering cone in the upper metre of the ditch (Figure 23, Figure 24).



Figure 22: Section through the Hillfort defensive ditch on the eastern side (area 517AB 2009)



Figure 23: The southern half section through the eastern ditch terminal of the ditch at Boltby Scar rendered in 3D from oblique photography



Figure 24: The southern half section of the eastern ditch terminal viewed from the east, rendered in 3D from oblique photography

Material from the weathering cone had slipped in onto the flat rock cut base of the ditch forming a primary fill of loose rubble, this had made it impossible to view the full ditch section during the trial excavations of 2009, a realignment of the section line in the western ditch terminal in 2011 made it possible to expose the full section and confirm that on both sides of the entrance the nature of the ditch was the same.

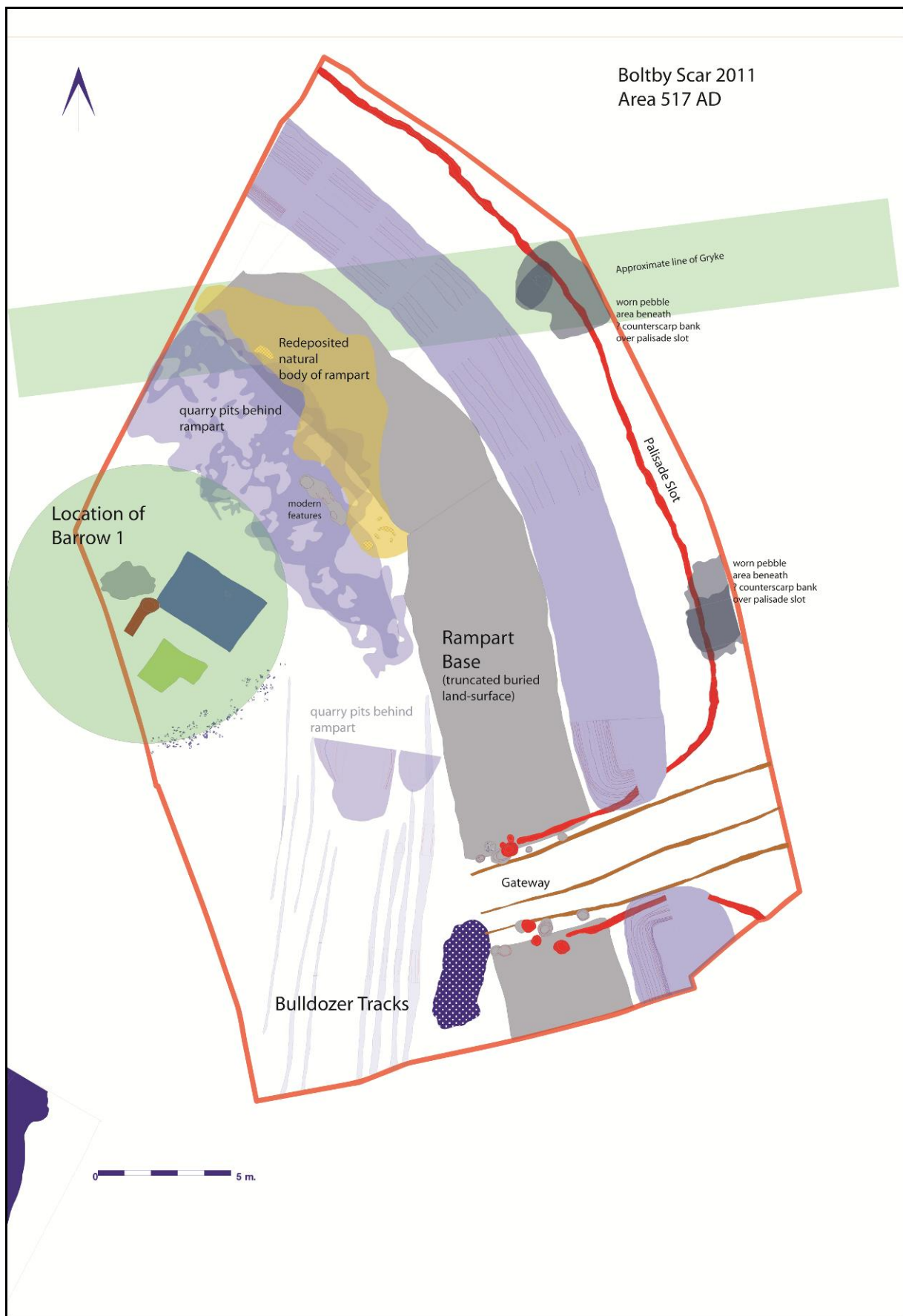


Figure 25: Interpretive excavation plan of Boltby Scar area 517AD

The date and function of Boltby Scar

The evidence recovered from the 2011 excavations makes it clear that Boltby Scar can correctly be termed a Hillfort. The multi-phase defences with the very well defended entrance, particularly in the Hillfort phase of development, made this an imposing and well defended monument.

Less clear is the degree to which the Hillfort was in long term occupation, there is no evidence from Willmot's excavation to indicate that he found any evidence of internal structures related to the occupation of the Hillfort, which one might have expected from the number of trenches that he excavated although it is clear from the 2011 excavations that the scale of his trenches were smaller than suggested in the sketch plan. Although there is good evidence of domestic activity preserved in the turves used to construct the Early Bronze Age barrow, domestic evidence was also very limited from the 2011 excavations. No structural evidence was seen in the open area opened to the west of Barrow 2, and no post-holes or domestic pits were observed within the Hillfort in area 517AD. Given the levels of truncation that occurred when the monument was levelled it is possible that shallow post-holes could have been removed altogether. But, had the Hillfort been occupied at any scale for a length of time we would have expected to have found domestic refuse including ceramics, even if animal bone and other organic materials had not survived in the aggressive soil conditions that prevail on the top of Boltby Scar.

One or possibly two sherds of Late Bronze Age pottery were recovered from the entrance area, one associated with a post-hole (Figure 15, Figure 26). If this pottery is indeed associated with the first phase of Hillfort activity, the creation of the palisaded enclosure, then this suggests a date somewhere in the region of 900-800BC for this phase of activity. This would make the palisaded enclosure broadly contemporary with the sites of Staple Howe and Devil's Hill on the scarp slope of the Yorkshire Wolds in the Vale of Pickering. These two very small palisaded enclosures seem to have served as refuges, in defended positions within a landscape containing extensive areas of open and undefended settlement as excavated at Cook's Quarry in West Heslerton. The scale of Boltby Scar is clearly much larger although we do not yet know if the full extent of the palisaded enclosure is matched by the later Hillfort, which seems very likely, given the identification of part of the palisade trench just outside the ditch on the eastern side of the Hillfort in 2009. The redefinition of the monument through the construction of the full rampart and ditch in the second phase must have followed relatively quickly after the palisaded enclosure was established as it must have still been a visible feature in the landscape since the line of the palisade was closely followed and the entrance maintained.



Figure 26: Two sherds of Late Bronze/Early Iron Age pottery from area 517AD



Figure 27: Three rim sherds of Early Iron Age ceramics from the quarry pits behind the rampart of the Boltby Scar Hillfort.

Although no evidence of internal buildings was found small quantities of probably Early Iron Age pottery were recovered from the quarry pits dug along the inside of the rampart, and we anticipate that the date of this material will lie in the period from c.800-700BC (Figure 27). The quantities of pottery are insufficient to support a picture of intensive occupation and the material seems most likely to derive from activity associated with the construction of the Hillfort. The scale of excavations relative to the whole of the monument (the ramparts contain an area of about

a hectare altogether) have been small and it remains possible that evidence of long term domestic activity remains elsewhere within the enclosure. There is, for instance, a reasonably large flat area within the upstanding monument nearer the cliff but better protected from the weather than the areas so far examined, which could have served as the setting for a small number of round houses or perhaps for the sort of large timber granaries identified at Staple Howe and Devil's Hill.

On present evidence we have to assume that the Hillfort either had a very short life or that it did serve primarily as a refuge, in this case one that was large enough for a population to take refuge with their stock in times of trouble. The situation of Boltby Scar and the huge Hillfort at Roulston Scar, on what may later have become the frontier between the late Iron Age tribes, the Brigantes and the Parisi, dominating and perhaps controlling a major droveway is significant. It is possible that part of this significance of these monuments was as symbols of power in their own right. The huge scale of the Hillfort at Roulston Scar, in which the defences measure nearly 2km in length, (much of this utilising the steep cliff faces) enclose an area on c.25 hectares which makes this an exceptional monument. As at Boltby Scar there is no evidence indicating extensive occupation and one is tempted to see this monument as some sort of regional meeting or trading centre located on the western edge of the Moors with access to the Vale of York to the south and Vale of Mowbray to the north. Although much of the defensive circuit relies on natural features its construction includes hundreds of metres of timber laced ramparts fronted by rock cut ditches which reflect a massive amount of labour and resources.

The Environmental Setting

Work is still progressing on the 2011 environmental samples and we are still awaiting the return of a number of radiocarbon dates; however preliminary results added to information from the 2009 excavations provide a basic framework within which to summarise the environmental context of the round barrows and the Hillfort at Boltby Scar.

Evidence from the buried soils and the turves used to construct the first barrow mound of Barrow 2 (Phase 2) indicate that the hill already supported domestic activity with cereal grains and fragments of hazelnut shells recovered from turves that were probably cut from within the stone ring established in phase 1 of Barrow 2 or from nearby. Analysis of the soil thin-sections taken from the buried soils, sealed by the surviving mound, seem to indicate that the landscape had been used for arable agriculture which had depleted the thin and not particularly well developed soils. A similar picture emerges from the samples extracted from the buried soils beneath Barrow 1.

The environmental evidence reveals that when the Hillfort was built it was set in a radically different environment than that which we see today, a vast open grassland which would have provided a perfect grazing environment for stock. The droveway within which it sits, was constrained to the west by the cliffs on top of which the promontory fort was established and to the east by the Cleave Dyke. This boundary was initially constructed as a pit alignment comprising large pits quarried into the limestone bedrock and flanked by banks on either side, (later the course of a shallow ditch) which have decayed away as the limestone they contained dissolved away and later levelled as a consequence of mechanised agriculture. In the Vale of Pickering where open and unenclosed settlement associated with a trackway has been shown to be contemporary with the far smaller palisaded enclosures on chalk knolls on the slopes of the Yorkshire Wolds the discovery of the open settlements was made by chance during sand extraction. Little is known of the archaeology in the hinterland of Boltby Scar and although one is tempted to suggest that similar areas of open settlement may lie lower down the slopes from Boltby Scar it seems more likely

that the function here is more closely related to the use of the droveway that provided a long distance route along the edge of the Moors, which overlooked the landscape of the moors and the Vale of Mowbray below. As the ditch surrounding Boltby Scar filled, environmental evidence in the form of pollen trapped in the soils reveals a change in climate and vegetation so that the grasslands increasingly give way to heath. When precisely this happens is not entirely clear and it may be that even when the Hillfort is first built climatic decline was already influencing the landscape as a consequence of increasing wetness. The most dramatic change comes after the end of the Roman period when heathland species increase greatly and the first peats start to form on top of the stable ditch fills. The peats in the filled Hillfort ditch which span the period from roughly AD600 to AD1050 reflect a number of periods of increasing wetness followed by drier phases so that by the medieval period grasslands dominate the local environment.

Excavation to examine the Cleave Dyke

Excavation during 2011 included some exploratory excavation on the Cleave Dyke (Figure 28, Figure 29). This tremendous linear earthwork is one of many which when combined extend for tens of kilometres on the Moors, with similar features defining or dividing up the landscape of the Yorkshire Wolds to the south. The Cleave Dyke has been observed extending for about 10km along the western edge of the limestone plateau through air photography with a gap in its line at Boltby Scar; geophysical survey has similarly demonstrated the line of the dyke to the north and south of the Hillfort and supports the view that the dyke is discontinuous at Boltby Scar. The Cleave Dyke which extends northwards from Roulston Scar is part of a much larger network of linear earthworks, it is undated and the nature of monument whether a single phase pit-alignment or more complex multi-phase earthwork was similarly unknown. A very limited excavation was undertaken on the last four pits in the monument where it terminates to the south-east of Boltby Scar. The archaeological objectives were relatively simple, to try and recover environmental and dating evidence, to see whether there was any evidence that the feature represented multiple phases of activity and see if there was any evidence for the presence of surviving old land-surfaces beneath any adjacent banks.



Figure 28: The Cleave Dyke to the south of Boltby Scar, the individual pits in the pit-alignment are clearly visible to the east of a robbed round barrow with the excavation area at the northern end of the feature.

Linear earthworks such as the Cleave Dyke are notoriously difficult to date and rarely produce any finds that might help us understand their development, this is not entirely surprising given their role as boundaries defining the edges of 'estates' or routeways rather than the boundaries of domestic areas. It had been hoped that by examining pits at the break in the line of this monument, that material, perhaps the result of deliberate deposition, might be recovered which would help give the date when it was constructed; this was not the case. There are indications elsewhere that the date of large pit-alignments of this type might be as early as the Late Neolithic or Early Bronze Age. The pit-alignment comprised pits measuring roughly 2x2 metres in plan and c.8m deep with gaps between of no more than a metre between them; the pits were cut into the well bedded limestone bedrock presumably by levering out the layers of limestone with antler picks (Figure 32). The nature of the bedrock which was just beneath the surface and was heavily eroded contrasts with that found at Boltby Scar, where the bedrock is more than a metre below the surface and lacks the surface cracking and well defined narrow bedding planes characteristic of the area excavated on the Cleave Dyke. The limestone slabs that must have been removed to excavate the pits closely match the slabs used to create the 'decorative screen' inserted in Barrow 2 as part of phase 5 of its development and one is tempted to see the pit-alignment as the source of this material which does not seem to occur at Boltby Scar and must therefore have been brought in. The pits which were filled with clean silty clays contained no dateable finds and by comparison with the Hillfort ditch at Boltby contained virtually no environmental evidence. The

processing of very large bulk samples from the lower half of the pit fills has produced a single carbonised hazelnut shell from which a carbon date can be measured. There remains some risk that this single sample may be residual.

When Denny visited Boltby Scar in the mid 19th century the pit alignment was still clearly visible in the landscape with the pits identifiable as depressions between flanking banks, this is no longer the case. Cut into the top of the pit-alignment the base of a shallow ditch may reflect prehistoric or later attempts to maintain or redefine the monument (Figure 30).



Figure 29: Work in progress on the Cleave Dyke pit-alignment



Figure 30: A pit in the Cleave Dyke pit-alignment seen in half section, note the very clean clay rich fill and the dark fill of the late phase ditch in the top of the section which replaces the pit-alignment.



Figure 31: Looking along the Cleave Dyke half section towards the south during excavation

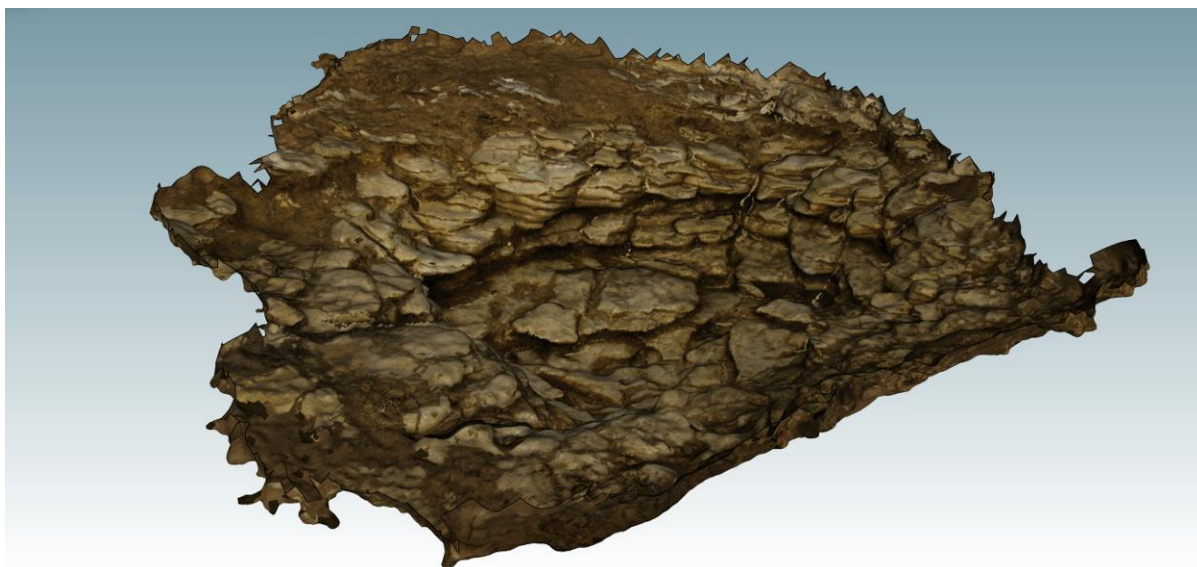


Figure 32: 3D image of one of the pits in the Cleave Dyke pit-alignment showing the nature of the natural bedrock

Acknowledgements

The 2011 excavation at Boltby Scar was far more successful than we could have anticipated and we are grateful to the many people and organisations who contributed to its success. Not only did the excavation return far more information than had been expected but it was a lot of fun. We are grateful to the landowners, Richard Redhead and family for permission to excavate and allowing vehicular access to the site. Dr. Keith Emerick and English Heritage supported and encouraged the project in addition to giving scheduled monument consent. The excavation was made possible through funding from the North York Moors National Park and the Lime and Ice Project (supported by grants from The Heritage Lottery Fund and English Heritage). The excavation could not have been undertaken without the dedicated support and encouragement of Jen Smith and Graham Lee of the NYMNP in addition to the other support staff and volunteers within the NYMNP. The work on the ground was undertaken by an extraordinary team combining the National Park Boltby Scar Volunteers and a group of 30 dedicated first year undergraduates from the University of York, many experiencing the pleasures of excavation for the first time. We are grateful to Professor Julian Richards, Department of Archaeology, University of York for giving the opportunity to include Boltby Scar as an option within the undergraduate training programme. The excavation supervisors were James Lyall, Gigi Signorelli assisted by Ed Blinkhorn, Rebecca Kelly and Kirk Roberts. The finds were all processed by Christine Haughton, who also undertook a fair share of excavation. The entrance structure and the palisaded enclosure could not have been resolved without the experience and engagement of Chris Musson, whilst the story of Barrow 2 owes most to the dedicated efforts of John and Siriol Hinchliffe. The environmental story could not have been extracted without the dedication and inspiration provided by James Rackham, and his team at Environmental Archaeology Services assisted by Charly French and Rob Scaife. Allan Hall of the Department of Archaeology at York helped process additional environmental samples with the York undergraduates adding to the environmental resources being interpreted by James Rackham Particular mention should be made of the Boltby Blog, created by the undergraduates which gives a blow by blow account covering nearly three weeks of the excavation (<http://boltbyscar.wordpress.com/>) and of those students who continued to come digging long after their required training days were over.

The York undergraduates were Dakota Bagley-Sweet, Craig Burnell , Ewan Chipping, Liah Colbourne, Joshua Cole, Sophie Deller, Kimberley Devereux-West, James Fellows-Yates, Jonathan Foster, Kieran Gascoigne, Tristan Henser-Brownhill, Benedict Jones, Edward Kemp, Karen Lambert, Natalie Lodge, Tessa Margetts, Alexandra Martin-Geary, Kathleen Murphy, Alexander Nino de Guzman, Maximillian O'Keeffe, Ruby Neale, Henry Padden, Katie Rawlinson, Guro Rolandsen, Lisa Rooney, Navid Tomlinson, Martin Whittaker, Richard Whittaker.

The National Park Boltby Scar Volunteers were Judy Bradfield, Steve Clark, Evelyn Cooney, Mary Dryburgh, Linda Hencher, John, Siriol and William Hinchliffe, Neil Irving, Lisa Johnson , Tony Lacey, Jane Peutrell , Chris Musson, Katherine Roe, Elizabeth Sanderson, Vera Silberberg, Cliff Simm, Geoffrey Snowdon, Catherine Thorn, Charlotte Toms, Esme Walton, Kimberli Werner, Chris Williams and Nick Wilson.

We are grateful to the hundreds of people that made it to site in fairly dismal weather for the open days, and to the other archaeologists who came to offer advice and encouragement, particularly to Blaise Vyner and Terry Manby whose knowledge of the Moors and its prehistory added to the story.

Last but not least thanks are due to Louise Cooke, Alfreda and William Powlesland not only for engaging in regular cake making fests but for putting up with many weeks of disruption.

We are grateful for the contributions made by everyone and although questions still remain to be answered the story of Boltby Scar is now far fuller than we might of imagined from the 'site bulldozed in 1961'.

Interim Statement

Please note this is an incomplete interim statement giving a narrative report on the work undertaken during the early summer of 2011; once the environmental reports and full series of radiocarbon dates have been returned the interim will be completed in a more detailed and referenced form.

Prof. Dominic Powlesland DUniv, FSA

October 2011-11-01