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1 ***Résumé long***

Le monument de Duggleby Howe, situé dans l'est du Yorkshire, est l'un des plus grands *round barrows* de Grande-Bretagne. Fouillé par John Mortimer à la fin du XIX^{e} siècle, le site fut remarqué pour ses sépultures associant inhumations couchées et incinérations plus tardives. Plus étonnant encore était le fait que les inhumations couchées, alors considérées comme une introduction campaniforme, étaient associées à un remarquable mobilier de type néolithique. On a alors considéré que ces inhumations étaient des sépultures du Néolithique récent ou final, peut-être même postérieures à l'arrivée de la culture campaniforme mais avant que le « Peuple campaniforme » n'ait une influence complète sur la population locale. On sait maintenant que cela est faux et, grâce au développement de notre chronologie radiocarbone, nous pouvons désormais démontrer que ces prestigieux mobiliers sont apparus au Néolithique moyen, soit près d'un millénaire avant l'apparition du Campaniforme.

2 Malgré son statut iconique, personne n'avait repris la collection Mortimer afin d'en obtenir des datations radiocarbones pour comprendre la séquence des sépultures. Par conséquent, grâce à une subvention de l'English Heritage, les sépultures de Duggleby Howe ont été ré-analysées et échantillonnées pour des datations radiocarbones. Le projet a connu quelques difficultés, les ossements de certaines sépultures ayant disparu, d'autres n'étant plus représentés que par les crânes, et certains crânes ayant été reconstitué à l'aide d'éléments contaminant (cire dentaire, cire à sceau, argile et différentes glues et vernis en matière animale). Néanmoins, un nettoyage minutieux des échantillons en laboratoire a permis la datation de ces archives vieilles de plus de 100 ans et nous a permis de reconstituer la séquence chronologique du tumulus.

3 La plus ancienne sépulture identifiée, déposée dans une tombe en puits, date des 36^{e}-35^{e} siècles avant J.-C. (cal.). Cette tombe reçu trois autres sépultures, la seconde étant associée au crâne d'une personne décédée d'une mort violente, et la dernière (4^{e}) sépulture étant associée à du mobilier de prestige. On aurait pu supposer que le remplissage de cette tombe eut été rapide mais les datations radiocarbones démontrent que ces quatre sépultures ont été déposées au cours d'une période de plus de 300 ans. La question des rituels impliqués dans les dépôts et les raisons de l'intervalle entre ces dépôts doivent rester hypothétiques.

4 Il semble alors qu'un intervalle de 145 à 300 ans ait eu lieu avant que la séquence funéraire ne reprenne aux 30^{e} et 29^{e} siècles avant J.-C. (cal.), lorsque deux sépultures richement accompagnées ont été réalisées, l'une (Sépulture C) dans un étroit fossé à l'est de la tombe en puits, et l'autre, légèrement plus tardive, recouvrant le comblement des deux tombes (Sépulture D).

5 Un tumulus en motte de gazon et sédiments superficiels, de faible ampleur, fut construit au-dessus de la Sépulture D aux 29^{e}-28^{e} siècles avant J.-C. (cal.), puis il fut recouvert d'une couche sépulcrale en craie et ensuite d'une couche d'argile bleue-noire de Kimmeridge. Ce tumulus contenait plusieurs inhumations d'enfants (6) et d'incinérations. Mortimer fouilla uniquement la moitié sud du tumulus central et y identifia 53 incinérations, suggérant que de nombreuses autres sépultures sont encore préservées dans la moitié nord, restée intacte. Malheureusement, les sépultures en inhumation découvertes par Mortimer dans la masse du tumulus sont introuvables dans les collections du musée et par conséquent il fut impossible de dater ces dépôts. Il est cependant très probable qu'ils sont contemporains des inhumations déposées aux 29^{e}-28^{e} siècles avant J.-C. (cal.).

6 La provenance du matériel de construction de ce tumulus primaire est inconnue. Le tumulus est entouré d'une grande enceinte fossoyée subcirculaire ouverte au sud. Un sondage transversal dans ce fossé montre que sa largeur varie de 5,25 à 7,75 mètres et qu'il atteint une profondeur

de 2,45 mètres. Les dimensions de ce fossé sont bien supérieures à ce qui serait nécessaire pour obtenir le matériau de construction du tumulus primaire. Il est possible que l'enceinte ait été construite en deux phases, le fossé original, plus petit, aurait alors été agrandi par la suite. Toutefois, il est également possible que le matériau de construction du tumulus primaire ait été récolté sur le terrain environnant. Ceci expliquerait l'inversion de la stratigraphie naturelle du tumulus – mottes de gazon et sédiments superficiels recouverts par du sable crayeux (craie gélifractée). Ce tumulus fut ensuite recouvert d'une couche bleue-noire d'argile de Kimmeridge. Placé au milieu d'une zone au sol crayeux dépouillé de sa couche superficielle de terre et de gazon, le tumulus, plutôt modeste, aurait ainsi eu un aspect plus saisissant. De plus, si la couche naturelle de craie gélifractée a été retirée, comme le suggère la stratigraphie du tumulus, la régénération du couvert végétal sur cette aire dépouillée aurait été sérieusement entravée. Le tumulus primaire de Duggleby Howe aurait eu ainsi l'apparence d'un monticule bleu-noir au milieu d'une aire crayeuse au blanc étincelant.

7 Le grand fossé interrompu qui entoure le tumulus a été diversement interprété comme une enceinte fossoyée du Néolithique ancien (*Causewayed Enclosure*) ou comme un *henge* du Néolithique récent, bien qu'aucune interprétation ne soit totalement satisfaisante. Toutefois, grâce au sondage et aux datations radiocarbones, nous savons maintenant que le fossé d'enceinte date du Néolithique final ou Chalcolithique, période à laquelle apparaît le Campaniforme (*Bell Beakers*) en Grande-Bretagne.

8 Il semble qu'aucune activité n'ait été reconnue archéologiquement sur le tumulus lui-même comme dans son environnement immédiat pour les 400 années suivantes au moins. Aux 25e-23e siècles avant J.-C. (cal.), le grand fossé interrompu fut creusé concentriquement au tumulus, à environ 180 mètres de son centre. Comme mentionné plus haut, ce fossé a été réalisé en sections interrompues et était de dimension importante. Il a été creusé dans la couche crayeuse naturelle puis, laissé ouvert, il s'est comblé naturellement. Aucune différence stratigraphique n'a été constatée dans ce comblement naturel, excluant ainsi la présence d'un talus accompagnant le fossé. Le tumulus secondaire de Duggleby Howe, toutefois, se compose entièrement d'un gravier crayeux qui pourrait avoir été extrait du fossé d'enceinte. Les volumes du fossé, calculé à partir de la section de fouille, correspondent à ceux du tumulus. Il est donc logique de supposer que le fossé a servi de carrière pour la couche supérieure du tumulus. Le monument aurait eu un aspect très différent du tumulus noir original dans son environnement blanc, et serait plutôt apparu comme une butte blanche entourée d'un fossé, blanc également. Ce monument semble s'être trouvé dans un environnement ouvert, peut-être couvert d'herbe.

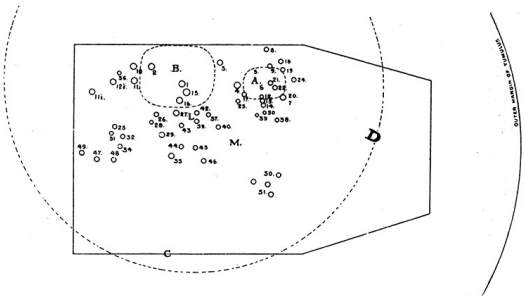
9 Sous quelle impulsion le tumulus fut-il agrandi, 1000 ans après le dépôt des premières sépultures sur le site et près de 400 ans après la construction du tumulus primaire ? Nous ne le savons pas, mais cette phase pourrait représenter un scellage du site original et la définition d'une aire réservée, ou *temenos*, autour de celui-ci. En dehors d'un fossé annulaire datant probablement de l'Age du Bronze, aucune trace d'activité n'est détectable en prospection aérienne ou géophysique. Il semble que cette aire réservée était encore respectée à la fin de la période Romano-britannique.

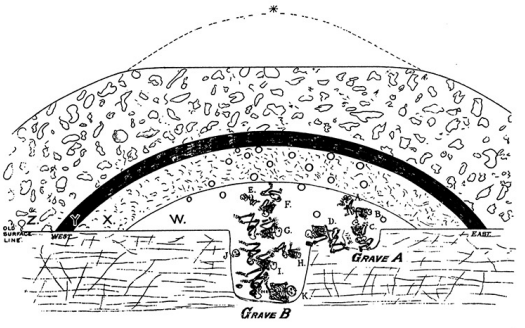
Introduction

10 Since its excavation at the end of the C19th, Duggleby Howe (fig. 1a) has been recognised as one of the largest round barrows in Britain (Mortimer 1905, Piggott 1954, Kinnes 1979, Kinnes *et al.* 1983). As it survives, the round mound measures 38.1 m in diameter at the base, 6.25 m high and with a flat top some 14.33 m in diameter. Mortimer thought that the top had been flattened, probably in the early Medieval period, and was originally 2.44 – 3.05 m higher. The barrow lies on a gentle north-facing slope overlooking the stream of the Gypsey Race which is a rare watercourse in the chalklands of the Yorkshire Wolds (fig. 1b). The source of the Gypsey Race, some 1 km to the SW of the barrow, is visible from the top of Duggleby Howe and this may have been important in the siting of the mound given the rarity of permanent streams on the chalk.

11 The site was excavated by John Mortimer, a local Yorkshire antiquarian, in 1890 and published in 1905. Mortimer was one of the first British antiquarians to publish archaeological plans and sections however he was not consistent in the recording of his excavations and the majority of plans and sections were drawn from sketches and from written descriptions in his site notebooks rather than from measured drawings. They are therefore schematic rather than technically accurate. Nevertheless, the schematic plans and sections are useful when combined with the written descriptions of each of the barrows that he examined when trying to interpret the C19th evidence. We are fortunate in that Mortimer published both a plan (fig. 1c) and section (fig. 1d) of his excavations at Duggleby Howe. Both are clearly drawn from memory and his notebook descriptions as the plan records finds at different levels within the mound and the section could not have existed because Mortimer excavated a large rectangular trench over the centre of the mound and the burials were recorded and removed as and when they were encountered. Photographs of the excavation existing in the site archive also suggest that the excavation was more akin to a quarrying exercise rather than an excavation in the modern sense.

1. a – Duggleby Howe as it survives today and seen from the South / b - The location of Duggleby Howe on the Yorkshire Wolds / c – Mortimer's (1905) plan of the burials encountered in and below the primary mound. Approximate North to the top / d – Mortimer's (1905) schematic section through the mound. This section is unlikely to have ever existed but was rather drawn by Mortimer from memory and descriptions in his site notebook.





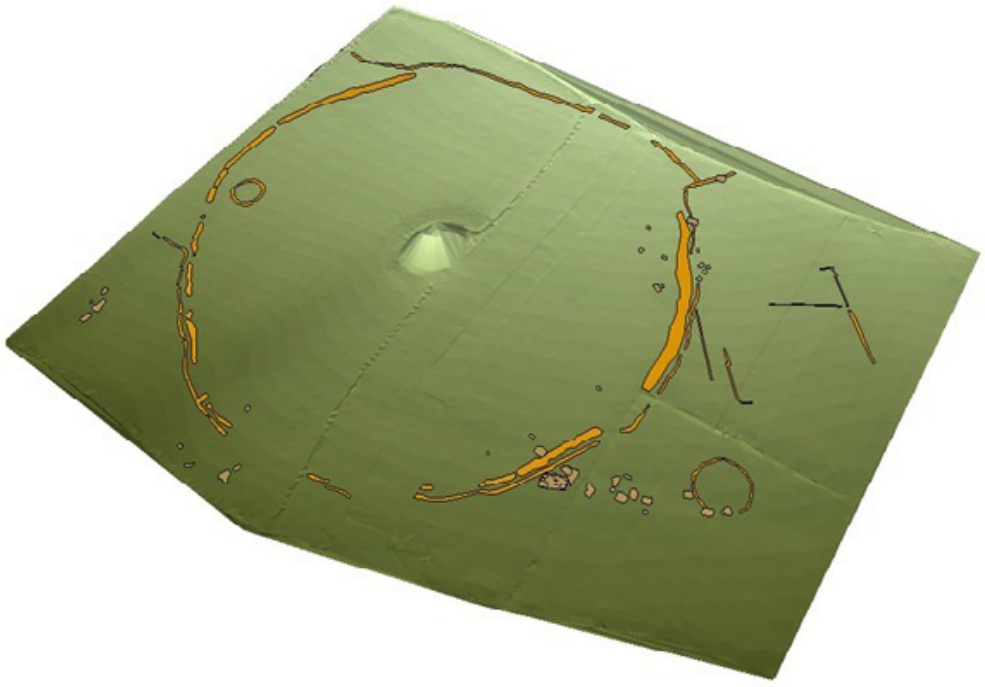
w. The inner mound of a clayey or earthy matter, 5½ feet in thickness.
x. A bed of small chalk grit, 4½ feet thick, in which were most of the cremated bodies.
y. Blue Kimeridge clay, 12 inches in thickness, sealing up all the inhumed bodies, as well as the cremated interments, which were found at various elevations, as shown by the small circles; but only a few were vertically over the grave.
z. Roughly quarried chalk, 9½ feet in thickness, in the centre of the mound.
* Marks the assumed original height of the barrow, which was probably 8 or 10 feet higher than the present flat top.
o. Indicates cremated interments.

12 From Mortimer's description and section, it is apparent that we are dealing with a composite mound. The inner mound consists of a layer of brown clayey soil, a layer of chalk grit and a layer of Kimmeridge clay which outcrops within a kilometer of the site. Above this Kimmeridge clay is an extensive mound of coarse chalk rubble which constitutes the large mound that we see today. The burials are either to be found below the mound in two pit graves or within the primary mound below the Kimmeridge clay capping. The burials, where accompanied, are furnished with a number of artefact types generally formerly considered to be later Neolithic (3rd millennium BC) in date but now recognised as distinctively Middle Neolithic in date (late 4th millennium BC). There was clearly a sequence of burials at the site.

13 In 1971, aerial photography discovered that the Howe had been surrounded by a large encircling ditch (Riley 1980) some 370 m in diameter enclosing some 10.5 hectares (fig. 2).

Being almost exactly central to the ditch, the connection between the barrow and the surrounding enclosure was not in doubt though the sequence of the two monuments was speculative. Similarly, the narrower field ditches that can clearly be seen to respect the main enclosure ditch (fig. 2) were undoubtedly later but once again the time between these two features was unknown. Interpretations of the large Duggleby ditch have tended to fluctuate between earlier Neolithic causewayed enclosures or later Neolithic henge monuments (*inter alia* Kinnes *et al.* 1983, Stoertz 1997, Oswald *et al.* 2001, Manby *et al.* 2003). The causewayed enclosure interpretation was unsatisfactory in many ways for though the interrupted nature of the ditch was unequivocal, the circularity of the monument, its large size and the penannular nature of the enclosure, being open to the South, did not find ready parallel with other members of the class. The monumentality of the Duggleby ditch also contrasts with the more modest ditches of causewayed enclosures and furthermore, the enclosure lies within a blank area in the distribution of causewayed enclosures (Oswald *et al.* 2001) although it may have been possible to suggest that it was an idiosyncratic local form. Similarly, the enclosure does not sit easily in the henge class: its penannular nature, its lack of an associated bank, its interrupted ditches and its sheer size were all rather 'unhengelike'. Comparisons have been drawn with the other large Yorkshire henges with causewayed outer ditches such as those of the Thornborough complex (Manby *et al.* 2003) but there the similarity ends. The Thornborough henges, though large (c.250 m diameter), are considerably smaller than Duggleby and also have other diagnostic henge characteristics such as banks and opposed entrances as well as being part of a monumental complex. Indeed, the Duggleby enclosure, at some 370m in diameter is closer in diameter to the large Wessex 'super-henges' such as Avebury and Durrington Walls than to any other Neolithic or Bronze Age earthen enclosure.

2. Digital Terrain Model incorporating the results of the gradiometer survey of Duggleby Howe and its enclosure. Looking SE



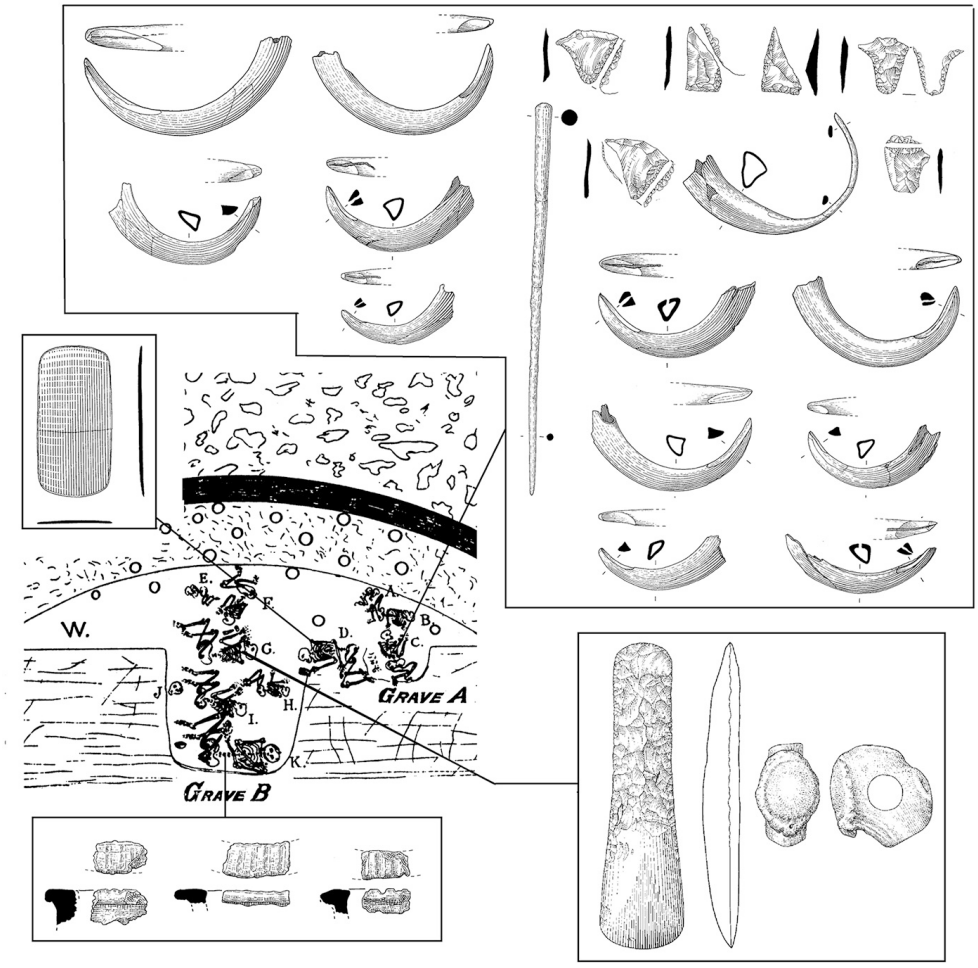
The Burial Sequence

14 A project undertaken by the writer with funding from English Heritage, has for the first time obtained absolute radiocarbon dates from the burials at Duggleby Howe and in so doing has provided some much-needed radiocarbon dates for the iconic prestige artefacts with which the burials are associated. This project has not just demonstrated the longevity of ritual activity at the site but has also shed light on the population that were receiving burial. Before this dating

is explained, it is necessary to outline the sequence of burials as extrapolated from Mortimer's section and the description of the burials as he encountered them. Some extra anatomical detail was supplied from a re-analysis of the surviving collection at Hull and East Riding Museum (Ogden in Gibson & Bayliss 2009) though it was largely only the skulls that survived.

15 The burial sequence at Duggleby Howe seems to have begun when a large shaft measuring (at its base) 2.13 m by 1.68 m by 2.74 m deep was excavated. This shaft was accompanied by a 'large heap of chalk lying on the south side of the central grave from which it had been cast' (Mortimer 1905: 27) and this mound covered the *in situ* turfline suggesting that pre-mound ground preparation had been minimal. This shaft received the burial of a mature male (K) in a wooden coffin. The skeleton lay 'on its back, head to east, knees drawn up, right arm bent over the chest, and hand on the left shoulder; The left arm was bent at a right angle over the abdomen, with the hand near the right elbow' (Mortimer 1905: 29). The 'irreparably crushed remains' of a Towthorpe Bowl (a local variant of Developed Carinated Bowl) were located at the knees of the skeleton (fig. 3) near which were 9 small flint flakes, some of them serrated, and 2 cores. The mandible of Burial K was heavily weathered suggesting that he may have been exposed prior to burial or, perhaps less likely given the wooden coffin, that the pit was not backfilled and the burial remained exposed to the elements for a considerable period.

3. The grave goods associated with the main burials at Duggleby Howe. The artefacts were drawn by Philip Dean for Kinnes *et al.* 1983 and have been used with permission of Ian Kinnes.



16 Burial I and the accompanying skull J were interred higher in the pit at approximately 1.22 m above the base. Individual I was described as a male of about 60 years old and the surviving skull certainly suggests a mature male. He was in a contracted position with the head to the east and the body had been 'considerably contorted by the settling of the pit'. Individual J, the skull at the feet of I, had died violently as a result of two severe blows to the left and right parietal, possibly a sacrifice or execution, and, lacking the mandible, the skull must have been

skeletal when deposited in the grave. Burial I itself may also have died violently though the evidence is less conclusive due to 19th century reconstruction of the skull.

17 Some 1.83 m above the floor of the pit was burial H, the contracted inhumation of a child estimated as 2-3 years old by Mortimer but considered to be closer to 4 years old in the recent reassessment (Ogden in Gibson & Bayliss 2010a). This skeleton lay on its right side with the head to the east. It is described as in a 'boat-shaped mass of clayey matter in the centre of the grave; all around the outside at this horizon being gritty chalk' (Mortimer 1905: 28). This may suggest that either the body was placed in the concave settling of the pit fill caused by the collapse of burial K's wooden chamber, or perhaps that it had been dug into the partially filled pit.

18 Approximately 0.35 m below the top of the pit (some 2.44 m from the base) was the richly accompanied Burial G (fig. 3). Described by Mortimer as an adult male of approximately 60yrs old, the surviving skull does indeed suggest a mature male. He was found in a flexed position with his head to the NE and again was distorted by the settling of the pit. An antler macehead and lozenge arrowhead were found in front of the chest and an edge-polished Seamer adze lay near the knees. This represents the last burial to be made in the central pit.

19 Burial then proceeded in the shallow Grave A. The position of Grave B must still have been known when Grave A was excavated as it respected the former. Burial C was inserted in this shallow pit *c*.0.23 m deep (fig. 3). This tightly contracted inhumation lay on its right side with the head to the NNE. Identified as a middle adult male in the re-assessment (Ogden in Gibson & Bayliss 2009), the skeleton was associated with a bone pin behind the back, 13 flakes and 6 'worked flints' (transverse arrowheads), 2 beaver incisors, and 12 boars' tusks.

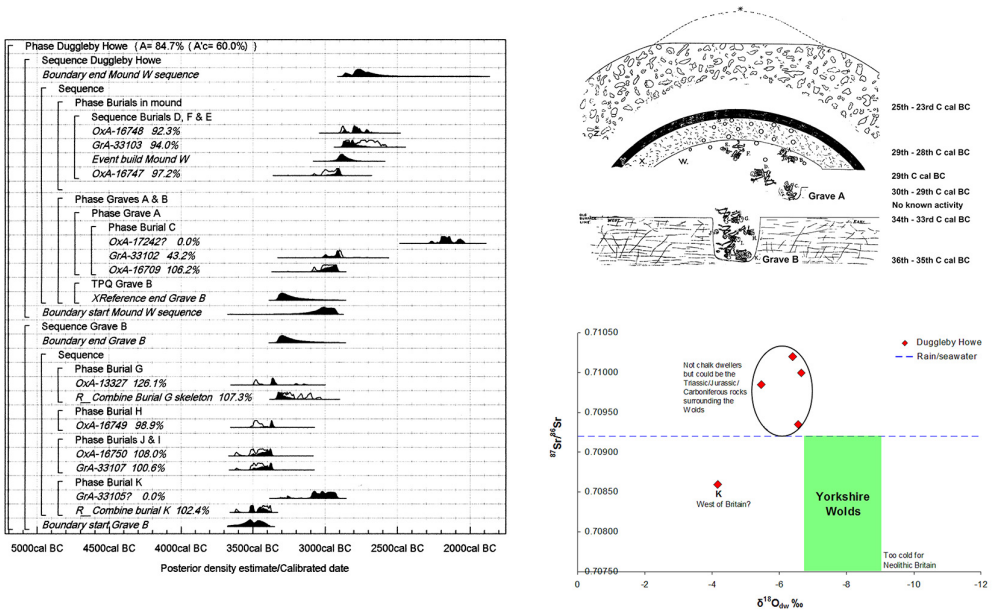
20 Burial D lay over the edge of both Graves A and B. Mortimer records this burial as that of a male of about 70 years old (the surviving skull is of a mature adult, probably male) lying on his left side with his head to the West. A polished flint knife was found in front of his face (fig. 3). This represents the last known burial to be made before the construction of the mound. The primary barrow at Duggleby comprises 'clayey or earthy matter 1.68 m thick' (Mortimer 1905: 24). This in turn is covered by a layer of 'small chalk grit' 1.37 m thick and the whole is then capped by a layer of dark, blue Kimmeridge clay 0.3 m thick. The inhumation burials described above all occur below this 'clayey or earthy' mound. The child inhumations A, B, E and F and the 53 cremation burials occur within it or in the chalk grit layer above. In the excavated area, burials either by inhumation or cremation do not occur in or higher than the Kimmeridge clay capping which appears to seal or close the primary activity. Unfortunately, the cremation burials cannot be located in the museum collection and therefore cannot be dated or re-assessed but three of them were associated with bone pins similar to that found with Burial C. Mortimer does not record excavated graves or pits dug into the mound so it can be assumed that these cremations are contemporary with Burials A, B, E and F which appear to have been deposited as the mound was being constructed. Burial A is described by Mortimer as an 'infant' and Burial B as a child of 6-10 years old. Unfortunately neither skeleton survives. The mandible from Burial E survives suggesting a child of 10-11 years old and the teeth and skull fragments from Burial F suggest a slightly younger child of 9-10 years old.

21 To the south of Grave B, 30 cm above the old ground surface and therefore within the primary clayey mound, was the contracted inhumation of a 'young person' placed in an irregular contracted position with the head to the North. The body had possibly been in a wooden coffin. Re-assessment suggest that the abnormally thick skull is certainly from a young adult, possibly female, who may have suffered from rickets and/or some genetic abnormality (Ogden *in* Gibson & Bayliss 2010). The heavily restored skull was regarded as too contaminated to be datable. Some 4.88 m to the SE of Grave B, once again c.30 cm above the old ground surface and therefore also within the clayey mound, was burial M. The body of this young adult male had been placed on its back, with its knees pulled up and the head was to the South-West. Interestingly, the poorly preserved remains of two inhumed infants were noted above Burial M echoing the positions of A & B and E & F. There were no artefacts associated with these burials.

Dating the Sequence

22 Despite the importance of the sequence and the number of prestige artefacts encountered at this barrow no attempt had been made to date the sequence. In 2008, funding was obtained from English Heritage to re-assess the museum collection and to sample the surviving human remains and organic artefacts with a view to obtaining absolute dates. The exercise was hindered by the fact that the museum collection had become depleted since Mortimer's day during a period in the late 19th and early 20th century when skeletal remains were regarded as less important than artefacts. Generally post-cranial elements did not survive and furthermore, many of the surviving skulls had been rather unsympathetically reconstructed: gummed tape, fire clay, dental wax, sealing wax and animal-based glues and varnishes had all been used. Nevertheless, by careful cleaning prior to radiocarbon dating, some interesting results were obtained (fig 4a). Full details of the project can be found in Gibson & Bayliss 2009.

4. a – The radiocarbon dates from Duggleby Howe / b – The phasing of the burials and mound as revealed by radiocarbon dating and highlighting the episodic nature of the site's development (from Gibson & Bayliss 2009) / c – Isotopic data from the Duggleby Howe burials indicating that none of them had been brought up on the chalk



23 As mentioned above, burial K represents the earliest burial and burial G represents the final burial to be made in the central pit. Sharing the same shaft grave, it might have been assumed that this was a fairly swift sequence but this appears not to have been the case. Burial K was deposited in the 36th or 35th century cal BC in the British Middle Neolithic broadly contemporary with the advent of Impressed Ware pottery and the demise of causewayed enclosures and long barrows. Burial G was deposited in the 34th to 33rd centuries cal BC. The antler macehead with which he was buried was also dated and may already have been up to a century old when buried (Loveday *et al.* 2007, Gibson & Bayliss 2009). This suggests that Grave B had been the focus of sepulchro-ritual attention for some 200-300 years and not over a short period as might have originally been envisaged.

24 The next burial, Burial C in Grave A, was deposited at the turn of the 4th and third millennia cal BC, between 3010-2895 cal BC (95% probability). This means that there would appear to have been a gap of some 145-350 years between the end of the sequence in Grave B and recommencement of known burial activity. It is possible that burial activity may have taken place in the area to the north of Mortimer's northern section but there is no evidence for any archaeological activity during this time in his excavated area.

25 Burial D overlies both Grave B and Grave A and represents a *Terminus Post Quem* for the mound construction. Likewise, the child burials E and F provide a *Terminus Ante Quem* for the mound being located as they are in the mound material. Burial D was deposited between 2915-2840 cal BC (68% probability) and Burial E, the highest burial in the mound, was dated

to 2815-2735 cal BC (66% probability). These dates allow us to determine that the mound was constructed between 2915-2840 cal BC (68% probability).

26 Rather than a relatively short sequence covered by a mound, the burial sequence at Duggleby Howe can be seen to have been episodic over an extended period of between 600 and 500 years (fig. 4b). This can be summarised as follows:

27 1. Grave B was the focus for interment over some 200-300 years starting in the 36th-35th centuries cal BC.

28 2. There is then a gap of no known archaeological activity of some 145-350 years.

29 3. Burial recommences in Grave A around 3010-2985 cal BC and this burial (C) with burial D represent the final pre-mound inhumations between c.3000-2900 cal BC.

30 4. The primary mound was constructed in the 29th century cal BC associated with 53 cremation deposits and burials A, B, E and F. This sequence seems to have been completed by the beginning of the 28th century cal BC.

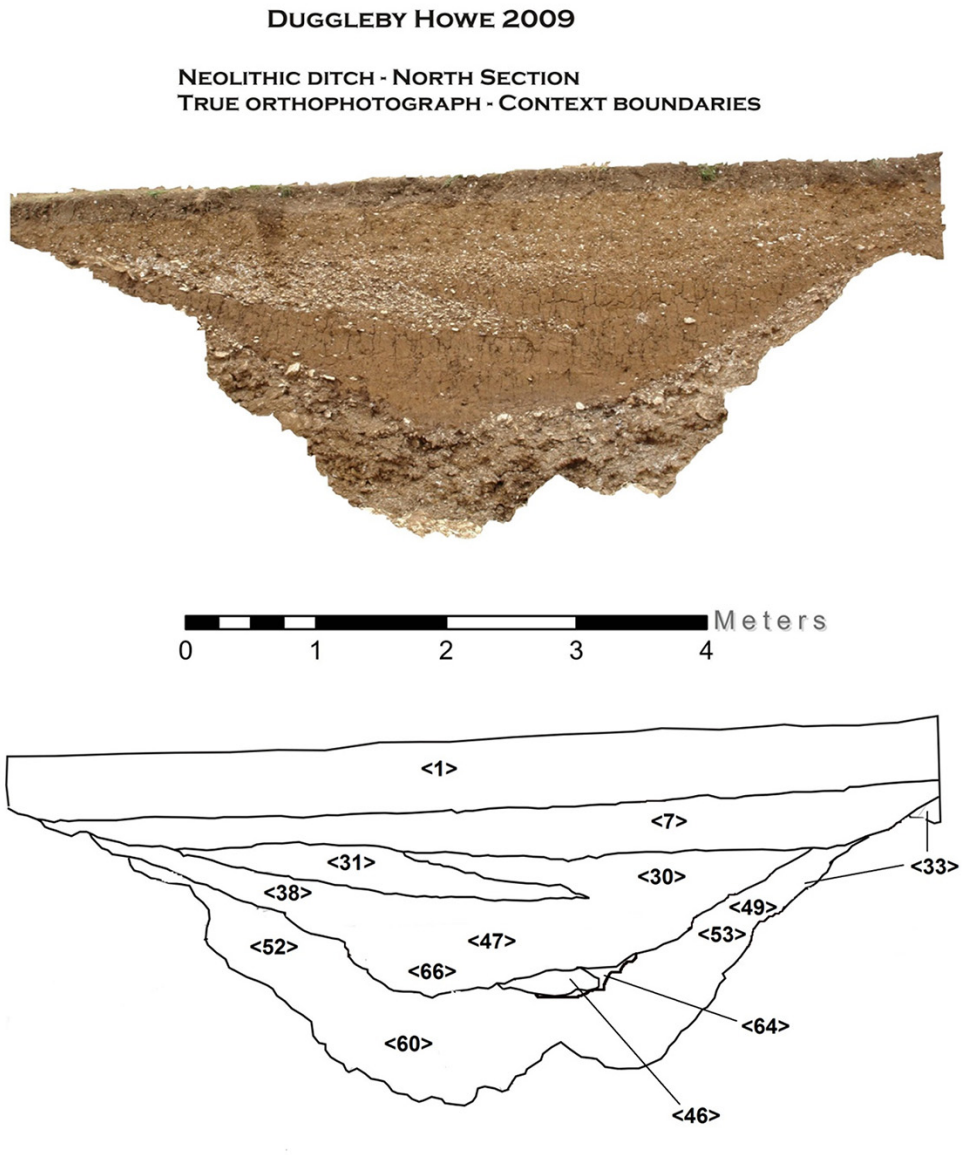
31 Burial L was not dated due to likely contamination. But burial M produced a date in the 23rd-21st C cal BC. Given the stratigraphic position of this burial, however, and given the two superimposed infant burials (reminiscent of A & B and E & F), this date may be erroneous and a result of post-excavation contamination.

32 An independent study of the isotopes from the teeth of the Duggleby burials has determined that none of the burials were local to the area (fig. 4c). None appear to have been chalk dwellers and indeed the primary burial K may have come from the far west of Scotland or Cornwall (Montgomery *et al.* 2007). Given the violent deaths noted in the case of skull J and possibly burial I, this raises the question of who were the people being buried here? Are they outsiders? Are they the vanquished enemy? Are they themselves sacrificial?

The Encircling Ditch

33 The fact that Duggleby Howe is exactly central to the surrounding ditch suggests the two are connected. But whether they were connected from the time of the first burial activity or from some other time in the sequence was not known. The causewayed enclosure/henge debate has already been mentioned above. If the ditch was a causewayed enclosure then it might date to the very beginning of the burial sequence if not slightly earlier. If a henge then it might be seen to be at the end of the sequence. As already mentioned, the ditch does not easily fit either interpretation on morphological grounds and so an excavation was undertaken to obtain palaeoenvironmental and absolute dating evidence.

5. Laser-scanned and interpretative section through the Duggleby interrupted ditched enclosure



34 The ditch (fig. 5) was defined by a pebble-rich clay fill bounded on either side by the natural plough- and frost-shattered chalk. It varied between 7.75 m and 5.25 m wide and reached a depth of 2.45 m. The uppermost clayey fill overlay a smooth soft dark brown silty loam with occasional chalk and flint flecks representing slow natural silting which continued more or less uninterrupted to the top of the rapid primary silts. The base of the slow silts directly overlay a layer of rounded weathered chalk blocks marking the stabilised top of the rapid primary silts, a loose layer of chalk blocks with occasional clay patches. Within this was a small localised patch of *in situ* burning with carbonised plant remains (overwhelmingly hazel) and some flint knapping waste. Fragments from 6 antler picks lay directly on top of the rapid silts and these produced radiocarbon dates in the 25th – 23rd Centuries cal BC (Gibson forthcoming). The narrower ditch running round the outside of the Neolithic ditch proved to be Romano-British in date.

35 The primary mound was constructed in the 29th century cal BC (Gibson & Bayliss 2009) and the radiocarbon dates are consistent in dating the primary ditch silting to the 25th-23rd centuries cal BC. This silting probably took no more than a generation to stabilise (inf Mike Allen) therefore the original digging of the ditch would not have been significantly earlier than the radiocarbon

dates from the antler picks and hazel nutshell from the *in situ* burning. At first sight, this would suggest that the mound and ditch are separated by approximately half a millennium. However it is possible to suggest that the monumental elements at the site are at least two-phased.

36 There is no record of or evidence for a ditch surrounding the base of the Howe so it is assumed that the primary mound material was either quarried elsewhere or else scraped up from the immediate environs. Indeed, the stratigraphy of the lower mound is an inversion of the normal stratigraphy: in the mound the topsoil lies below the frost-shattered chalk. Though he gives no details of its depth or thickness, Mortimer does record the presence of an old turfline below the primary mound therefore the turf, chalk grit and Kimmeridge clay must have come from outside the footprint of the Howe.

37 It is possible that a narrower and shallower ditch may have provided the material for the primary earth and chalk grit-capped mound. There is no direct evidence for this but, were the ditch to have been enlarged in phase 2, then presumably what evidence there may have been would have been destroyed by the enlargement. In support of this hypothesis may be the fact that broadly contemporary sites such as the Avebury henge and Silbury Hill show such enlargement. (Pitts & Whittle 1992: 206, Leary & Field 2010: 109). If this scenario is indeed the correct interpretation, then the encircling ditch would have been enlarged to provide the material for the secondary quarried chalk mound that overlies the Kimmeridge clay capping to the primary phase. This enlargement clearly took place in the Beaker period (or Chalcolithic; Needham 2005) and not in the Grooved Ware dominated later Neolithic as previously thought (Manby *et al*. 2003: 55-7). However, there is at least one other scenario that must be considered and that is that the material for the primary mound was scraped up rather than quarried.

38 Assuming that Mortimer's figures are correct and that the layers he notes formed regular spherical caps, then the primary mound (excluding the clay capping) can be estimated to have a diameter of 22.5 m and therefore a volume of *c.*345 m^3 (earthy clay – c.62 m^3, chalk – c.283 m^3). This figure must represent a minimum in terms of original volume because the turf core must have compacted significantly given its length of burial and the weight of the secondary mound above it. Compaction rates are difficult to estimate as different soils vary considerably in terms of their particle size, void structure, organic content and moisture content. Furthermore, the original Neolithic soil structure at Duggleby is likely to have been very different to that of today given the nature of modern agriculture – deeper ploughing, soil-turning ploughs, manuring etc. At the Experimental Earthwork on Overton, Down, it was noted that the buried turf at the old land surface and just above was compacted and reduced in thickness by more than 50% in places. The point counting studies from the thin sections suggested that the buried turf was reduced in volume by some 37% overall (Crowther *et al* 1996). The basal turf was also similarly compacted, with overlying cut turves being less compacted in terms of 'lost' pore space, but showing similar effects of lost organic content. We might assume, given the increased weight of the chalk mound covering the primary mound at Duggleby that compaction figures might be similar or greater and thus a 40-50% compaction factor may be a conservative guess. This suggests that the primary earthy-clay mound may have had an original volume of c.103-124 m^3. Assuming a shallow turf and topsoil depth of 5 – 10 cm (assume 7.5 cm for illustrative purposes), then the area that would have to have been stripped to provide this primary mound would have been in the region of 1375-1655 m^2. This may have resulted in a circular area at least some 45-50 m in diameter around the mound (compensating for the footprint of the mound, c.22.5 m diameter). This may be a conservative estimate as 7.5 cm may be generous in terms of soil depth for uncultivated chalk grassland and the footprint of the mound itself was not stripped prior to the construction of the turf phase. The 'chalk grit' overlying this mound may have then been derived from the frost shattered chalk from this deturfed area. The removal of this shattered chalk would also have resulted in the removal of intersticial soil and thus have inhibited vegetation regeneration ensuring that the white chalk, contrasting with the dark Kimmeridge clay capping, was starkly visible for a considerable period of time.

39 As mentioned above, Duggleby Howe is 38.1 m in diameter at the base, 6.25 m high and with a flat top 14.33 m in diameter. Mortimer thought that the top had been flattened and

was originally 8-10 feet (2.44 – 3.05 m) higher. This means that the volume of the Howe is between *c.*3605 and *c.*3705 cubic metres (3260 – 3360 m^3 comprising the secondary chalk rubble capping). Assuming that the section of ditch excavated here is representative of the rest of the circumference of the enclosure, the total volume of the ditch can be estimated at some 4335 m3. This figure is certainly greater than the original ditch volume would have been as it has been calculated from the weathered profile and the geophysical survey suggests that the ditch is much narrower in the North. Given these observations, and the degree of primary weathered silts visible in the excavated ditch sections, the volume of the ditch corresponds remarkably well to the estimated volume of the mound. Assuming that 0.20% of the ditch fill is the result of weathering, the overall volume of the ditch might be reduced to c.3500m3 which corresponds even more closely to the volume of the mound and particularly the chalk rubble secondary mound.

40 We have seen above that the initial burial sequence at Duggleby was both protracted and intermittent with apparent gaps between successive phases over the course of a millennium. This pattern seems to have continued from the 36th/35th century cal BC up until the 25th-23rd centuries cal BC when there was a renewed period of mound construction. Whatever was happening at Duggleby Howe in the second quarter of the 3rd millennium after the construction of the primary mound remains archaeologically elusive. But in the second half of the 3rd millennium the site was transformed from a visually striking but comparatively modest barrow into a monumental round barrow much as we see today. Originally larger before settling and weathering, and originally gleaming white before it was turf covered, this mound represented a considerable transformation of the monument associated as it was with its large quarry-ditch enclosure. The bank and mound furthermore represent considerable investment in time and resources and demonstrate commitment on behalf of their ditchers and builders. This aggrandisement took place in the latter half of the third millennium at a time when other monuments were being similarly enclosed or enlarged. Stonehenge was transformed into the large sarsen structures that we see today (Parker Pearson *et al.* 2007). Silbury Hill was transformed into the largest Neolithic mound in Britain (inf. J. Leary). The huge earthworks of Durrington Walls, Avebury and Mount Pleasant were constructed to enclose existing monuments (inf. M. Parker Pearson, Pitts & Whittle 1992, Wainwright 1979). Outside of Wessex, a stone circle was enclosed by a henge at Dyffryn Lane, Powys (Gibson 2010) and an area formerly occupied by timber circles was enclosed by a henge at North Mains (Barclay 1983). It may also be at this time that the stone circle at Arbor Low was also encircled by the ditch and bank (Gibson 2010) and that the henge at Balfarg enclosed the stone settings, themselves having replaced the timber circles (Mercer 1981, Gibson in press). The dismantling of the Stone Circle, the construction of the henge earthwork and the Beaker burials at Cairnpapple Hill may also have been taking place at this time (Piggott, 1950, Barclay 1999). The stimulus for this activity nationwide must surely be the appearance of metallurgy, the exploitation of British and Irish metal ores and the renewal of links with the Continent and Bell Beaker networks.

41 However, once again the interior of the Duggleby Howe enclosure appears largely devoid of visible archaeological activity both predating and post-dating the enclosure ditch. A small ring-ditch on the north-eastern edge of the enclosure may be Early Bronze Age in date. It seems to have been a reserved space. Whatever rituals were taking place here, if any, have left no archaeological traces detectable from the air or by geophysical survey. This reserved space also seems to have been respected by the field ditches dug in the late Roman period. Although the causewayed ditch would have still been surviving as an earthwork in the later Iron Age and Roman periods, the reason for the Roman field system respecting the earthwork is likely to be more than just functional. The mound and enclosure may still have been of religious/ritual significance in later Prehistory and this may have continued into the Roman period. It has been noted elsewhere that in Iron Age religion, structures were not necessary to imbue a site with religious significance and that river confluences, springs or groves could all be regarded as having spirits, possibly even anonymous spirits, peculiar to the place as demonstrated by Romano-British iconography (Ross 1992). The burial of an inverted tree

at Holme-next-the-Sea, Norfolk (Brennand & Taylor 2003) and the central tree within the first phase of Barrow 6 at Irthlingborough, Northamptonshire (Healy & Harding 2007) may suggest that such natural phenomena were already important in the late third and earlier second millennia BC. Less tangible but equally plausible is that sites with known antiquity may have been revered for mythological or biographic reasons as special places with special narratives or folk-associations and powers. The Iron Age scabbard from the Ferrybridge henge and the early Historic burials at North Mains may also be illustrative of this. Mortimer also found Roman pottery in the backfill of an earlier (1797/9) excavation on the Howe (1905, 25) and thought that Anglo-Saxon secondary burials had been disturbed. He also considered the Howe to have been a Moot Hill which extends its local significance even further. Although the Roman pottery was from disturbed contexts, it is unlikely to have come from outside the area of Sykes's excavation so would again attest that Romano-British attention was being paid to the mound. That the Romano-British field ditch follows and respects the Neolithic ditch so closely suggests that the field system is continuing to set aside the enclosure as a reserved space, perhaps even a *temenos.*

Conclusion

42 In conclusion, the excavation and dating programme that form the bases of this report have demonstrated the complexity and longevity of this iconic monumental barrow. Used for burial far before any monumental phase, the primary barrow represents a real change in the use of the monument from burials below ground to burials above (within the mound), The whole site then seems to have been formally enclosed and aggrandised almost a millennium after ritual activity can be demonstrated to have begun. What is interesting at Duggleby is that the use of the monument seems to have been episodic with substantial episodes of inactivity (Gibson 2010). The central grave (Grave B) was dug in probably the 36th or 35th centuries cal BC (3555-3415 cal BC – 68% probability). The sequential burials in this pit ended with Burial G probably in the 34th – 33rd centuries cal BC (3335-3275 cal BC – 68% probability): its filling therefore took several centuries. There was than a gap of some 145-355 years (68% probability) when there is no known activity on site before burial started again in a satellite grave to the east of the central shaft grave probably in the 31st – 29th centuries cal BC (3010-2985 cal BC – 18% probability or 2935-2895 cal BC - 50% probability). Burial D immediately pre-dated the construction of the primary mound which was constructed probably in the 29th century cal BC (2915-2840 cal BC – 68% probability). The two child burials E and F (and possibly A & B) appear to have been interred as the mound was being built as Mortimer records no grave cut through the Kimmeridge clay. Burial E, the highermost died probably between 2815-2735 cal BC (68% probability). It is to this period that the cremation burials must also belong and the finding of skewer pins similar to those from the Duggleby cremations associated with middle Neolithic cremations at Stonehenge, Dorchester-on-Thames and Cairnpapple Hill support this hypothesis. This small modest mound may have been visually striking as a blue-black clay-capped mound within a gleaming white disc of exposed chalk, the turf, topsoil and superficial frost-shattered chalk having been used for the primary mound. Finally, the mound was considerably enlarged and surrounded by a large causewayed quarry ditch in the Beaker period in the 25th-23rd centuries cal BC (95% probability). Similar Beaker appropriation of an earlier Neolithic mound was seen to the south of Duggleby at Towthorpe 18 (Gibson & Bayliss 2009) when Beaker period burials were inserted into a mound that covered mid 4th millennium cal BC burials. It has already been noted above that the ditch does not form a complete circuit but is penannular and open to the South. Was construction of the mound enlargement interrupted and abandoned or does the south represent a special direction? The questions must remain rhetorical.

43 At Duggleby, then, the history of what appears to be a simple but monumental round barrow appears to have been in a series of stops and starts. There does not seem to have been the fluid continuous remodification that we see at some sites such as Stonehenge but rather distinct periods of activity, inactivity and renewed activity. This, however, may be more apparent than real given that so little of the enclosure or indeed of the mound has been excavated. That said

the small scale excavation that forms the basis of this report and the dating of the existing archive (Gibson & Bayliss 2009) has shed considerable light on the history of this monument with minimal intervention.

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Droits d'auteur

Résumés

Since its excavation in the late 19th Century, the large mound at Duggleby Howe, Yorkshire, has long been regarded as one of the largest and most important Neolithic barrows in Britain.

It covers a series of richly accompanied inhumation and cremation burials. A recent dating programme and small excavation over the surrounding causewayed ditch has shown that the burials started at the beginning of the British middle Neolithic in the middle of the 4th millennium but that the mound was not constructed until some 500-600 years later in the 29th century cal BC. Aggrandisement of the mound continued for a further 500-600 years. The barrow can longer be seen to be a single event but rather the final stage in an episodic development culminating in the enclosing of the mound in a large reserved area and its monumental chalk capping.

Espace et épisodes rituels dans le tumulus circulaire monumental néolithique de Duggleby How, North Yorkshire, Angleterre

Depuis sa fouille, réalisée à la fin du XIXe siècle, le grand tumulus de Duggleby How (Yorkshire) a longtemps été considéré comme l'un des plus grands et plus importants *barrow* néolithique de Grande-Bretagne. Il recouvre une série de sépultures en inhumation et incinération au riche mobilier funéraire. Un récent programme de datation et un sondage réalisé dans l'enceinte fossoyée entourant le monument montrent que les premières sépultures ont été élaborées au début du Néolithique moyen britannique, au milieu du 4e millénaire, mais que le tumulus n'a été construit qu'entre 500 et 600 années plus tard, au 29e siècle avant J.-C. Le tumulus a ensuite connu plusieurs phases d'agrandissement dans les 500 à 600 années suivantes. Il ne faut donc plus considérer le monument comme un projet unique mais plutôt comme le résultat final d'une construction en plusieurs étapes, culminant avec la construction de l'enceinte plaçant le tumulus au centre d'une grande ère close, et la réalisation de sa couverture de craie.

Entrées d'index

Mots-clés : Néolithique moyen, biens de prestige, round Barrow, tombe en puits, datation radiocarbone, sondage, construction épisodique, inhumation, crémation
Keywords : Middle Neolithic, Prestige goods, round barrow, shaft grave, radiocarbon dating, excavation, episodic construction, inhumation, cremation