Offa's Dyke Journal

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Edited by Howard Williams

Aims and Scope

Offa's Dyke Journal is a peer-reviewed venue for the publication of high-quality research on the archaeology, history and heritage of linear monuments, frontiers and borderlands. The editors invite submissions that explore dimensions of Offa's Dyke, Wat's Dyke and the 'short dykes' of western Britain, including their life-histories and landscape contexts. *ODJ* will also consider comparative studies on the material culture and monumentality of land divisions, boundaries, frontiers and borderlands from elsewhere in Britain, Europe and beyond from prehistory to the present day. We accept:

1. Notes and Reviews of up to 3,000 words
2. Interim reports on fieldwork of up to 5,000 words
3. Original discussions, syntheses and analyses of up to 10,000 words

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Front cover: Photograph of the excavated ditch of Offa's Dyke, Chirk, north-facing section (Ian Grant, CPAT Photo 4565-0134)

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An Indication of Northern Souls: Revisiting the 'Territory of Ritual'

Blaise Vyner

This article revisits the interpretation of the distinctive cross-ridge boundaries of north-east Yorkshire and explains a regular association between these features and the far earlier Early Bronze Age burial mounds. Radiocarbon dating and palynological evidence now provides a chronology for the boundaries, while field survey and excavation evidence confirms a new and specific role for cross-ridge boundaries in protecting long established Early Bronze Age funerary areas and enabling their continued veneration in the changing landscape of the Late Bronze Age and Iron Age.

Keywords: cross-ridge, boundary, chronology, funerary, territory

> The problems of bringing cross-ridge dykes into this discussion are, of course, considerable. A major problem is how, precisely, such dykes can be dated. Their construction appears to span perhaps a millennium. Secondly, superficially similar dykes may have been built for widely differing reasons. Cross-ridge dykes, like so much else in British archaeology, have tended to be swamped by all-embracing explanations. (P.L. Drewett 1978: 72)

Introduction

This paper revisits the cross-ridge boundaries of north-east Yorkshire. This topic was reviewed some years ago, when attention was drawn to their distinctive topographical settings and the variety and complexity of their construction which makes them different from other boundary earthworks (Vyner 1994; 1995). Since then, excavation and field survey has recovered additional constructional detail of the boundaries and gathered palynological evidence and radiocarbon dating to provide an absolute chronology for the cross-ridge boundaries to be put forward. Constructed over the tenth and ninth centuries BC, if not longer, they confirm continuing ritual activity around funerary monuments set up a millennium previously.

Background

Linear earthwork boundaries in general continue to remain poorly researched in terms of field survey and archaeological excavation. While the chronology and purpose of some may be suggested with varying degrees of confidence, the interpretation and dating of the majority very often rests upon assertion. Let us review recent archaeological work

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on linear earthworks in Britain, focusing on the ramifications for the landscapes of northern England in particular, to set the scene for new fieldwork and interpretations of the cross-ridge boundaries of north-east Yorkshire.

Substantial 'monumental' linear boundaries

An early medieval date is generally accepted for a limited number of substantial linear boundaries, including Offa's Dyke, famously surveyed by Cyril Fox between 1926 and 1931 (C. Fox 1955), with further work undertaken since, although still without good dating evidence (Hill and Worthington 2003; Ray and Bapty 2016: 55–92). A number of 'short dykes', some on the Welsh Border but including others on the Glamorgan uplands and elsewhere, have been considered to be of similar date (C. Fox 1955: 113). More recent work on deposits sealed by five short dykes in Powys appears to confirm a broad sixth and seventh-century date (Hankinson and Caseldine 2006: table 1) – it should be noted that photographs of two of the boundaries show them extending into a valley bottom, something that is not characteristic of the cross-ridge boundaries under discussion. Other upland earthworks, mostly slighter in scale, are also suggested to have had a defensive purpose and an early medieval chronology (Grigg 2018), although none has substantive dating evidence and, cumulatively, the case for a widespread early medieval date does not appear to be strong.

This work has a bearing on the possibility that linear earthworks in West Yorkshire and North Yorkshire might also be early medieval date, an argument postulated for Swaledale by Fleming (1998: 21–24). However, it appears increasingly likely that sections of substantial earthwork boundaries belong to a late Bronze or early Iron Age horizon. Among these are Scots Dike, Richmondshire (Haselgrove 2016: 23–25; Zant and Druce 2013: 97–99), while detailed field survey of the nearby Grinton-Fremington Dykes, in Swaledale, now restores them to the later Bronze Age or Early Iron Age (Ainsworth *et al.* 2015: 15). More recent work on the Grinton-Fremington Dykes suggests that they are land boundaries rather than defensive works (Swales 2019: 21). In West Yorkshire, Grim's Ditch and other sections of the Aberford Dykes have been shown by excavation to be probably late Iron Age and later (Wheelhouse and Burgess 2001: 123–148). However, in most instances the chronology of the boundaries rests on assertion rather than evidence and further assessment of them is called for (Moore *et al.* 2023: 1220–1227).

Large earthworks enclosing deer-parks

Late medieval deer-parks, numerous in North Yorkshire, and commonly associated in documentation with high status occupation across England, are enclosing earthworks whose identity is frequently retained in place-names, sometimes with documentary evidence for a late medieval date, but lacking absolute dates from the earthworks themselves (Rimington 1970 10–11; 1974; Spratt and Harrison 1989: 104–105). Although these may be very visible landscape features, research has rarely extended beyond

documentary and cartographic sources and limited field survey. Research and fieldwork in north-east Yorkshire has underlined the variety of activities associated with deer parks and their potentially complex development (Dennison 2005: 23–29). The deer park at Fyling, North Yorkshire, is thought to have been established by Whitby Abbey in the twelfth century. There the enclosing wall is well-known for including a series of substantial stone crosses, said to reflect ecclesiastical ownership, although their date is uncertain (Dennison 2019: 29–35). Fieldwork has identified chronological depth that underlines the potential of further investigation of these earthworks.

Territorial earthwork boundaries

Cunliffe outlines the development of arable agriculture over the chalk uplands of southern England, beginning with limited distributions of extensive earthwork boundaries associated with scattered farmsteads during the Late Bronze Age and Early Iron Age (1400–900 BC). Between 900 and 600 BC these systems were expanded and consolidated, with associated earthwork enclosures and midden deposits suggestive of large-scale cattle-management. From around 600 BC to 350 BC the boundaries were increasingly associated with the construction and occupation of hillforts (Cunliffe 2005: 420–428). It is these earthworks, variously described as 'ranch boundaries' and 'defensive linear earthworks' which dominate archaeological literature from Colt Hoare (1812: 19) through Grinsell (1958: 145–147) to the more recent Wessex Linear Ditches Project (Bradley *et al*. 1994: 137–152) and the study of the Salisbury Plain Training Area (McOmish *et al*. 2002: 51–86). As Cunliffe makes clear, however, the model for the Wessex chalklands may not be closely applicable to the north of England.

Similar earthworks are found on the Tabular Hills of north-eastern Yorkshire (Wheeler 1931; Spratt 1989), these also are suggested to have developed over the Late Bronze Age–Early Iron Age but are poorly dated, their relative chronology is occasionally indicated by relationships with other sites. Linear earthworks are also a feature of the Yorkshire Wolds, where they have suffered significant agricultural erosion and where modern excavation detail is almost completely lacking (Mortimer 1905: 374–377; Stoertz 1997: 40; Giles 2007: 106–109). The former complexity of the Wolds earthworks is indicated by Mortimer's informative 'Plan of the Entrenchments and Barrows' on the area of the Wolds that he investigated in the late nineteenth century (Mortimer 1905: 1). Fenton-Thomas's (2005: 41–45), useful discussion of the Wolds' linear boundaries notes that they tend to follow the valleys indeed, they have echoes of the ritual territories identified in this article.

Cross-ridge boundaries

Perhaps the least well-known and least well-understood of the earthwork types, cross-ridge boundaries are fairly readily recognisable from their topographical settings and, as this article will argue, for a narrow range of associations which betokens a particular purpose. These boundaries are found on upland margins but are not usually a

component of larger arrangements, usually appearing singly or, less frequently, in pairs (Vyner 1995: 16–17). Grinsell (1958: 146–147) accorded the cross-ridge dykes only a short paragraph in his discussion of the Wessex boundaries. Over fifthy years ago, Richard Bradley reviewed existing interpretations of cross-ridge boundaries. He concluded that they were associated with agriculture, but he demolished the interpretation of the boundaries as 'covered ways', and dismissed putative ridgeways (Bradley 1971: 8–14).

Further research confirms the cross-ridge boundaries were intended to identify, mark and protect the areas by then occupied by one or more Early Bronze Age burial cairns. This was the formal marking of the 'territory of ritual', which in all likelihood continued to be the area given over to the continuing deposition of burials, probably as cremations. Most if not all cross-ridge dykes have a relationship with round barrows or cairns. The commonest relationship is for an earthwork to mark a 'territory' within which are one or more burial mounds, as at Herd Howe, Gerrick Moor. Only occasionally does it appear that the boundary actually incorporates a cairn within its structure, as at Danby Double Dyke and Hesketh Dyke (Spratt 1993: 134).

The history of cross-ridge boundary research

On the uplands of Glamorgan and north-east Yorkshire cross-ridge boundaries survive particularly well due to the absence of intensive arable agriculture – here the uplands between c. 275m to above 300m tend to be grazed by sheep in the winter months, with cattle and arable agriculture restricted to the valleys. In summer higher land is mainly grazed by sheep (Cowley 1972: 46–52). Elsewhere, in Hampshire, Sussex and Wiltshire, the boundaries have been variably eroded by ploughing. The boundaries exhibit a wide range of constructional characteristics, although they have seldom been closely examined. Historically, cross-ridge boundaries have tended to be considered as a sub-set of territorial linear boundaries. Spratt, who undertook a careful study of prehistoric linear boundaries in north-east Yorkshire, was unwilling to distinguish cross-ridge boundaries from other linear earthworks in the area, but a glance at his map (Spratt 1993: figure 58) suggests that there are three distinct focuses of linear earthworks there, each of which has distinguishing and sometimes puzzling features that mark them as discrete from others. At the south-west is the Cleave Dyke, to the south-east are the linear boundaries of the Tabular Hills which caught Wheeler's attention (Wheeler 1931: 34–39) and were later the focus for Spratt's enquiry (Spratt 1989). To the north are the more widely scattered cross-ridge boundaries on the Cleveland Hills.

In an early volume of *Antiquity*, J.P. Williams-Freeman drew attention to the cross-ridge boundaries of southern England, it was his view that they had potentially allowed blocking of ridgeway routes and at the same time acted as cattle-ways, in so doing he perpetuated two misinterpretations which by then were well established (Williams-Freeman 1932). Cross-ridge boundaries in Sussex were originally considered to be cattle-ways by Richard Colt Hoare (1812), while Cecil and Elliot Curwen also favoured a cattle-way interpretation

(Curwen and Curwen 1918: 35), although Cecil later recanted in favour of the term cross-ridge dyke (1951). Wiltshire cross-ridge boundaries were the subject of research by Peter Fowler (1964) and more recently Bradley (1971). In North Yorkshire, Elgee expanded upon Young's observations of the North York Moors cross-ridge boundaries (1930), while these have been revisited more recently (Vyner 1994; 1995). In South Wales, Cyril Fox had included a series of short boundaries as part of his survey of Offa's Dyke (Fox 1955), while Aileen Fox reviewed what she described as short dykes on the uplands of Glamorgan and elsewhere in South Wales (A. Fox 1936), a topic which was later taken up by the RCAHMW in their Glamorgan volume (RCAHMW 1976). In considering cross-ridge boundaries agricultural attrition combines with landscape and archaeological observation to create a certain amount of doubt as to whether all cross-ridge boundaries are strictly comparable. Where cross-ridge boundaries are located on land which has seldom, if ever, been ploughed it appears that more detail is present. This may be a direct reflection of the lack of damage from ploughing, but it may also reflect differences in available construction materials. Was detail originally present in areas which have been subject to ploughing, and do cross-ridge boundaries share a common purpose?

In north-east Yorkshire it is suggested that the repetitive occurrence of Early Bronze Age burial mounds in association with cross-ridge boundaries confirms their function. Taking Fowler's survey of cross-ridge boundaries on the Ebble-Nadder Ridge in Wiltshire as comparator (Fowler 1964: figure 1) and adding the barrows present on the same area of the OS One-Inch Sheet 167 map (1960) confirms a very similar association of round barrows with cross-ridge boundaries. Characterisation of the earthworks is important as not all short boundaries are cross-ridge boundaries. In addition to their topographical placement, constructional features and associations it is noticeable that they rarely comprise more than a single earthwork bank and sometimes a poorly-marked ditch.

The earthwork boundaries that have survived agricultural attrition were constructed on uplands in areas where evidence for lowland and valley settlement and agriculture has not survived intensive agriculture which developed from the medieval period and intensified from the nineteenth century. The result is that only very occasionally can earthwork boundaries on the uplands be directly linked with surviving contemporary settlements in the lowlands. This applies particularly to cross-ridge boundaries which occupy scarp-edges and other high points. Originally, such placements were commonly at some distance from settlement and at altitudes above 250–300m OD, which are not conducive to arable agriculture.

Although cross-ridge boundaries would appear to differ from other linear boundaries not only in topographical siting but also in complexity of construction, few conclusions have been drawn as to why this should be so, indeed, the distinction is rarely remarked upon. In four areas only, Sussex, Wessex, Glamorgan and north-east Yorkshire, have useful observations been made concerning the character and chronology of cross-ridge dykes, while only in north-east Yorkshire has archaeological fieldwork and excavation been undertaken in recent years. It is the latter evidence that forms the body of this study.

Figure 1: Horn Ridge, Farndale, North York Moors. Late eighteenth-century field walls indicate the limit of modern agriculture above which is now heather and bracken. A cross-ridge boundary crosses the ridge, its eastern end is on the ridge-top directly above the nearer electricity pole. On the demarcated 'nab' is a substantial Early Bronze Age funerary cairn. The foreground fields continue to be farmed and contain little earlier in date than the eighteenth century (Photograph: Blaise Vyner)

Sussex

In 1918, Cecil Curwen had, with his brother, Elliot, identified sixteen linear earthworks on the chalk Downs of Sussex, these they termed covered ways. The earthworks cut off upland spurs and comprised either a single ditch with a bank on each side, or closely-spaced multiple ditches, their length varying from 30 m to 500 m (Curwen and Curwen 1918: 35–75). One, on Upwaltham Hill, comprised paired earthworks which changed direction at a possible burial mound included in the boundary (Curwen and Curwen 1918: 44–45, pl. iv). At Highden Hill, they considered that a small barrow encroached upon a linear earthwork (Curwen and Curwen 1918: 61), while on Harting Down they noted one of a group of three earthworks had a gap in which stood a possible burial mound (Curwen and Curwen 1918: 52 and pl. vii). On Glatting Down the brothers observed that multiple earthworks change direction to avoid impacting on three burial mounds (Curwen and Curwen 1918: pl. viii). In review, thirty years later, Cecil Curwen abandoned the 'covered way' interpretation, preferring instead the term cross-ridge dyke. He drew attention to evidence for a Late Bronze Age to Roman construction date, concluding that the dykes 'must have been connected in some way with the movement of cattle or pigs from one valley to another or to and from the Wealden forest' (Curwen 1951: 99–101). Their association with burial mounds went unremarked.

In 1975, T.P. O'Connor excavated a section across a cross-ridge boundary at Alfriston, East Sussex. The dyke runs from a dry-valley to the north-facing scarp of the Downs, its ditch being c. 2m wide at the top and was roughly V-shaped with a narrow flat bottom and an average depth of 1m. The earthwork lay c. 50 m west of a round barrow, which

'implied a chronological association between the dyke and the barrow' (O'Connor 1976: 66). Reviewing prehistoric fields and land allotment in Sussex shortly afterwards, Drewett (1978: 72) noted cross-ridge dykes 'have tended to be swamped by all-embracing explanations'. Over the period 2016–2020 the cross-ridge boundaries of the South Downs have been the subject of further field examination. That survey concluded that, given the large number of barrows scattered across these uplands, there is no observable relationship between them and the cross-ridge boundaries (Lee *et al*. 2020: 48).

Wessex

L.V. Grinsell, whose comprehensive volume on *The Archaeology of Wessex*, one of the last and best of Methuen's County Archaeologies series (Grinsell 1958), followed Williams-Freeman in thinking that many of the Wessex linear earthworks served as boundaries as well as roads. He had very little to say about cross-ridge dykes other than suggesting that they were not defensive, 'but would function usefully as hollow-ways for cattle or sheep to enable them to move from farm to grazing ground, or vice versa, without straying over growing crops' (Grinsell 1958: 147).

In 1964, Peter Fowler reviewed the cross-ridge boundaries, settlements, 'some other relevant earthworks' and areas of Celtic fields along a 14.5km stretch of the ridge between the Rivers Ebble and Nadder which runs westward from Salisbury. He sought to gain a better understanding of the function of cross-ridge boundaries, in particular to examine evidence that the boundaries were cattle-ways, as suggested by Colt Hoare and others. The problem, as Grinsell (1958: 147) had suggested six years previously, would be elucidated by a combination of air photography, field archaeology and judicious excavation. Fowler noted 'there are significant regional differences masked by the term 'cross-dykes', and concluded, with caveats, 'bivallate cross-ridge dykes were primarily land boundaries, while univallate dykes in some way controlled traffic' (Fowler 1964: 51). However, in excluding the Bronze Age round barrows from his search of relevant features he missed the possibility of recognizing an association between the burial mounds and the cross-ridge boundaries (Fowler 1964: 51).

Upland Wales – Glamorgan, Montgomeryshire, Radnorshire and Shropshire

Aileen Fox drew attention to a group of cross-ridge dykes on the Glamorgan uplands, noting some variability in their construction: Ffos Toncenglau and Bwlch y Clawdd, Glamorgan, had stretches of stone-facing to the bank and, in places, dry-stone walling. In noting that the smaller earthworks presented no obstacle to either man or beast she concluded that these must have originally been surmounted by a palisade or thorn hedge and suggested that the dykes were intended to control movement along ridgeway routes. She also observed that a dyke on Cefn Morfydd 'has several gaps in it… one of which is likely to be original – to admit traffic along the Cefn Ffordd ridgeway' (A. Fox 1936: 282). The RCAHMW plan shows seven gaps in this dyke, of varying width, they

also note, as a single earthwork, two cross-ridge boundaries on Mynydd Eglwysilan, Pontypridd (RCAHMW 1976: 11). The southern dyke is broken by a gap 1.8m wide, the northern dyke is in two sections separated by a gap c. 15m wide. Fox suggested that the dykes could be assigned to the post-Roman period (A. Fox 1936: 284 and table p. 283); a decade later she put forward a more precise assessment of their chronology, again without evidence, asserting they were eighth century or later (A. Fox 1946: 117).

The dykes were revisited in the 1960s by C.B. Crampton, who retrieved samples in order to examine buried soils and their pollen content, concluding that the pollen profile accorded with the early medieval date suggested by Fox (Crampton 1966). These boundaries have the characteristics of the cross-ridge boundaries under discussion, with discontinuities in the banks and ditches, variations in construction and the nearby presence of Early Bronze Age burial mounds. Among these, Clawdd Mawr was revisited in 2016, when wind-farm construction necessitated the widening of an existing access track, in one of two breaks in the earthwork. An OSL date from a secondary fill of the ditch suggested the ditch had filled up between AD 1 and 800, although it did not preclude construction in the Late Neolithic or Early Bronze Age. As the excavator noted, the earthwork is c. 200m distant from an Early Bronze Age round barrow cemetery on Llyndwr Fawr. There would appear still to be a case for further scrutiny of the Glamorgan cross-ridge boundaries (Mason 2019: 105).

The Board of Celtic Studies volume for 1935 also included a notice by H. Noel Jerman of field survey of five cross-ridge dykes on the Kerry Hills of Montgomeryshire (Jerman 1935: 280). This was published more fully a little afterwards (Jerman 1936: 279–287), although, unfortunately, Jerman's proposed broader discussion of the short dykes was not completed, deflected by the behemoth of Cyril Fox's survey of Offa's Dyke and his eighth-century 'Mercian defence system'. Fox suggested the short dykes of the border had originated through 'localized effort' (C. Fox 1955: 160–168), the cross-ridge earthworks of the Glamorgan uplands, on the other hand, were viewed by Aileen Fox as constructed slightly later than Offa's Dyke, in the eighth century 'at the earliest', and intended to block ridgeway routes (A. Fox 1946: 117–118). Guilbert's note of a pair of earthwork enclosures, Castle Ring and Rattlinghope Camp, on an outlying portion of the Long Mynd, Shropshire, on which were also sited two cross-ridge boundaries, is a rare recognition of a potential association between cross-ridge boundaries and other features. He additionally suggested they might have been settlements on infield pasture associated with nearby valley settlements (Guilbert 1976: 122).

In common with other enthusiasts of upland tracks, neither Cyril nor Aileen Fox allowed any purpose for cross-ridge boundaries other than control of ridgeways. Questions of who might have been on hand to defend the earthworks, what provision was made to strengthen obviously weak points and whether lowland routes might not have been preferred seem never to have been posited, either then or since. While the RCAHMW survey of Glamorgan concluded 'there is no positive evidence for any substantial use of the ridgeways during the Roman period' it went on to suggest that ridgeways did become

important in the post-Roman period. Taking a cautious approach, the RCAHMW could identify twelve or thirteen routes across the mountains of Glamorgan, for around half of which a cross-ridge boundary was claimed (RCAHMW 1976: 3–4, figure 1). Evidence for the chronology of the routes took the form of the undated cross-ridge earthworks combined with early medieval inscribed stones. The limited stature of many of the dykes, however, combines with a scarcity of inscribed stones in upland locations to introduce elements of doubt. It would seem much more likely that the Roman route – generally that of the A48 along the populous coastal littoral – continued, in combination with the water routes along the Severn Estuary and elsewhere round the coast of Wales, until the First World War and later (Groom 2019; Vyner 2021a: 98). Nevertheless, the inferred use of upland ridgeways, and their control through cross-ridge earthworks, remained the preferred archaeological interpretation into the late 1970s and, indeed, survives more generally to the present time (Grigg 2018; Lea *et al*. 2020: 47).

The cross-ridge boundaries of north-east Yorkshire

In north-east Yorkshire cross-ridge boundaries on the North York Moors first drew the attention of Whitby Baptist Minister and historian George Young in the early nineteenth century (Young 1817: 683–685). Young made a number of useful observations regarding the topographical and constructional details of the earthworks, not all of which had the impact they might. Young provided a perceptive description of their settings and construction to which most later commentators added little or nothing, so it is worth quoting him fairly fully:

> Our moors, in all directions, are intersected with trenches, intended to ward off the attacks of the enemy. Some of these trenches are deep and strong: in many instances they are single, in others double, and in some triple; in general, the agger, or rampart, belonging to them, is formed merely by the earth thrown out of the ditch, but very frequently we find it surmounted by a parapet of upright stones. Some of these lines are extended to a great length, dividing one part of a moor or hill from another; but in general they obstruct narrow passes, where they reach from one morass to another, or one slack to another; or they cross the projecting points of hills, cutting off these elevated points, so as to render them a kind of camps. Almost all the lofty headlands that project into the vale of the Esk, on the south, have their points thus fortified, especially where these points have only a narrow ridge, or isthmus, to connect them with the principal moor. In some instances the isthmus is cut in two places, at an interval of 2 or 3 furlongs; as we see on the ridge which terminates at Castleton, and on that which separates Glaisdale from Egton Grange; on which last it is observable, that the higher trench is strengthened with a parapet consisting of a double row of upright stones, while the lower has only a rampart of earth. (Young 1817: 683–684)

In the mid-nineteenth century these attracted further comment from Robert Knox, who was much taken with the notion that the earthworks blocked upland ridgeways (Knox 1855: 155).

After Young and Knox the boundary earthworks on the North York Moors were not revisited until the late 1920s, but neither have they been the subject of ploughing, apart from in limited areas around their edges. When Frank Elgee, the largely self-taught curator of the Dorman Museum, Middlesbrough, explored the moors in the 1920s they remained much as they had been when Young and Knox saw them. Elgee (1930: 138) identified the earthworks as the defences of Bronze Age settlements, although he found little settlement evidence. His type-site was Danby Rigg, for which he imaginatively claimed 'a cemetery, sacred site, dwellings, enclosures and cultivation plots'. On the evidence of cross-ridge boundaries he identified other settlement sites of his 'urn people' on Castleton Rigg, Crown End Westerdale, North Ings Commondale and Danby Low Moor. In fact Danby Rigg remains one of only a few instances of a cross-ridge boundary co-existing with a range of monument types. Although in *Early Man in Northeast Yorkshire* Elgee (1930) had put forward a plausible model for the development of later prehistoric settlement on the moors, one of its shortcomings was that it claimed the existence of a wider range of monuments than was actually present. Another was to assume, as most others have, after setting aside the Early Bronze Age burial mounds which appeared to have no associations, most of the visible features on the moorland were contemporary components of an upland landscape which existed independently of the valleys, where ancient features did not survive (Vyner 1990). Although Elgee made a number of useful observations on the cross-ridge boundaries, his wider interpretations were limited by continuing lack of excavation evidence. This allowed his somewhat generalised outline of settlement on the North York Moors to survive for half a century.

A year after the publication of *Early Man*, R.E.M. Wheeler provided a chapter on 'Prehistoric Scarborough' for Rowntree's *History of Scarborough*. An appendix to Wheeler's paper focused on the linear earthworks because 'We know at present nothing as to the dates or circumstances in which these works were constructed' (Wheeler 1931: 34–39). In 1953 John Rutter, then Curator of Scarborough Museum, with members of the Scarborough Archaeological Society, initiated a study of earthworks and associated features on the North York Moors (Rutter 1960: 16). Between 1965–1974 reports focused on recording the detail of earthworks but, unfortunately, no conclusions were reached before Rutter moved from Scarborough to retire in 1975. Independently of Rutter, in 1959 the earthwork boundary on Horn Ridge, Farndale, was the subject of limited excavation by Raymond Hayes and Arthur Whitaker. The bank, where sectioned, was found to be 1.9m high with a ditch 1m deep: in the absence of finds or other evidence this was assumed to be a defensive earthwork of Iron Age date (Hayes 1963: 41, figure vi). It was included in Spratt's discussion of hillforts, although the absence of enclosing earthworks combined with its spur location attracted the comment 'there is some debate whether the rampart may be a cross-ridge dyke' (Spratt 1993: 128); it was in view of these characteristics that it was included in the list of cross-ridge boundaries (Vyner 1995: 28, table 2.1).

Figure 2: Cross-ridge boundary on Horn Ridge, Farndale, North Yorkshire: a large burial cairn occupies the centre of the demarcated area (Photograph: Blaise Vyner)

Figure 3: Cross-ridge boundary on Horn Ridge, Farndale, seen against a rain cloud which reveals the variable construction of the bank (Photograph: Blaise Vyner)

The air photograph shows the distinctive topographical situation of the Horn Ridge boundary (Figure 2): it marks off the end of one of the promontories which extend into the valley of the River Esk. In the centre of the bounded area is a substantial burial mound which bears evidence, as they all do, of antiquarian excavation.

The promontory itself is bounded by an earthwork on the landward edge only, its steep sides defining the area of interest. The earthwork is punctured by a track and by an apparently machine-made cut, but there are a further six breaks in the bank, now confirmed by Lidar, most of which appear to be accompanied by causeways across the ditch (Figure 3).

Danby Rigg was the subject of further fieldwork between 1984 and 1989, although excavation was restricted to a ring cairn with associated standing stone, a section across the Triple Dykes and a handful of small 'clearance' cairns (Harding and Ostoja-Zagórski 1994: 22–27).

While the Early Bronze Age burial mounds are known to include turves or to seal soils containing palaeoenvironmental and artefact evidence, other moorland monuments have rarely been excavated and, when they have, artefacts prove rare while little palaeoenvironmental evidence survives: Danby Rigg was not an exception. A section across the Triple Dykes there showed them to be of similar build, the banks varying from 0.65m to 1.23m high and between 2.5 and 3.5m or more in width, the central one being the most substantial. The buried ground surface was a leached-out horizon with no pollen present. The main filling of the southern ditch comprised clay and large boulders which suggested it had been deliberately slighted (Harding and Ostoja-Zagórski 1994: 76). Radiocarbon dates from burnt timbers in the southern ditch lower fills are cal. AD 810–1000 (HAR-8910, 8911), while dates from the base fill of the northern ditch are cal. AD 435–630 and 820–950 (HAR-8908, 8909). No excavation was undertaken on the single bank and ditch of the Cross-Dyke.

The two Danby cross-ridge boundaries appear to be typical of paired cross-ridge boundaries on the North York Moors, even to the extent of differing from each other. The bank and ditch of the Cross-Dyke has a break c. 80m long to accommodate a pre-existing burial cairn, Cairn 764. The western end of the Triple Dykes there is unevenly constructed, as Elgee (1930: 135 and pl. XX) pointed out, appearing to incorporate what he termed 'an arc' of four orthostatic stones, although these might as easily be a remnant of an alignment. After a gap c. 25m wide, the southern bank is discontinued and the earthwork changes direction. The remaining section includes a final break, c. 10m wide (Harding and Ostoja-Zagórski 1994: 26–27 and illus. 4). There seems little reason to doubt that in character and appearance the Danby dykes conform with other cross-ridge boundaries of the North York Moors, in which case some explanation has to be found for the radiocarbon dates derived from charcoal in the two ditches of the NW sector of the Double Dykes. The suggested slighting or other disturbance in the excavated area may well be attributable to Viking-period activity (Harding and Ostoja-Zagórski 1994: 76), a suggestion made all the more credible by the Viking burials attested at Kildale,

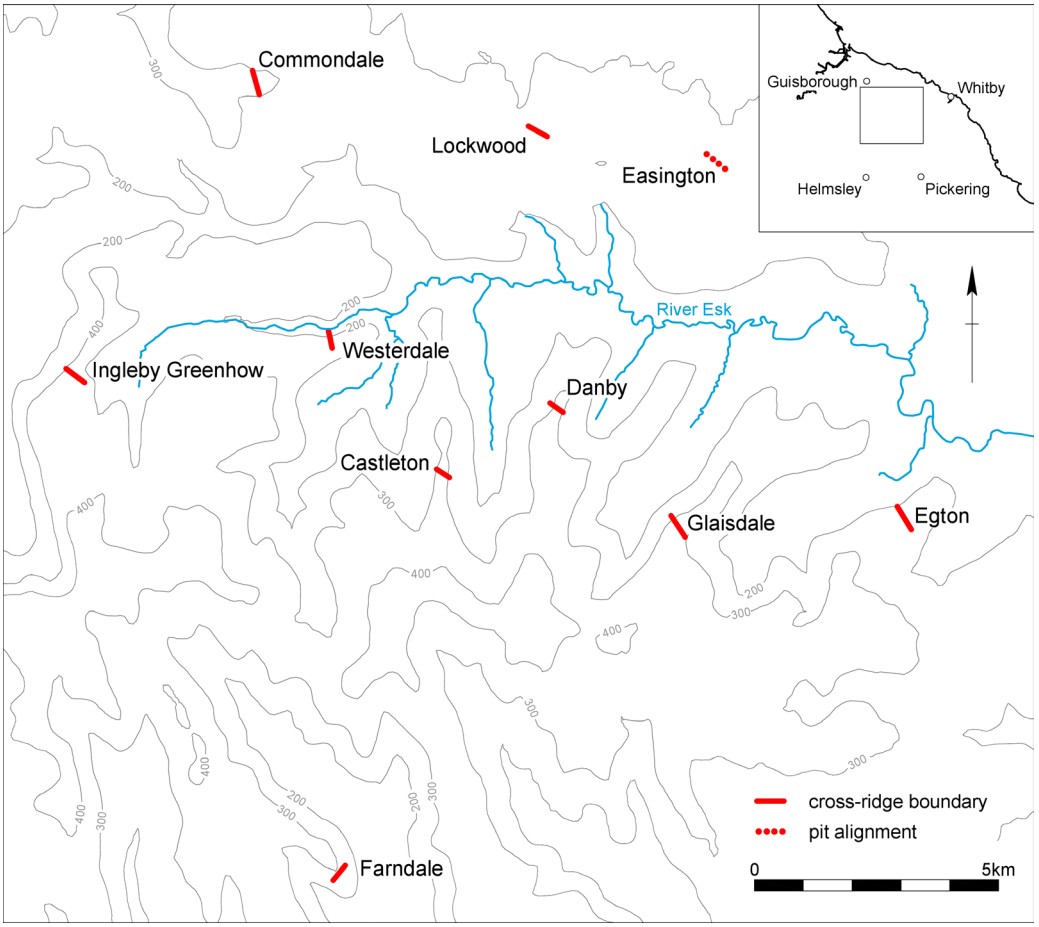


Figure 4: The Cleveland Hills, heartland of cross-ridge boundaries: others exist south and east of Farndale (Map by Dawn Knowles)

only some 10km west of Danby Rigg, where seven or eight burials with Viking weapons were discovered beneath the medieval floor of the church in 1867 (Elgee 1930: 220–221; Lang 2001: 128, fn. 2).

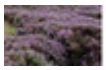
Further researches into cross-ridge-boundaries

In the early 1990s Spratt's investigations into the linear boundaries on the Moors and Tabular Hills of north-east Yorkshire prompted a review of the cross-ridge boundaries (Vyner 1994; 1995), which feature so obviously on the large-scale OS maps of the area (Figure 4). Young's early nineteenth-century observations of the siting and constructional characteristics of these boundaries were well in advance of all other investigators since his time, but it was also clear that much constructional detail remained to be identified, while the relationship between the boundaries and other features remained to be clarified.

Figure 5: Battersby cross-dyke: heather burning reveals the bank and ditch to be broken at regular intervals while occasional standing boulders suggest that the boundary began as a boulder alignment (Photograph: Blaise Vyner)

Figure 6: Egton Grange, one of the two boundaries crossing Egton Rigg, has part of one side faced with boulders (Photograph: Blaise Vyner)

Table 1: Cross-ridge boundaries on the North York Moors: summary group pollen taxa: interim data, subject to final analysis and reporting (JCR: John Cross Rigg)

Pollen	JCR Stone Row	JCR Bank 4	JCR Bank 1	JCR Bank 2/3	North Ings	Gerrick Moor
Tree 	–	40%	8%	3%	50%	65%
Shrub 	–	–	17%	9%	14%	33%
Heather 	–	60%	75%	88%	36%	2%
C14 date		935±24 cal. BC		832±24 cal. BC		

Elgee had enthusiastically adopted from Young the idea that the cross-ridge boundaries were defensive, but that interpretation does not bear scrutiny. At around a quarter of the twenty-eight or so identified cross-ridge boundaries in north-east Yorkshire the bank and ditch is broken by causeways, so these are notable as open boundaries. Other boundaries were constructed as stone alignments, in most cases augmented by a bank at a later date. Most of the cross-ridge boundaries pass across areas of dry ground before ending on a slope (Figure 5), some steep, others shallow, or at a stream or where marshy ground begins (Vyner 1994: figure 2). Elements of stone construction are sometimes evident (Figure 6).

After Young at the beginning of the nineteenth century the structure and chronology of cross-ridge boundaries has rarely been considered in detail. In an attempt to remedy

Figure 7: Herd Howe, Gerrick Moor, excavated by Canon Atkinson (Photograph: Blaise Vyner)

this, two obviously differing boundaries, on Gerrick Moor, Lockwood and North Ings Moor, Commondale, were sampled in November 1991 (Vyner 1995: 27–29, figure 2.7). The Gerrick Moor boundary is a low bank of clay subsoil running from a deep stream valley 200m across the open moor before ending at the edge of marshy ground, it is accompanied by a ditch on what appears to be its outer side (Vyner 1995: 19 and figures). Within the enclosed area is Herd Howe (Figure 7), an Early Bronze Age burial mound, part-excavated by Canon Atkinson in 1863 (Atkinson 1864: 705–759; Elgee 1930: 95–96, pl. 19i; Crawford 1980: 48–49). Atkinson found a Food Vessel and ten Bronze Age Collared Urn cremations, one of which was deposited with a battle axe – there may well be other burials still to be excavated. Within the bounded area is a second substantial burial mound, Robin Hood's Butts West, also dug into by Atkinson (Smith 1994: 72).

Excavation confirmed the apparently uncomplicated nature of the bank and ditch on Gerrick Moor (Figure 8). Soil samples were recovered from beneath the earthwork bank and from the primary fill of the ditch. In this now heather moorland the modern soils are overwhelmingly laden with *Calluna* (heather) pollen (Table 1). However, the soil sealed by the bank was dominated by tree and herbaceous pollen, with only 2% heather present. This suggests a relatively early date for the construction of the boundary (Innes 1992. Given that tree clearance does not appear to have been synchronous across the North York Moors all that can be said at present is that this is likely to have been after 1500 cal. BC and perhaps more likely a century later.

Figure 8: Gerrick Moor, excavated section of the cross-ridge boundary bank and ditch (Photograph: Blaise Vyner)

Figure 9: A stone alignment and a low bank mark the cross-ridge boundary at North Ings, Commondale (Photograph: Blaise Vyner)

Of the second excavated boundary Elgee had written 'At the head of the North Ings valley we have one of the most remarkable defence works on the moors, one moreover, which no one seems to have previously noticed' (Elgee 1930: 148), he was right about all except the defensive purpose. This monument demonstrates that such features were not always built in what are topographically obvious locations: it extends over 0.5km from a well-defined stream valley and runs out in a poorly defined boggy area. The boundary appears as a straggly and discontinuous line of stone uprights linked by a low earthwork bank (Figure 9). The boundary marks an area within which lie two burial mounds, one of them dignified by a probable medieval name, Hob-on-the-Hill (Figure 10).

The North Ings boundary appears to exhibit a degree of chronological depth, the uprights seeming to have been set-up before the bank. Excavation confirmed this was indeed the case: the stones, placed in neatly excavated sockets and chocked with angular blocks, had clearly originally been free-standing (Figure 11). In the excavated section they proved to be set on average 0.60m apart, although in places along the alignment they were closer to each other. Many of the stones are a convenient size for gatepost or other use and robbing may account for some gaps. The boundary had been augmented with a bank 2m wide, placed against the stone row, where it appeared to have been given a rough walled revetment. The inclusion of stones as walling, revetment or facing is commonly mentioned in antiquarian accounts but is now difficult to confirm without excavation. The inclusion of stone or boulder alignments within later earthwork banks is, however, evident in a number of monuments (Table 2). At North Ings, as at other earthworks, the bank was modest: here it stood at most 0.70m high, the material derived from a ditch 1.7m wide and 0.65m deep. It may be that a similar sequence of boundary development exists at the much shorter boundaries on Battersby Rigg and High Stone Dyke, Castleton, where proportionately fewer boulders are now visible.

Despite these investigations, the absolute chronology of the cross-ridge boundaries remained uncertain while the absence of an obvious association with other features provided a more complicated interpretational challenge than either Elgee or Spratt were prepared to envisage. Cross-ridge boundaries tend to be shorter than linear boundaries and are usually located in areas distinct and distant from them. They also have consistent, even if not immediately obvious, associations with Early Bronze Age round barrows and, despite Spratt's (1989: 18) assertions, are only rarely present with the little 'clearance' cairns, or indeed, any features other than burial mounds (Table 1).

John Cross Rigg, Fylingdales Moor

On a visit to the cross-ridge boundary on John Cross Rigg, on Fylingdales Moor in 2018 the presence of a hitherto unremarked peat bog was noted (Vyner 2021b: 66). In considering the monuments of the North York Moors archaeologists have remained hampered by the fact that the most informative paleoenvironmental evidence derives from peat bogs which are temporally and physically far distant from archaeological sites,

Table 2: Constructional features of cross-ridge boundaries on the North York Moors: c/w denotes causeways across bank and/or ditch. Note that heather may mask detail at some sites

	standing stones	bank	ditch	facing stones	NGR
Whorlton, Scarth Wood Moor	*				
Whorlton, Barkers Ridge		* c/w	* c/w		
Ingleby Greenhow, Battersby	*	* c/w	* c/w		
Commondale, North Ings	*	*			
Moorsholm, Old Castle Hill	*				
Westerdale	*				
Farndale, Horn Ridge		* c/w	* c/w		
Castleton High Stone Dyke Low Crag Dyke	*	* *			
Lockwood, Gerrick Moor		*	*		
Danby Rigg, Cross Dyke Triple Dykes		* *	* *		
Danby Rigg	paired pits				
Glaisdale, Glaisdale Rigg Hart Leap		* *	* *		
Glaisdale, Ugthorpe	paired pits	*			
Roxby, Easington High Moor	paired pits	*			
Egton, Egton Grange Bank House Brow		 *	* *	*	
Shatwith Barns		*	*		
Fylingdales, John Cross Rigg	*	* c/w	* c/w	*	
Latter Gate Hills		*	*		
Lockton, Low Bride Stones	*				
Levisham Moor, north south		* c/w * c/w	* c/w *		
Levisham, Horness Rigg		* c/w	* c/w		
Levisham, West Side Brow					SE 8263 9250
Levisham		*			SE 871921
Lockton, Double Dyke Cross Dyke		* *			
Lockton, East Toft Dyke		*			
Lockton, Thompson's Rigg	*	*			
Egton, Wheeldale Moor		* c/w		*	
Eskdaleside cum Ugglebarnby, Low Bride Stones	*				

Figure 10: A substantial burial mound, Hob-on-the-Hill, is within the area demarcated by the North Ings cross-ridge boundary, together with at least one further, smaller, mound. The grass-grown mound, picture foreground, is a grouse-shooting butt (Photograph: Blaise Vyner)

Figure 11: North Ings, Commondale: standing stone and sockets for neighbouring stones, now robbed (Photograph: Blaise Vyner)

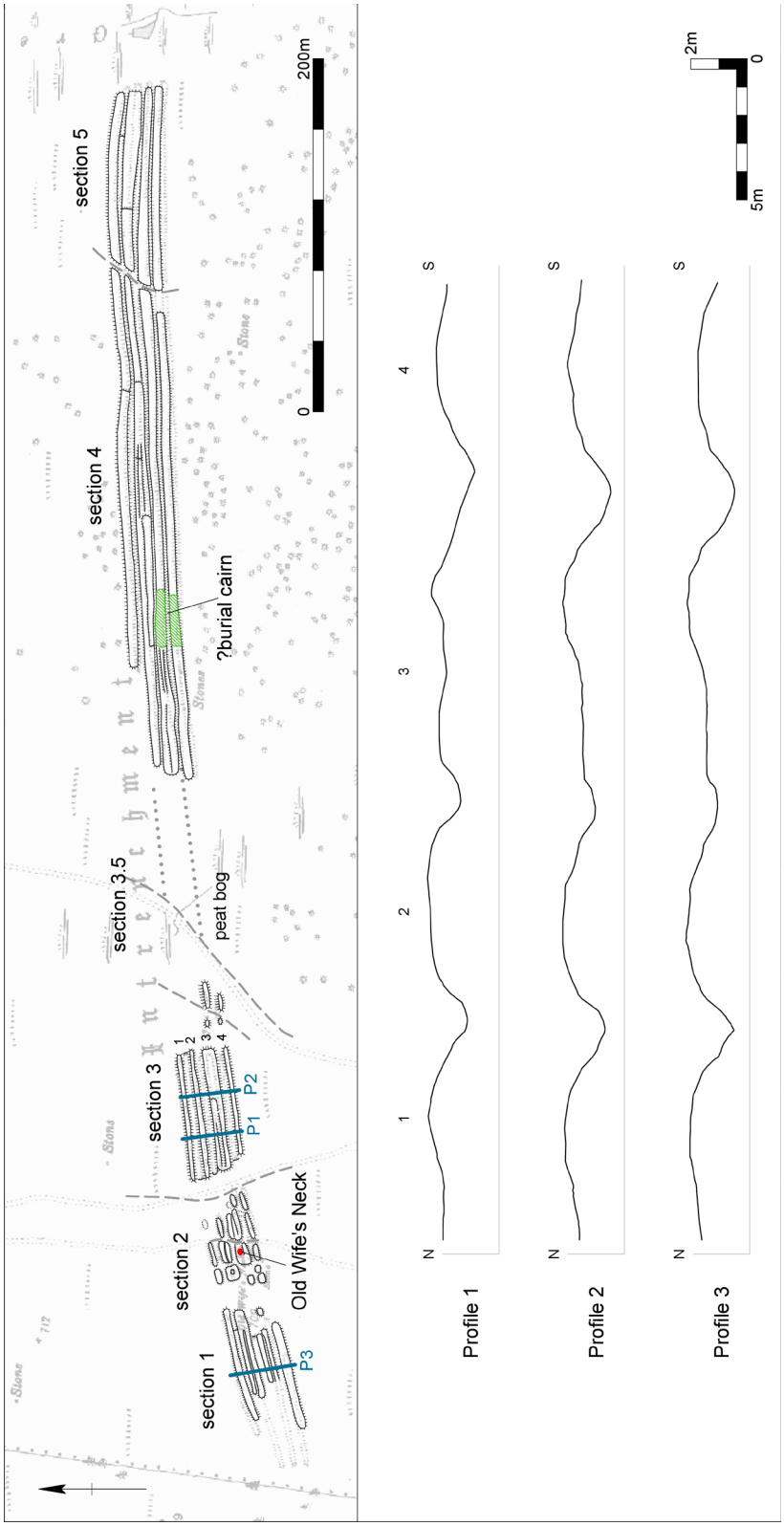


Figure 12: The cross-ridge boundary on John Cross Rigg. Upper: plan showing the sections of the earthwork identified by Mel Dalton and Sara Gibson, and, lower, profiles of the earthwork in Section 1, Section 2 and Section 3 recorded by Jeremy Gard and Bruce Webb-Ireland (plan and section by Dawn Knowles)

largely because people in the past did not usually choose to live in marshy areas unless for reasons of defence or other special purposes. The discovery of the peat bog on John Cross Rigg prompted a programme of investigation: some initial results of which are presented here in advance of the fuller reporting of the archaeology of Fylingdales Moor. John Cross Rigg is traversed by no fewer than four banks and three associated ditches, at 750m in length this is one of the longest and most complex cross-ridge boundaries on the North York Moors, but it remains remarkably little known (Vyner 2021c: 66–68).

The basic attributes of the boundary were recorded by observation and sketch-planning onto the 1893 OS six inch map base (Dalton and Gibson: 2020). This revealed the earthwork to comprise four banks, the two central ones, Bank 2 and Bank 3, being in places bifurcated. The banks are between 2.25m and 5m wide, but stand relatively low, between 0.11m and 1m high, while the ditches are between 2.20 and 4.80m wide and between 0.54 and 1.26m deep (Figure 12). Ditch 1, the only one to have been sectioned, is 1.26m deep with a flat base 0.90m wide: the depths of the other ditches were obtained by auguring.

That the site is known at all is largely due to the presence of 'The Old Wife's Neck', a standing stone with allegedly anthropomorphic features, accompanied by a plainer companion (Figure 13), which attract occasional visitors.

Although it appears that the banks and ditches on John Cross Rigg are of considerable stature, this is a visual effect resulting from the deposition of the upcast from a narrow but deep ditch associated with a disproportionately low and wide bank of upcast. It has previously been noted that the earthwork boundary ditches appear to have been constructed with more care than the banks (Wheeler 1931: 36). The ditches often appear to have level bases that contrast with banks which can be of varying height and width and of generally ragged construction (Figure 14). It may be that the ditches were regarded as more important than the banks, while the potential role of water is considered below.

The peat bog occupies the central portion of the boundary: west of it the banks comprise three sections, Section 2 being somewhat fragmented and containing in Bank 3 The Old Wife's Neck standing stone and a companion, associated with an area of scrappy paving.

The peat bog occupying the centre of John Cross Rigg cross-ridge boundary offered an opportunity to obtain paleoenvironmental and chronological information about a site which appeared to be more complex than most. Probing confirmed the outer banks, Bank 1 and Bank 4, appeared to extend into the peat bog from its eastern edge for a distance of at least 30m. The peat, confirmed by auguring to be 1.20m deep, retains water throughout the year, although it dries out markedly during the summer. Tussocky grass combines with hoof- holes left by grazing cattle to make exploration of Section 3.5 of the boundary (and beyond it, Section 4 and Section 5) extremely difficult.

Excavation was limited to the clearance of vegetation from a 40cm-wide strip across the earthworks, undertaken to record the earthwork profile and note any variations in their

Figure 13: 'The Old Wife's Neck' (right) and companion standing stone (Photograph: Blaise Vyner)

Figure 14: Looking east along John Cross Rigg boundary, across the peat bog (picture centre) to the just-visible continuing earthwork beyond (Photograph: Blaise Vyner)

construction. An area of the surface of Bank 3, from the foot of the slope to its crest and 1.5m wide, was excavated in order to examine a surface layer of thin stone paving covering the bank. This appears to have been a structural feature, although damaged by the passage of tracked vehicles. Comparable damage was observed during the excavation of the cross-ridge boundary on Gerrick Moor, noted above (Vyner 1995: 28–29). Cleaning of the slope revealed a straggly line of pits running along the foot of the bank (Figure 15). The pits proved to be the sockets of a somewhat ragged line of upright stones which, to judge from the loose nature of the pit fills, had been removed in the fairly recent past, anecdotally said to have been done during Second World War military training manoeuvres. The vehicle tracks combined with the loose fill of the stone sockets to suggest that a winch had been used to remove the stones vertically. A total of seven pits was revealed within the 4m wide excavated area, while a trench close to the western edge of the peat bog identified another pit, confirming that the stone alignment had extended the length of Section 3 of the bank.

At the eastern end Section 4 and Section 5 of the bank are separated by a narrow transverse path. A feature of Section 4 is a raised length of Bank 3 and Bank 4, 30–35 m in length, vegetated with moss rather than heather, where a surface scatter of stones is visible. This appears to be a pre-existing feature which has been incorporated into the boundary, it was perhaps a burial mound (Figure 16).

In the light of the pits along Section 3 of the bank, the Old Wife's Neck and companion standing stone in neighbouring Section 2 of the bank, to the west, can be seen as survivors of a longer arrangement of upright stones. It is unlikely that the alignment continued into the peat bog as walk-over surveys on nearby Stoupe Brow Moor have shown that boggy areas of the moor retain the impressions of tracked vehicles which strayed onto them in war-time manoeuvres eighty years ago (Vyner 2007: 14). If the vehicle used to extract standing stones had been used in the peat bog area the evidence of its tracks would still be present. Whether or not the alignment continued to the west end of Section 1 has yet to be established.

The robbed stone alignment at John Cross Rigg is very similar to the better-surviving alignments of standing stones at North Ings and Thompson's Rigg and finds echoes at the shorter Battersby Moor Cross Dyke and Castleton High Stone Dyke. Excavation demonstrated that the stone alignment at North Ings preceded the construction of the bank (Vyner 1995: 27), and although at present the damaged bank structure has so far eluded confirmation of the sequence, one which runs from open stone alignment to permanent earthwork boundary makes visual and functional sense. Establishing a stone alignment following the construction of an earthwork bank would be difficult, besides reducing the visual impact of the standing stones.

Cross-ridge boundaries are commonly around 0.25 km distant from the burial mounds they may be associated with, although their earthworks can also occasionally incorporate burial mounds (Figure 17; Table 3). This goes some way to explaining why clearance cairns have been a more obviously apparent association, even though that is itself rare. The defined 'territories of ritual' are discussed in more detail elsewhere (Vyner 1995: 22–24).

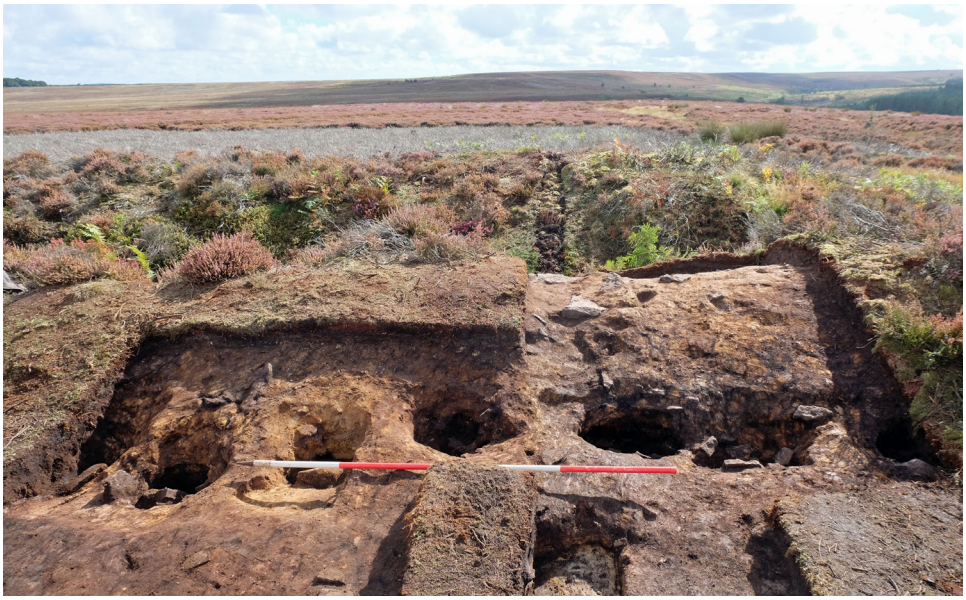


Figure 15: John Cross Rigg boundary: an alignment of stone sockets runs along the northern edge of Bank 3b, looking west (Photograph: Blaise Vyner)

Figure 16: John Cross Rigg: moss-grown burial mound or other feature incorporated into Section 5, Bank 3 and Bank 4 (Photograph: Blaise Vyner)

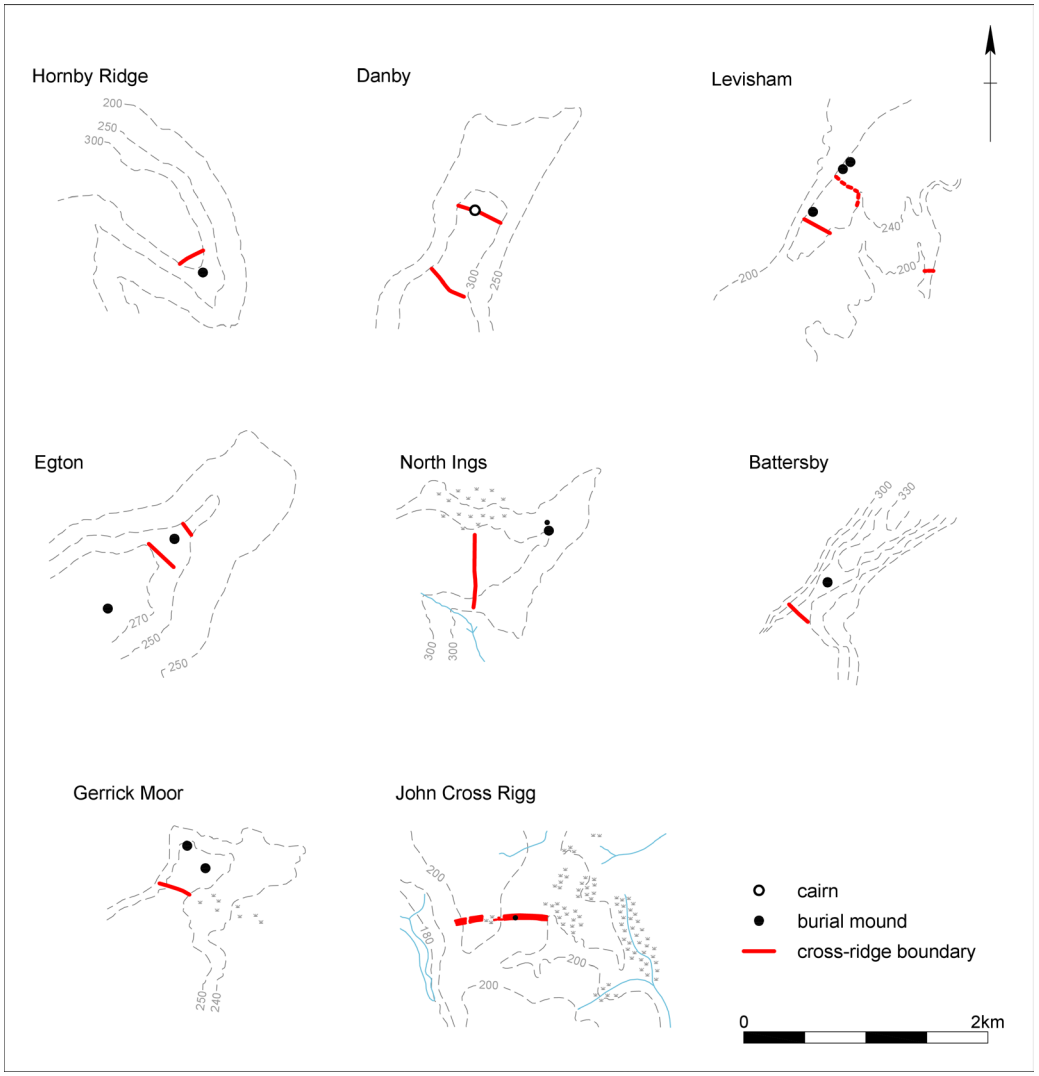


Figure 17: The territories of ritual defined by Cleveland cross-ridge boundaries (Maps by Blaise Vyner)

The Cleave Dyke

Named 'the Cleave Dyke System' by Spratt (1982a), this is a distinctive and somewhat complicated arrangement of burial mounds (Figure 18), earthwork enclosures (Figure 19) and pit-alignment boundaries (Figure 20) which extends over 9km above the western scarp of the North York Moors. The main part appears to be a somewhat *ad hoc* arrangement of linear earthworks which are closer in form to cross-ridge boundaries than to linear boundaries, the comparison is confirmed by their proximity to an extended series of round barrows. Included roughly mid-way in the linear arrangement is a scarp-edge enclosure, Boltby fort, confirmed by excavation (Powlesland 2011) as a palisaded enclosure succeeded by a ditched and ramparted fort (Figure 21), with, at the south end

Figure 18: Boltby Scar: burial mound within the 'fort' (Photograph: Blaise Vyner)

Figure 19: Boltby Scar fort ditch (right) and palisade trench (left) (Photograph: Blaise Vyner)

of the earthwork, the promontory enclosure at Roulston Scar (Spratt 1993: 123–128). Of the Cleave Dyke earthworks Elgee had noted only the hillfort at Boltby Scar, his plan showing the two burial mounds within its defences (Elgee 1930: 157 and figure 54). Hayes (1963: 60–62) noted Roulston Scar as a fort, associating it with the longer section of the Cleave Dyke and commenting on damage to it from forestry and agriculture.

For many years Roulston Scar has served as the base for the Yorkshire Gliding Club, with significant damaged caused to the ramparts by runway construction fifty years

Figure 20: Pit alignment in the Cleave Dyke (Photograph: Blaise Vyner)

ago, in connection with which Tony Pacitto undertook excavation, identifying a timber-framed rampart (Pacitto 1970: 14; 1971: 15; Oswald and Pearson 2001: 16–20). Don Spratt proposed an outline for the prehistoric settlement of the North York Moors which was supported by a range of techniques including documentary and cartographic research and small-scale excavation, as well as C14 dating, palynology, air photography and querns, evidence which had not been available to Elgee (Spratt 1993: 1–4).

Cumulative damage to the fort on Roulston Scar, was the eventual spur to its detailed survey by English Heritage (EH) (Oswald and Pearson 2001). The EH survey confirmed the area of the triangular enclosure as 24.5ha (60.5 acres), its near-complete circuit being 2.1km in length. The surviving sections of bank were confirmed as 7.2m wide and 3m high, with an external ditch 5.4m wide and 0.9m deep. It is notable that parts of the interior are waterlogged and likely to have been since at least medieval times (Oswald and Pearson 2001: 22). Air photographs confirmed the former existence of a substantial external counterscarp bank. Subsequent fieldwork has included surveys of a length of Casten Dyke North and a short length of Casten Dyke South (Richardson and Dennison 2017). Although this survey, like others, found no dating evidence it

Table 3: Cross-ridge boundaries on the North York Moors: loosely associated features

	burial cairn	embedded feature	enclosure	walls/ clearance cairn
Whorlton, Scarth Wood Moor	*			
Whorlton, Barkers Ridge	?			
Ingleby Greenhow, Battersby	*			
Commondale, North Ings	*			
Westerdale				
Farndale, Horn Ridge	*			
Castleton High Stone Dyke Low Crag Dyke	*			
Lockwood, Gerrick Moor	*			
Danby Rigg, Cross Dyke Triple Dykes	*	cairn 764 stone ring		*
Danby Rigg, paired pits	*			
Glaisdale, Middle Rigg, paired pits	*			
Glaisdale, Glaisdale Rigg Hart Leap	*			
Ugthorpe, paired pits	*			
Egton, Egton Grange Bank House Brow	*			
Shatwith Barns	*			
Fylingdales, John Cross Rigg	*	burial cairn		
Latter Gate Hills	*			
Lockton, Low Bride Stones				
Levisham Moor, north south	*		250 250	
Levisham, Horness Rigg				
Levisham, West Side Brow			250	
Lockton, Double Dyke	*		280	
Lockton, East Toft Dyke				
Lockton, Thompson's Rigg	*			*
Egton, Wheeldale Moor	*			*
Eskdaleside cum Ugglebarnby, Low Bridestones	*			

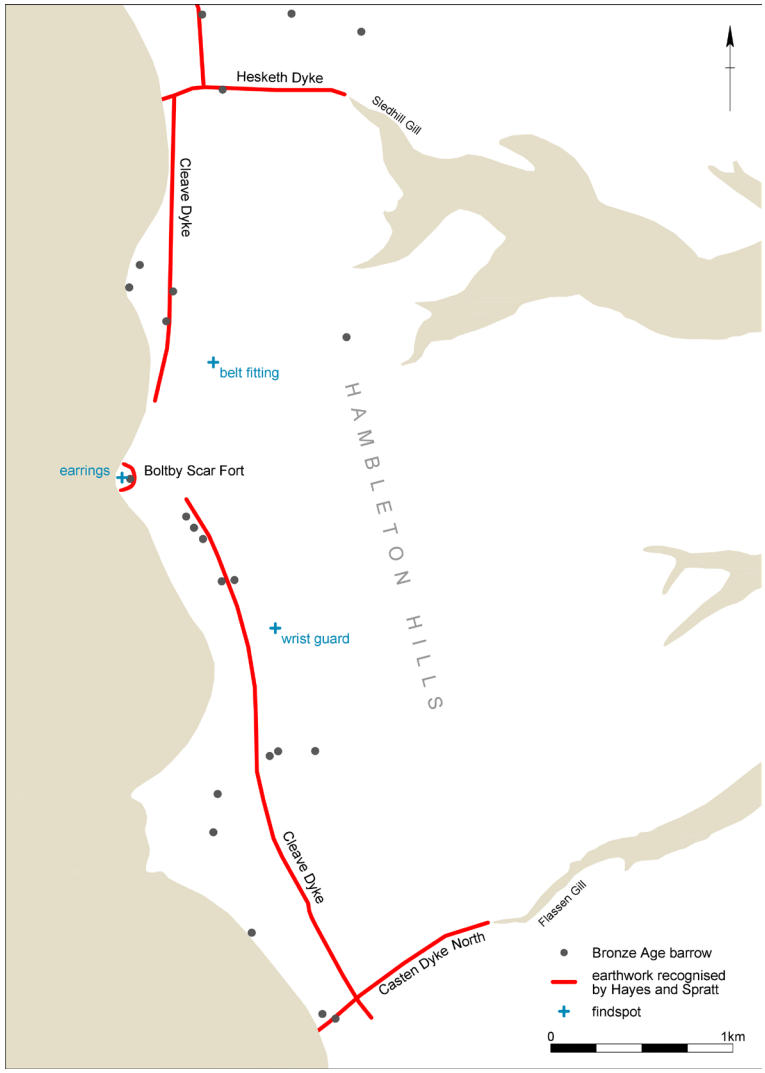


Figure 21: The Cleave Dyke: earthworks and burial mounds, showing the findspots of the Boltby gold earrings, jet wrist-guard and belt fitting from Spratt (1993), with minor additions (Map by Dawn Knowles)

concludes that 'a medieval origin is perhaps more plausible for Casten Dyke South' (Richardson and Dennison 2017: 59). However, the earthwork appears to have perhaps five breaks reminiscent of similar breaks in cross-ridge boundaries. Cumulatively, the Cleave Dyke earthworks confirm the essential similarities between later Bronze Age linear earthworks, smaller hillforts and cross-ridge boundaries. In the light of further fieldwork it is now possible to see that the cross-ridge boundaries are distinguished by a recurrent association with Early Bronze Age burial mounds and with increasing evidence for the reconstruction and remodelling of the boundary earthworks, some of which began as pit alignments (Spratt 1993: 141 and table 38; Spratt and White 1986).

Cross-ridge boundaries and water

Water and cross-ridge boundaries are associated most obviously in the use of marshy areas and, occasionally, streams, to assist in the definition of an area. The cross-ridge boundary at North Ings, Commondale, exemplifies these two characteristics. Here the first phase boundary comprises an alignment of standing stones which extends some 700m from the well-defined valley of the North Ings Slack to the marshy headwaters of Tidkinhowe Slack. The standing stones were later augmented by a bank of soil and rubble (Vyner 1995: 27 and 2.2). At John Cross Rigg the first phase of the boundary comprised a similar stone alignment which extended the length of Section 2 and Section 3 of the boundary, apparently running out at the western edge of a boggy area which was already developing. Bank 4, the southernmost of the banks, was the first to be constructed (Table 1). The stone alignment was augmented with a continuous bank, Bank 3, which was heaped up along its southern side, with some soil falling through the stones. Banks 3 and 4 ran the entire length of the boundary, impacting on an earth and rubble mound, presumed to be a round barrow, on the eastern side of the peat bog (Figure 22). Bank 1 and Bank 2 later accrued to the monument. It is difficult to know what ground conditions existed when the boundaries were established as some areas may have become wetter over time, as appears to have been the case at John Cross Rigg, while others may have become drier.

Boundary ditches gather water and, depending on ground conditions, can retain it. Causeways of unexcavated soil within the ditches demonstrate an interest in maintaining and manipulating water once it has been collected. On sloping ground water will run downslope and, depending on the slope angle and the depth of the ditch, may be fairly rapidly lost. Leaving causeways in ditches was a method by which water could be retained, even on sloping ground. Increasingly, causeways across the ditches have been observed in the cross-ridge boundaries of north-east Yorkshire, these are sometimes mirrored by breaks in the banks. At John Cross Rigg the ditches, eventually three in total, are variously provided with causeways which serve to create shorter sections of ditch. These collect water in varying quantities according to the slope of the ground surface, the extent of recent rainfall and the season. The water-retaining qualities of the ditches vary from impermeable clay to porous fragmented sandstone. It would have been possible to improve water-retention by lining ditches and pits in porous rock with puddled clay, in the same way as eighteenth-century canals were sealed. The capacity for the water to reflect participants or the sky raises the possibility that its presence might have been manipulated and reflections created by constructing or demolishing causeways.

Heavy rain during August 2020 fieldwork made the original builders' potential consideration and interest in water evident in Section 3 of the earthwork on John Cross Rigg (Vyner 2021c). Section 3 of the earthwork boundary is on more-or-less level ground and all the ditch sections contained trapped water (Figure 22). Ditch 1 has a causeway at each end of Section 3, while other causeways are visible in Ditch 2. John Cross Rigg has a

Figure 22: October rain demonstrates the water-retaining capacity of all three ditches in Section 3 of John Cross Rigg boundary. Note the causeways at either end of ditch 1, the uppermost ditch (Photograph: Blaise Vyner)

clayey subsoil along much of its course, although some parts have more permeable soils. While clay might have been imported to create water-containing ditches throughout its length it is perhaps more likely that attention focused on the manipulation of water in the sections where it could most easily be maintained.

Despite their ubiquity pit alignments rarely survive as above-ground features and there is at present little to add to Waddington's review (1997: 22–24). An exception does exist, however, in the form of the paired-pits which survive unploughed in a few places on the North York Moors. An alignment of paired-pits, between 2m and 4m in diameter on Easington High Moor was first described by Young (1817: 672–674). Elgee noted that the pits were unusual in being more-or-less full of water. He suggested that they might have constituted a cross-ridge boundary, observing that the Three Howes burial mounds also occupied the spur, though he did not directly connect the features (Elgee 1930: 151–152 and figure 51). The pits continue to be waterlogged and are seen well from the air because of the rushes that grow in them (Vyner 1995: 29 and figure 2.10). Lofthouse also noted during survey of Ugthorpe Moor that the paired pits held water, which, although not visible from a distance, 'had a striking effect when seen close to' (Lofthouse 1993: 390–391).

With the benefit of detailed survey by RCHME it can be seen that the pits on Easington High Moor appear to have been constructed in modular form, either as an individual pair, each with a short bank of upcast, or in larger groups of two to four or five pairs with

Figure 23: Water pooled in the pit alignment at Ebberston Low Moor (Photograph: Blaise Vyner)

appropriate accompanying shallow external banks. These features are thus distinguished by very specific constructional details. The alignment had been constructed in two sections, each approximately 230m in length, with a central gap of 25m (Lofthouse 1993: figure 2). The defined area is marked by contours and the boggy course of Bella Dale Slack and contains the Three Howes cairns. A second alignment, around 290m in length, lies east of the slack but has been much cut-about by tracked vehicles.

On Ugthorpe Moor, 4km east of the eastern end of the Easington alignment, two pairs of pits with banks, 230m apart, are associated with round barrows, while on Danby Rigg, 5.5km to the south-west, a group of three paired pits lies close to a large burial mound, while a pair of conjoined pits, on the same alignment as the group and 80m distant, lies within 4m of a burial mound (Lofthouse 1993: 388–390). Detail of distance is included here to raise the possibility that the groups responsible for constructing

these very distinctive features might have known each other, as the present-day farmers do. That possibility also extends over the 29km distance between Easington Moor and the cropmark of a very similar arrangement of five paired pits close to the Cleave Dyke, which again appears to have a specific relationship with a ploughed-down round barrow (Spratt and White 1986: 195). This suggests that there was a well-defined vocabulary of monuments, and presumably behaviour, within the 'territory of ritual'.

An interest in water may also be seen in the pit alignments which have come to light largely through air photography (Waddington 1997). These occasionally survive as earthworks in north-east Yorkshire (Spratt 1993: 141; Ainsworth and Oswald 1999: 10–31), and are seen to good effect after rain on Ebberston Low Moor (Figure 23). Pits are also found as part of the cross-ridge boundary repertoire in the Cleave Dyke, with one section of sub-rectangular pits 600m long and another 320m long running along the scarp edge above Boltby (Spratt and White 1986: 196). Pit alignments are now known to be widespread across England and Wales. Limited excavation detail is available, although on Gardom's Edge, Derbyshire, excavation revealed a shallow ditch into which a series of clay-lined pits had been dug, flanked by intermittent clay-lined pits (Barnatt *et al*. 2002: 50).

The chronology of the cross-ridge boundaries

John Cross Rigg has produced radiocarbon and palynological evidence which suggests it was the product of a construction process which extended over a century and a half from c. 1000 cal. BC – and almost certainly somewhat longer, taking into account the initial stone alignment, for which no date is currently available. Radiocarbon dates have been obtained from peaty soil beneath Bank 4 and from peat buried below and above one of the submerged banks, probably Bank 1. The soils were sealed beneath banks of yellow clay, leading to some confidence that the pollen had not been mixed by water movement or animal action, evidence for both of which was visible at the bank edges. Pollen was generally well-preserved and plentiful (Table 1).

Bank 4 appears to be the earliest of the banks, buried soils from beneath Section 3 of this earthwork produced a date of 985 cal. BC 90.6% probability SUERC-111116 (GU64412). The relatively early date of this bank is confirmed by the pollen profile of the buried soil, which comprises 40% tree pollen compared with 60% heather, with no shrubs. In contrast, Bank 1 sealed soils which contained only 8% tree pollen, there was a shrub content of 17% while the proportion of heather pollen had increased to 75%. Similar proportions were present beneath Bank 2/3. Peat buried beneath one of the banks submerged in the peat bog, probably Bank 1, produced a C14 date of 832 cal. BC SUERC-103776 (GU60198).

Peat from immediately above the bank produced a radiocarbon date of cal. AD 682 SUERC-103777 (GU60199), suggesting that it took some 1500 years for the peat to engulf the 0.33m high bank. The maximum depth of peat recorded in the bog is 1.10m.

Proportions of pollen contained in buried soil beneath the boundaries at North Ings and Gerrick Moor are also included in Table 1. The higher proportions of tree pollen in these samples suggests that both earthworks may be somewhat earlier than even the earliest phases of John Cross Rigg boundary.

At this point a list of the characteristics of cross-ridge boundaries can be offered. The boundaries:

- almost invariably have an indirect relationship with Early Bronze Age burial mounds;
- occupy locations well-defined by contours and/or marshy ground;
- almost never have a direct or indirect relationship with features other than round barrows;
- often begin their life with causeways or breaks, and some remained broken;
- others allowed passage between paired pit or stone alignments;
- have ditches that are more carefully made than the associated banks;
- have banks which are often 'ragged' or uneven and can be unfinished;
- show evidence for re-modelling, with rough walling and stone facing.

To which may be added further general observations:

- they could not have been effective for controlling the movement of people;
- they could not have contributed to the management of sheep or cattle;
- they could not have been useful for protecting growing crops.

The purpose of cross-ridge boundaries

Spratt (1993: 130–134) was convinced that the cross-ridge boundaries had an agricultural purpose: he wrestled unsuccessfully with their very few obvious associations – the undated clearance cairns, field walls and tracks. 'The function of the dykes', he said, speaking more firmly than the evidence '...was to define the outer limits of farming units, whose settlements and no doubt much of whose agricultural activity were on the lower ground' (Spratt 1933: 130–134). Agriculture may not have been far away, but consideration of the individual cross-ridge dykes, and the Cleave Dyke complex itself, confirms a close association between the Early Bronze Age burial mounds and the cross-ridge boundaries. There are no other consistent associations.

Conundrums remain, however: virtually all cross-ridge boundaries can be seen to relate to one or more burial mounds, but there are many more burial mounds than cross-ridge boundaries. Clearly, not all burial mounds had the same attraction for cross-ridge

Figure 24: Loose Howe: a significant barrow without a cross-ridge boundary (Photograph: Blaise Vyner)

boundaries: looking at Spratt's plan of the Cleave Dyke, for example, raises questions as to why there are no boundaries north of Kepwick Dyke, or in the area of Cold Cam to the south, even though there are burial mounds in those areas. There are a number of cross-ridge boundaries associated with barrows on Levisham Moor, at around 200m OD, there are no associations with the group of barrows at nearby Levisham at around the same height (Spratt 1989, figure 11). Some cross-ridge boundaries in this area might have been erased by agriculture, leaving the more substantial burial mounds standing, others might have taken the form of pit alignments or paired-pits. The substantial burial mound at Danby Beacon is not associated with a cross-ridge boundary, it is situated at over 300m OD – well above levels suitable for arable agriculture, while Loose Howe (Figure 24), a prominent burial mound, contained a tree-trunk coffin with a burial accompanied by a Collared Urn, an accessory vessel, a bronze dagger and a bronze trefoil-headed pin (Manby *et al*. 2003: 64). This appears never to have attracted further burials, or, indeed, a cross-ridge boundary.

The Early Bronze Age burial mounds in north-east England remain poorly dated, their currency appears to extend between 1930 and 1738 cal. BC (Vyner forthcoming). The cross-ridge boundaries post-date the burial mounds, they evidence the continuing tradition of depositing the ashes of the dead at or around the old burial mounds. For Barrett the ending of mound construction was emblematic of significant societal changes, with the burial mounds now the focus for veneration (Barrett 1994: 151). The surviving field evidence underlines a more complex reality. It is at least likely that many burial mounds had become

neglected or disused in the time intervening between cairn construction and the building of cross-ridge boundaries from perhaps the fifteenth century BC, although at present no date earlier than the eleventh century BC is available. Evidence for the variable survival of the status of mounds may be present in the way that the slightly meandering course of the Cleave Dyke includes some but not all of the scarp-edge burial mounds (Figure 21). In lowland areas, also, many burial mounds appear not to have needed earthwork boundaries to maintain their ritual status.

Most of the burial mounds of the North Yorks Moors have been excavated, or at least dug into to some extent, although there are few excavation records. The majority of the burial mounds appear to be of Early Bronze Age construction and contain Collared Urns, although a few, including Herd Howe (Figure 7, include vessels which are likely to be Late Bronze Age in date (Manby 1980: 319–320; Spratt 1993: 94–109). Grave-goods tend to be limited to funerary urns and accompanying vessels which often appear to have passed through the funeral pyre, which may also explain the absence of jet items, Although jet was fairly readily available in the Whitby area it survives only with the rare inhumation burials. It is unsurprising that little is known of contents of the burial mounds associated with the Cleave Dyke. There has been little investigation of any of the North York Moors burial mounds during the twentieth century and the patchy record of barrow excavation along the Cleave Dyke is typical and unhelpful, summarised in Smith (1994: 102–106). The chances of identifying burial mounds that might have been more significant than others is therefore limited. The area of the Cleave Dyke has, however, been the focus of fieldwalking which has produced, from two different barrows, jet objects described as 'very significant and rare', one being a wristguard, the other a substantial belt fitting (Sheridan 2023: 63–68). To these can be added a pair of gold 'earrings' from an uncertain context at Boltby Scar fort (Clarke *et al*. 1985: 187–188 and illus. 5.18), which, since they bear no sign of pyre damage, are likely to have been deposited with an inhumation burial in the early to mid-third millennium BC (Manby *et al*. 1993: 91). In a region where such objects are rare indeed, it would appear that the burial mounds along the Cleave Dyke had a particular importance which the cross-ridge boundaries were acknowledging.

Conclusion

Cross-ridge boundaries are a feature of north-east Yorkshire, where they mostly occupy upland locations above the level of arable agriculture and in many cases are on land that could only be used for seasonal Agrazing. The broken and discontinuous nature of the majority of the boundaries argues against an agricultural function and for a ritual significance. The boundaries are distinguished by considerable variety and complexity of construction. Some upland areas in South Wales and elsewhere demonstrate a similar conjunction of burial mound and boundary that may yet prove to be comparable.

There is a recurrent association between cross-ridge boundaries and Early Bronze Age burial mounds and cairns, yet the boundaries can be shown by radiocarbon dating and

preserved pollen profiles to belong to the Late Bronze Age. They therefore appear to demonstrate an interest in marking areas which for lengthy periods of time had already been assigned a ritual function. These 'territories of ritual' continued in use for the deposition of the ashes of the departed, despite the diminution of mound-building and the increasingly limited use of burial urns.

If the cross-ridge boundaries confirmed the continuing function of some burial mounds there is a suggestion that in places the absence of boundary confirmed the disuse of other mounds. The Cleave Dyke arrangement of conjoined boundaries appears to thread its way between burial mounds, seeming to include some of the mounds set above the escarpment of the Hambleton Hills while at the same time appearing to deliberately exclude others. Can it be assumed that the absence of any boundary associated with prominent mounds such as Loose Howe, with its high-status coffin and grave goods, betokens the demise of its founding family? Similar contrasting patterns of maintenance and neglect can be observed in the burial grounds of the recent past half millennium and more.

At present it is not clear that cross-ridge boundaries share the same chronological horizon, a complication lying the increasing evidence for the maintenance, rebuilding and reconstruction of the boundaries. This may make it difficult to establish when some boundaries were first built, although it seems reasonable to assume that the social reasons for their establishment were widespread and that to a large extent the boundaries were coeval.

This project has drawn attention to the many practical and interpretational problems associated with understanding and interpreting cross-ridge boundaries. Almost seventy years ago Grinsell suggested that the problem presented by cross-ridge boundaries would be elucidated by a combination of air photography, field archaeology and judicious excavation. There has been only limited deployment of the last two of these techniques on linear boundaries of all kinds, but it is clear that comparative assessment and the application of scientific dating should be added to the list of necessary techniques.

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