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THE IDENTIFICATION OF EARLY MEDIEVAL MONASTIC ESTATES IN NORTHUMBRIA

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Introduction

By the later 7th century, a Northumbrian monastery could be a large-scale institution with a dense concentration of people. When Abbot Ceolfrith departed on his final journey from Wearmouth-Jarrow in 716, he left a community 600 strong (*Vit Ceol Anon*, 33; *Vit Abb*, 17). A monastery of this size is likely to have been one of the biggest concentrations of people in what was then a mostly non-urban kingdom. Such an institution needed resources on a large scale, none more important than land. In 674 Benedict Biscop set up Wearmouth with an endowment from King Ecgfrith of an estate of 70 family farms (*terram septuaginta familiarum*), to which he was able to add another 40 when the Jarrow house was founded in 681 (*Vit Abb*, 4; 7). Wearmouth-Jarrow abbots showed some skill in negotiating land deals, to the extent that by 716 the monastery enjoyed an estate of 150 farms (*terram, iuxta supputationem consuetudinis Anglorum, familiarum ferme centum quinquaginta*) on land between the rivers Tyne and Wear and south of the Wear (*Vit Ceol Anon*, 33). One particular need for a monastery was to resource the scriptorium. This brings together the topics of this essay: land, book and cow.

Ceolfrith's purpose in the journey in 716 was for him to present to Pope Gregory II the Bible now known as the Codex Amiatinus, written in the Wearmouth-Jarrow scriptorium. This was an ambitious project. 1030 folios, each formed by folding in two a sheet of vellum: 515 bi-folios of 700 mm × 1040 mm. Such is the size that the hide of one calf went into each bifolio: a minimum of 515 calves died in the cause. This book is known to have been one of a set of three Bibles. The other two, for use in the two monastery churches of St Peter and St Paul, have not survived, except for a few fragments (Marsden 1995, 87–98). So the resource required for vellum for the complete project was the hides of 1,545 calves; or perhaps more if, as Michelle Brown (2003, 200–1) has suggested for the Lindisfarne Gospels, many skins had been discarded to achieve the high quality of vellum seen in both manuscripts. This is production on an industrial scale and if it seems unlikely, the findings from excavations at the Pictish monastery of Portmahomack show how this could be. Here, within the monastic precinct, was a zone of industrial process which included the production of vellum. The whole process, from the slaughter of the animals to the curing of the skins to form the vellum sheets, took place under the direct supervision of the monastery (Carver and Spall 2004).

We do not know how long the Bibles project was in the making and nor do we know how much other work was in hand. (Bede was writing his commentary on the First Book of Samuel as preparations were being made for Ceolfrith's journey). So we are denied a figure for the average annual consumption of vellum sheets in the scriptorium, and thus for the consumption of calves. This is frustrating. But the insight we do have is enough to show us that the scriptorium of a monastery such as Wearmouth-Jarrow cannot have been resourced *ad hoc* from the produce of subsistence farming; there must have been systematic and purposeful estate management on a large scale. We can therefore ask the question whether we can see any evidence of this in the Northumbrian landscape. For this paper, we have reviewed recent literature and we present five case studies which take us some way towards understanding early monastic estate management (Fig. 1).

Case 1: Werhale and the *familiae* of Wearmouth-Jarrow

The estate of Wearmouth-Jarrow, largely overlain as it is now by the conurbations of Tyneside and Wearside, is unpromising terrain for an archaeological landscape study. But Brian Roberts (2008) has brought to bear the evidence of placenames, plan forms, historic maps, charters and other documentary sources, from which he has proposed an interpretation of the landscape of *Werhale* of around AD 700.His model of this terrain is of two types of land, '(1) limited areas of arable and meadow, some in blocks, some in strips surrounded by a secure head-dyke, to protect crops from grazing animals … (2) all set amidst a sea of waste comprising either wood pasture or open pasture, or a mixture of both' (2008, 134). As late as AD 1600, it was still a patchwork of areas of settled land dispersed among wastes (Dunsford and Harris 2003). By a retrogressive analysis, from the AD 1600 mapping and the evidence from charters of farms carved from the wastes between *c*. 1150 and 1350, Roberts worked back to a map-based proposition (Fig. 2).

The transfer of these lands in the 9th century to the Community of St Cuthbert, the former Lindisfarne community, then resident in Chester-le-Street (*HSC* 13; 20) and thence in 1229 to Durham Priory management, allows a link to be made with the landholdings of the 7th–8th centuries. Roberts' insight is to see that the landholdings of between 30 and 52 acres, known as husbandlands on the Priory estates, are essentially the same as the *familiae* of King Ecgfith's grants (Roberts 2008, 147). The English translation of the Latin term *familia* as 'hide' becomes a source of confusion when a hide is understood as an area measurement of 120 acres. Roberts shows that this cannot be so for the *familia*; this is better understood as a farm capable of supporting a

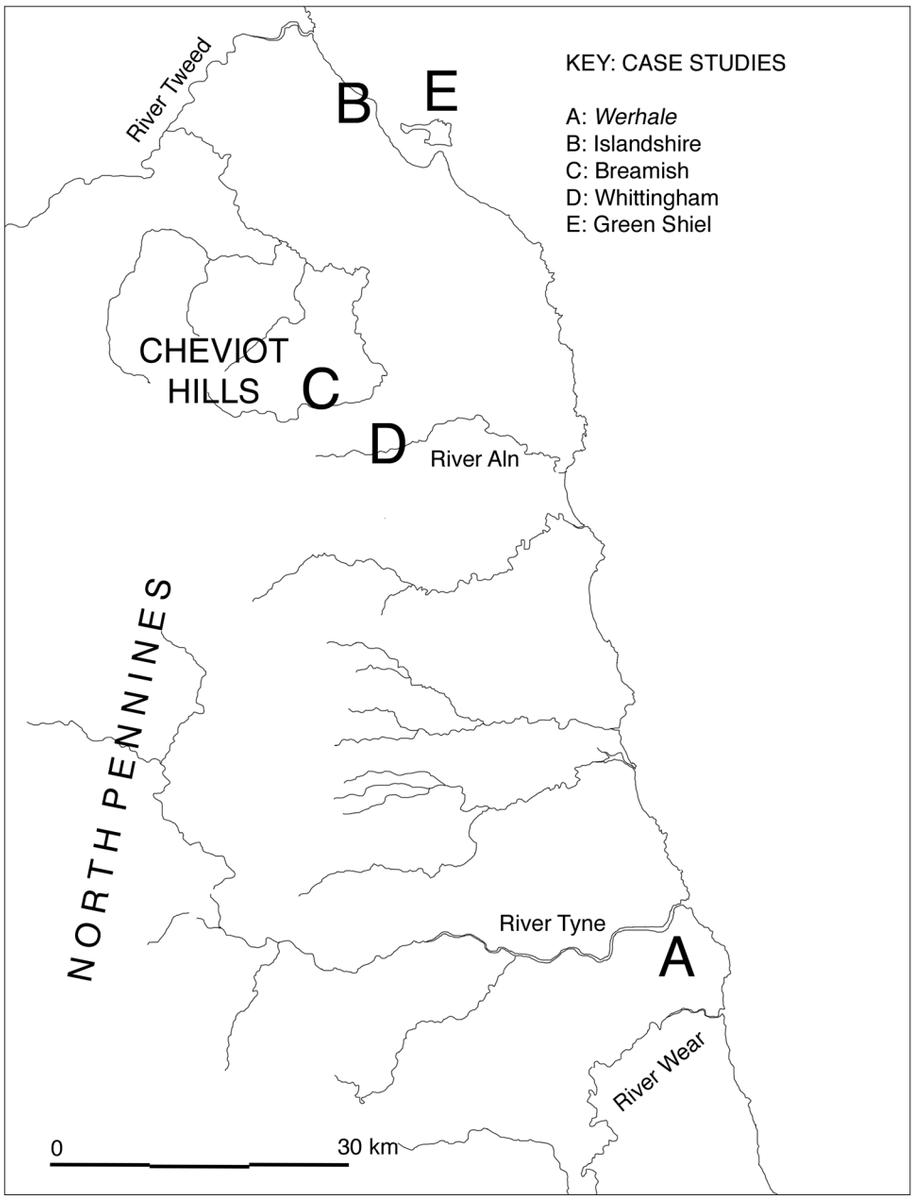

Figure 1 North-east England and the locations of the study areas

family (see Roberts 2008, fn. 61 on this terminology). This insight on husbandlands, referenced to acreages derived from 1st edition Ordnance Survey mapping, brings us to the estimate that the *familiae* constituted a resource of some 6,600 acres (2,500 ha) of Roberts' first type of land, 'armed, tilled, stone-picked, and perhaps manured arable land'. Some 5,000 of these acres lay between Tyne and Wear within a total area of 26,760 statute acres, hence some 20,000 acres of wastes (see Roberts 2008, Tables 1 and 2 and 136–47 for this analysis, with variation in the units of measurement and other caveats on numbers carefully noted).

These figures do not bring us to herd sizes or the numbers of calves available to the scriptorium: these are as yet unknown. But we can come one stage closer to placing the cattle in the landscape. The *Boldon Book* of 1183 records the tenures, rentals and service obligations on the *vills* of the Bishop of Durham's estates, the other division of the lands of St Cuthbert. Boldon itself, to take just one example, renders a payment of 17 shillings for cornage (*de cornagio*) and one cow of metreth (*vaccam de metride*) (*Boldon*, 13). Here are two renders on cattle, both archaic survivals in medieval estate management. The cash payment for cornage is a commutation of what was originally a render of head of cattle, on the hoof, to the lord's household. The cow of metreth is the cow with her calf, still owed directly as a render in 1183, and not yet commuted to a payment in cash. (By the time of Bishop Hatfield's survey, compiled in 1382, metreth had been commuted to a payment of six shillings (Greenwell 1856)). The two payments refer to two types of cattle herd. Cornage was paid on the herds roaming the wastes, from among which bullocks could be rounded up and castrated for use as draught animals and heifers brought in to be put to the bull. This is the herd culled annually in the month of Blodmonath (November) when, as Bede records, 'the cattle which were slaughtered were consecrated to their gods' (*DRT*, 15). One such herd

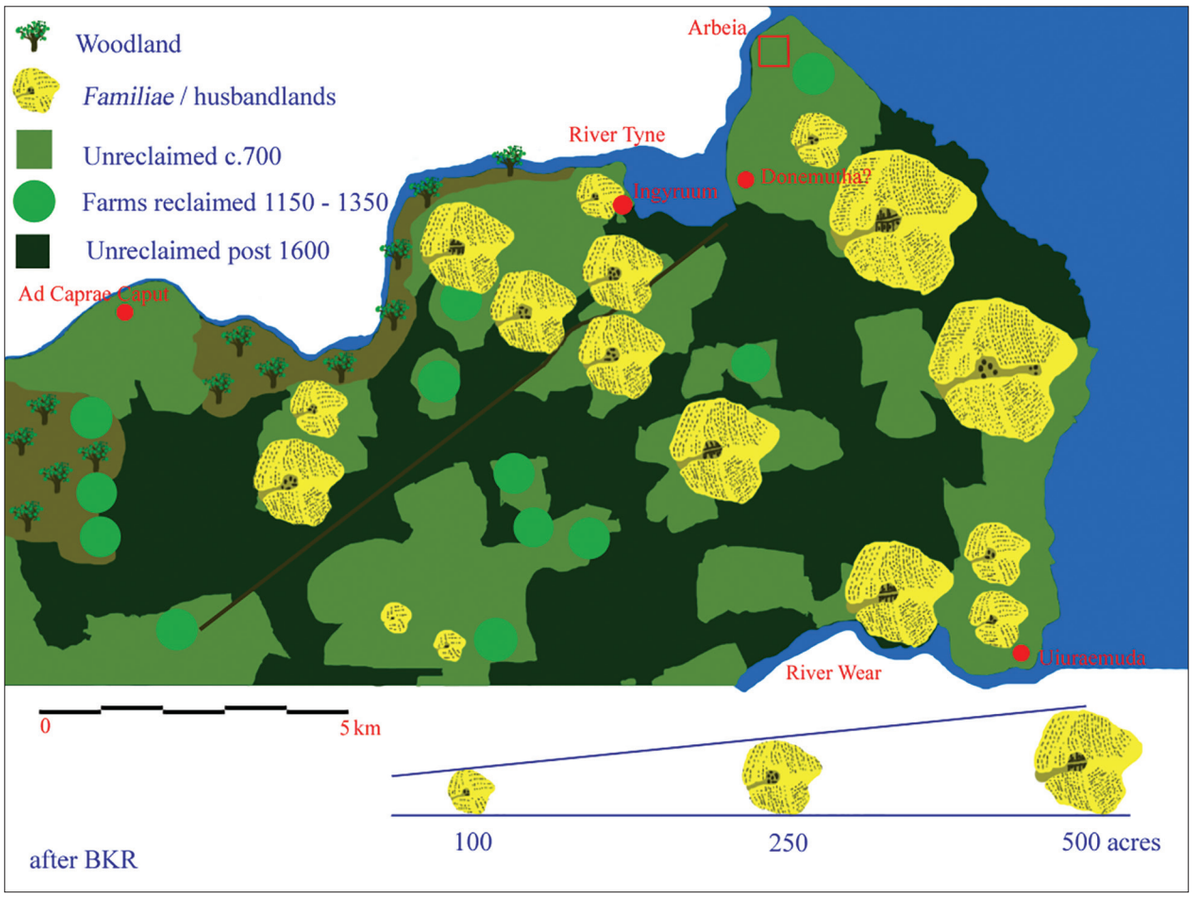

Figure 2 The landscape of Werhale. After Roberts 2008, fig. 4

still survives in Chillingham, Northumberland, trapped since about 1630 when its grazing lands were emparked and enclosed by a stone wall (Hope Dodds 1935, 301–6). The cow with calf was part of the breeding herd, managed for milk and for breeding and kept close to the settlements on the improved lands of the *familiae*. The requirements for vellum are the same as for dairying, a regular breeding cycle, except that calves intended for the vellum workshop are culled in their first spring, prior to weaning (Dobney *et al*. 2007, 111). Here then, on the 6,600 acres of *familiae*, were the cows whose calves yielded the 1,545 hides to the scriptorium for Ceolfrith's three Bibles.

The *Werhale* case does not give any particular insights into the internal organisation and workings of the monastic lands but three cases from the Lindisfarne monastery of Holy Island hint at functional specialisation within and between estates.

Case 2: Islandshire

Islandshire is the name given to a strip of land along the coast of north Northumberland, stretching from the south bank of the River Tweed in the north to Budle Bay and the edge of Bamburgh in the south, some 13 miles in length and nowhere more than 5 miles wide, and taking in the tidal island of Holy Island. Despite its position, it was held along with Norhamshire and Bedlingtonshire, the three together known as North Durham, as part of County Durham until transferred to Northumberland under the terms of the Counties (Detached Parts) Act of 1844 (Raine 1857; *HSC* 4, 9, 21 texts and commentary and fig. 2). As Durham holdings, these three shires were part of the inheritance from the Holy Island monastery of Lindisfarne. It is reasonable to suggest that Islandshire was a unit of land in kings' demesne and that this was King Oswald's endowment to the monastery at its founding in 635.

Insight into the internal structure of the estate comes from the early 13th century when it was in the hands of the Priory of Durham. We cannot be sure how much of Priory estate management was newly introduced after 1229. It retained archaic elements of the early medieval shire, described by Geoffrey Barrow (1973), whereby goods or services were rendered at an estate centre from outlying dependencies held under thanage and drengage, the service tenures of the system of lordship, and integrated estate management exercised over an extensive area. Glanville Jones (1972) analysed the constituent elements here (Fig. 3). Vills held in thanage at Berrington, Low Lynn and Kyloe and drengage at Goswick, Beal and Buckton were all dependencies owing works at the estate centre at Fenwick. Among these, place names suggest that individual vills had particular specialist areas of production within a mixed farming economy on the estate: Goswick raised geese; Buckton

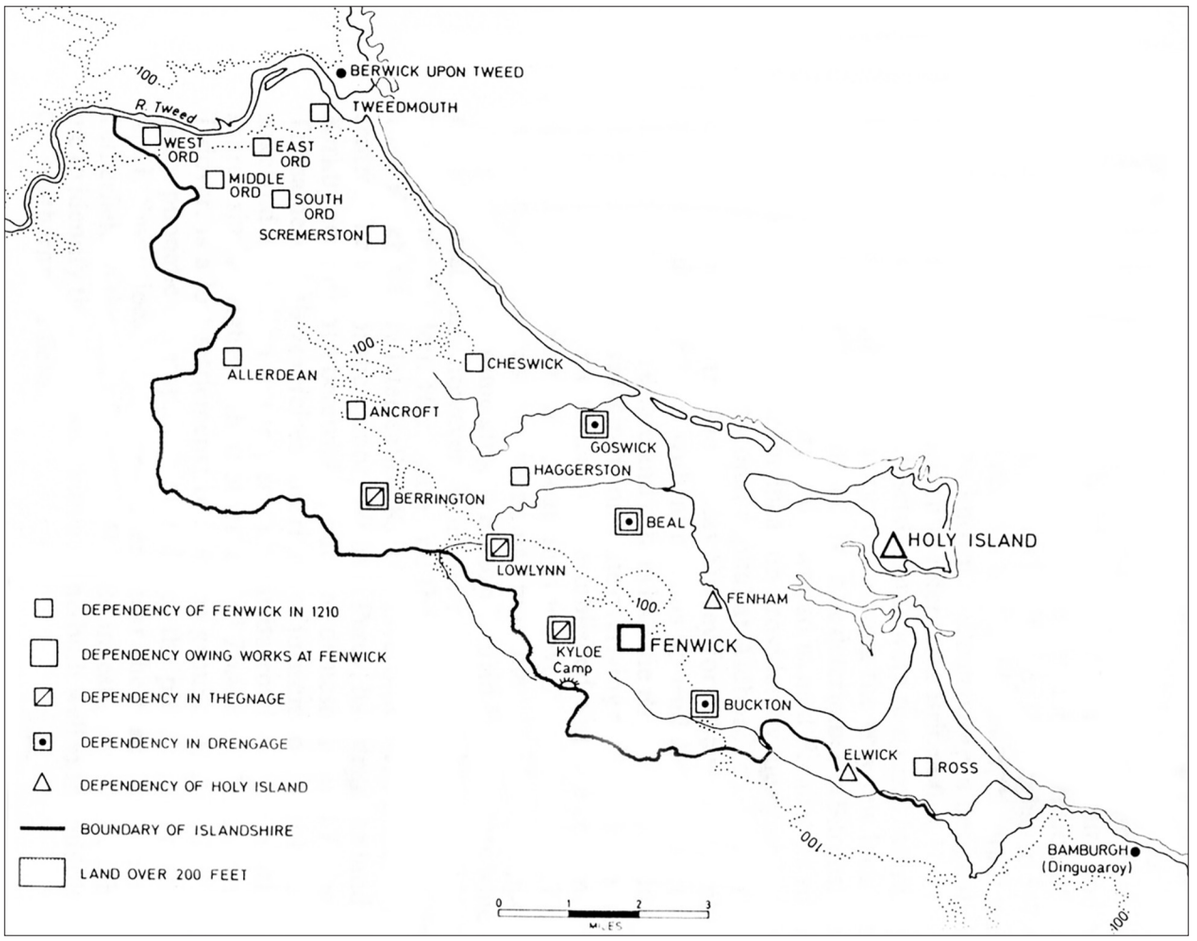

Figure 3 Islandshire. After Jones 1972, fig. 3

deer; and Cheswick produced cheese. We can therefore propose a model of monastic estate management involving extensive holdings across existing territorial structures with production specialisation.

Case 3: Breamish, an Upland Estate

The third case brings us to the hill country of the Cheviots in the north of Northumberland, where the east–west watershed now forms the Anglo-Scottish border. The hills on the south-east flank of Cheviot are drained by the River Breamish, flowing eastwards before turning north (here with the name River Till) along the valley between the Cheviots and the sandstone ridge to the east and on to its confluence with the River Tweed. The Breamish Valley has one of the best-preserved archaeological landscapes in England, with visible features from the Neolithic era onwards.

Haystack Hill, some 1–2 km south-west of the village of Ingram, well illustrates some of the features typical of this terrain. Bounded on the south side by the steep-sided valley of Middledean Burn, the hill has an even, east-facing slope descending from its summit. The prominent double bank of a defended settlement, Middle Dean, now partly eroded, sits above Middledean Burn. On the slope is a settlement cluster known as Haystack Hill, with three ovals containing the footings of circular houses scooped into the surface and, immediately west, a larger rectangular compound containing a row of small features (Fig. 4). North of this group, a smaller clustered settlement, Little Haystack, is now heavily eroded. Ridge-and-furrow cultivation extends across much of the hillslope; and embanked boundaries cross the land, clearly over-riding the cultivation ridges. A small plantation obscures surface features in an area between the Middle Dean and Haystack clusters but, this apart, the hillside is clear of modern developments (Fig. 5). Peter Topping (2008, 341) characterises the assemblage of features here as 'the encroachment of ridge-and-furrow from Ingram village upon the prehistoric landscape'. His understanding is that the settlement clusters survive from the pre-Roman or Roman Iron Age, with such associated landscape features as they once had having been ploughed away during an episode of cultivation in the medieval period which itself ceased in late- or post-medieval times when the land was divided into large blocks for the grazing of animals. This interpretation is advocated more generally as a standard model for the Cheviot hills (see, for example, Frodsham 2004, 84). We wish to question whether the standard model is necessarily correct in all cases and to propose an alternative model which links change in land use to the intervention of the monastery of Lindisfarne, founded in AD 635.

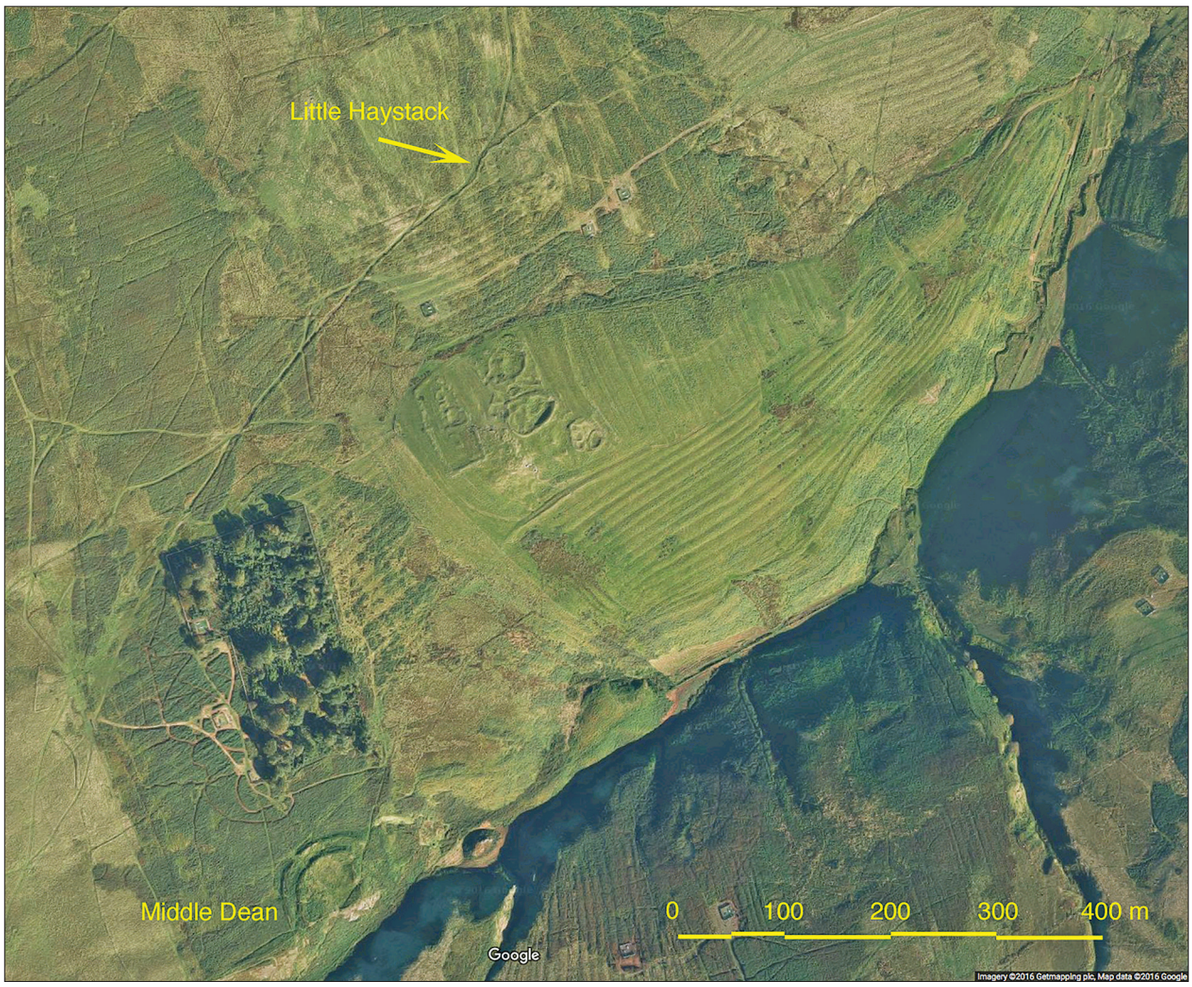

Figure 4 Aerial view: Haystack Hill settlement enclosure with rig and co-axial boundaries and also Middle Dean and Little Haystack enclosures

The first stage of the argument is to question whether the cultivation ridges are necessarily of the medieval period, as generally assumed. Examination of Hartside Hill brings the matter under review (Fig. 6). This is an almost-rectangular hilltop, nearly 2 km long, east to west, and up to 0.5 km north–south, bounded on all but the north side by the River Breamish. There are peaks towards the east and west end of the hill and a saddle in between. At the east end, an oval enclosure occupies the peak with, just below, a cluster of small scooped enclosures. From these, boundary features extend around the hill following the contours, and reach downslope in a radial pattern; aligned with and contained by the downslope boundaries are blocks of cultivation ridges. Thus there is a unity of settlement enclosure, land division and cultivation area, neatly set out with reference to the shape of the hill. Or so it would seem. But although the settlement enclosures are understood to be of pre-Roman or Roman Iron Age date (this on an argument from typology: they have not been excavated), the cultivation marks are interpreted as 'intrusive broad and narrow ridge-and-furrow cultivation' (Topping 2008, 344), that is of medieval (broad) or post-medieval (narrow) date. Why is it that, despite the apparent unity of features, the cultivation episode is judged to come at least a millennium later than the settlement and the setting out of field plots? We can ask the same question of the features at Greaves Ash, on the north side of the valley. Here settlement clusters are placed along the side of the lower slope of the hill, with land boundaries connecting them and forming field down-slope boundaries and a trackway. Features described as 'intrusive systems of medieval ridge-and-furrow cultivation' (Topping 2008, 351) are, nevertheless, aligned with the curve of the trackway. Similarly, at St Gregory's Hill, on the north side of the Cheviots, features identified as medieval strip lynchets appear to respect the alignment of boundary features associated with Late Iron Age/Roman Iron Age occupation of the site (Oswald *et al*. 2008, 36 and fig 23).

We can leave the question hanging, while first returning to Haystack Hill (Figs 4 and 5) where there is excavation evidence from the Durham University *Ingram and Upper Breamish Valley Landscape Project* (ASUD 1998). As noted above, long embanked boundary features, or fieldwalls, cross the hillside, some clearly over-riding cultivation ridges. A block of land, approximately rectangular with its long axis up- and down-slope (east–west), and containing the settlement cluster of Haystack

Figure 5 Rigg and co-axial boundaries on Haystack Hill. After ASUD 1988, figs 8 and 9

and the heavily eroded Little Haystack, is bounded by a series of co-axial embankments which on the north and west sides over-ride cultivation ridges. The short east side follows a natural break in the surface formed by a small watercourse. The south side is parallel to a set of ridges between the embankment and Middledean Burn and forms the limit of a block set out on a north–south axis. At two places along its one-kilometre length, small blocks of over-riding ridges have removed the boundary. So these features represent three stages of land use: widespread cultivation of ridges, followed by stock management with long boundary features, followed by small cultivation blocks; this from direct observation of surface features. Just beside Little Haystack and at a point where it over-rides cultivation ridges, a short length of this boundary has been excavated.

The boundary has a slight kink in its alignment where it follows the north edge of the scooped-out compound of Little Haystack. It is constructed with outer facings of boulders and a core of mixed soil and turf to form a setting for a hedge, typical of the hedgebank field boundaries still used in the area. Beneath the embankment the excavators observed a thin layer of burnt turf-like material, thought to be the remnants of the last crop planted on the underlying ridges. Charcoal recovered from a deposit beneath the burnt turf line gave a calibrated radiocarbon date within the range 395–100 BC. This is a *terminus post quem* for the formation of the boundary. At some time, an entrance had been opened across a length of the boundary and was later filled in again. Charcoal from the infill had a calibrated date of AD 855–1020. This gives a *terminus ante quem* for the boundary (ASUD 1998, 7–9). The period of change in land use from cultivation to stock management lies between the two radiocarbon dates. Given these dates, the only cultivation on this hillside which can be securely assigned to a (possibly post-conquest) medieval date are three small blocks, including the two mentioned above, which breach the embankment and/or intrude into earlier cultivation ridges (see ASUD 1998, Fig 9). The rest, on the evidence of the *terminus ante quem*, has to be earlier. Excavation in 1996 of a substantial rectilinear enclosure at Ingram South, 1 km north-east of Haystack Hill, produced grain and chaff from six-row barley with a calibrated date of AD 90–200 (ASUD 1997, 6) and in the absence of any contradictory evidence, we might assign the bulk of the ridge and furrow cultivation to the Roman-British period.

There has been some reluctance to acknowledge the dating evidence which Adams presented in the ASUD 1998 report and to consider its implications. Beckensall (2001, 69) recognised the early medieval date (though he mistakenly refers to this as being from 'under the boundary wall'), but failing to observe the

Figure 6 Hartside Hill. After Topping 2008, fig 14

stratigraphic relationship between the boundary and the cultivation ridges, he concluded that 'it was not possible to date the field system'. Frodsham and Waddington (2004, 178) also concluded that dating evidence for the settlement enclosure, boundary and cultivation 'was not forthcoming', adding then that 'the only relevant radiocarbon date proves nothing other than that the excavated length of boundary was constructed *after c*. AD 900' (their italics). This misrepresents the *terminus ante quem* as a *terminus post quem*. (More recently, Marshall and Waddington (2012, 230) allow a *tpq* of *c*. 200 cal BC for a set of three dates for boundaries on Brough Law and Little Haystack). Topping (2008), cited above, did not refer to ASUD 1998, even though he drew on the 1996, 2000 and 2001 project reports. To be fair, Topping was addressing the prehistory of the area; but his acceptance without critique of the default view that the ridge and furrow is medieval intrusion into prehistoric and Roman Iron Age landscapes should not go unchallenged. To interpret the cultivation of Hartside Hill East in this way is counter-intuitive to any understanding of the idea of association in landscape archaeology; and the Haystack Hill case has clear radiocarbon dating evidence for pre-medieval cultivation.

We do not argue that all ridged cultivation in the Cheviots is pre-medieval. Piers Dixon (2014) presents a fine study of a medieval settlement and its fields at Alnhamsheles; we argue that not all is medieval and that there are both morphological and stratigraphic means of identifying pre-medieval rig. The reluctance to accept this seems to arise from building chronologies from classifications of site-types defined by an over-simplistic morphology, whereby broad ridge and furrow is understood to be necessarily the product of mouldboard ploughs of the medieval era. Several sections have been excavated across these ridges; none has produced any medieval pottery. But the morphology of ridge and furrow was described and the ploughing techniques that produced this explained nearly eighty years ago in the context of open fields in the English midlands (Orwin and Orwin 1938). We cannot take for granted that cultivation techniques suitable to lowland terrains and their soils can be used in the Cheviot hills. This morphological analogy in itself is weak when applied to the Cheviot hills where we do not normally see the headlands and reverse-S alignments typical of open-field cultivation. Farmers who now work these hills gave evidence to Adams (1999) that a normal mould-board plough would simply bounce off the stone brash. In their pre-cultivated state the Cheviot hills support brown earth topsoils some 5–10 cm deep over an andesite brash which can be more than one metre deep and which holds a brown earth matrix, cultivable if it can be released from the brash. The appropriate tool for the job works in the same way as the modern mole plough, driving a furrow below the surface and loosening the broken stones which can then be picked by hand. The brown earth, now released, can be drawn up into ridges with spade or mattock in an operation akin to forming lazy beds.

The small bronze statue of a plough team from a Roman-period setting at the fort of Piercebridge in County Durham (Manning 1971) illustrates the sort of plough that a farmer could have deployed in the Cheviots at a time consistent with the radiocarbon dating evidence at Haystack Hill and Ingram South. Fowler (2002, 191–2 and fig. 9.2a) has re-considered this plough, rejecting Manning's suggestion that the small projections on each side acted as supports for a

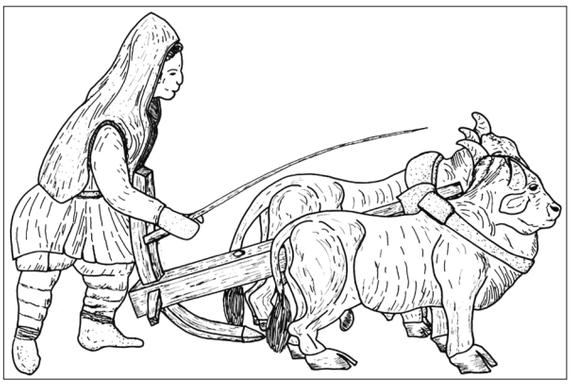

Figure 7 The Piercebridge Plough. After Fowler 2002, fig 9.2a

mouldboard and reinterpreting the implement as a sole-ard with wings. The heavy block of wood forming the basis, probably with an iron tip, acts as a mole plough to break into and loosen the earth (Fig. 7).

Once we acknowledge the weakness of defining chronology by morphology of cultivation ridges, and once we recognise that by the Roman Iron Age a technology suitable for cultivation was available, then the default assumptions that the ridge and furrow here necessarily belongs to the medieval era can be reconsidered. The assumption that the change from cultivation to stock management has to be of late- or post-medieval date no longer holds good and other interpretative models can be considered. Adams (in ASUD 1998, 12–13) favoured a date within the Romano-British period for the cultivation on Haystack Hill allowing 'for abandonment and several phases of wall development before the 10th century AD'. Alongside the evidence from the rectilinear enclosure at Ingram South of six-row barley cultivation and processing in the 2nd century AD, the Roman Devil's Causeway (now the A697) runs just 4 km to the east of Ingram. And a radiocarbon date of *c*. AD 500 was obtained from a hearth set into a late Neolithic/Bronze Age cairn close to Haystack Hill (ASUD 1996).

Reviews drawing on the evidence of air photography, archaeological fieldwork and excavation, and palaeobotanical studies (Young 2004; Gates 2009; Passmore and Waddington 2012) are consistent in the view that by the later stages of the pre-Roman Iron Age, settled populations were cultivating wide areas of land and that this pattern continued, and perhaps intensified, during the Roman era. For the post-Roman and early medieval periods, the picture is more varied, but the suggestion by Oswald *et al*. (2006, 91) that between the Roman Iron Age and the medieval era large areas of upland arable were abandoned and reverted to pasture for perhaps almost 1000 years is not directly supported by evidence. On the contrary, Richard Tipping (2010) from a study integrating palynological and geomorphological analysis of the Bowmont Valley, draining the north side of the Cheviots, finds that the structure of pasture and crop growing established in the Pre-Roman Iron Age continued unbroken into the early medieval era, with cereals remaining part of the farming economy (2010, 188–92). Gates (2009, 167–71) cites discovery of numerous *Grubenhäuser* in a Till-Tweed study area as evidence of a density of early medieval settlement hitherto unrecognised in the archaeological record, and he is incisive in recognising a need to consider the social and territorial changes implied by the changes in the archaeological record.

Topping (2008, 365–58) proposed a model for the late prehistoric settlement of the Breamish valley of territorial units, each based on one of the small hillforts and with a hinterland defined by a combination of natural features and cross-ridge dykes. Oswald *et al*. (2006, 95) observe that the cross-ridge dyke on Wether Hill seems to have outlived occupation of the hillfort by several centuries. Passmore and Waddington (2012, 235) developed this model by noting that each unit 'had access to similar proportions of different types of land, including a stretch of river, water meadow, permanent pasture, upland grazing and arable land'. This, they suggest, is a landscape of self-reliant farming settlements with an emphasis on subsistence rather than specialisation, arranged around kinship groups. This model is consistent with the view which Gillian Ferrell had developed from rank-size analysis of spatial patterning in the Breamish area (1997) of autonomous, isolated groups and no evidence for any form of settlement hierarchy. It is an example of what Andrew Fleming (1998) called small-terrain organisation, characteristic of periods of population increase and increasing population densities. The change evident in the archaeological record from cultivation to stock management is a change from an intensive land use system to one which is extensive and characteristic of large-terrain organisation (Fleming's term again). Explanations of such radical change sometimes invoke external factors such as climate change, plague or warfare. This may be so; but such external factors are not necessary conditions for change and, even when they are present, they are not sufficient to bring about a change without the operation of human agency. Unless there has been near-complete population collapse, when grazing replaces cultivation on land which has supported a population through subsistence farming, cereal and vegetable foods have to be brought in from elsewhere under arrangements of specialisation across a wider terrain. This is not the landscape organisation of the small independent kinship groups of the Breamish valley of late prehistory; a larger external agency with centralised decision-making is implied. The evidence of Tipping's Bowmont study, that there is no reason to suggest any abrupt changes in land use systems at the end of the period of Roman control (variously defined as mid-3rd or early 5th centuries) (Tipping 2010, 189) allows the possibility that Topping's territorial model is applicable into early historic periods. Adams (ASUD 1998, 13) speculated that the Lindisfarne monastery, founded in AD 635, might have been the agent for the change from arable to stock management seen on Haystack Hill.

Documents drawn up to record the traditions of the community of St Cuthbert, that is the successors of the Lindisfarne monastery, and to support their territorial claims, refer to landholdings *ex utraque parte ipsius fluminis Bromic usque ad illum locum ubi oritur* ('on both sides of the River Breamish right up to its source') (*HSC* 4). The monastery, with its central hierarchy, is precisely the sort of external agency which is capable of operating across a wide terrain and effecting the radical changes

observed in the Breamish landscapes. Colm O'Brien's analysis (2002) of the territorial structures of the early medieval era in northern Northumberland allows us to understand the Lindisfarne holding in Breamish as one of the small shires through which services were rendered to a centre from across a wide area whose inhabitants gained rights and obligations under structures of tenure. The Lindisfarne monastery, from its foundation on the island and its estate of Islandshire (Case 2, above), grew to become a multi-estate organisation, with continuity and extension of landholdings even after the community of monks left the island around AD 875 to locate further south. (The community gained the former Wearmouth-Jarrow landholdings (Case 1, above) in this later stage). Among the estates closer to the island itself, in what is now the northern half of Northumberland and southern Scotland (Johnson South 2002, fig. 2), Breamish stands out as an upland unit, distinct from the coastal estates and those in the mid-reaches of the river basins. We can think of the whole set of landholdings as having been managed under integrated systems, within which the hill country of the Breamish estate had a specialist role for which the terrain was particularly suited. The evidence in the field points to the management of livestock and leads to the suggestion that here were raised the cattle which would be led to the island for slaughter and processing of their hides for vellum. The coherence of the parcel of land called Bromic, which includes Ingram and the Breamish valley and which equates to Topping's late prehistoric territorial unit, supports the argument that Lindisfarne acquired a working landscape, an existing and meaningful estate.

Case 4: The Woods of Whittingham

Documents of the 13th century listing the service obligations and entitlements of the king's drengs and four townships on the Northumbrian coastal plain close to Bamburgh refer to rights of pannage, letting loose the pigs, in the woods of Whittingham, some 25 km to the south-west. O'Brien (2002, 56–9) observed that such an arrangement made little sense in relation to the feudal arrangements of the area put in place by King Henry I after AD 1100, but that both the drengage tenure and the right of pannage here must be survivals from the systems of wide-terrain organisation operating in the early medieval shire in king's demesne centred on the fortress at Bamburgh. The geography of this arrangement was a key element in understanding the geographical extent of the shire.

As part of a study of early medieval Northumbrian settlement with a focus on place names, Mark Wood (2011) reviewed O'Brien's shires model. He notes that in the middle reaches of the valleys of the Aln, where Whittingham is situated, the place names show a significant Anglian presence only from the 8th century. It is an area of generally poor soils, with evidence from a concentration of *leah* names of a landscape dominated by woodland (2011, 64). This led him to the conclusion that the shire of Bamburgh was not operating across the whole of its terrain until the 8th century. This is a valuable development of O'Brien's model, bringing some depth of chronology into what was a largely static presentation. It leads also to more detailed insight into some of the mechanisms at work. We know that when King Ceolwulf resigned his position in AD 737 and entered the monastery of Lindisfarne, he brought with him an endowment of four estates, among them the three contiguous units of Edlingham, Eglingham and Whittingham (*HSC*, 11). So we can suggest that the organising of Whittingham to enable it to function within the wide-terrain structures of the shire was put in place as part of the systems of monastic estate management.

This insight leads to two further thoughts. First, that within Lindisfarne's multi-estate holdings, Whittingham and its adjacent units fulfilled the specialist function of management of woodland and its resources in the same way that the Breamish estate seems to have specialised in raising cattle. The second takes us to a more fundamental point about the development of English kingdoms during the 7th and 8th centuries. According to contemporary narratives, written by and about churchmen, religious impulse and the expectation of reward in the hereafter motivated the kings to make generous land grants to monastic founders such as Aidan and Benedict Biscop. Maybe so; but the cases under review suggest also that monasteries were acting as agents for development of infrastructure and economy.

The work of Brian Roberts (2010) gives wider support for this idea. He identifies what he calls cultural corelands, that is areas of productive land where woodland-type place names are absent, away from the marginal areas of moor and fenland, where the soils have for many centuries been cleared of timber, stone-picked, drained, manured, cultivated and husbanded. Within these corelands are areas long-settled by the time the first English kingdoms come into historical focus. His maps (2010, Fig 13.1) give geographical definition to the entities of Bamburgh/*Dinguaroi*, Bernicia of the middle and lower Tyne basin, Caetreth centred on the lower Tees, and Deira of the Yorkshire Wolds. This provides a more nuanced insight into the spatial development of Northumbria than the statement from the historical record that King Aethelfrith created Northumbria when he joined Bernicia to Deira (*Nennius* 63). Roberts then mapped the location of known early monasteries and other indicators of church presence in the form of stone sculpture, grave markers and architectural fragments to show a preponderance around the edges of the cultural corelands and into the woodlands of the Aln valley (2010, Fig 13.2). If we were discussing Cistercian sheep farming of the 12th century, the idea that there was an element of economic development of moorlands would come as no surprise; but the idea that in the 7th and 8th centuries kings entered into partnerships with churchmen to extend and develop the productive capacity of the land beyond the corelands as a strategy for economic development brings new insight into the study of monastic land management. That there were political elements to this strategy is evident from the disposal by King Oswiu (642–670) of royal lands in areas calculated to please a range of constituents and extend control over developing networks of elite patronage (*HE* III 24).

Case 5: Green Shiel

The four cases so far considered have been concerned with wide estate structures. For this final case we ask

if there is evidence of specialisation in monastic land management, and particularly for the raising of cattle, if we focus in on the farmstead itself. The excavations at Portmahomack, referred to above, warn that we should not necessarily expect to find evidence of vellum production on outlying farmsteads; but what of animal husbandry: is there an archaeological signature for a specialist cattle-rearing farm?

In general, Anglo-Saxon settlement archaeology shows an architecture with few signs of functional specialisation, except in the case of the small sunken featured building (SFB) constructed over a pit. Floor surfaces and fittings have rarely survived and so there is usually little firm evidence on how a particular building was used. Such is the area of uncertainty that Leslie Alcock (1989) proposed an interpretation of the 'Great Halls' at Yeavering as barns, contrary to the usual understanding of these buildings as feasting halls of the sort described in *Beowulf*. Alcock's interpretation has been largely ignored; but it would be difficult to make the case that these buildings could not work as barns. A building type noted by its absence from the Anglo-Saxon landscape of the 5th–8th centuries is the longhouse, with accommodation for both people and animals. This is despite the fact that the longhouse was used in the Germanic areas of continental Europe (Hamerow 2012, 18–22). Apparently, in England it was not thought necessary to house stock indoors. The striking evidence from Tony Wilmott's excavations at Birdoswald (Wilmott 2010) showing a perhaps 5th-century timber 'hall' directly replacing a Roman military grain store might offer a model for the early medieval hall/barn as the destination for a new form of render imposed on a post-imperial economy.

The settlement of Green Shiel on Holy Island (O'Sullivan and Young 1991) has a cluster of stone-footed buildings of a different character to the tradition noted above, with length:breadth ratios of around 4:1 (Fig. 8). The interior space of Building C was divided by a set of wall footings running parallel to each other in such a way as to suggest that this building was a byre. A stone-lined drain within Building A led the excavators to think that this too might have housed animals, although with poor survival of floor-level features, the evidence is less secure than for Building C. Cattle bones recovered in the excavations showed a preponderance of female animals over male and an age-at-death distribution with a high proportion under two years. The bones recovered were not generally those associated with prime cuts of meat. Both the architecture and the animal bone assemblage led to the conclusion that there had been a breeding herd of cattle at Green Shiel.

The closest architectural comparison for Green Shiel has been at the Pennine site of Gauber High Pasture at Ribblehead in Lancashire (King 1978; 2004). Here, a farmhouse and two associated buildings, dated to the 9th century date from coin finds, are grouped around a farmyard. The complex was interpreted as being a Scandinavian settlement to account for architectural differences from the 'normal' Anglo-Saxon building types (2004, 340). Although the excavator here found no evidence for housing of stock, finds retrieved included an iron cow bell, a horse bit and spindle whorl. The best dating evidence for Green Shiel is from coinage, a set of Northumbrian stycas, which implies that the site was occupied in the mid-9th century, but the excavators think it likely that it did not remain in use after the 870s when the monastic community left Holy island seeking safety inland (1991, 67).

Here at Green Shiel, at the north end of Holy Island, close to the monastery of Lindisfarne, was an estate farm raising a breeding herd of cattle. The buildings of the farmstead suit the purpose of the farm: a functional specialisation and not necessarily an ethnic-cultural marker, as proposed for Ribblehead, which might well now be re-interpreted in the light of Green Shiel.

As well as supporting the idea of Green Shiel as an estate farm raising a breeding herd, Dobney *et al*. (2007) have noted the possibility that the so-called 'productive site' at Flixborough (Lincolnshire), might offer evidence of estate management for vellum production. A small but significant peak in the culling of first-year calves in phase 4–5b (9th century) was noted and there has been much discussion about whether or not the site was monastic (Loveluck 2007, 135): its inhabitants certainly seem to have been literate.

If such specialised farmsteads are to be found, should we not look to the visible archaeological landscapes of the Breamish? There are as yet no firmly identified settlements of this period but the most likely candidate might well be the circular enclosure on Ingram Hill to which Adams (ASUD 1998, 12–13) and then Frodsham (2004, 73–4) drew attention. This has been subject to limited excavations by A. H. A. Hogg in 1939 and 1948 (Hogg 1942; 1956) and George Jobey in 1970 (Jobey 1971). Hogg's plan (Fig. 9) shows eight small rectangular buildings, seven tucked in hard against the inner face of the enclosure bank and one free-standing towards the centre of the enclosed area. The main structural sequence is a phase of palisaded enclosure (not visible at the surface) preceding construction of the circular stone-revetted bank and associated ditch. These are prehistoric constructions. After a period of abandonment, evidenced in the archaeological sequence by an accumulation of stony loam, the rectangular buildings were constructed. Hogg part-excavated two of these, no. 2 of his 1942 site plan, against the enclosure wall, and no. 8, the free-standing central building. Both were two-room structures, possibly stone-walled but certainly built on stone footings. No. 2, for which he showed the full ground plan, was 30 feet (9.1 metres) long. There were no associated artefacts, and the only radiocarbon date for the site (from Jobey's excavation) applies to the palisade, but Hogg suggested a date for the buildings within the range 6th–8th centuries AD. He was at a loss to identify comparable buildings in England and reached his conclusion on date by reference to buildings in Stavanger. We have better grounds of comparison available to us now. The Ingram buildings are not longhouses of the Green Shiel type but their plan-form and dimensions would not look odd at, for example, Hartlepool or Hoddom. This is not proof positive that Ingram was monastic in its final stage of re-use but the suggestion that it could have been something akin to a grange belonging to a medieval monastery cannot be dismissed out of hand. Other possibilities for monastic farm buildings could be the longhouse within the

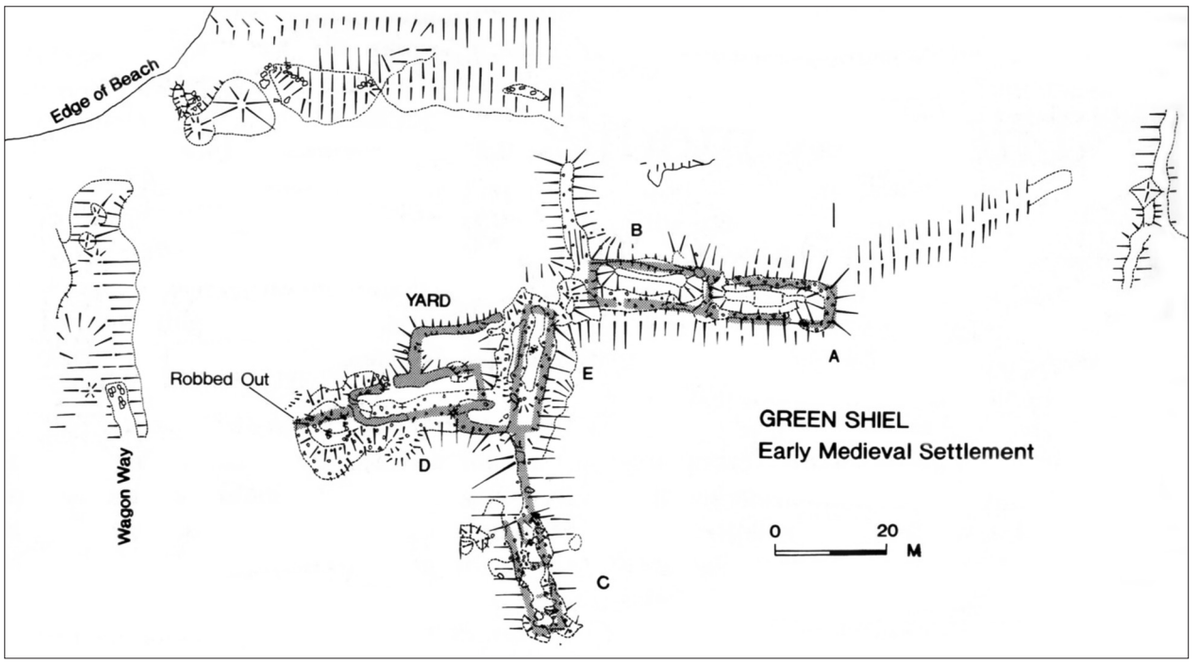

Figure 8 The Farmstead of Green Shiel. After O'Sullivan and Young 1995, fig. 56

Middle Dean hillfort, or the string of small rectangular structures towards the bottom of that hill, or the two-part rectangular structure at the edge of the settlement cluster of Hartside West.

Conclusion

We should be wary of generalising from one Northumbrian case of which we can be confident; but it is a proposition testable through field investigation

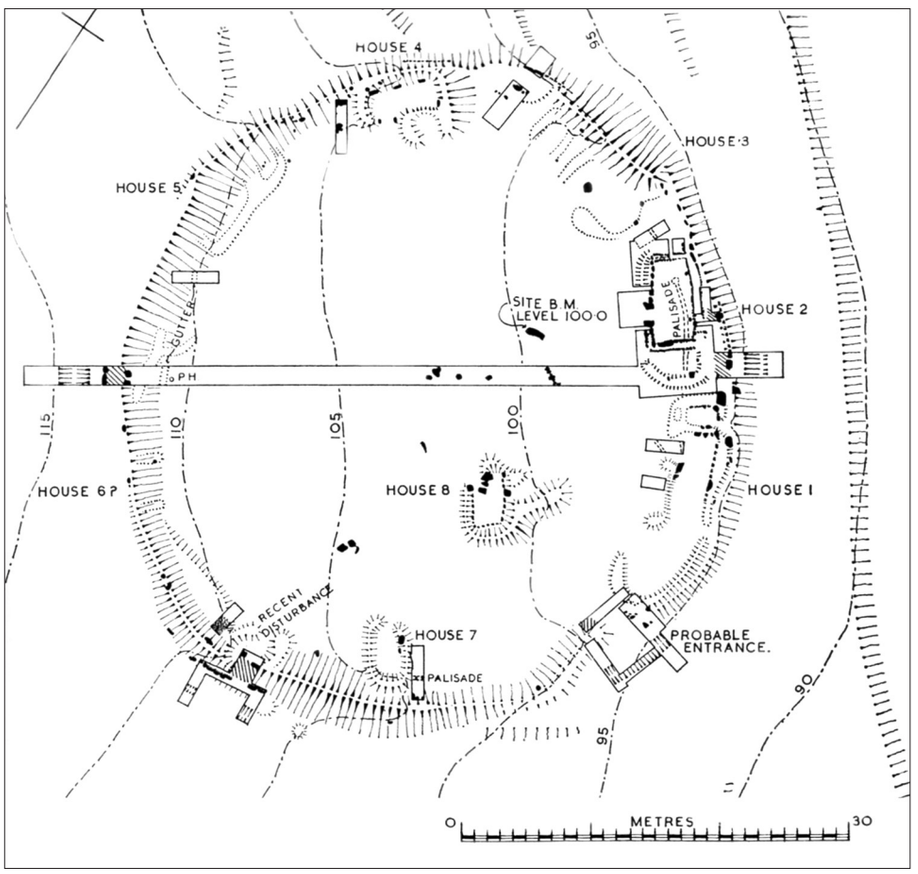

Figure 9 Settlement enclosure on Ingram Hill. After Hogg 1942, fig. 1

that Green Shiel offers us a model for a farmstead on a Northumbrian monastic estate operating with a brief to breed and raise calves whose hides were prepared for use in the scriptorium as vellum.

The 7th century in England saw profound changes as kings began to engage with Christian church leaders. In Northumbria, from mid-century, beginning with Oswald at Lindisarne and Oswiu's endowment of twelve 10-farm estates for new monasteries (HE 3.3; 3.24), this engagement involved transfer of land on a large scale out of royal demesne and into long-term institutional church management. Contemporary writers presented this as piety; but Bede, a shrewd observer, had by the end of his life come to recognise and warn against some of its social and political consequences (*Epist Egbert*). Of its effects on landscape and land use, no comments come down to us from that time, and this has not been a principal focus of modern scholarship. However, from a review of recent studies in north-east England, we have argued here that an approach through models of territorial structure allows some insights into these matters, with the theme of specialisation emerging in particular. The geographical setting of new monastic estates, when set against Roberts' model of cultural corelands, suggests that the kings were not, in the main, alienating land from their core holdings, but that they saw, in the organisational capabilities of church leaders, opportunities for economic stimulus through land use developments on the peripheries.

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