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☐ Edlington Wood: using Lidar to put ancient fields and old excavations into their contemporary landscape

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(with contributions from M. J. Dolby and the late R. Butler, H. Ramm and A. B. Sumpter)

Abstract

The Roman sites in Edlington Wood, three miles west-south-west of Doncaster, South Yorkshire, first came to wider notice as a result of finds by the woodman in the 1930s and the material was of sufficient interest for Philip Corder to use it as the basis for a paper in a festschrift to O. G. S. Crawford. Most of these finds and later material were deposited in Doncaster Museum, although others went to the owners and local metal detectorists. In 1970 a threat of quarrying led to a detailed survey of the site by the Royal Commission on Historical Monuments and limited excavation on one site. Two large areas within the Wood were cleared but remain as improved grassland. The recent availability of Lidar imagery allows the occupation sites and fragments of field system located by ground survey to be placed in a broader context of small rectangular fields and some attempt at a landscape chronology to be made. The cultivation of the fields in a system of cord rig is discussed.

Introduction

Edlington Wood lies some three miles (5 km) west-south-west of Doncaster, South Yorkshire, on a low, fault-guided west-east ridge in the Cadeby Formation (formerly Lower Magnesian Limestone) (Figure 1). Approximately 100 ha. (247 acres) are encompassed by the present boundary of the wood, which reaches 90m OD at its highest point, the outcrop known locally as The Crags. This commands extensive views to the north towards the steeply incised valley of the river Don between Conisbrough and Sprotbrough and north eastwards towards Doncaster and the formerly extensive wetlands of the Humberhead Levels. Southwards, the gently rolling limestone country extends towards Wadworth, Stainton and Maltby; the village of Old Edlington sits on a similar scarp to the west. Modern features intrude heavily on the landscape with the M18 motorway cutting between the Wood and the largely plantation woodland of Wadworth to the south-east. The regraded waste tip of the former Yorkshire Main Colliery obscures any view to the north. A modern housing estate encroaches upon the woodland boundary to the west, whilst the sinuous boundary of the wood to the east, with associated bank, coincident with the parish boundary between Edlington and Wadworth, betrays its early origins (Figure 1). Until extensive clearance in two quadrants in the early 1970s, the wood appears not to have been ploughed since the abandonment of the various settlements within its confines, probably in the late or post-Roman period and its former management as wood pasture succeeded by hazel coppice with planted beech standards is apparent in the surviving flora. Some boundaries within the wood are defined by old yews, which have seeded out into the former pasture areas. The yews, with the laying out of straight ridings, probably reflect the gentrification of the woodland by the Molesworth family in the early eighteenth century (Miller 1804), although Howes (2009) suggests they may be older. One feature, the so-called Double Dyke, effectively dividing the Wood in two and riding over older features, suggests an older phase of woodland management, perhaps succeeding

a period of wood pasture usage. The Molesworths sold the Wood to the Wentworth Estate in 1803 and a woodman was employed to manage the area until resold in 1970, when permission was sought to quarry the underlying limestone.

Whilst this paper concentrates on interpretation of the Lidar imagery, it inevitably has to review some of the results from earlier survey and excavation.
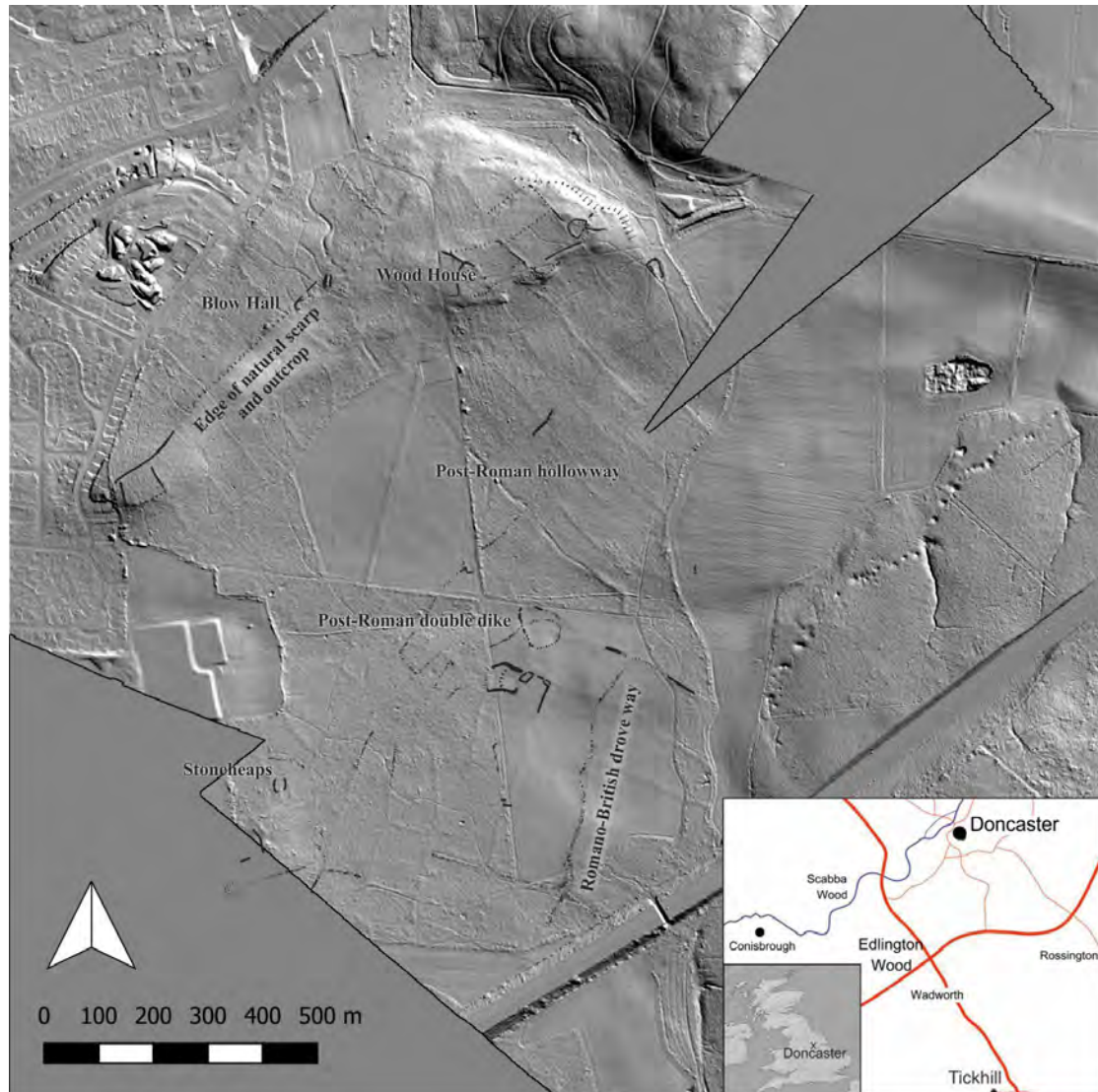

Fig. 1. Edlington Wood, South Yorkshire: Lidar image with major features ground surveyed by Ramm and Butler superimposed. Light grey areas reflect gaps in the primary lidar data. Part of the housing estate of New Edlington occupies the northwest corner of the figure, with part of the regraded pit tip of the former Markham Main Colliery to the north. A recently ploughed field separates Edlington from Wadworth Wood to the east and the row of depressions just within the boundary of the latter reflects solution of gypsum in the Permian Edlington Marls leading to collapse of the overlying Wetherby Formation. Notional lighting is from the top right (north east). The sharply defined grey areas lie outwith the Lidar coverage.

Image processed: T. Prosser, data ©Environmental Agency.

Previous Research

The existence of structures of archaeological significance in the Wood appears first to have been noted by Hunter (1828), who refers to both the Double Dyke and a mound of stones, Blow Hall, west of the house built in the Wood by the Molesworths. Both Moule's (1837, 190) description of the latter as a 'conical heap of stones' and the first edition Ordnance Survey map of 1841, which shows a circular structure, derive from Hunter (Limbert, pers. comm.). These features are also referred to by Armitage (1897), although there is some confusion on the part of the latter as to the exact location of Blow Hall. Both Hunter and Armitage refer to the continuing destruction of the mound, presumably as concluded by Ramm (1973), a large, presumably Neolithic burial cairn, perhaps with a later enclosure constructed out of part of it, as a source of stone for the repair of tracks in the wood and the fact that destruction continued into the 1930s, when O. G. S. Crawford (1932 in Dolby 1973) visited the site, implies that the original mound was substantial. Crawford also noted the existence of 'hollow ways' and 'remnant field walls' but does not refer to any other structures, apart from the Double Dyke, which he considered a minor late feature. It was probably this visit which sparked the interest of the resident woodman, Mr Colin Cameron and his sons, who recorded a series of finds from the mid-1930s onwards.

In 1935 two coin hoards were discovered at the eastern end of the Crags, within a subrectangular enclosure, defined by walls constructed of small orthostats and limestone rubble (Corder 1951, Site 1, RCHM Site 2ii). The coins, denarii and antoniniani, terminating with an issue of Philip II of AD 241 (Robertson 1935) are probably a single hoard and had been deposited in two pots, the smaller a colour-coated beaker (Corder 1951, fig. 10), the other, now lost, a hand-made calcite gritted cooking pot with simple out-turned rim, an unusual vessel in the context of local third century material. A further hoard was found in the same year in the Crags beneath the site. This group of antoniniani closed with a coin of Probus minted in AD 282 (Corder & Hedley 1946); eight further coins presumed to be from the same hoard were found in 1975. Philip Corder, who had been expert witness at the original coroner's inquest on the first hoard, visited the site with a group of Yorkshire archaeological dignitaries in 1935 and with the assistance of the Cameron family recorded several sites within the Wood. These, together with some of the finds and results of a further visit after the War in 1945, were published in the Festschrift for O. G. S. Crawford (Corder 1951). The late J. R. Lidster, whilst Keeper of Antiquities at Doncaster Museum, appears to have carried out some excavations in the Crags with Alec Cameron in 1958, presumably subsequent to the first finds of Late Upper Palaeolithic material (cf. Mellars 1973; Buckland 1977, fig. 31), although no records of this work, on a site locally called 'The Lions' Den,' have been located in the Doncaster Museum archive. Corder (1951, 80) also records a find of a 'bucketful of old coins,' apparently of silver, found near this site in 1881, but since dispersed. Although occasional finds from the Wood continued to be reported to the Museum over the next decade, systematic research was only initiated when the threat of destruction by quarrying emerged in 1970. The late Herman Ramm and Ron Butler of the Royal Commission on Historical Monuments office in York (RCHM) prepared a detailed ground survey (Figure 1; Ramm 1973) and limited excavations were carried out on RCHM Site 3a (Corder 1951 Site 8) by the late Tony Sumpter on behalf of the Inspectorate of Ancient Monuments (DoE) and Doncaster Museum. Ramm's site plan was included in Buckland's overview of Roman South Yorkshire (1986, fig. 3). Unfortunately, all primary records of Sumpter's work and the finds appear to be lost and the only evidence available is his summary report (Sumpter 1973) and

a few comments in the Doncaster Museum archive.

Whilst quarrying failed to materialise, two extensive areas in the Wood were cleared and reseeded and this included the site of the excavation. More recently sites have been extensively damaged by individuals searching with metal detectors and by juveniles on trail bikes. Not all finds have been adequately recorded. A further hoard, of sestertii ending sometime in the early third century, is known and the single sestertius of Marcus Aurelius (AD. 161-180) noted by Corder (1951) from Site 2ii (Corder Site 1) may belong to this. In addition to the finds recorded by Corder (op. cit.), scattered finds include denarii of Tiberius of AD 22-37 and of Gordian II of AD241 from immediately north of the Wood in the grounds of Broom House; Creighton (2014) lists two further hoards from Edlington, found in 1975 and 1978 (see also Manby & Burnett 1981). Other artefacts reported to or surviving in Doncaster Museum include a melon bead, a gold ring set with an amethyst, at least seven brooches including two trumpet and three penannulars. The remaining examples are a fantail type and a plate brooch in triskele form with traces of enamel. Lid. and field survey

Lidar, Light Detection and Radar, imagery is freely available from the Environment Agency (https://data.gov.uk/) and has recently been widely used in archaeological field survey, from tracing Roman roads to plotting field and settlement systems (e.g. Challis et al. 2008; Malone 2017). Airborne Lidar is the most common form used in archaeology, where a laser is fired at the ground from a moving aircraft, usually an airplane, but drone based platforms are becoming increasingly common, as is the combination of Lidar based terrain models with multi/hyperspectral images and photogrammetry (see Campana 2017 for an overview). Raw Lidar data is provided as a 'point cloud', where each point represents a beam reflected from the Earth's surface. The number of reflected points per square metre (ppsm) varies between systems and age, ranging from earlier national surveys at less than 1 ppsm to several hundred ppsm for current industrial use (e.g. construction planning). To be useful in archaeology rather complex algorithms must be applied to remove vegetation and buildings and provide a ground surface model, or Digital Terrain Model (DTM, or DEM, Digital Elevation Model in North American usage), in which archaeologically relevant features can be observed. These algorithms are not perfect for archaeological use, and features such as smaller grave mounds may be automatically removed as 'anomalies' (Buckland et al. 2018). The technique is advancing rapidly in terms of coverage (free data from national surveys are becoming more and more available), data acquisition (number of points per m2, portability), processing (better algorithms for generating surface models or automatically locating potential archaeological features) and interpretation techniques, particularly archaeological understanding of features in the DTM.

The absolute height accuracy of the Environment Agency lidar is roughly +/-5cm and the horizontal accuracy is about +/-40cm over a large area. The relative height accuracy between adjacent points is much greater, although the precise value is not specified. The 1m resolution DTM is used in this study, and the open source software Quantum GIS (QGIS) has been used to process the Edlington Wood data. QGIS's hilllshade function has been used to simulate incident light from different directions (azimuth) and vertical angles (altitude) in order to make surface variation more visible and aid interpretation.

The detail obtained by Ramm and Butler, working in woodland with extensive bramble understorey is remarkable (Figure 1; Ramm 1973; 1980) but it was impossible to obtain an overview of settlements and associated field systems until the advent of Lidar, which is able to penetrate woodland and scrub cover to define features with an accuracy of a few cm, and

by using different shading directions, it is possible to pick out minor morphological variation over large areas (Figures 1, 4 & 7). Whilst this is not likely to improve on the meticulous mapping of the smaller features and sites by the Royal Commission, working from Corder's (1951) data, supplemented by plans and notes made by the Ordnance Survey field officers, principally E. C Wright in 1960, and additional data from Colin Cameron, the overview provides the landscape context. Three dimensional representation of the DTM also provides for a more intuitive visualization of the relief described in the introduction (Figure 2).
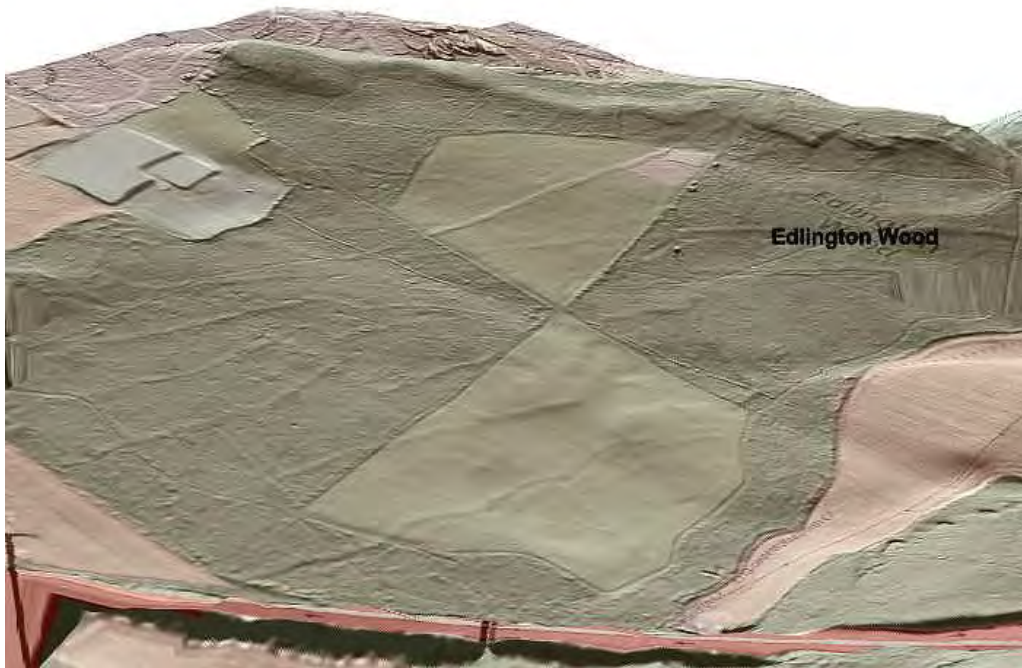

Fig. 2. 3D model derived from the Lidar DTM, with notional lighting from the XXX (YYY) and ZZZ vertical exageration.

The Lidar images show a system of small, rectangular fields orientated approximately southeast to northwest, defined by slight banks and ditches, wholly erased by ploughing in the adjacent field to the east (figures 1, 4 & 7). In most places where it is possible to discern the relationship between bank and ditch; the bank lies to the southwest of the ditch. Much of the system ignores the gently changing topography but one boundary across the Crags is deflected north-eastwards either by the rocky outcrop or a pre-existing feature. Running through the system from south to north and apparently respecting the field boundaries is a track, largely defined as a shallow depression (Ramm 1973), which descends the crags as a more deeply incised winding hollow way towards Broom House. This defines an area of longer fields to the northeast which appear to run across the system of smaller rectangular fields and extend to immediately south of site 2, a complex of huts and small enclosures on the crest of the escarpment (Figure 4). Whatever the origin of this system, they had clearly gone out of use when the sinuous woodland boundary which also forms the parish boundary between Edlington and Wadworth was laid out. Sumpter's excavations provide some additional context.

Site 3 (Corder 1951 Site 8)

The limited excavations by Sumpter (1973) on Site 3 (Figure 7) showed that the pottery sequence in the ditch associated with the earlier enclosure bank extended at least as far back as the late first century and finds included pottery regarded by the excavator as 'Flavian'. Occupation continued at least into the early fourth century, when two unworn coins (AE2) of Constantine, with SOLI INVICTO COMITI reverses of AD 314-317, minted in Trier and London, were deposited in a ditch fill perhaps indicating a scattered hoard; both are now lost. Both Sumpter's and the RCHM plan suggest that a small rectangular enclosure (A) partly overlies a larger, similar shaped enclosure (B) on a slightly different alignment to its west. A right-angled bank further to the east is on the same alignment as enclosure B and seems to encompass a small rectangular platform, presumably for a structure in its angle (Figures 5 & 6). Whilst these enclosures are clearly aligned with, and integral to the system of small rectangular fields evident in the Lidar images, the larger, irregular ovoid feature to the north of the partly excavated site is not and Ramm (1973) notes that one of the rectangular field boundaries runs across it. This relationship is evident on the Lidar image as a straight boundary, running south-east to north-west towards the centre point of the Wood, where the main eighteenth century ridings meet, and crossing the northern half of the enclosure (Figure 8). Although not included on Ramm's (1973) plan (Figure 1), the field boundary is referred to in the accompanying text. This feature is still evident despite the destruction of the woodland cover, ploughing and reseeding (lighter areas within Wood on Figure 2), although it is uncertain how far the deflection of the line of the field boundary south-westwards reflects the spreading of the bank into its accompanying ditch by these processes. As noted by Ramm (1973), the centre of the enclosure is 'scooped,' excavated down to the limestone bedrock, and this appears as a shaded area on the Lidar images, south of the straight field boundary. Similar structures are a feature of other sites in the region, both within Edlington Wood and elsewhere, including Scratta Wood, near Worksop (Dolby 2008) and the recently published site in Scabba Wood, Sprotbrough, to the north of the Don (Merrony et al. 2017). Sumpter (1973) also uses the same term for his Enclosure B, and the site plan (Figure 7) has a dotted line indicating a similar depression. The origin of so-called scooped enclosures has recently been discussed by Buckland (in Merrony et al. 2017), where the process is related to regular corralling of livestock.

The walls of the structures excavated by Sumpter and evident also on other sites in the Wood consist of outer faces of small orthostats, some drystone walling between and rubble infilling, the whole being approximately one metre wide. These are a widespread feature of surviving and recently destroyed sites in woodland, both on the limestone outcrop (cf. Challis & Harding 1975, fig. 73 Scratta Wood) and also further west on the Coal Measures (e.g. Makepeace 1985). The Edlington evidence for the lack of associated tumble shows that the walls were extended upwards in other materials. Such features are generally too small to resolve on a 1m resolution DTM, but higher resolution surveys have successfully been used to assist and improve the field survey of smaller woodland features in Scandinavia (e.g. Willén & Mohtashami 2017). Although widespread in the construction of Roman fort defences and both the Antonine and Hadrian's Wall, the use of turf or sod as walling material on minor occupation sites, other than the walls of round-houses, is less widely recognized outside the North Atlantic Norse and medieval world (cf. Ólafsson & Águstsson 2003). Walls of turf are durable provided their base and top are kept dry and structures in excess of three metres high were not unusual. The turf required needed to be close cropped such that an intricate net of interwoven roots ensured stability, and it had to be available in significant quantities. Well
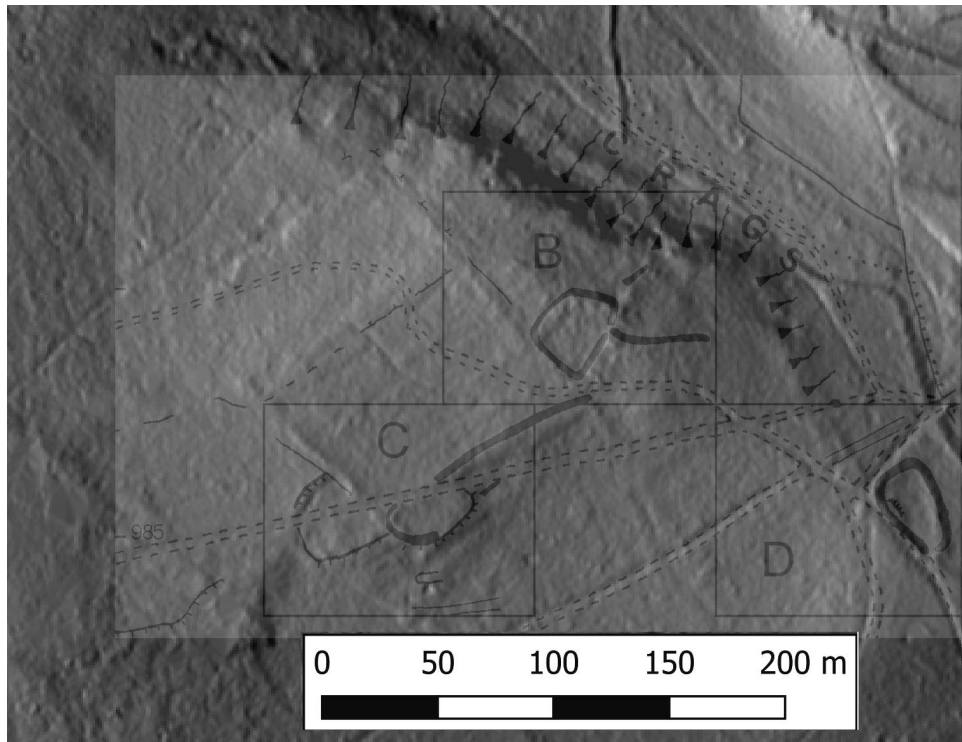
Fig. 3. Plan of sites 2A-D at the northeast end of the Crags surveyed by Ramm and Butler and superimposed on the Lidar image.. Solid black indicates walls partly composed of orthostats. 2B is the enclosure from whence most of the recorded finds have come, 2C a small oval enclosure and associated field wall apparently overlying a similar earlier feature and 2D a further subrectangular enclosure. Corded rigs on at least four differing alignments are evident.
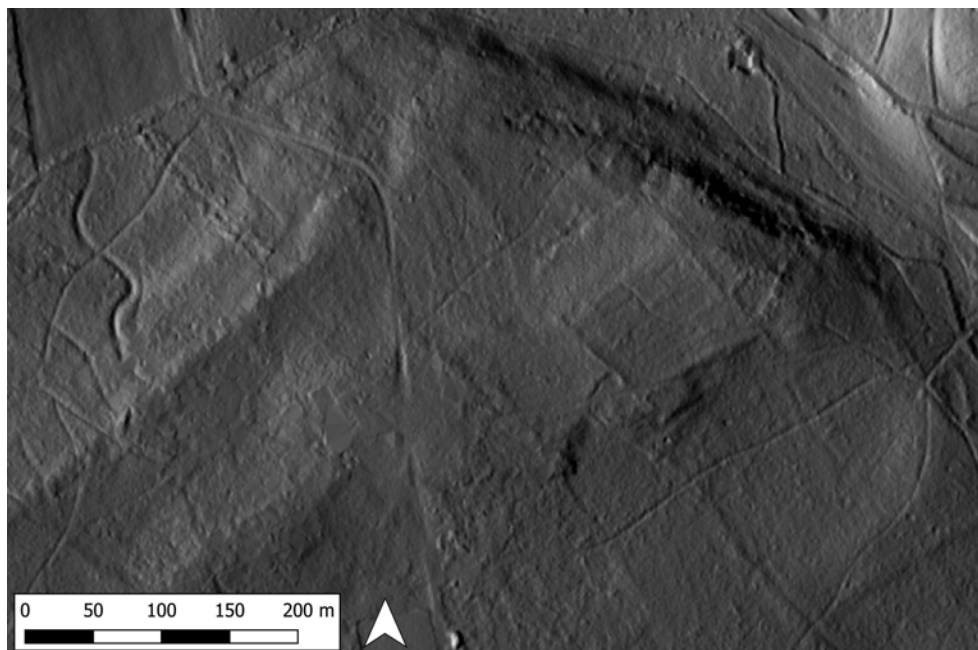

Fig. 4. Lidar image of the area of Ramm Site 2 and field systems to the west. The rectangular huts, regarded by Ramm (1973) are evident north of the Crags at the end of the trackway which traverses the wood to the waterhole.

grazed pasture was therefore essential. Ólafsson (2008) indicates that a small rectangular building, 15m by 3m with walls 2m high with a low pitched roof of turf over stone slabs requires turf from approximately 1000 m2 of pasture.

In the absence of Sumpter's detailed site records including any sections, it is not possible to construct a stratigraphic sequence and further interpretation must rely upon the horizontal sequence inferred from the Lidar imagery, supplemented by Ramm's (1973) comments. The palimpsest of several thousand years of landscape history is not easily dissected but overlying his ground survey with the Lidar (fig. 1, 4 & 7) enables some attempt to be made. His 'drove way' is visible as a sinuous south-north linear feature running from the southern edge of the image, evident south of the motorway to a point, north of the Double Dyke, where it turns sharply north-westwards. A broad irregular feature, a maximum of six metres (20 ft) wide and 0.6m deep, at one point it is abutted by a field bank running SSE to NNW
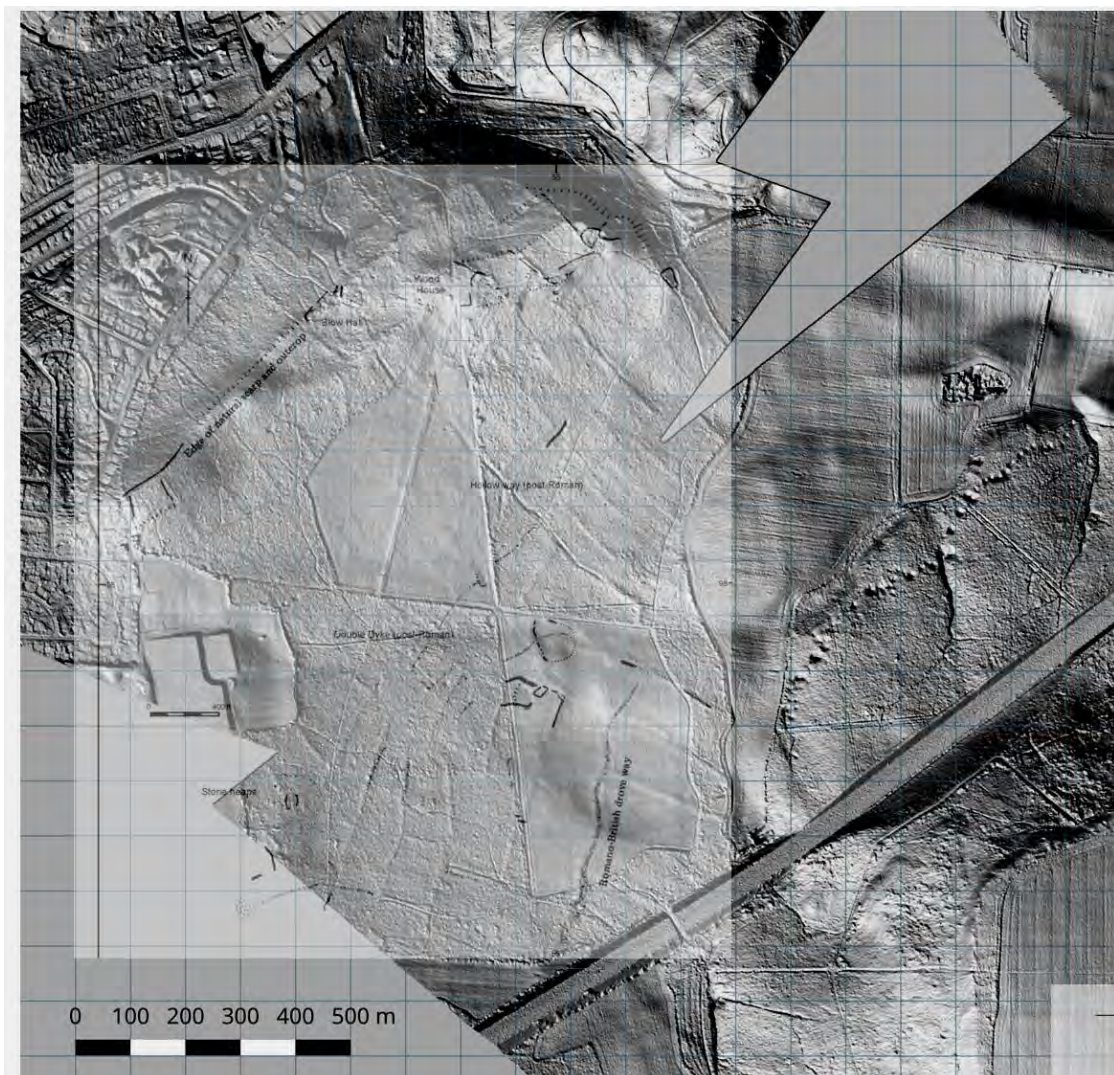
Fig. 5. Lidar image with major features ground surveyed by Ramm and Butler superimposed. Notional lighting from the left (west) picks out the narrow rigs within fields northeast of the modern square enclosure south of Wood House. Image processed: T. Prosser, data ©Environmental Agency.

suggesting an older origin than the extensive system of small rectangular fields. There appears to be a similar relationship with a particularly straight field boundary towards the southern edge of the wood. Although he identified the feature as 'Romano-British', its relationship to field boundaries in the southern part of the wood suggests an earlier origin, although probably later than the large 'scooped enclosure' to its west. Northwards, across the later Double Dyke, the line turns sharply north-westwards to coincide with a major field boundary, perhaps defining the limits of fields associated with Site 2. The feature passes west of Edlington Wood House, close to Blow Hall, although any relationship is obscured by modern activity, before descending the fault scarp, where it splits into a number of subsidiary runnels to descend the escarpment to the north-western edge of the wood. The main track is visible as a deep incision continuing to the woodland boundary and vaguely visible beyond before disappearing beneath modern housing and industrial premises.
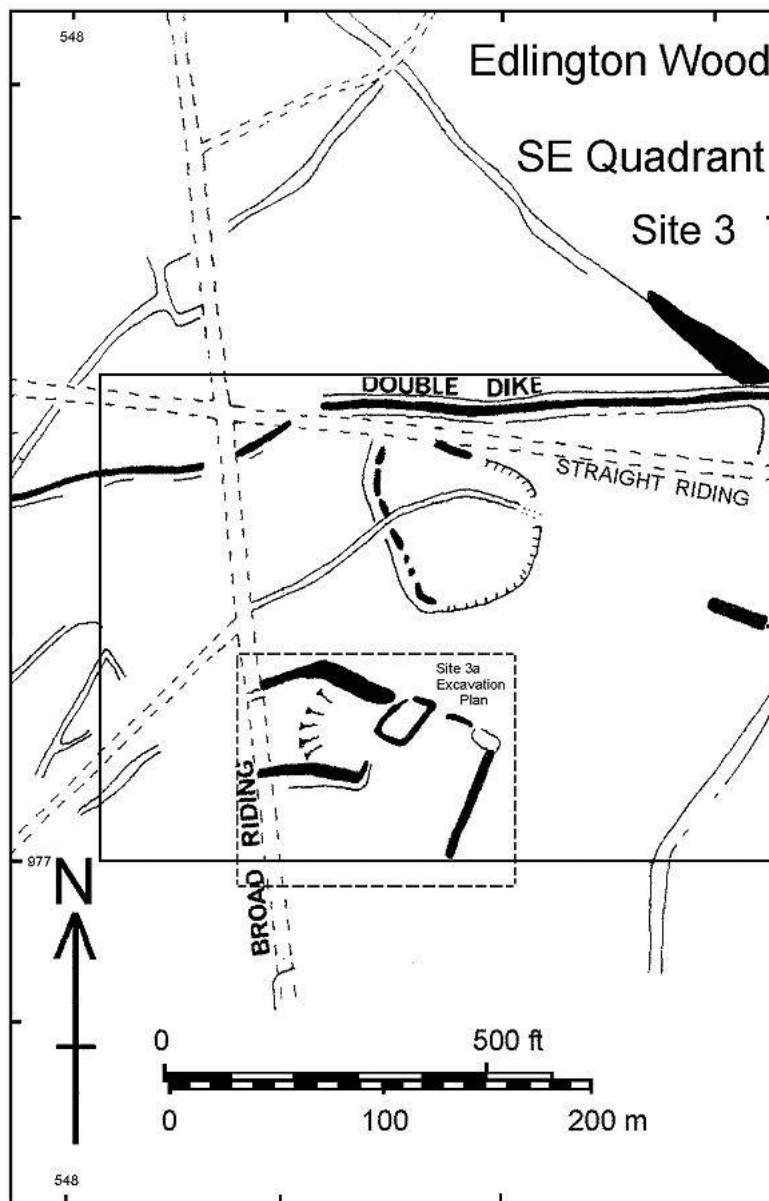

Fig, 6. Plan of features in the southeast quadrant of the wood (Site 8) surveyed by Ramm and Butler. The polygonal / ovoid 'scooped' enclosure is top middle adjacent to the Double Dyke and the site partially excavated by Sumpter bottom left.

The small, largely rectangular fields evident south west of the 'drove way', on average 130 m by 90 m, with their long axis orientated south-east to north-west, occasionally show clear evidence of narrow ridges following this alignment. These are better illustrated in the complex of fields to the west of Site 2 (Figures 3 & 4), where at least three systems run at varying angles in small fields. These must relate to arable farming in what has been variously termed lazy bed, spaded ridge or cord-rig cultivation; the last appears now to be the preferred term, the term rig and furrow perhaps being best re-

served for the longer strips clearly created by use of a traction plough (*contra* Barber 2001, but see his excellent photograph of cord-rig on the front cover). Surviving examples of cord-rig are extensive in the Borders and Southern Uplands (*op. cit.*; Topping *et al.* 1989), although this more reflects preservation, fieldwork and extent of peat cover than actual distribution since a single ploughing would be sufficient to eradicate most traces. In the White Peak of Derbyshire Hodges (1991, 79) noted traces of what he termed 'lazy beds' at Royston Grange and considered them to be Roman. Edlington Wood, with Scabba Wood to the north (Merrony *et al.* 2017) appears presently to be unique in the lowlands. At sites along Hadrian's Wall in Northumberland, cord-rig demonstrably pre-dates forts of the early second century at Halton Chesters (Gillam *et al.* 1973), Housesteads (Rushworth 2009, 31), Newcastle upon Tyne (Snape & Bidwell 2002, 17) and Wallsend (Hodgson 2003, 23). Although the method must have continued throughout the Roman period and beyond, surviving in the uplands until the recent past (Cheape 1993), its origins remain obscure. At Edlington there are no evident fields associated with the earlier 'scooped' enclosure, which must have been largely effaced when the small rectangular field system was laid out across it.
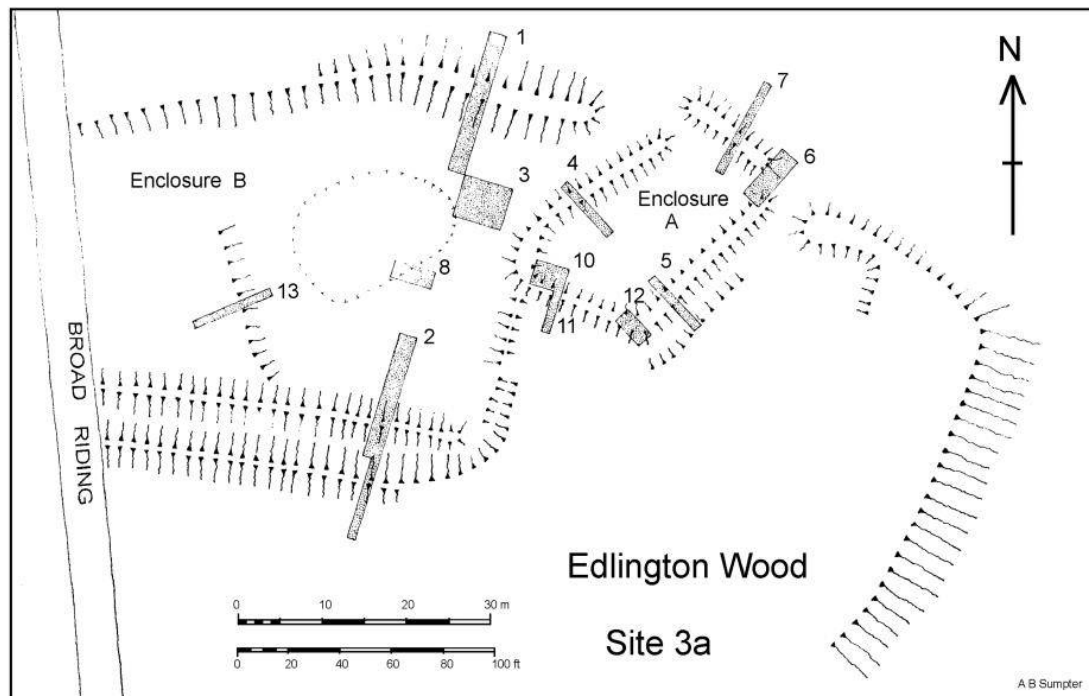

Fig. 7. Edlington Wood, South Yorkshire: plan of excavations by A. B. Sumpter (Sumpter 1973).

Similar narrow strips occur northeast of the 'droveway', but these are much longer, on average 204 m by 77 m, and with a second set to the northwest running at right angles, southwest to northeast, to those of similar orientation to the rectangular fields. These systems are intimately associated with the enclosures 2b-d at the north east end of the Crags (Figures 3 & 4) and appear to be divided by larger banks into parcels of land. Again dating is difficult without controlled excavation, although the one closely dateable sherd from the enclosure is of a Nene valley hunt cup with barbotine animals of the late second to early third century (cf. Howe et al. 1980, fig. 3, 27). The coin hoards from the site, however, may have been concealed in an abandoned settlement as a convenient marker long after the last

inhabitants had left.

Later features in the wood include a linear depression, partly at right angles to the long narrow strips and running obliquely from the southwest boundary of the wood to close to the northeast boundary where it appears to turn before the bank which forms the parish boundary and descend the scarp to the small pond north of the Crags. Ramm (1973) interpreted this as a medieval droveway and the fact that it turns sharply before crossing the bank forming the parish boundary with Wadworth implies that it is at least contemporary with the parish organisation. The sinuous nature of the parish boundary defined by a shallow ditch with the upcast, largely of flaggy limestone forming a low bank on the Edlington side (Figure 9), indicates a negotiated line defining resources claimed by one community or the other. The most probable explanation is that the division ran through an area of wood pasture with the mast of large oaks being ascribed to either parish. Later use of the Wood as a source of small wood, perhaps as coppice, is indicated by the scatter of small circular depressions, probably the remains of charcoal burning pits (cf. Connole 1988, 35, quoted in Smith 2010, 35).
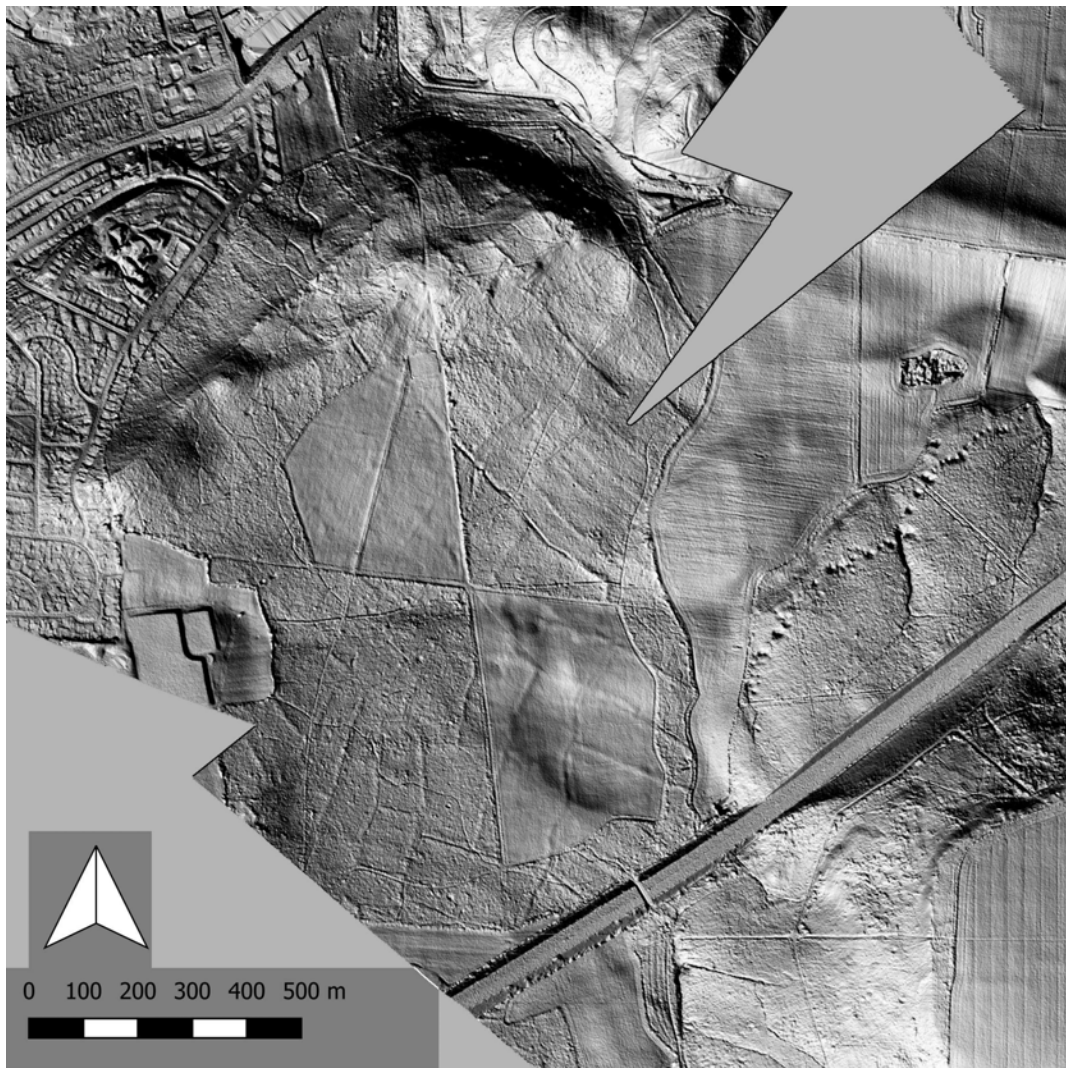
Fig. 8. Lidar image notionally lit from the lower (south) side. Cord rig is evident in some of the small fields west of the cleared area. Image processed: T. Prosser, data ©Environmental Agency.

Discussion

Cord-rig involves the turning of cohesive sods into the centre from either side, usually with an iron-shod long spade (cf. Cheape 1995), thus forming a linear ridge. The seed, in the uplands usually barley, would be spread on the buried surface and fertilized by the decaying weeds on the turned sod and any additional manure. The method is labour intensive and regular weeding would be necessary but yields have been shown to be high (e.g. Martin 1695, 37) and cord-rig can be used on thin stony soils and relatively steep slopes which might otherwise appear uncultivatable. Harding (2017), on the evidence of spatial relationships between areas of cord-rig and settlements, has argued that some of the systems extend back at least to the early Iron Age in the Borders and Northumberland and whilst earlier examples may be related to the use of large stone-tipped tools for turning the sod (cf. Rees 1979), it is only with the ready availability of iron that durable effectively shod long spades could become widespread and cord-rig more generally practised. Both Cheape (1995) and Rees (2011, 100) have pointed out that the iron shoe of the spade may be indistinguishable from a plough tip, although it seems likely that examples with truncate rather than pointed ends belong to spades rather than scratch ploughs or ards (compare examples in the metalwork hoards from Eckford and Blackburn Mill (Piggott 1953, fig. 5, E10 and fig. 12, B31, both in the Borders, and examples from London and Silchester (Manning 1964, fig. 5)).

The preservation of at least two forms of ridged cultivation is also apparent in another local lidar image, that figured by Merrony et al. (2017, fig. 3) in Scabba Wood to the north of the river Don, where rigs, broader and longer than the Edlington Wood examples are partly overlain by an area of even longer, partly coalescing narrow rigs. The latter has an evident headland suggesting use of a plough with animal traction and may be medieval or later, but the broad strips are largely constrained by field banks and relate to a scooped enclosure of uncertain origin but certainly occupied during much of the Roman period. Again it is difficult to sort out the palimpsest in the DTM model but the strips closest to the enclosure are broad between the banks suggesting regular digging rather than cord-rig use. Traces of field systems have been recorded in woodland elsewhere on the Magnesian Limestone outcrop, for example, at South Anston, 10km to the south of Edlington (Radley & Plant 1969). In the heavily ploughed adjacent landscapes frequently all that remains are the deeper ditches of occupation sites and droveways with poorly coherent fragments of field systems (cf. Buckland 1986, figs. 1 & 35; Roberts 2010).

As well as the traces of short rigs within several of the smaller fields southwest of the trackway and close to Site 2 in Edlington Wood (Figure 4), groups of rigs about twice the length occur northeast of the trackway. These imply a change in agricultural technology, perhaps replacing the spade with a simple plough, although the maintenance of ridges implies the use of an implement with the ability to turn the sod, perhaps a simple mouldboard (see discussion in Manning 1964). Also, the absence of any trace of headlands to turn draft animals suggests that whatever was used remained dependent upon human muscle power for traction.

By the time the parish boundary between Edlington and Wadworth was laid out on the east side of the Wood field systems and settlements had been completely forgotten and the sinuous line ignores all pre-existing features whilst probably avoiding existing large trees. The age of the formalization of this boundary is difficult to determine in the absence of any surviving charters. The consensus is that most parishes had been effectively defined by the twelfth century (e.g. Roffe 1984; Pounds 2000) and charter evidence clearly indicates that

Fig. 9. Edlington Wood, South Yorkshire: Boundary bank and ditch along the eastern edge
of the wood forming the parish boundary between Edlington and Wadworth to the east.
Photo: J M Buckland 25.3.2018

Fig. 10. Edlington Wood, South Yorkshire: the latest stage of management of the woodland.
A solitary yew remains in an area of former hazel coppice with beech standards.
Photo: J M Buckland 25.3.2018

many had been defined much earlier. In South Yorkshire, the medieval organisation of the landscape has been discussed by the late David Hey (e.g. 2003) and the relationship between church and parish provides a tenuous clue. Both St Peter's at Edlington and St John the Baptist at Wadworth contain Romanesque work, and the incorporation of Coal Measure sandstone ashlars in the former suggests it may have had a pre-Conquest precursor (cf. Buckland 2010). Both may have once lain in the *parochium* of a minster church, dedicated to St Peter, at Conisborough. In a discussion of Warmsworth, the contiguous parish to the north, and its now demolished church also dedicated to St Peter, Hey and Magilton (1983) consider the 1002 x 4 will of the Mercian magnate Wulfric Spot and the fission of the Conisborough estate; they prefer a tenth century origin for the parishes.

Conclusion

The earlier prehistory of the Don catchment has recently been extensively reviewed by Cockrell (2018) and elements of the Edlington Wood results can be fitted into his framework. With the exception of the use of the Crags in at least one phase of rock shelter occupation during the Late Upper Palaeolithic (Mellars 1973), the earliest surviving feature appears to be the denuded remains of a Neolithic burial mound, Blow Hall. As Cockrell (idem) notes this is one of a number of similar structures in the region, usually in prominent positions on the Magnesian Limestone outcrop. One, at Whitwell in north Derbyshire has been excavated to modern standards revealing a complex history in the mid-fourth millennium BC (Vyner & Wall 2011). Other examples were destroyed during the nineteenth century at Dinnington, King Hengist Rein at Sprotbrough and Hangmanstone Hill between High Melton and Marr, whilst one in Melton Wood survives (Cockrell 2018). Their positions with extensive views suggest a landscape already fairly open.

The polygonal / ovoid enclosure close to the site excavated by Sumpter (1973) is probably the next definable phase and relates to an open landscape where stock were probably corralled overnight creating its 'scooped' form. Any arable would have consisted of shifting temporarily fenced areas within an essentially pastoral landscape. Similar enclosures occur widely across the outcrop but there is little dating evidence, although the smaller ones probably fall within Cockrell's (2018) hengiform group and the larger ones 'ring forts.' A Bronze Age date is probable. The similar enclosure in Scabba Wood was still occupied during the Late Iron Age and Roman period but its origins are again probably much earlier (Merrony *et al.* 2017) and the Scratta Wood site shows a sequence which Dolby (2008) suggests extends from the Bronze Age to at least the third century AD.

The system of small rectangular fields and droveway, the latter of which may partially predate the regular fields, reflects a major replanning and possession of the landscape, similar to that seen on the Sherwood Sandstone and Old River Gravels to the east. Several of Riley's (e.g. 1980, pl. 2) aerial photographs show Roman roads cutting across these systems and the Rossington Bridge fortress, which on surface finds and the earliest material from the Roman pottery kiln site (Buckland et al. 2001) must be pre-Flavian, was also constructed across an existing landscape of small fields, although this does not necessarily mean that all such systems are pre-Roman Iron Age – dating evidence only becomes available when ditches cease to be cleaned out. Late first century pottery in one of the ditches sectioned by Sumpter (1973) on Site 8 further reinforces a late Iron Age currency for at least one of the sub-rectangular enclosures. Pollen evidence from Hatfield and Thorne Moors to the east shows accelerating clearance through the Iron Age such that by the middle of the second century AD

the extent of woodland was no greater than today (Smith 2002). Radiocarbon, plant macro-fossil, pollen and insect data from ditches on Balby Carr, 5km northeast of Edlington, present a similar picture (Greig 2007; Smith & Tetlow 2007) of a managed landscape by the Late Iron Age (Jones 2007). The Edlington fields are significantly smaller than most of the Sherwood ones, which Buckland et al. (2018) argue are part of an extensive wood pasture scheme associated with limited arable close to settlements. The evidence for spaded cultivation, more closely spaced settlements later partly replaced by larger units perhaps cultivated with a simple plough, may relate to cereal production on the fertile, if drought-prone soils of the limestone.

In the absence of a more extensive targeted excavation and dating programme, it is impossible to ascertain when the fields and closely spaced farms were abandoned, or rather when intensive was again replaced by extensive. Hodgson (2012) in an overview of Roman settlement in South and West Yorkshire suggests that major changes in landscape organisation took place in the late third or early fourth century, although interpretation is constrained by the availability of ceramic evidence, which almost ceases with the decline of South Yorkshire pottery production during the first half of the fourth century (Buckland et al 1980). Smith's (2002) numerous dated pollen profiles from Thorne and Hatfield Moors indicate that most woodland regeneration took place later in the post-Roman period. Whilst there is some evidence at least for major boundary continuity on the Sherwood Sandstone outcrop (Rippon et al. 2013), the Edlington system had completely disappeared by the time later fields and medieval parishes were laid out.

Later features are also confined to within the Wood. The trackway cutting obliquely across presumably ran from the medieval core of Edlington around the church to the water-hole at the base of the fault scarp, where Ramm (1973) considered a small group of rectangular structures to be medieval. A more southerly part of the track was probably coterminous with the present lane to the southwest corner of the Wood. The Double Dyke, dividing the Wood into two approximately equal parts, clearly cuts across this and is probably post-medieval, when communal resources had fallen into private hands, although still perhaps maintained as wood pasture. The long, largely straight ridings reflect the final full privatization and gentrification of the woodland under the Molesworths, after which management was for commercial timber rather than stock and small wood (Figure 10). The colliers making charcoal could have been active at any time during the post-medieval period since their pits appear randomly placed within the Wood.

Acknowledgements

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