

2. Archaeological Background

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Introduction

This general résumé provides a chronological and thematic framework for the prehistoric and Roman period archaeology of the study area, with particular reference to features and sites that manifest themselves as cropmarks. More comprehensive reviews of the excavated evidence have been produced by Burgess (2001a; 2001b), O'Neill (2001a) and Roberts (2005a) for West Yorkshire, whilst part of the study area in South Yorkshire has been addressed by Van de Noort and Ellis (1997). A broader overview, placing the study area in its regional (Yorkshire) context, is provided by Manby *et al.* (2003), whilst an overview for the North Nottinghamshire cropmark landscape is provided within the assessments produced by Bishop (n.d.a; n.d.b).

The methods that have been used in the detection and investigation of prehistoric and Romano-British archaeological sites in the rural zones of the study area are reviewed, followed by a chronological and thematic assessment of our understanding of the earlier prehistoric and the later Iron Age and Romano-British evidence in the region. The locations of the sites mentioned in the text are shown on Figure 2.1.

Prospection and Investigation

Cropmark Mapping

The plotting of cropmarks from aerial photographs over the last 30 years has demonstrated the intensity of past settlement and land division. The Magnesian Limestone in North and West Yorkshire in particular was regularly targeted because cropmark formation in this area was very good, although the Sherwood Sandstones of South Yorkshire and North Nottinghamshire proved to be equally revealing. Much of the early aerial reconnaissance work was undertaken by the late Derrick Riley (e.g. Riley 1976; 1977; 1978a; 1978b) (e.g. Figs 2.2 and 2.2.1), culminating in his 1980 analysis of the cropmark landscapes of South Yorkshire and north Nottinghamshire (Riley 1980).

Due largely to a lack of correlation between geological, topographical and county boundaries, there had been no comprehensive mapping and analysis of the cropmark landscape for this part of Yorkshire. It is only very recently, in the form of the Vale of York National Mapping Project in North Yorkshire (completed 2001) and the Lower Wharfedale National Mapping Project in West Yorkshire (completed 2004), that substantial parts of this landscape have been subjected to systematic cropmark mapping from aerial photographs; this following on from the completion of the Nottinghamshire Mapping Project in 1999. Our understanding of parts of the study area, particularly the landscape around Doncaster and Rossington in South Yorkshire, have naturally benefited hugely from the earlier aerial reconnaissance and cropmark mapping work of Riley (1980) (e.g. Fig. 2.3). Some subsequent smaller-scale research projects have continued to supplement this work (e.g. Cox 1984; Chadwick 1998), whilst the last ten years have seen cropmark studies, and archaeology generally within the study area, benefiting considerably from a number of relatively large cropmark mapping projects carried out by Alison Deegan (e.g. 1998; 2000; 2001a; 2001b; 2004a; 2004b).

Geophysical Survey and Fieldwalking

The limitations of cropmark evidence have long been well known, as have the potential benefits to be gained from the use of geophysical survey, either as an alternative or a complementary method of remote sensing (e.g. WYAS n.d.; Yarwood and Marriott 1988a; 1988b; Yarwood 1990, 273). It was only after the introduction of PPG16 in 1990, and notable technological and software improvements in geophysical magnetometry, that a massive increase in large-scale geophysical surveys regularly started to provide a greater insight into the blank areas in the cropmark landscape. The results have provided a supplementary and complementary means of discovering and mapping early settlement and field systems in areas that have not been conducive to good cropmark formation. Examples where field systems have emerged from the geophysical data from apparently blank sites include parts of the Methley gravels in West Yorkshire (Marriott and Yarwood 1992; Webb 1996c; 2000b), and a number of sites on the Magnesian Limestone such as at Barnsdale Bar and Scorcher Hills (Fig. 2.4) in South Yorkshire (Webb 2003; Webb and Rose 2004).

In terms of non-invasive survey methods fieldwalking is in principle an ideal complement to cropmark and geophysical data in a predominantly arable area. Up-cast artefacts offer the potential for providing broad date ranges for known sites, or for detecting new sites in blank areas on the basis of artefact scatters. In practice, however, this potential is limited; first by the very low levels of finds that occur and secondly by the poor dating resolution that can be applied to them (WYAS n.d.; Yarwood 1980).

Iron Age pottery is scarce and Roman pottery only proliferates in the 2nd to 4th centuries AD (e.g. Evans 2001, 173-76; Bevan and Cumberpatch in prep.). Consequently, it is of no great surprise that fieldwalking is most effective in detecting sites with a later Roman component. The extensive enclosure site at Parlington Hollins, Garforth was first detected by finds scatters from fieldwalking, the site not showing as a cropmark (Lakin and Fraser 1994). The site was subsequently mapped by geophysical survey, and excavation revealed Late Iron Age, early Roman and post-Roman phases, as well as the later Roman phase first identified from surface finds (Holbrey and Burgess 2001). Further geophysics and fieldwalking to the south-west of this site (Fig. 2.5) has been able to demonstrate the continuation of the Roman and post-Roman elements of this site (Webb 1999), linking it with the site of similar date excavated at Brierlands (Owen 2000). In South Yorkshire diagnostic finds collected during fieldwalking have helped date the forts at Rossington Bridge and Scaftworth, the Rossington area in particular having produced large amounts of both prehistoric and Roman finds from field walking (Head *et al.*, 1997, 27, 290).

Perhaps where fieldwalking makes its most valuable contribution is in the detection of early prehistoric sites. Fieldwalking as part of the wetlands surveys in the western part of the Vale of York (Chapman *et al.* 1999, 144-5, 153) and the Humberhead levels (Head 1997; Van de Noort 2004, fig. 22) has demonstrated how a systematic approach can reveal significant prehistoric finds in areas where once little was known. On the Magnesian Limestone, gravels and Coal Measures too, fieldwalking has been instrumental in identifying early prehistoric activity that is not reflected in the cropmark record. Two sites where fieldwalking, in tandem with geophysical survey, has produced finds of early prehistoric date are

Barnsdale Bar Quarry in South Yorkshire and Park Lane, Methley in West Yorkshire. The Barnsdale Bar site produced 110 pieces of Neolithic flint, although subsequent excavation could not identify any related features (Webb 1995b; Burgess 2001a). At Methley both Mesolithic and Neolithic material have been found from fieldwalking, including a sherd of Peterborough Ware pottery (Yarwood and Marriott 1991). Given that early prehistoric sites are largely invisible to remote sensing, and quite possibly ploughed away in many cases, the relatively small returns from fieldwalking provide an important means of mapping the extent of pre-enclosure landscape exploitation.

In principle the finds from metal detecting should complement the distributions of artefacts recovered from fieldwalking. It is rare however for metal detecting finds to be reported in a way that makes this possible. Concentrations of Roman material are known from Rossington and the area around Warmsworth and Cadeby quarries on the River Don, but perhaps one of the more interesting distributions of well provenanced metal artefacts has emerged from the metal detectorist activity on the Magnesian Limestone to the south of the Don, which is indicative of individualistic and insular sites of Late Iron Age and Romano-British origin (Dearne and Parsons 1997) (see below).

Prospection by Excavation

Certain areas remain non-conducive to cropmark formation and unresponsive to geophysical survey. These are often pasturelands, clayey areas with poor drainage or urban fringes, but equally they can be permeable areas of the Magnesian Limestone, Coal Measures or Sherwood Sandstones which have been concealed by deep soils, but more likely have been truncated to the point where the features barely survive. In the past such sites would not have received any further evaluation, and would have been dismissed as blank areas. Comprehensive evaluation by trial trenching in such areas has been able to show that early land divisions and enclosure was taking place in parts of areas formerly believed to be unoccupied in the later prehistoric and Roman periods. Recent examples of such revelations have been the discovery of settlement and field system in areas of the West Moor Park landscape (Fig. 2.6) on the eastern edge of Armthorpe, South Yorkshire (Burgess 1999b; Richardson 2001b; 2004a; Richardson and Rose 2004;

Gidman and Rose 2004) and, perhaps more surprisingly, at Sykehouse, South Yorkshire, in the heart of the Humberhead levels (Fig. 2.7), a site which has produced one of the largest assemblages of Iron Age pottery in the region (Roberts 2003c).

Early Prehistoric Evidence

Ritual Monuments

The northern part of the study area contains two large Late Neolithic ceremonial/ritual monuments in the form of the henges at Newton Kyme (SAM 538) and Ferrybridge (SAM 720), situated respectively on the river terraces of the Wharfe and Aire. These monuments are the southernmost examples in a Yorkshire henge group whose locations seem to coincide with the points at which the major Pennine rivers enter the lowlands of the Vale of York. In view of this recurrent setting it has been suggested that the valleys of the Nidd and the Don (the latter in the study area) may yet produce evidence of hitherto unknown henge monuments (Manby *et al.* 2003, 97-8). Cursus monuments are often found in association with henges but, although these elongated, ditched enclosures have been found as cropmarks in the landscapes of the Catterick (River Swale) and Thornborough (River Ure) henges, to the north, and in association with ritual monuments in the Wolds, no evidence of one has been found at either Newton Kyme or Ferrybridge. Satellite ring barrows around both henges are seen as secondary features dating to the Early Bronze Age. The larger examples show up well as cropmarks because each was prescribed by a large circular ditch or gully that has survived better the truncation of repeated ploughing. Recent large-scale excavations around Ferrybridge henge have demonstrated the existence of other forms of ritual monument that are unlikely to be manifested as cropmarks, or for that matter geophysical anomalies. Least visible to remote sensing are timber circles, circular arrays of pits that are thought to have once held earth-fast timber uprights. Other 'invisible' monuments that have been found include hengiform monuments (mini-henges), defined by shallow gullies or a series of pits, shallow ring barrows with cremations and flat graves (Wheelhouse 2005a, 21-49).

Apart from the immediate environs of the Newton Kyme and Ferrybridge henges the incidence of prehistoric ritual monuments in the study area is relatively low,

certainly when compared to the adjacent uplands of the Wolds, Pennines and the Peak District (Manby *et al.* 2003, 94-7; Keighley 1981, 95-7). Other than those around Ferrybridge Henge, the only hengiform monument to have been excavated in the study area is the penannular enclosure at Upton Moor Top Farm, 1km to the south of Badsworth, which produced both Neolithic and Roman material (Keith and Lowe 1982). There may well have been fewer of these monuments in the lowland zone, but this apparent scarcity may also be a consequence of intensive agriculture in such areas. Stray finds and a small number of excavated samples have long suggested a more widespread distribution of barrows away from the few known major ritual foci. From within the northern part of the study area excavated round barrows of known or suspected Early Bronze Age date are known from Boston Spa (Clarke 1932), Thorp Arch (Carroll 1869), Bramham (Keighley 1981, 95 and 110) and Garforth (Burgess 2001c, 75-6). In the lowland areas of the Vale of York and the Humberhead levels the evidence is predictably scant, although the discoveries of the barrow at Little Ouseburn (Rhatz 1989) and indicative spot finds (Radley 1974) perhaps suggest a greater number of burials on the margins of the Vale of York. Equally, the discovery of beaker pottery from Rossington (Clarke 1970, 509), Auckley in the Humberhead levels (Chadwick 1995) and typical beaker-associated artefacts and collared urn burials on the river terraces at Doncaster (Longworth 1984, 265) also hint at greater ritual activity. The only long barrows in the study area are known from Dinnington, Sprotborough, Edlington Wood and Melton Warren in South Yorkshire (Buckland 1986, 4; Manby *et al.* 2003, 97), although the remains of a possible small example have recently come to light during excavations at Ferrybridge (Wheelhouse 2005a, 41-2). Certainly, in the South Yorkshire part of the study area, it has generally been held that there is a relative dearth of prehistoric monuments of all types, gained mainly from a failure to detect them in any great numbers as cropmarks on aerial photographs (Riley 1980; Branigan 1989, 161). Only two round barrows have been recorded, both to the south-east of Rossington, with a single example at Harworth (Riley 1980, 53), whilst three further potential circular barrow mounds have been inferred from parch marks at Firbeck (Buckland 1986, 1). Other than those around Ferrybridge Henge, the only hengiform monument to have been excavated in the study area is the penannular enclosure at Upton Moor Top Farm, 1km to the south of

Badsworth, which produced both Neolithic and Roman material (Keith and Lowe 1982).

Prior to this study, however, focused cropmark analysis and geophysical survey have begun to demonstrate the much wider distribution of ritual monuments, predominantly in northern part of the study area, on the Magnesian Limestone and gravels. Project specific aerial surveys have detected potential round barrow groups at Methley (Deegan 1999b), Ledston (Deegan 2001a, fig. 9c), east of Pontefract (Wheelhouse and Roberts 2002) and Colton (Deegan 2001a, fig. 13). The latter group (Fig. 2.8) was subsequently enhanced by geophysical survey and excavated (Boucher 1996b; Johnson 2003; Brown and Signorelli 2005). Elsewhere, large-scale geophysical surveys have identified round barrows in areas not conducive to cropmark formation, such as Stourton, Leeds (Parry 2001a) and Goldthorpe and Scorchers Hills Lane (Fig. 2.4) in South Yorkshire (Webb 1997a; Webb and Rose 2004).

Settlement Sites

The evidence for Mesolithic, Neolithic and Bronze Age settlement is generally sparse and derives mainly from low intensity surface finds of flint and stone tools. Neolithic activity is also represented by a small amount of pottery and, for the Bronze Age, rare metalwork discoveries supplement the record. Plots of such finds in the Vale of York (Raistrick 1929, figs 7 and 11; Radley 1974, figs 1-3; Van de Noort and Ellis 1999) and the Humberhead levels (Van de Noort and Ellis 1997), have demonstrated the apparent importance of well-drained soils in these distributions. Very few early prehistoric settlement sites are known beyond the implications of artefact scatters. The few that have been formally excavated have invariably been located as a consequence of their inclusion within the area's later period sites targeted on the basis of their visibility as cropmarks or geophysical anomalies. Examples include the unenclosed post-built Bronze Age structures at Swillington Common, Colton and South Elmsall in West Yorkshire (Howell 2001; 1998; Fig. 2.9) and a series of Neolithic pits at Barnsdale Bar Quarry, South Yorkshire (Gidman 2004). The very nature of these sites, composed of groups of small discrete, and often truncated, features makes them virtually impossible to detect as cropmarks or geophysical anomalies. Even the few early palisade

enclosure sites of potentially Late Bronze Age/Early Iron Age date that are known, again from Swillington Common and South Elmsall, could not be detected by standard remote sensing methods. To date no excavated settlement sites, defined by deep-cut ditches that show up as cropmarks or geophysical anomalies, have been found to be earlier than the middle Iron Age.

Late Iron Age and Romano-British Evidence (*excluding settlements and field systems*)

Funerary sites

Iron Age and Romano-British burials in the region have generally been identified through radiocarbon dating. The vast majority are crouched or flexed and are found either in ditches or discrete pits, such as those at Parlington Hollins West (Holbrey and Burgess 2001), South Elmsall (e.g. Howell 1998; Burgess 1998), Wattle Syke, Collingham (Turner 1991) and Ferrybridge (Martin 2005, 119). Consequently, very few Iron Age/Romano-British burial sites are detectable as cropmarks. Arguably, the exception is Ledston, where a sample of a very visible pit group contained two inhumations (Roberts 2005c); a similar pit group recently investigated at Micklefield, North Yorkshire, where eight out of *c.*300 pits contained human burials (Brown *et al.* forthcoming); and Ferrybridge (Fig. 2.10), where human bodies were ritually deposited in a number of pits within an extensive pit alignment around the southern side of the reused henge (Richardson 2005a, 53-70).

Square ditched barrows of the Middle Iron Age are a phenomenon that has previously been confined to East Yorkshire (Stoertz 1997; Mackey 2003). The recent discovery of the cart burial within a square cropmark enclosure at Ferry Fryston (Deegan 1998, 4; Brown *et al.* forthcoming) and the retrospectively recorded square cropmark destroyed by the M62 at Ferrybridge (Deegan 1998), gives reason to suppose that there may be more of this class of monument still to be discovered within the study area. Interestingly, although there are no barrows of this type known in South Yorkshire, there are possible square barrow cemeteries at North Muskham and Hoveringham in Nottinghamshire (Bishop n.d.a, 5).

Extended burials, usually later Roman or even sub-Roman in date, often occur in groups at field edges near rural settlements. At least four have been found at Adwick-le-Street (Buckland 1986, 36), whilst at Byram Park, Brotherton and Parlington Hollins East, Garforth several graves were located adjacent and parallel to field ditches (ASWYAS in prep. a; Holbrey and Burgess 2001). In neither case were the graves detected as cropmarks.

There are few excavated cremations known for this period. Excavated urned examples tend to be of Late Roman date and include the 3rd to 4th-century example from Parlington Hollins East, Garforth (Holbrey and Burgess 2001, 97-8) and the 4th-century cremation from Upton (Roberts 1995, 16-17), both of which were deposited in Dales ware vessels.

Iron Age Territories and Fortifications

The study area covers parts of two Iron Age tribal areas: those of the Brigantes in the north and the Corieltauvi in the south. The frontier between these two territorial units is not certain, but it has been supposed that the River Don formed this boundary and later marked the limit of Roman control between *c.* AD 47-70 (Hartley and Fitts 1988, 5; Todd 1973, fig. 1; Cunliffe 2005, figs 8.1, 10.3). This notion is supported by the disposition of the pre-AD 71 Roman forts which defended the northern Roman frontier prior to the invasion of Brigantia (see below), and the discovery of several Corieltauvian coins in South Yorkshire south of the River Don, and indeed a corresponding absence of them to the north of the river (Buckland 1986, 4-5).

The most prominent Iron Age fortifications known in the study area lie to the north of the Don in what might be regarded as Brigantian territory. The most notable sites are the hillfort at Wendell Hill, Barwick-in-Elmet in West Yorkshire (SAM 327) and the so-called marsh fort at Sutton Common, near Askern in South Yorkshire. The former is unexcavated, but has produced coins dating to 196-173 BC and AD 41-54 (O'Neill 2001a, 273). Barwick may have some landscape associations with the linear ditch and bank earthworks known collectively as the Aberford Dykes. Recent excavations at Becca Bank (SAM 326b; Fig. 2.11) and South Dyke (SAM 326c), suggest they also have a later Iron Age origin

(Wheelhouse and Burgess 2001, 134, 144), whilst another linear earthwork in the area, at Grim's Ditch, Colton, to the east of Leeds (SAM 31510-14; 32143) has also now been dated to the Iron Age (Wheelhouse and Burgess 2001, 129). It is now more conceivable that these linear earthworks were utilised as part of a Brigantian defence line that may have articulated with the hillfort at Barwick-in-Elmet, in keeping with a theory originally proposed by Alcock (1954). A similar function has been considered for the linear earthwork complex known as Roman Ridge on the north side of the River Don between Mexborough and Rotherham (Boldrini 1999). The Iron Age fortifications at Sutton Common are situated at the interface between the Magnesian Limestone and the Humberhead levels (Parker Pearson and Sydes 1997).

Supposed Brigantian forts have been proposed for the earthwork site at South Kirby, to the west of South Elmsall, and Wincobank near Rotherham, respectively just 1.5km and 5km outside the study area. Within the study area, Iron Age forts have been proposed at Castle Hill, Wentbridge (Keighley 1981, 116; Fig. 2.12) and Moorhouse Farm, Tickhill (Riley 1980, 66-7). None of these sites has been properly dated, thus their attribution to the Iron Age is suspect, although the Moorhouse Farm site is thought to pre-date the 'brickwork' fields in that area. The forts in general do not appear to lie on obvious frontiers, but it is possible they represent power bases for tribal subdivisions within the Brigantian confederation as proposed by Hartley and Fitts (1988, 2-3).

Roman Forts

Five definite Roman forts lie within the study area, four of which are strategically situated on the south banks at the crossing points of major rivers. South to north these are: Rossington Bridge (River Torne) and Doncaster (River Don) in South Yorkshire, Castleford (River Aire) in West Yorkshire and Newton Kyme (River Wharfe) in North Yorkshire. The fifth fort at Burghwallis, in South Yorkshire, is situated on the south bank of the River Skell, a small tributary to the River Don.

The earliest fort is the large 9.2ha vexillation fortress at Rossington Bridge, which, from the evidence of metal-detector finds could have a construction date in the AD 50s (Head *et al.* 1997, 275-8; Van de Noort 2004, 116). This is probably

contemporary with the fort at Templeborough near Rotherham, as this was almost certainly constructed during the governorship of Didus Gallus (AD 52-7) as part of the frontier defences between the land under Roman rule to the south and the client kingdom of Brigantia to the north. These forts were also no doubt used as the springboard for at least one Roman military incursion into Brigantia in the mid-AD 50s in support of Queen Cartimandua against rebellious factions of the Brigantes led by her estranged husband Venutius. A subsequent Brigantian dispute in AD 69 eventually provided the pretext for the Roman conquest of Brigantia (Breeze and Dobson 1985, 2-3; Bishop 1999, 307; Ottaway 2003, 125).

The Roman advance into Brigantia under Petillius Cerealis in *c.* AD 70-71 is thought to have taken the form of a two-pronged attack: an eastern thrust over the Humber estuary through the territory of the Parisi; and northward penetration along the Magnesian Limestone belt. Both advances, reflected in the Roman road system (see below), circumvented the lowland areas of the Humberhead levels and the southern Vale of York and focused on the new legionary base at York. The first forts established at Doncaster and Castleford (and presumably Burghwallis) are broadly contemporary with the foundation of York in the late 1st century AD, and their foundation might be part of Cerealis' initial campaign and consolidation, and subsequently used for the protection of supply routes during the campaigns of Frontius and Agricola AD 70s and AD 80s (Breeze and Dobson 1985, figs 1 and 2). A fort at Rossington Bridge is thought to have gone out of use soon after AD 70, the frontier having moved further north (Bishop n.d.b, 3). The geophysical survey of part of the fort (Fig. 2.13) suggests that there may have been as many as three possible camps here, making it less likely that the crossing had been abandoned before the end of the 1st century (Head *et al.* 1997, fig. 12.7). The establishment of the main fort and *vicus* at Newton Kyme has been dated to the 2nd/3rd century AD, but the fortification of this crossing point of the Wharfe almost certainly dates from the late 1st-century campaigns, along with Castleford and then Doncaster (Breeze and Dobson 1985, figs 2-5), as represented by the three earlier camps seen on aerial photographs here (Boutwood 1996; Monaghan 1991; Ottaway 2003, fig. 36; P. Wilson pers. comm.).

At Castleford two forts have been identified dating to the late 1st century (Abramson 1999, 285-95), whilst new forts constructed at Doncaster and Burghwallis, as at Newton Kyme, are somewhat later. The 3rd-century AD occupation at Burghwallis may have been short-lived, but the Doncaster fort seems to have been occupied throughout the 3rd century (Breeze and Dobson 1985, figs 8-9; Buckland 1986, 13). As well as Newton Kyme, civil settlements (*vici*) are known for Castleford (Abramson *et al.* 1999) and Doncaster (Buckland and Magilton 1986). There are no *vici* known for the forts at Rossington and Burghwallis (Buckland 1986, 18).

Roman military sites of the 3rd and 4th centuries in the region are poorly understood relative to those of earlier periods (Ottaway 2003, 148). The late 3rd and 4th centuries AD saw new stone defensive circuits established at Doncaster and Castleford (Buckland 1986, 13-17; Cool 1999, 304-6) and Newton Kyme also seems to have been provided with stone defences in the 3rd century (Breeze and Dobson 1985, fig. 10; P. Wilson pers. comm.). The apparent insecurity and onus on a 'defence in depth' strategy at this time (Faulkner 2001, 102-5) correspond with the construction of coastal forts as a response to an increase in seaborne raiders accessing the area via the Humber estuary, and might provide a context for the construction of the late Roman fortlet at Scaftworth in North Nottinghamshire (Fig. 2.14). This triple ditched enclosure of only 0.4 ha, still extant in 1774, has been considered to be a military defended site and is dated to the 4th century AD on the basis of pottery from limited excavations in the 1950s and more recent fieldwalking (Todd 1973, 127; Buckland 1986, 32; Van de Noort 2004, 117). The form, date and riverside location of the Scaftworth enclosure have been paralleled with a small double-ditched site at Sandtoft, close to the confluence of the Rivers Don and the Idle, and a site near Thorpe Audlin on the River Went, which appears to have two phases of enclosures represented in its cropmarks (Buckland 1986, 32). The Sandtoft site has been dated to the late Roman period on the basis of excavations carried out on adjoining enclosures (Samuels and Buckland 1978). The small-scale investigation at Thorpe Audlin produced Dales Ware pottery from a ditch that cut through deposits also containing Roman artefacts (Abramson 1987, 30). The notion of forts controlling river traffic is perhaps not just a feature of the late Roman period, as the 2.2ha fort recently discovered on the River Aire

at Roall Manor Farm (Bewley and Macleod 1993; Yarwood and Marriott 1992), is tentatively equated with the late 1st-century occupation of the forts at Castleford on the basis of its south-west gate arrangement (Van de Noort and Fenwick 1997, 249). Questions remain over the existence of a fort at Tadcaster, which was certainly occupied from the early Roman period (Ottaway 2003, 146).

Roman Roads

The Roman roads of the region (Fig. 2.15) are referenced in accordance with the numbering system of Ivan Margary (1973). The principal spine road within the study area is Margary's 28, which runs south to north between Lincoln and York. Margary subdivided this road into three sections: the 28a between Lincoln and Doncaster; the 28b between Rossington and Tadcaster; and the 28c between Tadcaster and York. The different sections of the road are broadly dated by the forts, and all those north of Rossington may reasonably be attributed to the AD 70s and AD 80s, the course of the road probably marking the line of Ceralis' advance to the west of the Humberhead levels, along the Magnesian Limestone (Hartley and Fitts 1988). The routes of the 28b and 28c are well established and survive with extant *aggers* in many places. Best preserved is the 28b, most notably at Adwick-le-Street and as Ridge Road between Castleford and Tadcaster. In places, however, its course has to be assumed, such as the section immediately to the south of Doncaster and that between East Hardwick and Castleford (Margary 1973, 415-17).

In the southern part of the study area the course of the 28a through Bawtry and to the south of the River Idle is largely a matter of conjecture, except for the point at which it crosses the Idle floodplain as a timber corduroy (Van de Noort *et al.* 1997, 412-15). To the south of Rossington, Margary interpreted a short linear earthwork as the remains of a Roman road *agger* (281) branching from the 28a to the east of Doncaster; the so-called 'Cantley Spur' (Margary 1973, 412). This branch actually continues the straight line of the road's course from the south and its existence has led to speculation on the existence of a fort in the area between Wheatley and Armthorpe (Buckland 1986, 7; Buckland and Magilton 1986, 208-9). The course of Margary's 710, the road linking the forts at Templeborough and Doncaster passes through a landscape which has largely been remodelled through

industrial activity and its exact line is unknown (Margary 1973, 412; Buckland *et al.* 1980, fig.1; Buckland 1986, fig. 5).

In the northern part of the study area the Roman road system has a less clear cut pattern to the west of Tadcaster. This is mainly by virtue of Rudgate, a branch leading north off the 28b to the fort and River Wharfe crossing point at Newton Kyme (Margary's 280), and two east-west roads that communicate with the fort at Ilkley to the east (72b and 729). The purpose of the slightly different course of the 729, which effectively forms a loop in the course of the 72b was probably related to the course of the road to the fort at Slack to the south-west (712), but the evidence for this road to the north-east of Leeds is minimal.

The sequence of road construction in the Newton Kyme area is problematic. Ramm (1976) supposed that Rudgate (280) was the course of a road that pre-dated the 28b, whereas Hartley and Fitts (1988) would have Rudgate as a later bypass to Newton Kyme and Aldborough, so avoiding York. The latter theory seems most likely as Roman military roads are not generally determined by pre-existing routes. The radiocarbon dating of the road timbers at Adel (Roberts and Jefferson forthcoming) and Scaftworth (Van de Noort *et al.* 1997, 428) to the pre-Roman Iron Age might suggest that the routes of Roman roads were partly determined by well established river crossings. At Newton Kyme itself the complicated cropmark pattern may reflect three roads or tracks approaching from the south, perhaps associated with the several phases of fortification that are apparent (Boutwood 1996; Ottaway 2003, fig. 36). The road plan and a perceived pattern of land division to the south of Newton Kyme has been interpreted by Ramm (1976; 1980, fig 4.4) as a consequence of a regime possibly based upon some form of centuriation, perhaps indicating the existence of legionary pasturelands (*prata legionis*) imposed upon an earlier native field system in that area.

The existence of other Roman roads in the study area, beyond those catalogued by Margary, has been contemplated by Buckland (1986, 8) and Bishop (1999, 308-9), who have both raised the possibility of a direct road link between Templeborough and Castleford, continuing the road (18e) from Littlechester. Equally, not all previous identifications of Roman roads are to be accepted without question. A

notable example here is Margary's 728, near Colton, long known as Street Lane (Margary 1973, 409) but now known as Grim's Ditch. Margary had supposed that, as a road, it may have been incorporated into a later deer park boundary, but recent excavations have demonstrated that its origins lie in the early prehistoric period (Wilmott 1993; Wheelhouse 2001b, 125). A similar assumption resulted in the Roman Ridge earthwork on the Don appearing as sections of a Roman road in the first edition Ordnance Survey mapping of the area.

A number of excavations have taken place on roads within the study area, the most extensive work having been carried out at Hook Moor where a long section of the road was investigated prior to its destruction by the M1-A1 Link Road. Here the *agger* consisted of limestone from discrete borrow pits along the margins of the road, rather than from continuous ditches as seen elsewhere (O'Neill 2001b). The metalled surface of the road at Hook Moor had only seen light wear, also a feature of the excavations elsewhere on that road (Thackrah 1967; Babbie 1999) and it seems likely that heavy goods were transported by river, rather than by road (hence perhaps the need for river forts like Roall). Excavations through the roads to the west of Tadcaster have been reported by Ramm (1976; 1980). The 28b and 72b were found to have preserved *aggers*, whilst Rudgate (280) leading to Newton Kyme, had virtually no *agger*, but some evidence for intermittent side ditches (Ramm 1976, 6-9).

The one site within the study area that has provided scientific dating is the timber road across the Idle floodplain near Scaftworth. Here radiocarbon dating has indicated construction periods of *c.*410-100 cal. BC and *c.* cal. AD 384-640 for the sampled timbers (Van de Noort 1997, 428). Neither date range is consistent with an expected construction during the late 1st century AD, which might suggest a crossing point elsewhere.

Rural Settlement and Field Systems

Settlement enclosures and their associated field systems, as represented by cropmarks, form by far the greatest archaeological component of the rural landscape of the study area. Geographically, however, their level of investigation and interpretation has varied. This has mainly been a consequence of the

disparities in development and mineral extraction in providing opportunities for investigation, although disparities in local authority planning policy advice and local research frameworks and initiatives may also have been influential factors.

Without any regional research framework for the cropmark landscapes, excavations in the study area reported up to the end of the 20th century struggled to address or inform any research issues in a structured way. Most excavations were naturally focused upon what were perceived to be settlement enclosures, which themselves were little understood, although in South Yorkshire and north Nottinghamshire there has long been a preoccupation towards dating and explaining the nature of the ‘brickwork’ plan fields found there. The relatively small-scale approach adopted for many of the early excavation strategies was felt to hamper these objectives (see Chadwick 1999, 156; Chissell and Newsome 1998, 44; Garton 1987, 68). The last ten years, however, have generally seen a move towards much larger landscape investigations throughout the study area.

Whilst the variation of the cropmark landscape has no correspondence to modern political boundaries, past research and investigation strategies have, to a degree, been dictated by them; hence the West Yorkshire archaeological survey (Faull and Moorhouse 1981). Within the respective counties of the study area much work has been carried out in small landscape studies, sometimes resulting in local interpretative models within distinct geographical zones. For this reason it is pertinent initially to present previous investigation of the cropmark landscape by county, followed by a more thematic overview.

West Yorkshire

By the early 1980s the arable lands of the Magnesian Limestone belt and some adjacent areas of the Coal Measures had been over-flown on a regular basis for almost a decade, enabling the locations of a large number of cropmarks to be spot plotted in *West Yorkshire: an Archaeological Survey to A.D. 1500* (Yarwood 1981a, 23-4; Faull and Moorhouse 1981, vol. 4 maps 4 and 5). At that time only a few of the cropmarks on the Magnesian Limestone in the north-eastern part of the county had been rectified and plotted (Faull and Moorhouse 1981, vol. 4 map 8). As a consequence of this, coupled with the fact that very few of the cropmarks had

been excavated to any degree (see below), little work was undertaken in classifying the different cropmark forms. This situation still pertained by the end of the 1980s, following further reconnaissance by Bob Yarwood, when it was acknowledged that the cropmark record was unlikely to change radically and that the real need was for a programme of enhancement and investigation by geophysical survey and excavation (WYAS n.d.). It was acknowledged that, although the majority of West Yorkshire enclosures occur singly, the diversity of enclosure size and shape still posed questions of function and date (Yarwood 1990, 273). It was surmised by Yarwood and Marriott (1988c, 16) that enclosures of more than an acre in size with broad ditches were probably settlements, a notion supported by the cropmarks for roundhouses found within some of them (e.g. those at Swillington Brickworks (Fig. 2.16), Wattle Syke, Collingham and Ferrybridge).

Yarwood (1990, 273) noted that the majority of ditched trackways seemed only to run for short distances of less than 1km in the immediate vicinity of settlement sites, and thus concluded that the ditches were designed to protect adjacent arable fields from stock using the track. More recent work, however, has revealed that some trackways were the product of a multiplicity of phases, which had seen them gradually extended over time (Burgess 2001b, 263). Not surprisingly, given the small amount of excavation carried out, the chronology of the cropmarks remained little understood in the 1980s. As a general rule it was supposed that the more rectilinear enclosures were of Iron Age or Roman date, whilst those of curvilinear form were probably much earlier (Yarwood and Marriott 1988c, 16), but little was known about the wider field systems.

Whilst it was generally acknowledged that there was a need for strategic trial trenching and large-scale excavation to understand better the cropmark record (WYAS n.d.), prior to 1991 very few of the West Yorkshire cropmark sites had received any form of invasive investigation. When the West Yorkshire archaeological survey was published in 1981, before any significant sample of the cropmark sites had been excavated, it was anticipated that a proportion of known cropmark sites on the Magnesian Limestone might ultimately prove to be of earlier prehistoric origin (Keighley 1981, 92-93, 110-111). Only two open-area

excavations had then taken place, at the aggregated Iron Age settlement and subsequent Romano-British villa at Dalton Parlours (Wrathmell and Nicholson 1990), and part of the Iron Age and Romano-British site at Ledston, only recently published (Roberts 2005c). In retrospect, however, neither site can now be seen to have been morphologically typical for the region.

Opportunistic open-area excavations on rural sites in the 1970s and 1980s were relatively few in number and concentrated (as rescue excavations) on enclosure interiors, these being seen as potential settlement foci and therefore the best way to address an impoverished knowledge of cropmark settlements. Thus were the excavations at Rothwell Haigh (Richardson 2004b) and Willow Grove, Methley (Yarwood and Marriott 1988a) carried out. The advent of PPG16 in 1990 saw a huge increase in the numbers of rural excavations, but for a long time the strategy of solely targeting likely settlement enclosures continued, including work at Redlands Quarry, Methley (Burgess forthcoming), Wattle Syke (Turner 1991), Appletree Close, Pontefract (Wrathmell 2001) and Swillington Brickworks (Eyre-Morgan 1992; Vyner 1992). Whilst these sites proved very significant in their own right, and collectively provided much needed data on the nature and degree of preservation of rural archaeology of the region, the results proved to be of limited value in providing a broader perspective of landscape evolution and chronology. As elsewhere in the study area, one of the biggest problems was, and remains, a paucity of dating both in terms of diagnostic artefacts and also material suitable for radiocarbon dating. Although sites such as Dalton Parlours and Ledston had clearly demonstrated the existence of mid to late Iron Age rural sites, the majority of rural sites excavated in West Yorkshire up to the mid-1990s were either undated or determined to be Romano-British on the basis of small assemblages of pottery, invariably dated to no better resolution than the 2nd to 4th centuries AD.

The mid-1990s saw the introduction of much larger scale landscape projects which included elements of the surrounding field system, as well as what was considered the main settlement enclosure complex, as for example at Stile Hill, Colton (Fig. 2.17; Roberts in prep.) and South Elmsall (O'Neill 1997c; Howell 1998; McNaught forthcoming). By far the most significant contribution was the

landscape investigation facilitated by the construction of the M1-A1 Link Road in 1996, which involved the open-area excavation of a series of enclosure sites and the intervening areas along the road corridor. Similar large-scale investigations at other sites has now enabled the firm dating of pre-Roman Iron Age rectilinear 'brickwork-like' field systems at Low Common, Whitwood and Ferrybridge (Burgess and Roberts 2004; Roberts 2005d), a phenomenon previously unrecognised in West Yorkshire.

North Yorkshire

That part of North Yorkshire which lies within the study area essentially falls into two geographical zones: the western margin on the Magnesian Limestone and the lower lying clays and alluvium of the Vale of York. On the Magnesian Limestone, where cropmark visibility is good, extensive rectilinear and more haphazard mixed field systems are to be found. Excavations, mainly as a consequence of aggregates extraction, have generally been on a modest scale. Recent large-scale excavations have taken place, however, in advance of mineral extraction at Byram Park, Brotherton (Fig. 2.18) and Barnsdale Bar, and as a consequence of developments in the A1 road corridor, most notably around Micklefield. To the east, however, cropmark visibility diminishes markedly on the clayey and alluvial soils in the lower-lying area of the Vale of York. Relatively little large-scale excavation has taken place within this part of North Yorkshire, due mainly to the lack of mineral extraction, major road schemes or associated development of the agricultural landscape. Consequently, there has been little or no opportunity to enhance or elucidate the fragmented cropmark record of this area.

Horne (2003, 59) has characterised the Vale of York as a whole to be an area of co-axial fields focused on trackways and major boundaries, with enclosures containing roundhouses being generally dispersed amongst them. This is a pattern that is not dissimilar to many parts of the wider study area. Nevertheless, it is not one that particularly matches this part of the Vale, to the east of the Magnesian Limestone, on the basis of the visible evidence. Horne has noted that, elsewhere in the Vale of York, extensive ditched field systems seen on the free-draining soils often extend into lower lying areas where the ditches would presumably have helped alleviate water-logging. It has always been assumed that there are no

extensive regular field complexes, like the brickwork plan, in the Vale of York. The relative absence of excavations in this part of it has made any informed systematic analysis of the cropmark forms difficult.

To date, the only detailed morphological study of cropmarks in the Vale of York, which benefits from the combined evidence of excavation and fieldwalking, has been that carried out for the cropmarks in the Holme-on-Spalding Moor landscape to the east (Taylor 1999). Although beyond the boundaries of this study area, the conclusions may be seen to have some relevance to the southern Vale of York generally as a geographical unit. Discounting possible unenclosed settlements, for which the evidence is scarce, a 'tentative model for landscape change' identified two basic stages of development (Taylor 1999, 33-5). Early occupation has been characterised by single ovoid or rectilinear enclosures of likely Iron Age date. Subsequently these are seen to have evolved into, or have been replaced by, aggregated complexes or multiple enclosure systems, seen as developing as periodic piecemeal encroachments into previously open land. The prevalence of these 'agglomerated' complexes has been viewed as an indication of spatial and chronological continuity throughout the later Iron Age and Romano-British period: a notion that resonates with the conclusions drawn about many similar sites in the South and West Yorkshire components of the study area. The apparent absences, however, of large-scale field systems, large nucleated settlements and villas in the Holme-on-Spalding Moor study area in the later Romano-British period has seen this part of the Vale regarded as one of only localised exploitation, not well integrated into the Roman economy (Halkon and Millett 1999, 228).

South Yorkshire

Derrick Riley's 1980 study identified three basic regimes of land division for the eastern part of South Yorkshire: 1) the very regular 'brickwork' plan fields, named after the subdivided strip fields that typify many of the field systems he identified on the Sherwood sandstones; 2) the 'nuclear' arrangement, whereby regular land allotments focused upon a pre-existing enclosure; and 3) an organic 'irregular' pattern (Riley 1980, 12-19). In the absence of any substantial archaeological evidence for determining absolute chronologies, Riley supposed that, in cases where brickwork fields coexisted with nuclear fields, such as at

Rossington, the brickwork fields were later infills between supposedly earlier nuclear complexes (Riley 1980, 25).

Curiously, few cropmarks have been found on the Magnesian Limestone to the south of the River Don, although archaeological finds of 1st to 4th-century date suggest that there were prosperous farmsteads in this area (e.g. Clark 1943, 95; Radley and Plant 1969a; 1969b). The relative absence of cropmarks on the limestone here, as compared to the same geology immediately to the north of the Don, has resulted in it being viewed as a 'problem area' (Beswick *et al.* 1990, 29), that cannot be easily explained. Riley (1983, 64) concluded that it implied real archaeological differences to the north and south of the Don. This idea has been reinforced by the discovery of sites such as Edlington Wood, Smarson Hill Wood, Anston (Ramm 1980; Sydes 1991b), which had enclosures defined by rubble walls, rather than ditches. Similar sites are known on the limestone to the south at Scratta Wood, Nottinghamshire (White 1966) and Scarcliffe Park, Derbyshire and it has been proposed that this part of the Magnesian Limestone belt in South Yorkshire and Nottinghamshire, in the use of stone rather than earth and timber, may have had more affinities with the highland zone at this period (O'Brien 1979, 311). This apparently different character of the occupation on the limestone in South Yorkshire, as compared to that on the adjacent geology, has been heightened by the very distinctive nature of Late Iron Age and Romano-British metalwork assemblages recovered by metal detectorists operating in the area. Some of the brooches have a distinctive local 'signature', whilst other finds are indicative of contacts with eastern and south-west England (Dearne and Parsons 1997, 85-7).

Dating the creation of the various forms of field systems has proved difficult. Riley noted that the apparent superimposition of the Lincoln to Doncaster Roman road (Margary 1973, road 28b) over the brickwork plan fields at Warren House, Austerfield, placed that particular example in the pre-Roman Iron Age (Riley 1980, 25, pl. 2). The small-scale excavations of brickwork regimes in South Yorkshire in the 1980s and 1990s on a variety of sites mainly produced, if anything, pottery of late 2nd to 3rd-century AD date, and that in relatively small quantities. Such sites include Edenthorpe (Atkinson 1994; Chadwick and

Cumberpatch 1995); Warning Tongue Lane, Bessacre (Atkinson and Merrony 1994), Hazel Lane Quarry, Hampole (Brown 1997) and Nutwell Lane, Armthorpe (Cumberpatch and Webster 1998). Whilst at some sites, such as Church Field, Rossington (Atkinson 1998), the field ditches appeared to be of one phase, the work at sites such as Edenthorpe (Chadwick and Cumberpatch 1995) confirmed the incremental, multi-phased nature of parts of the brickwork system. Most of the Roman pottery from these sites was recovered from the upper, or recut fills of ditches, the fills of the earliest cuts often remaining undated (Chadwick 1997, 3). In such circumstances, an absence of dating evidence became synonymous with a pre-Roman origin at sites such as Campsall Quarry (Adams 1993), Stripe Road, Rossington (Atkinson 1998) and Goldthorpe (Merrony 1993, 52). Whilst Iron Age pottery is rare in the region and is, moreover, rather fragile, only surviving in well-stratified contexts, its apparent scarcity may also owe something to the small-scale nature of many of the earlier excavations in the County. In the 1990s the only cropmark site in South Yorkshire to have produced any definite Iron Age pottery was Pickburn Leys, Brodsworth (Sydes 1993), though excavations at Topham Farm, Sykehouse have since produced a further significant assemblage (Cumberpatch *et al.* 2003).

Whilst Iron Age pottery remains relatively scarce, more recent work on a brickwork plan field system at West Moor Park, Armthorpe has produced very large quantities of Roman pottery. A factor in these greater returns is the large-scale nature of the excavations carried out there. Most of 7ha site was virtually devoid of pottery, but two discrete locations within the field ditch fills could be located after stripping which together produced over 4000 sherds of locally manufactured 2nd to 3rd-century pottery (Richardson 2001; 2004a; Richardson and Rose 2004). The variable results will have much to do with the type of site and the activities that took place there. The evidence overall is taken to imply that some of the brickwork fields had their origin in the pre-Roman Iron Age, but were subsequently reused, redefined and expanded throughout the Romano-British period (Chadwick and Cumberpatch 1995, 46-48; 1999, 160-164; Cumberpatch and Robbins n.d.).

Although not rich in Iron Age finds, recent work at Balby Carr has revealed well preserved waterlogged deposits with enormous environmental potential from ditches associated with a Late Iron Age settlement enclosure and a subsequent Roman period brickwork plan field system (Fig. 2.19; Rose 2003; Richardson and Rose 2005; Rose and Roberts 2006; Jones 2005). The West Moor Park ‘hot spots’ apart, pottery is not generally recovered in bulk from the wider field systems, modest assemblages of Romano-British pottery being largely confined to smaller enclosures or enclosure complexes, often associated with settlement activity, such as Holme Hall, Stainton (ARCUS forthcoming); Barnburgh Hall (Richardson 2005c) and Billingley Drive, Thurnscoe (Neal and Fraser 2004).

North Nottinghamshire

Although only representing a small part of the present study area, the wider picture in North Nottinghamshire does have some bearing upon our understanding of it, being the area which was also studied in detail by Riley (1980) in his more extensive research of the brickwork plan extending southwards on the Sherwood Sandstones from South Yorkshire. A more recent overview of the issues relating to the cropmark landscapes of Nottinghamshire generally has been included in the assessments of Bishop (2002a; 2002b).

Almost all the cropmark evidence in the northern part of the county is derived from the Sherwood sandstones, recently mapped as part of the Nottinghamshire Mapping Project in the 1990s (Deegan 1999a). The other geologies in this area, including notably the Magnesian Limestone, are not well known for producing cropmarks. Distributions of Roman finds, however, have been taken to imply that the limestone was no less settled in that period (see above, ‘South Yorkshire’), although, as in the rest of the study area, Iron Age finds are scarce and their absence in the archaeological record cannot necessarily be equated with an absence of earlier settlement (Bishop 2002a, 1, 2; 2002b, 2). The differences between the morphologies of Iron Age and Romano-British settlements is not clear-cut and many Roman period sites are assumed to have had pre-Roman origins and to have continued to develop and expand throughout the Roman period.

Few unenclosed sites are known as cropmarks, although a number are known from the Trent valley (O'Brien 1979, 301). Generally they are deemed from their location and from excavation evidence, to pre-date the enclosed phases of sites. The brickwork-plan fields are the dominant cropmark enclosure type in north Nottinghamshire, covering over 250 square kilometres. Further south, on the same geology, there are comparable areas, but without the apparent extent and coherence of the northern regimes (Bishop n.d.b, 4-5). Settlement or agricultural enclosures that are contemporary with the creation of brickwork-plan fields often consist of simple rectangular enclosures created at the corners of fields. It is apparent, however, that while some enclosure complexes clearly pre-date the brickwork plan, others have developed within it. Some of these enclosure complexes might reasonably be equated with aggregated settlement forms that have been identified in the Trent Valley to the east, and on the margins of the brickwork-plan fields (Bishop 2002b, 4).

Excavations, often in advance of mineral extraction, have usually focused upon the enclosure complexes within the field systems. The small-scale excavations at Menagerie Wood, Worksop (Garton *et al.* 1988), Chainbridge Lane and Wild Goose Cottage, Lound (Eccles *et al.* 1988; Garton and Salisbury 1995) investigated parts of enclosures or enclosure complexes outside classic brickwork-plan field systems, dating them generally to between the 2nd and 4th centuries AD. The Chainbridge Lane and Wild Goose Cottage sites are particularly notable for their environmental potential; the former possessing waterlogged, organic-rich ditch fills that even contained preserved skin, whilst the latter saw the discovery and excavation of a timber-lined well, the waterlogged deposits from which were rich in insect fauna.

In summary the brickwork plan of north Nottinghamshire has been regarded as a predominantly Roman phenomenon, but with pre-Roman origins, although the date of their first inception is unknown (Riley 1980; Bishop 2002a, 3). As in South Yorkshire their dating has proved problematic, many excavations, such as Scrooby Top (Robbins 1997) and the four sites in the Retford-Bawtry area investigated by Samuels and May (1980) producing only a few sherds of 2nd to 3rd-century pottery. One site within the brickwork plan that has seen detailed

investigation is the enclosure complex at Dunstan's Clump, Babworth (Garton 1987). The work here revealed that whilst the field plan appeared to have been created as a single entity, it was in fact the product of a series of non-contemporary developments, which may even have seen greater subdivision by undetectable hedged or fenced boundaries. The excavations within Enclosure 2 revealed three phases of activity, the first phase, very likely, being of pre-Roman Iron Age origin (Garton 1987, 67).

Overview

Settlements

Although a relatively rare phenomenon to the east of the Wolds, unenclosed open settlements are generally acknowledged to be an early settlement form. The few roundhouses that have been identified from excavation, have been found to be either of Bronze Age date, such as at Swillington Common and South Elmsall (Howell 2001; McNaught forthcoming; Fig. 2.20), or earlier Iron Age, such as those from Balby Carr (Rose and Roberts 2006; Fig. 2.19). A further example may be represented by the structures found at Pickburn Leys (Sydes 1993).

'Curvilinear' or 'ovoid' enclosures are generally seen as the earliest components in cropmark landscapes (Yarwood 1990, 16; Taylor 1999, 33-5), and often form incongruities within later rectilinear field systems. Several such 'rounded' or 'oval' enclosures were identified by Riley (1980, 46-9) who saw similarities with East Yorkshire defended enclosures in supposing them to be earlier Iron Age, a parallel given further credence by the more recent work of Stoertz (1997, 46-7). Notable examples at Moorhouse Farm, Tickhill and Bilby Farm, Barnby Moor are seen as predating later rectilinear field systems (Riley 1980, maps 11 and 22). The former has been regarded as a 'marsh fort', in keeping with the convention that most Iron Age defended sites were occupied in the early Iron Age, again in keeping with the East Yorkshire model. This was certainly the case at Sutton Common, the only excavated Iron Age fort in the study area (Parker Pearson and Sydes 1997). A further candidate for an early Iron Age oval settlement is the palisade enclosure with post-defined roundhouses at South Elmsall that clearly predated the subsequent Late Iron Age/Romano-British field system (Howell 1998).

Some D-shaped enclosures also appear to predate later Iron Age/Romano-British field systems, such as the examples at Ledston (Roberts 2005c), Low Common, Whitwood (Burgess and Roberts 2004), Swillington Common (Howell 2001) and that represented by geophysical data at Hazel Lane, Hampole (Roseveare and Roseveare 2003). From the 3rd to 4th-century examples at Thurnscoe (Neal and Fraser 2004) and Apple Tree Close, Pontefract (Wrathmell 2001) it is evident that this enclosure type continued to be employed in the Roman period.

Sub-rectangular enclosures are the most numerous form of the later Iron Age and Romano-British period, and are common to all parts of the study area. They do occur singly, but more often they are found integrated within rectilinear field systems, either appended to long ditched boundaries or occupying the corners of large fields. Aggregated clusters or multiples of enclosures occur in different ways. The seemingly organic development at Dalton Parlours, West Yorkshire (Wrathmell and Nicholson 1990) seems atypical, but may be little different to the development of rectangular enclosure clusters seen within the brickwork plan at Knives Hill, Barnby Moor and Forest Farm Babworth in South Yorkshire (Riley 1980, 33, 43), the more rectilinear expression of the latter two being a consequence of the parameters created by the pre-existing field boundaries. Linear groups of enclosures appended to a principal field boundary are known from Wattle Syke, Collingham, but 'ladder' settlements proper, (linear developments of enclosures focused on a trackway), which are common in East Yorkshire, are absent from the study area.

Cropmark examples of sub-rectangular enclosures are too numerous to list, but some of those that have produced evidence of their function through excavation are worthy of note. Few enclosures may be deemed settlements on the basis of their cropmarks as only a relatively small number have revealed evidence for internal roundhouses, and the majority of settlement enclosures are only known through excavation. The vast majority of later Iron Age and Romano-British settlement enclosures conform to the northern model of single-unit farmsteads, in that they tend to contain only one roundhouse at any one time (e.g Hingley 1989, 75). The unexcavated cropmark enclosure to the east of Hesley Hall (Riley 1980,

94) is an admirable example, but curiously is one of the few known for the South Yorkshire part of the study area. A single-unit settlement might be inferred from the combined cropmark and excavation evidence at Balby Carr (Richardson and Rose 2005) and the individual enclosures excavated at Topham Farm, Sykehouse (Roberts 2003c), although this last example presents more of a case for a series of linked enclosures, each containing a single roundhouse, similar to Dalton Parlours and Moss Carr Wood (Wrathmell and Nicholson 1990; Roberts and Richardson 2002). A few more cropmark examples are known from sites in the north Nottinghamshire part, such as Enclosure 4 at Dunstan's Clump and Wild Goose Cottage, Lound (Garton 1987; Garton and Salisbury 1995), but the vast majority are known from the northern part of the study area where more have been revealed through excavation. Here, single-unit farmsteads have been excavated at Low Common and Whitwood Common, Whitwood (Burgess and Roberts 2004), Enclosure C at Moss Carr Wood, Methley (Roberts and Richardson 2002) and Enclosure C at Ferrybridge (Martin 2005), all in West Yorkshire, and at Naburn and Micklefield in North Yorkshire (Jones 1988; Brown *et al.* forthcoming). The longevity of a number of these settlements is reflected in a superimposed succession of roundhouse gullies, such as at Enclosure A at Ferrybridge (Martin 2005); Swillington Brickworks (Eyre-Morgan 1992), as well as Moss Carr Wood and Topham Farm, Sykehouse.

It would be folly to assume that all roundhouses reflect domestic occupation, as the native architecture of the period could have been employed for a number of ancillary functions. Unfortunately little but the gullies normally survives and it is difficult to differentiate functions, although the provision of a central hearth would be significant where truncation is not an issue. Equally, given the severe degradation suffered by many of the cropmark sites, it cannot be assumed that apparently blank enclosures do not represent settlement, especially if the roundhouses within them had been post-built structures without a gully, as were certain examples at Dalton Parlours and Ferrybridge (Wrathmell and Nicholson 1990, 278; Martin 2005, 92-4). A number of subdivided enclosures, such as at Hazel Lane, Hampole (Brown 1997), Bullerthorpe Lane and Swillington Common, Colton (Wheelhouse 2001a; Howell 2001), Parlington Hollins, Garforth (Holbrey and Burgess 2001, and Enclosures B and D (Fig. 2.21) at Ferrybridge

(Martin 2005) and the complex at Thurnscoe (Neal and Fraser 2004) might be interpreted as agricultural enclosures, as might many of the discrete and field-corner enclosures that are found throughout the study area. Only Thurnscoe and Ferrybridge of the above have produced firm evidence for crop processing in the form of corn driers, other corn driers being known from sites at Womersley (Buckland 1986, 35) and Swillington Brickworks (Eyre-Morgan 1992). Other small enclosures, apparently not used for domestic purposes, have presented themselves as possible industrial enclaves, evidenced in the metalworking residues in the field corner enclosure at Redlands Quarry, Methley (Burgess forthcoming) and South Elmsall (O'Neill 1997c). Some enclosures, such as Menagerie Wood (Garton *et al.* 1988) have produced evidence for small-scale smithing in the form of hammer scale. The vast majority of enclosures, however, were almost certainly used at some point to corral livestock, as reflected in the need to define them with ditches and banks (see below).

Hedged Boundaries

Whilst there is clear evidence for a number of stone-walled enclosures on the Magnesian Limestone south of the Don, it has also long been considered that hedges may also have formed hidden boundaries or subdivisions within cropmark landscapes (Garton 1987, 67; Yarwood 1990, 273). The presence of finds scatters but an absence of corresponding cropmarks in parts of the landscape to the north-east of Doncaster, particularly around Nutwell and West Moor, saw Buckland (1986, 33-4) consider the possibility of hedged boundaries in these areas, a possibility mooted more generally by Cunliffe (2005, 415) as a mechanism for primary land division (along with other ephemeral features such as posts, marker stones and banks). Subsequent archaeological excavation in the West Moor area has, however, now revealed an extensive regime of land division that was not represented in the cropmark record (Richardson 2004a; Richardson and Rose 2004; Gidman and Rose 2004), and until recently there has been no tangible evidence for such hedged field boundaries in the study area. The possible exception has been found at Balby Carr, South Yorkshire, where waterlogged organic remains in later Iron Age and Romano-British field ditches contained obliquely cut pieces of alder roundwood and pollen indicative of water-filled ditches with hedgerows alongside (Gale 2005; Greig 2005). Still nowhere can it

be proven, or reasonably inferred from the evidence, that hedges without ditches (and banks) formed field boundaries, although the possibility remains.

Romanisation of the Landscape

The persistence of roundhouses into the Roman period is one of the indicators suggesting that the native rural way of life changed little in the first 100-150 years after the Roman invasion. In the 1st to 2nd centuries AD relatively little Roman material is recovered from rural sites and it is likely that most of the native farms continued very much on a subsistence basis. Moreover, the notion of Roman military demand stimulating rural production in the immediate post-Conquest period is not generally borne out by the available evidence. The one possible exception is the evidence for large-scale arable production centred on Enclosure D at Ferrybridge (Martin 2005), initiated at the expense of an established Late Iron Age field system in the early 2nd century AD. Generally, notable change, such as there is, seems to have occurred in the later Roman period, once the military frontier had moved north.

The increase in the deposition of Roman pottery and coins in the late 2nd to 3rd centuries AD seems to correspond, in West Yorkshire at least, with the expansion of field systems into areas previously not exploited, a model largely formalised as a result of the work on the M1-A1 Link Road. Whereas earlier expansion was more piecemeal and localised around enclosure nuclei, later developments took the form of large rectilinear fields in between earlier settlement complexes (Burgess 2001e; O'Neill 2001a; Roberts 2001). Whether this reflects an increased population in the later Roman period, or just a more plentiful supply of pottery and a change in the agricultural regime, is difficult to say. Whilst there are seemingly no large-scale field systems in the Vale of York, there is a similar succession in East Yorkshire where it has been attributed to a change of ownership of the land and the rise of large estates, sometimes associated with villas (Mackey 1999, 29; Fenton-Thomas 2005, 70). There are, however, few definite villas known within the study area on which to ground such theories, possibly because Brigantia was not regarded as a secure area (Branigan 1980, 18-21). Thus, changes as a result of the emergence of villa estates could only apply to a very small part of the region, such as in the northern part of the study area where

the villa sites of Dalton Parlours, Kirkby Wharfe and Cawood fall within the hinterlands of Newton Kyme, Tadcaster and York. Similarly, in the southern part, the sites at Stancil and Oldcoats lie close to the fortified sites of Doncaster and Rossington Bridge. Only the possible villa at Drax in North Yorkshire, just east of the study area in the Vale of York, does not appear to be sited close to a known Roman fort or town.

It is now apparent that limited areas of large-scale rectilinear ‘brickwork-like’ field systems dating to the pre-Roman Iron Age do exist in West Yorkshire (see above). In South Yorkshire and north Nottinghamshire the date and function of the extensive and enigmatic ‘brickwork’-plan fields have yet to be satisfactorily resolved. Riley’s assertion, on the basis of cropmarks south-east of Rossington Bridge, that some parts of the brickwork-plan fields are pre-Roman (Riley 1980, 25, map 8), is supported to a degree by excavations at Dunstan’s Clump, where they were deemed to have been established in or before the late 1st century AD and continued in use through into the Roman period, based upon pottery dated to the 2nd to 4th centuries AD (Garton 1987, 67). Such continuity has been implied by the findings from other investigations within the brickwork fields where chronological development, rather than spatial expansion, took the form of recutting and subdivision of the existing fields (e.g. Chadwick 1999). Riley (1980, 25) noted that in places the brickwork fields seem to infill unexploited areas between those of earlier enclosure, an idea that is entirely in keeping with what has been found in West Yorkshire, but chronologically a conundrum in terms of the evident early date of some of the brickwork systems in South Yorkshire and north Nottinghamshire. Branigan (1989, 165) concluded that there were two phases of Iron Age and Romano-British settlement (i.e. land intake) in South Yorkshire, the first between 100 BC-AD 100 and the second from the 2nd century AD onwards. Large-scale archaeological excavation of a part of an early intake is seemingly represented by the field system excavated at Balby Carr, Catesby, though even this was formed incrementally in two phases in the late Iron Age to early Romano-British period (Jones 2005). The rectilinear fields, however, appear to have been appended to a pre-existing settlement enclosure (Richardson and Rose 2005). A similar morphological/chronological sequence of development has been exposed by the extensive excavations at West Moor Park, Armthorpe. Here,

an irregular later Iron Age or early Romano-British enclosure complex was enveloped by a large brickwork plan field system of 2nd to 3rd-century date (Richardson 2001b; 2004a; Richardson and Rose 2004), seemingly a product of Branigan's second intake.

Even with evidence for expansion on a massive scale and the greater adoption of Roman material culture in the later Roman period, there is still little evidence for Roman influences in settlements. Indeed, many native sites seem to have been abandoned by the 2nd/3rd centuries, possibly as a result of a rationalisation that resulted in fewer larger estates, which is perhaps why it has been difficult to identify Romanised traits, such as rectangular buildings. Early rectangular buildings have been found at Dunstan's Clump (Enclosure 2), which may even be pre-Roman (Garton 1987), and Enclosure D at Ferrybridge (Martin 2005). Later Roman examples are, however, almost equally as rare. Apart from the 3rd to 4th-century group of stone and timber structures from the Dalton Parlours villa (Wrathmell and Nicholson 1990), two 2nd to 3rd-century timber structures are known from Stile Hill, Colton (Roberts in prep.) and a stone apsidal structure of 4th-century date has been excavated at Brierlands, Garforth (Owen 2000). Elsewhere, rectangular stone structures found at Edlington Wood are almost certainly Roman (Ramm 1980, 32), whilst beam slots that may have belonged to a rectangular structure were also found within a possible D-shaped enclosure at Warning Tongue Lane, Bessacarr (Atkinson and Merrony 1994, 25-7).

Economy and Purpose

The conditions necessary for the preservation of organic remains have not generally prevailed in excavations carried out within the study area. Consequently, there is very little evidence that can be employed towards a better understanding of the environment and rural settlement economy in the prehistoric and Roman periods, or the functions of the various forms of settlement and fields systems that are reflected in the cropmark record. In very general terms the palaeo-environmental evidence, in combination with evidence of the field systems, suggests a landscape well cleared of woodland by the Roman period, with large tracts having been cleared by the late pre-Roman Iron Age (Smith 1958; Turner 1962; Buckland 1979).

Although the interpretation of rural settlement subsistence economies in the later Iron Age and Romano-British period is hampered by poor preservation and statistical invalidity, what evidence there is suggests that the majority of native settlements practised mixed farming, with evidence of animal husbandry, as reflected by small quantities of animal bones, occurring alongside evidence for arable farming, in the form a few carbonised cereal seeds and quernstones (Berg 2001; Giorgi 2004; Richardson 2001a; Van der Veen 1992).

The notion that the economy of the northern British Iron Age was wholly pastoral (e.g. Piggott 1958, 13; Rivet 1958, 71; Frere 1974, 71) is now outmoded. The transition in thought has to some extent been supported by the discovery of the pit complex at Ledston (e.g. Hartley and Fitts 1988, 9), although archaeologically their function as storage pits is difficult to sustain (Roberts 2005c). Nevertheless, the relative absence of storage pits and four-posters, when compared to their common occurrence on Iron Age sites in southern England, could suggest that the economy, whilst not exclusively pastoral, might have been weighted towards animal husbandry. Further inference of this may be seen in the extensive use of ditched enclosures and fields, and their associated ditched trackways. Settlement enclosures might of course have been ditched for defensive reasons, and many of these do appear to have possessed larger ditches than their surrounding associated fields (see Chapter 6). Whilst on one level the provision of ditches around fields and settlements may have had symbolic purpose within Iron Age and Romano-British societies as part of a wider belief system (Parker Pearson 1996; Chadwick 1997, 6-7), the outlay in resources required to create and maintain them rather demands a function-orientated interpretation for their construction on such a large scale. At low-lying sites where periodic waterlogging was an issue, such as at Balby Carr and Chainbridge Lane, the need for boundary ditches for drainage is clear. But in permeable landscapes where drainage is not a problem, such as the limestone and sandstones that yield the vast majority of the cropmarks in the study area, the investment in ditched boundaries on a massive scale would imply that it must have been an essential part of their subsistence economy, rather than a result of any desire purely to affirm ownership; which could be achieved in other ways.

In this respect the ditches, in their original (un-truncated) form and their adjacent banks, and possibly hedges, must have served as stock-proof boundaries.

The apparent coexistence of the different types of enclosures led Ramm (1980, 31) to suppose that this was a complicated pattern resulting from stock enclosures being located around a central homestead, from which driveways led through the field systems to the pasturelands, in a model that would work quite well for the final phase of many sites, but fails to appreciate the incremental nature of field system development through time. Yarwood (1990, 273) supposed that the ditched trackway at Dalton Parlours had been provided only to manage the movement of stock adjacent to the settlement, whilst keeping them out of arable fields. But in a mixed economy, where any level of rotation is in place all the fields and enclosures, whatever their shape, will have to have been stock proof, in order that corralling and manuring options are not limited. Branigan (1989, 164) concluded that the brickwork fields of South Yorkshire and north Nottinghamshire might have been given over entirely to animal husbandry. On the basis of the predicted levels of grazing and water supply of the area, he further concluded that the animals concerned were almost certainly sheep, the brickwork fields being seen, potentially, as representing large meat and wool producing units in the Roman period (Branigan 1989, 164-5). The orientation of some strips of brickwork fields, at right angles to river courses, has seen them interpreted as large land units exploiting a range of ecological zones for raising livestock and providing maximum access to the river (Riley 1980, 26; Chadwick 1997, 4).

It is possible that in certain places, both on the Magnesian Limestone and the Sherwood Sandstone, thin soils with poor water retention may not have been ideal for arable farming. But if the onus was on animal husbandry, there is no evidence in the archaeological record of the study area to support the notion that sheep were universally favoured in the Iron Age (Haselgrove 1984, 14). Only at Dalton Parlours do the statistics suggest sheep/goat were the dominant species (Berg 1990). Indeed, the evidence from most Iron Age excavations where bone has survived in any quantity would support cattle rearing as the major form of animal husbandry (e.g. Richardson 2001a; 2005b; Maltby 2005). The evidence for large-

scale cattle slaughter at the Iron Age cart burial site at Ferry Fryston (Brown *et al.* forthcoming) also supports this.

It may well be that the investment in livestock and associated ditched corrals, possibly the most stable elements in the Iron Age/Romano-British landscape (O'Brien 1979, 307), was the principal expression of wealth and status in the Iron Age, in lieu of conspicuous material wealth that is absent from the finds record. It may too partly explain the apparent reluctance to adopt Roman material culture until much later in the Roman period when there may have been a shift towards greater arable farming and some form of reorganisation and change of ownership in the rural landscape, as has been proposed for east Yorkshire (e.g. Dent 1983, 42).

Although the function of the large pit groups at Ledston and Micklefield (Roberts 2005c; Brown *et al.* forthcoming) remains enigmatic, in general, storage pits and four-poster granaries are not common in this area. It would, however, be wrong to underplay the role of arable farming in the Later Iron Age as notable numbers of beehive querns, as well as low numbers of carbonised cereal seeds, attest some level of production. As perhaps the Dalton Parlours Iron Age site specialised in sheep rearing, perhaps too, certain sites specialised in arable processing, as seen in the variable distribution of quernstones. Many later Iron Age sites have produced no beehive quernstones at all, whereas sites such as Dalton Parlours (37) and Moss Carr Wood (17) have produced them in relatively large numbers (Buckley and Major 1990; Heslop 2002).

The economies of the majority of later Iron Age rural sites do not seem to be raised above a subsistence level immediately following the Roman conquest of the north, and, with the possible exception of Ferrybridge, there is little or no evidence for military demand stimulating rural production (Roberts 2004a). Rural change appears to take place in the 2nd to 3rd centuries AD when some native enclosure complexes seem to have been abandoned whilst others are expanded through the addition of larger rectilinear field systems. The development coincided with an increase in the deposition of Roman artefacts (principally pottery, but also coins) and the appearance of villas and more Romanised farms

(such as Brierlands and Holme Hall). It has generally been accepted that this also coincided with a shift in onus towards a greater arable component in the economy, perhaps as a response to a rising rural population. It should also be borne in mind, however, that this picture might be skewed by the greater availability of locally produced Roman pottery, after the Roman pottery industry at Doncaster came into production in the 2nd to 3rd centuries (Buckland 1986, 34). Change towards increased arable production at this time has also been related to a shift in economic objectives, subsistence being replaced by a need to generate profit, possibly linked to military demands in the north (Branigan 1980, 24).

The appearance of crop driers in the Roman period is a clear indicator that some sites were mass-producing cereals (e.g. Dalton Parlours, Ferrybridge and Swillington Brickworks in West Yorkshire, Womersley and Thurnscoe in South Yorkshire and Byram Park in North Yorkshire). But whether they were producing any more than in the pre-Roman Iron Age and early Roman period is unclear. Statistically greater numbers of cereal grains are recovered from later Roman sites, but this might only be a consequence of better, concentrated survival of carbonised seeds by virtue of the use of crop driers. It is doubtful that the appearance or expansion of large rectilinear field complexes at this time might be solely equated with an increase in arable production and it is more likely that the changes mark an expansion in the scale of farming on all fronts, in a move toward larger Romanised estates, some of which will have been centred on villas. Apart from the obvious intake of previously unenclosed adjacent land, there is also a possibility that certain marginal areas became more accessible.

As later Roman agricultural change has been linked with the military, so the collapse of the Late Roman rural economy in the north has been related to the departure of the army, possibly resulting in a contraction from the marginal areas rendered less viable (Faulkner 2001, 144-48). Although some pollen diagrams suggest settlement in the north could have had a high dependence on the military (Dark and Dark 1997, 139), there is little evidence of this specifically in the archaeological record, other than the obvious abandonment of villas and the decline in the pottery industry.