THE ROMANO-BRITISH LANDSCAPE OF THE SHERWOOD SANDSTONE OF NOTTINGHAMSHIRE: FIELDWALKING THE BRICKWORK-PLAN FIELD-SYSTEMS

by

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SUMMARY Cropmarks on the Sherwood Sandstone of Notts, discovered and published by Derrick Riley, are analyzed in combination with artefacts recovered through a programme of fieldwalking. A coherent landscape of fields, mostly laid out in a pattern resembling brickwork, is seen to be integrated with small enclosures, presumed farmsteads, situated at approximately 1km apart where the cropmarks are best represented. Fieldwalking covered 491 hectares in 97 Areas, including 76 of the enclosures plus a sample of related fields. It was undertaken in transects of 10m width, plotting all artefacts individually. The distributions of Romano-British artefacts are assessed in relation to the morphology of the cropmarks. Most numerous are potsherds ranging from diffuse scatters to well-defined clusters, mostly from the sites of the enclosures. Other finds include metalwork (coins, lead-weights/spindle-whorls, fragmentary brooches), quernstones and a single bead. Fire-cracked pebbles seem to coincide with some enclosures.

Excavations at three sites suggest that these enclosures were initially occupied in the 1st century BC/AD, and small numbers of potsherds of this date were found widely in the fieldwalking. As some cropmark-fields were laid out at an angle to the Roman road from Lincoln to Doncaster (just to the north of the study area), this suggests a pre-Conquest inception for this agricultural landscape, though precise dating is much needed.

Thirty-four cropmarks, predominantly single enclosures, did not produce any Romano-British pottery. It is suggested that they were used for a different function, or perhaps were earlier in date, than the groups of enclosures.

Given the proximity of the Roman pottery industries in South Yorkshire, it is hardly surprising that 2nd/3rd century pottery was most abundant among sherds from fieldwalking, being recovered from a majority of enclosures. Where earlier pot is lacking, this might represent new occupation, or a shift in the focus of settlement or pot discard. Even the larger collections of potsherds include few tablewares, as elsewhere on rural sites.

As at the excavated enclosures, few diagnostic sherds dating after the mid-3rd century were found by fieldwalking, their distribution correlating with those sites that have yielded the widest diversity of pot types. These enclosures are spaced at 5–6km intervals and are mostly located on till or alluvium, which would have formed more moisture-retentive, and probably richer, agricultural soils. The clustering of pot over enclosures, and the almost total lack of sherds over fields, suggests that any middens containing potsherds were not removed to the fields as manure.

Discussion is focused upon methodological and interpretative issues of this extensive cropmark-landscape.

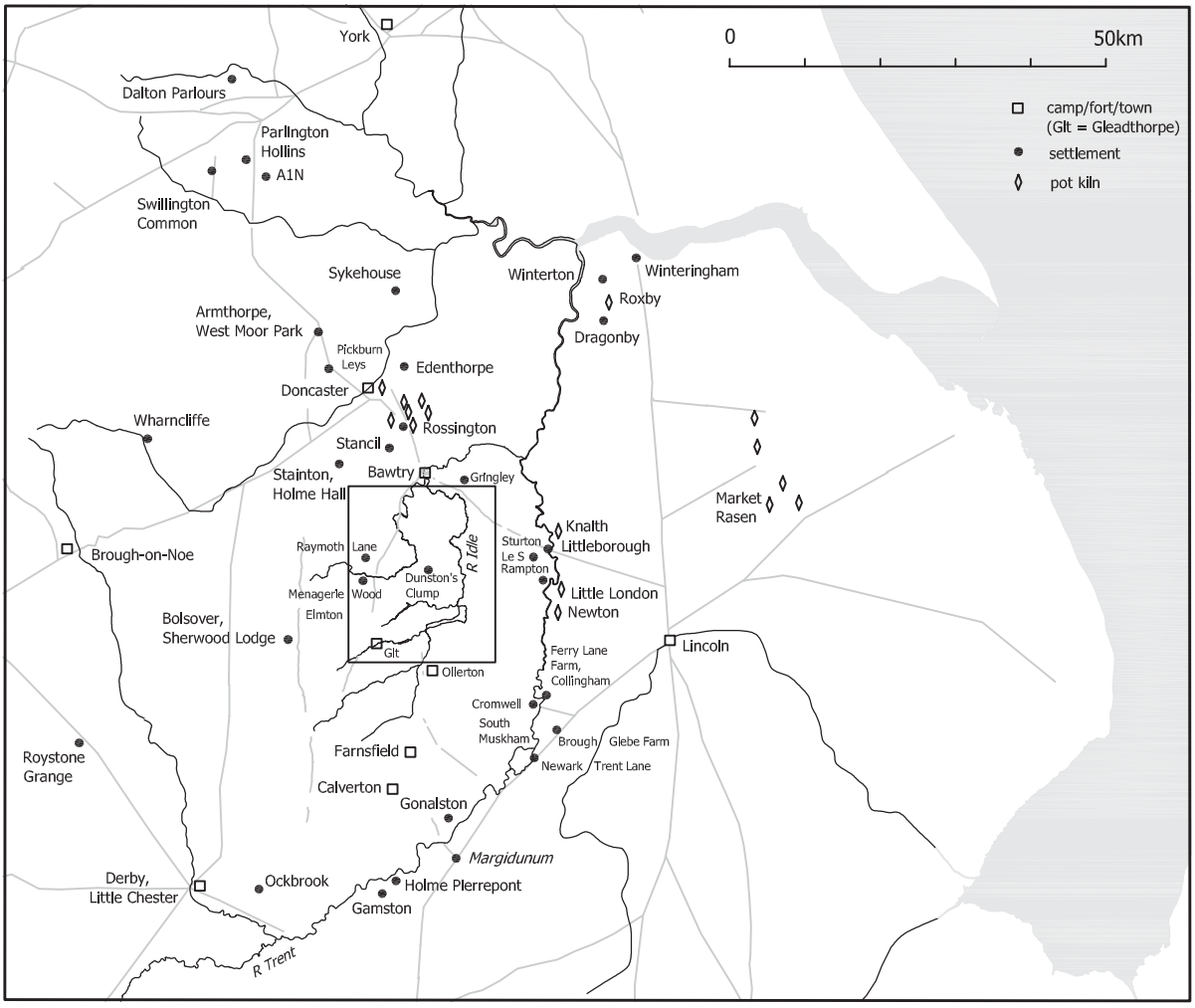

FIGURE 1: Location of study area covered by Figs 2–19 (outlined), also showing major rivers and probable and possible Roman roads in grey (after Ordnance Survey map of *Roman Britain*, 2001 and others as p.83), with sites mentioned in the text named. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved.

INTRODUCTION (DG)

Background

In 1980, Derrick Riley published *Early Landscape from the Air,* which described a new landscape revealed by air-photography on the Sherwood Sandstone of North Nottinghamshire and South Yorkshire (Fig. 2; Riley 1980, 58). When Riley first saw cropmarks forming long (often roughly east–west) strips with shorter cross boundaries, they resembled 'brickwork' in plan, the term he used to describe the pattern of the most regular examples (*ibid*., 12). Interspersed with, and adjoining, these boundaries, there are clusters of smaller enclosures, assumed to represent farmsteads (*ibid*., 27–34). Riley mapped blocks of cropmarks extending over some 45km between Ollerton, Nottinghamshire and Hatfield, South Yorkshire, most on the sandy soils of the Sherwood Sandstone (*ibid*., fig.12). One of the characteristics of this cropmark landscape is its overall impression of

coherence, apparently arising from a single period (*ibid*., fig. 11), thus contrasting with the individual enclosure-clusters and palimpsests of cropmarks in nearby areas of the Trent Valley (Whimster 1989, 81–3; Winton 1998, fig. 4.3, 56–8). This coherence is formed by the general layout of the long-axis of the field-systems, which run at right-angles to the major rivers (Riley 1980, 11), with deviations reflecting the localised changes in the alignments of the rivers (Deegan 1996, 20). This cropmark landscape has a combination of features that may be interpreted as farmsteads, paddocks, and field-systems physically interlinked, so that information on any part should be useful in interpreting others. Hence, it was anticipated that the fieldwalking project reported here would both complement the detail of the cropmark evidence, and provide a wider view of the dating and use of this landscape.

Riley's work was part of a floruit of 20th-century air-photographic recording of extensive landscapes of field-systems and settlement-enclosures, many, like this one, co-axial in form (*e.g*. Fleming 1978; 1987, 199; Drury and Rodwell 1980; Williamson 1987), even where the photographic record is patchy (*e.g*. Roberts *et al*. 2001, fig.4; Whimster 1989, 82; Palmer 1996, 8). Riley suggested that the cropmark field-systems he recorded were probably Iron Age or Romano-British because those at Rossington, S Yorks, were at an acute angle to the Roman road from Lincoln to Doncaster (both accepted as the sites of invasion period forts: Millett 1990, 61) and therefore were probably already in existence when the road was constructed (Riley 1980, 25; *cf*. Williamson 1986, 244). A Romano-British date for at least some of the Nottinghamshire cropmarks was demonstrated through excavation of boundary and enclosure-ditches by Samuels and May (1980, 73–81), some producing Romano-British pottery of approximately 3rd century AD date.

Since 1980, a series of excavations have been conducted (listed in Appendix 2), consistently yielding Romano-British pottery from the enclosures and associated features. However, defining the earliest and latest elements of this landscape is difficult, partly because of the lack of excavated evidence, but also because of the wide dating of some of the key pottery types (Taylor 2006, 140–1, 149). The recovery of later pre-Roman Iron Age style pottery (hereafter LPRIA, as Millett 1990, 9–10) from some excavations suggests a native background (*e.g*. Leary 1987, 43–4; Garton 1987, 67; Sydes 1993, 41–2 [Appendix 2] and excavations at Lound, Notts, unpublished), whilst wider scale excavation in W Yorks has shown that ditched landscapes with similar cropmark patterns are actually organic, seeming to develop from Iron Age beginnings (O'Neill 2001b, 275–7; Roberts 2005, 211, 216). Thus far, 4th-century Romano-British pottery is rare on these cropmark sites in Notts, though it is present on other sites close by (*e.g*. Littleborough, Notts [Buckland and O'Connor 1995, 273], Gringley, Notts and Bawtry, S Yorks [examined by Leary in Sheffield Museum, Leary 2006a]). A single diagnostic post-Roman sherd came from the fieldwalking project reported here (identified by Vicki Nailor in Garton 2007, 25, fig. 5), a surprising result in a region with a strong representation of Danish place-names (Gover *et al*. 1940, xvi), though Saxo-Norman and later-medieval pottery was recovered over some of these fields.

This cropmark landscape is on the margin of the distribution of Romanized villa buildings (Sargent 2002, 222–4), often perceived to be the successful outcome of agricultural wealth and Roman acculturation (Applebaum 1972, 223; Frere 1987, 258). However, this view is increasingly being challenged (*e.g*. Hingley 1991, 75; Millett 1990, 117–9). No villa-type buildings are recorded among the cropmarks on the Sherwood Sandstone (Riley 1980, fig.12), though they are recorded in neighbouring areas (*e.g*. Cromwell in the Trent Valley, RCHM(E) 1960, plate 4c; Whimster 1989, 78–9), so had they been present in the Sherwood Sandstone landscape, it might be expected that they would have been recorded. On the basis of the Romano-British dating, the lack of villa buildings and the regular, coaxial, plan of the field-systems, it has been suggested that this cropmark landscape may have formed part of an imperial estate (Wheeler 1980, 103; Branigan 1989, 164); but direct imperial organisation of land in any of the areas without villas in Britain has been dismissed (Millett 1990, 121), partly on account of the LPRIA

date established for many of the settlements within the putative estates. In addition, villas are now seen as reflecting the aspirations of owners whose wealth may have been made elsewhere rather than necessarily through local agricultural productivity (Millett 1990, 94–99, 119). The dating of the cropmark landscape of Nottinghamshire and Yorkshire is mostly based on sequences with few artefacts to provide an overall framework (see above). The relatively sparse survival/discard of pottery away from military/urban settlements in the north and west is noted by many commentators (*e.g.* Millett 1990, 123; Evans 2001b, 173; O'Neill 2001b, 275–7; Sargent 2002, 224; Hingley 2004, 328); and since settlement on the Sherwood Sandstone lay close to areas where use of pottery and other durable Roman artefacts seems not to have been of prime interest to society (*e.g.* Matthews 1997; White and van Leusen 1997, 138; Taylor 2001, 56), this may have repercussions for the interpretation of the material culture – mostly pottery – recovered during this fieldwalking project.

Objectives and Goals

In 1984–91, English Heritage supported a six-season fieldwalking programme in north Nottinghamshire (essentially south of the Ryton–Idle confluence at the top of Fig. 2, and bar two Areas on the east bank, all west of the River Idle) intended to provide a general context for the cropmark data. One of the objectives of the project was to use the EH grant to supervise the fieldwork, conducted by trained volunteers, who also did the finds processing.

This project originated with a simple aim that has not changed significantly. The primary aim was to gain a data set that would complement the cropmark-landscape, newly discovered in the mid 1970s. In combination with selective site investigations, it was hoped that fieldwalking evidence would give a broad dating tool, establish some evidence for patterns of artefact discard, and enable some characterisation of the associated assemblages that would contribute towards chronology and economy of the area. It was hoped that all these would help in understanding how this landscape articulated internally, and how it might relate to the better known 'sites' with little landscape context. In turn, this would contribute to the wider assessment of Roman rural settlement patterns, which are still poorly known in the East Midlands (Taylor 2006, 149–51), and would encompass the themes of settlement hierarchies and landscape adaption and change. In addition, the project was intended to contribute to the methodology of landscape-characterisation, providing documentation against which Planning Archaeologists might make effective management decisions for this landscape.

Such coherent Romano-British landscapes are rare and the data collected by fieldwalking allows us to ask questions at a landscape level, rather than individual site-base. This strength is balanced by the selectivity of the data, cropmarks providing the pattern of deep, linear, features only, and the artefact data being provided by a single episode of fieldwalking (*cf.* Garton 2002), in a region where small artefact assemblages from fieldwalking now seem to be the norm (*cf.* Roberts 2005, 15). It was considered that the relatively large scale of the exercise would allow some overall research aims to be addressed:

- How do the cropmarks and the material culture relate to the landscape topography, soils and geology?
- What does the distribution of artefacts tell us about the chronology and economy of enclosure and field use?
- Do the different elements within this landscape articulate with each other to suggest any ranking in date, function or access to material culture?
- Do the distributions of artefacts reveal trade and supply patterns across the study area and do they change through time?

Some of the methodological issues, particularly the use of NMP cropmark plots, the small numbers of Romano-British sherds recovered from field-walking many of the cropmark sites, and the relationship of fieldwalked data to subsequent excavation data, have been illustrated by case-studies

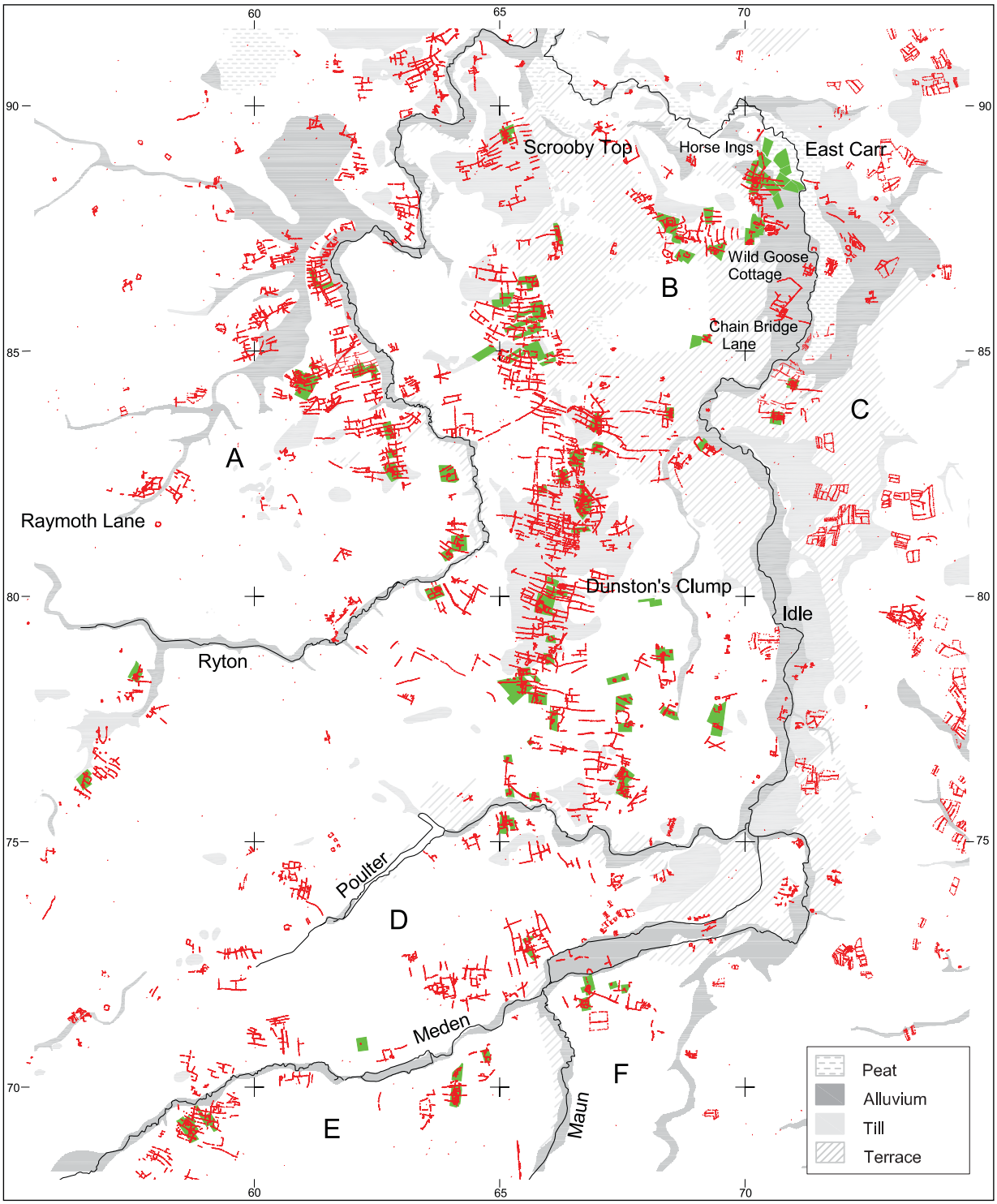

FIGURE 2: Sherwood Sandstone: the study area showing cropmarks (red) plotted by the National Mapping Programme, the fields walked (green), with the superficial geology (grey: conventions as key, derived from 1:50,000 scale BGS Digital Data under Licence 2003/072, British Geological Survey © NERC). Rivers and excavated sites named. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

which is intended to be reported separately in due course, using examples from Worksop, Menagerie Wood; Lound, Wild Goose Cottage; Tiln North; and Mattersey, East Carr and Horse Ings. In addition, excavations on the latter four sites are yet to be reported.

The full dataset, *i.e*. the NMP cropmark plots, the areas walked and all artefact distributions will be made available on the Archaeology Data Service website at http://ads.ahds.ac.uk/catalogue/resources.html?brickworkplan_eh_2009. It has been arranged that the field archive, and a copy of the processed archive, together with the artefacts recovered, will be deposited in the Bassetlaw Museum, Retford.

Geology

The cropmarks recorded by Riley are almost exclusively restricted to the Sherwood Sandstone (renamed from the Bunter Sandstone designation used by Riley 1980, 7), though Riley notes how he did not neglect the adjacent geologies (*ibid.)* and this has not changed with subsequent recording (Deegan 1996, 19). Riley also demonstrated how superficial deposits and soil variations markedly affected the distribution of cropmarks (1980, figs 8–9, 59–62).

The geology within the area fieldwalked mostly comprises the Nottingham Castle and Lenton Sandstone Formations of the Sherwood Sandstone Group (nomenclature here and below from British Geological Survey 2004): these form gently undulating plateaus dissected by the major rivers (Maun, Meden, Poulter, Ryton) which all flow into the Idle. Cropmarks are also recorded (and some walked) on the sandstones of the Sneinton Formation and mudstone of the Retford Member (Mercian Mudstone Group) on the eastern margin of the study area, and on the sandstones of the Edlington Formation (Zechstein Group) on the western margin of the study area. The cropmarks are mostly recorded on the sandstone formations, which in some areas are overlain by tills (mapped as both fluvioglacial and diamictons), all of which produce deep, friable, free-draining soils. Cropmarks have also developed on the terrace sands and gravels of the Idle Valley (Fig. 2), with rather fewer on the alluvium (Chain Bridge Lane [Eccles *et al*. 1988; Garton *et al*. 2000] and East Carr being two of the exceptions). The only cropmarks mapped on peat are on the east bank of the Idle by the Chain Bridge Lane river crossing, where recent fieldwork has shown that the peat cover has been severely deflated.

The cropmarks

The cropmark landscape was analyzed initially by Riley who identified three field-system types (1980, 13) and two of these, brickwork-plan and irregular, are found in the study area. Extensive tracts of the brickwork-plan fields can be seen in the centre and northwest of the study area while smaller areas of irregular fields can be seen in the northeast around the west bank of the River Idle (Fig. 2). Subsequent analysis has been published by Hayes (1981), Branigan (1989) and Deegan (1996). The aim of this project has not been primarily to provide fresh analysis of the cropmarks (though this was one of the tools developed), but to compare the cropmarks with the fieldwalking dataset to answer the questions posed, and to provide a management tool for planning archaeologists. This characterisation was developed in three ways:

1) classification of the enclosure morphology allows questions such as how many of each type, where are the other similar examples, and the pattern of their distributions and relations to artefact groups, to be posed. This is of primary importance in any consideration of the overall function of the cropmark landscape and in comparing with the fieldwalking dataset. The classification was investigated by RSL with the analysis applied by Cilla Wild.

2) noting cropmarks that are apparently ‘out of alignment’ with those surrounding – only possible because of the relative coherence of this cropmark landscape. The occurrences of cropmarks suggesting palimpsests seemed relatively rare at the outset of this project, but detailed inspection suggested these are more widespread than initially considered: specific instances are noted below (*e.g*. Hodsock A11 Fig. 20, Babworth B32N Fig. 28; Perlethorpe E4C Fig. 32), with others explored in Garton forthcoming.

3) detailed comparison of cropmarks with the post-medieval Enclosure landscape, using the mapping of George Sanderson published in 1835. It was thought that this would allow testing of two possibilities: investigation of continuity of landscape elements through time, and identification of cropmarks that could reflect recent field-systems, latterly removed. Whereas the overall concept appeared straightforward, it proved difficult to apply consistently in practice, mostly because of the variable accuracy of Sanderson's mapping when considered at a very detailed scale (pilot project implemented by Graham Murray). Though there seems considerable potential, it has not been realized in this project, and is not pursued here.

At the analysis stage of the project, it was decided to use the RCHME 1:10,000 plots produced for the National Mapping Programme (hereafter NMP: see Bewley 2001), as it was thought that these would provide a consistent basis for analysis over the study area. It is intended that some of the methodological issues of using these cropmark-plots will be explained elsewhere.

Cropmark morphology

Cropmark classification has been the subject of particular methodological study since the 1980s (see list in Edis *et al*. 1989, 113) with the preference for objective and consistent morphological descriptions adopted by RCHME as part of the National Mapping Programme. An attempt to follow this rigorous classificatory procedure was piloted for these cropmarks, but the complexity of the analysis and the primary objective of the project (relating cropmark types to artefact-scatters) argued against such a detailed approach. Whimster (1989, 27–8) faced similar constraints in his study of cropmarks in the Trent Valley and the Welsh Marches and recognised the value of using ten 'interpretative categories' based on morphological form (*e.g*. enclosure) and recorded attributes (*e.g*. shape, number of banks/ditches, entrances, size). A rapid survey of recent works on cropmark landscapes (*e.g*. Stoertz 1997, 13–20), confirms a near universal application of such interpretative categories.

In addition to these two levels of classification, Whimster identified a third tier of classification required by the complicated cropmarks found in the Trent Valley (1989, 32). These were defined by their morphological form *and* relationships, *viz*. whether cropmark morphological forms lay adjacent ('clustered'), 'superimposed', or annexed to pre-existing structures ('conjoined', *ibid., 34*). The occurrence of large groups of rectilinear enclosures in the Yorkshire Wolds and in the Trent Valley compelled both Stoertz and Whimster to abandon the idea of analysing each individual enclosure in favour of grouping by morphological form and relationships to form *complexes* based on both. Study of these two surveys demonstrates the degree to which patterns are detected by evaluating repetition of relationships, such as clustering and conjunction, as well as distinctive morphological forms. Stoertz (1997, 15) states 'although it would be possible to measure and count each individual rectangular enclosure, their true significance appears to lie in their contiguous arrangement; therefore whole complexes will be treated here.'

In addition, our classificatory system, like Riley's (1980, 35–50), needed to include an element of recording the patterns and relationships of the enclosure-groups to the field-system blocks. These relationships were divided into four groups based on proximity, conjunction, intersection and absence of spatial relationship. Analysis by number of occurrences of each relationship of enclosure to field-system cropmarks (Table 1) shows that the number of instances where there is some evidence that could be interpreted as chronological depth, and therefore the cropmarks representing a palimpsest, is extremely limited (>5%). This corroborates Riley's assessment (1980, 35, 37) that the enclosures were 'in use at the same time as the brickwork plan fields' and Deegan's comment that 'the ditches of the enclosure clusters often seem to abut, or possibly cut, the regular, parallel field' boundaries (1996, 23). Further levels of detail, as observed by Deegan in the potential realignments of fields (1996, fig. 2), and Hayes on the potential for identifying land-holdings on the basis of cropmark field-size (1981, 113), was not conducted since our main focus was a classification which could be compared with fieldwalking evidence. The reading

TABLE 1

Sherwood Sandstone: relation of cropmark enclosures to field boundaries within the study area (which includes field-systems of both brickwork-plan and irregular type as classified by Riley 1980, fig. 12). Those relationships which imply some chronological depth or palimpsest in italics

Type of relationship of enclosure to field-boundary	*Number of this relationship type*	*Proportion where some element of chronological depth*
Proximity		
adjacent to	119	
encloses	38	
enclosed by	39	
changes direction to go around	*5*	*0.6%*
aligned with but not joined/intersecting	10	
right angles with landscape unit (not joined)	1	
within field, not joined or aligned	35	
Conjunction		
conjoins	13	
aligned with field-system, shares boundary over more than one field	61	
aligned with field-system, shares boundary across one field	16	
aligned with field-system, shares boundary over part of one field	154	
aligned with field-system, shares boundary over incomplete/fragmentary field-system	74	
changes direction to meet	*7*	*0.8%*
abuts	16	
abutted by	25	
stops at	20	
adjoins on different alignment	*9*	*1%*
Intersection		
intersects with	72	
intersects with on different alignment	*26*	*3%*
intersects with on same alignment	5	
Absence		
not connected to	121	
Total number relationships recorded	**866**	

of the cropmark landscape as enclosures integrated within the field-systems seems justified, though some areas of apparent chronological depth are identified in the analyses presented below.

Enclosure morphology and complexity

The enclosures were classified by their number and the form/relationships of their groupings.

Class 1: *Single* enclosures: they may be circles, curvilinear or rectilinear in form; single or double-ditched, or irregular in shape (Fig. 3). Letters a–d denote their shape (Table 2).

Class 2: Single/two adjoining enclosures *clustered* within one field-system length, but not conjoined with other enclosures (these enclosures may be within the same or adjacent fields if enclosure is not attached to field-system). Letters a–c denote their shape (Table 2), with letters f and g indicating multiple shapes. Fig. 3.

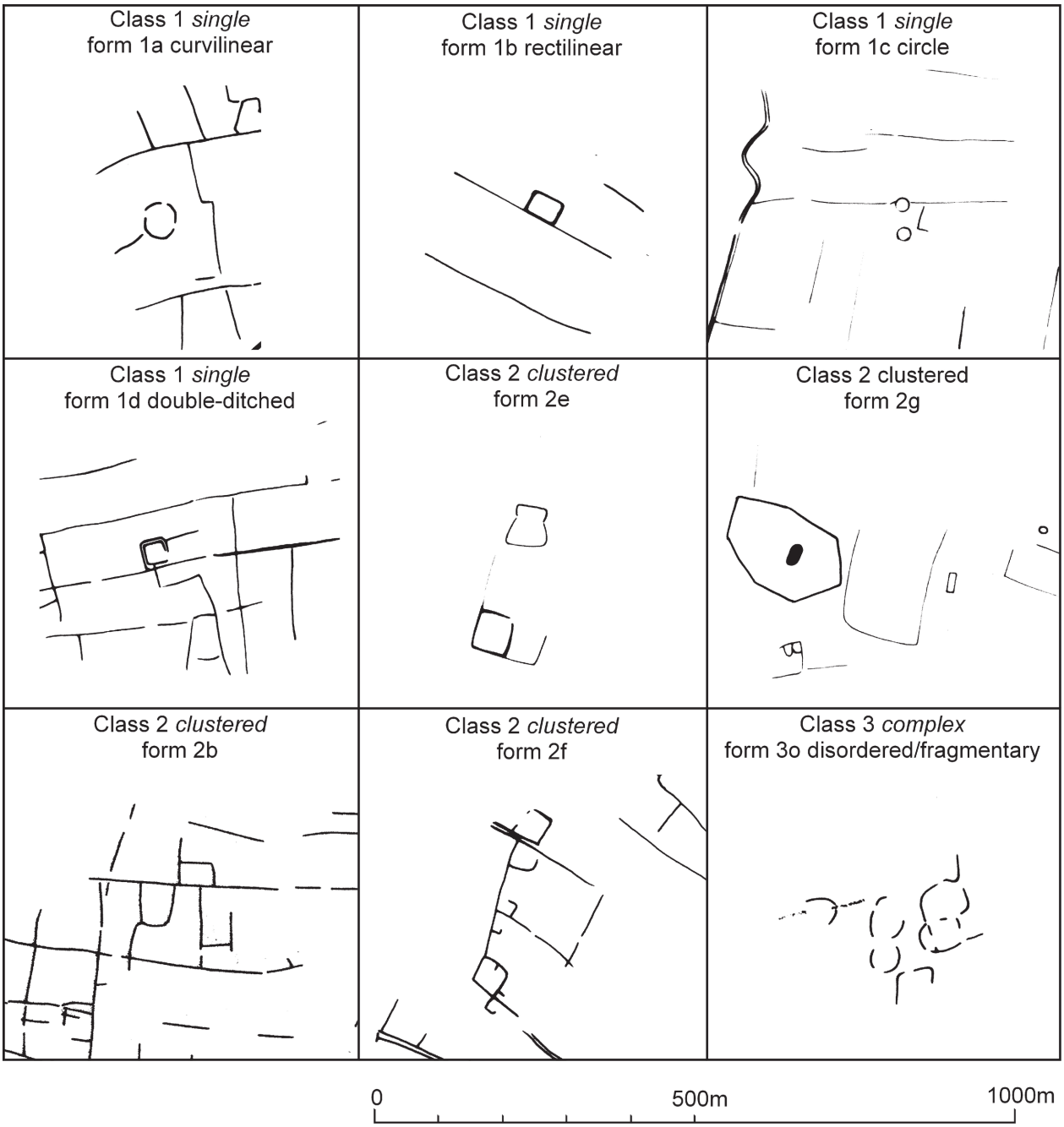

FIGURE 3: Sherwood Sandstone: morphological classification of cropmark enclosures, examples of Class 1 *single*, Class 2 *clustered*, and Class 3o disordered/fragmentary (see also Fig. 4 and Table 2). Cropmark plot © Crown copyright, National Monuments Record. Scale 1:10,000.

TABLE 2

Sherwood Sandstone: enclosure-group morphology and complexity, with Classes illustrated in Figs 3–4 and distributions plotted in Figs 5–7

Class	*Morphological group*	*Shape description*	*Arrangement*	*'Complexity' score*	*Number in study area*	*Number fieldwalked*
1 ***single***	1a/b/c 1d	curvilinear/rectilinear/circles double-ditched	solitary enclosures	1	152	15
2 ***clustered***	2a/b/c 2f/g 2o	circles/rectilinear/ curvilinear enclosures multiple shapes fragmentary/partial	Single, or two adjoining, enclosures clustered within one (or adjacent) field-system length, but not conjoined with other enclosures	2	32	13
3-3 ***simple***	3a/b	rectilinear/curvilinear	single row of conjoined/ superimposed enclosures	3	32	10
3-4 ***developed***	3c/d/e	rectilinear/curvilinear/mixed	multi-directional arrangement of conjoined/superimposed single/ double enclosures	4	22	14
3-5 ***complex***	3f	nucleated rectilinear/curvilinear	enclosures grouped around central unit	5	4	2
3-5 ***complex***	3g	polyfocal rectilinear/curvilinear	more than one spatial focus	5	4	3
3-5 ***complex***	3h	rectilinear/curvilinear	multi-directional arrangement of enclosure Classes 1 and 3a/b	5	14	13
3-5 ***complex***	3i/k	rectilinear/curvilinear	apparent multiple subdivision of a larger enclosure	5	4	2
3-5 ***complex***	3j	concentric rectilinear/curvilinear	enclosures apparently placed concentrically	5	2	2
3-5 ***complex***	3l/m	accreted rectilinear/curvilinear	with enclosures apparently accreted on one/more sides	5	all within other complex types	–
3 fragmentary	3n/o	disordered rectilinear/curvilinear	not regularly ordered, some probably incomplete/partial	–	5	2

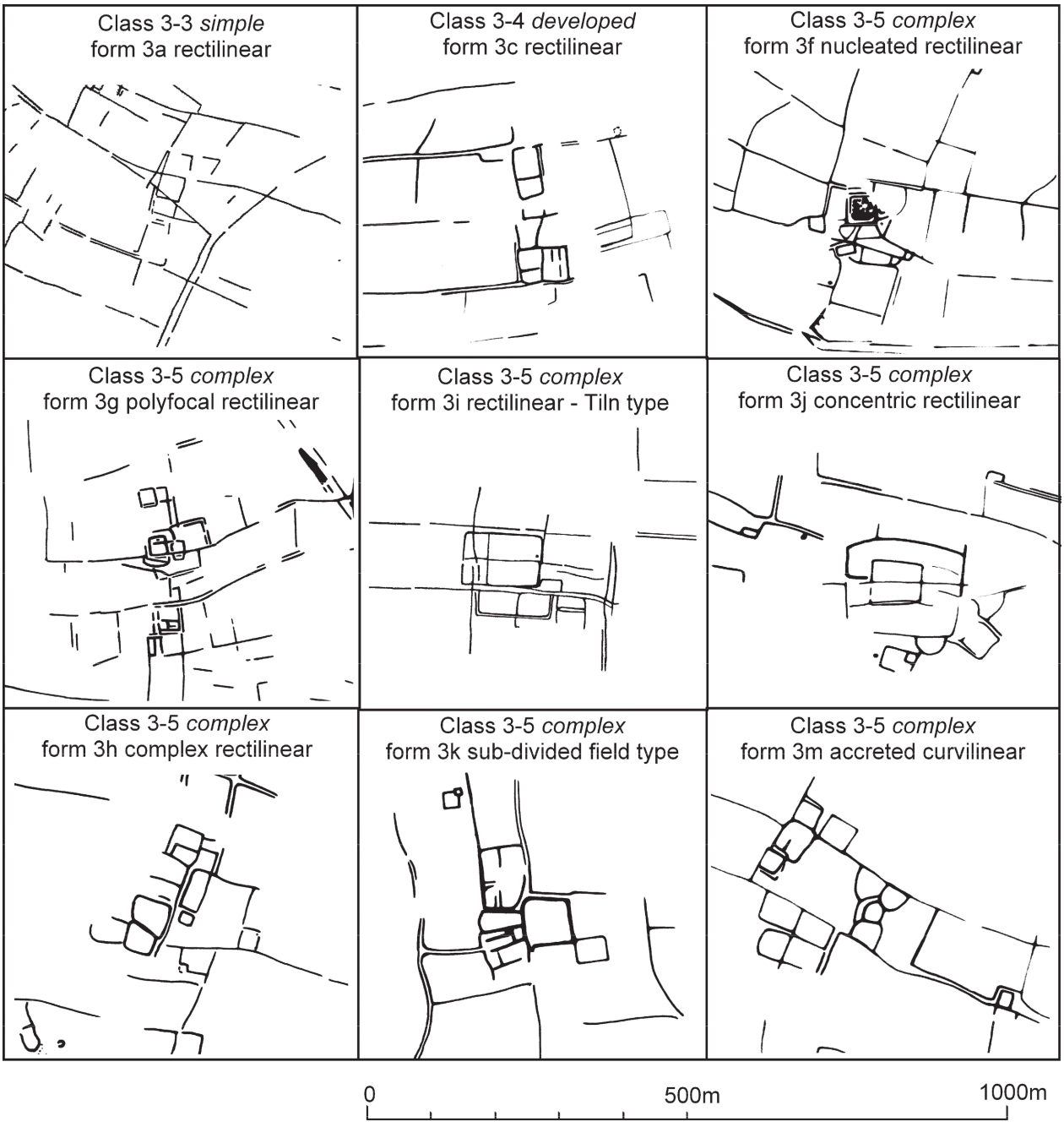

FIGURE 4: Sherwood Sandstone: morphological classification of cropmark enclosure groups: examples of Class 3-3 *simple*, Class 3-4 *developed* and Class 3-5 *complex* types (see also Table 2 and Fig. 3). Cropmark plot © Crown copyright, National Monuments Record. Scale 1:10,000.

Class 3: Groups of conjoined enclosures within one field-system length, or within the same or adjacent fields (if enclosures are not attached to field-system). The enclosures are described by shape (as above) and by their arrangement into groups as in Table 2 and illustrated in Fig. 4. For example, a *complex* enclosure could include several elements, so that a polyfocal group (morphological

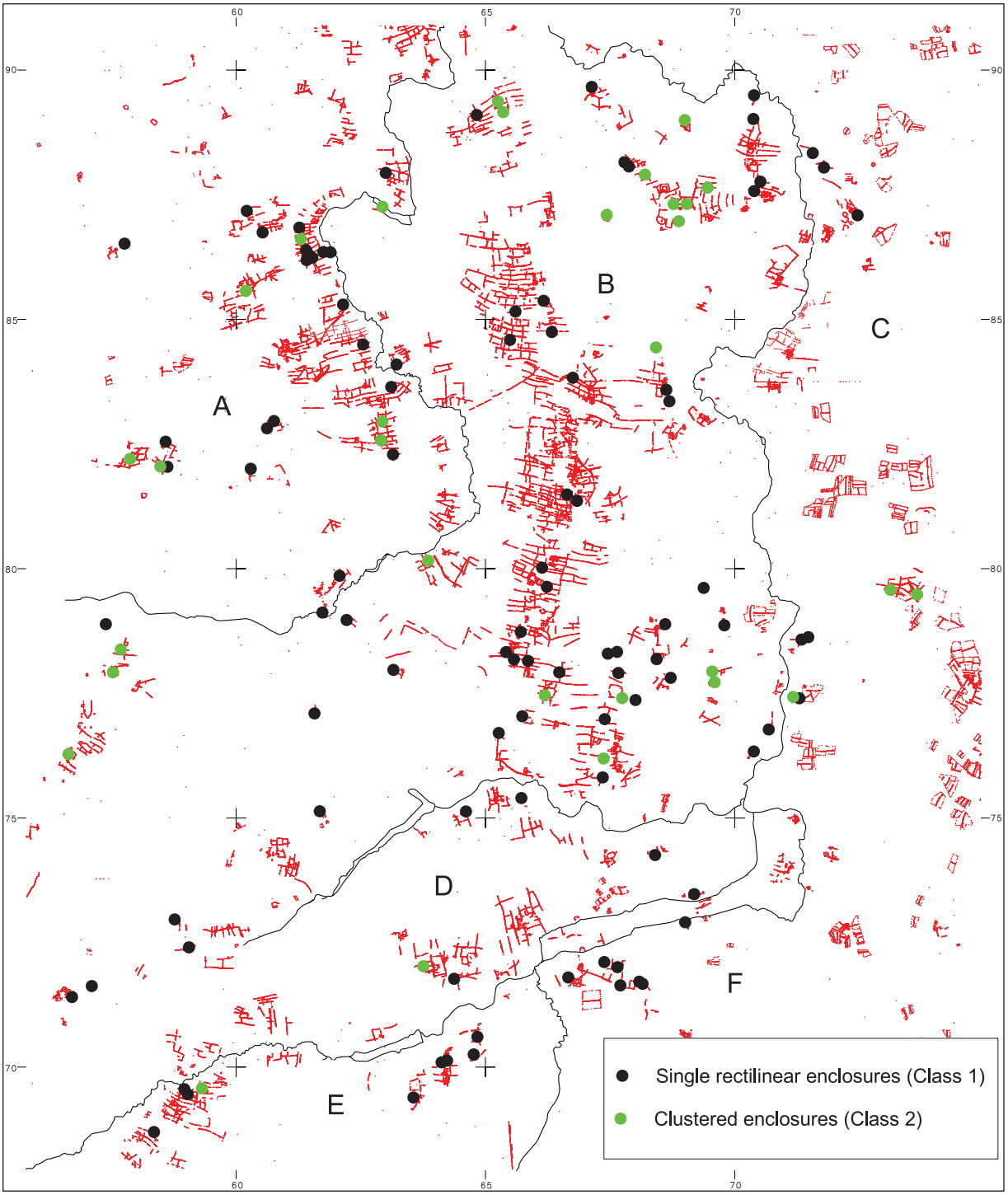

FIGURE 5: Sherwood Sandstone: distribution of single rectilinear (Class 1) and clustered (Class 2) enclosures (see Table 2). A–F are the landscape blocks between the rivers. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

group 3g) could be comprised of two 3a *simple* rectilinear groups and a 1a *single* curvilinear enclosure. Since some of the morphological groups were present in small numbers, they were grouped by their complexity into *simple* (Class 3-3)**,** *developed* (Class 3-4) and *complex* (Class 3-5) enclosure-groups (defined in Table 2) to enable comparisons with the pot-groups, with the last number representing a scoring for the degree of 'complexity'. The relative simplicity of this approach seemed consistent with the original research interest of the project, where the prime objective of the project was to relate the cropmark morphological types to the artefact-scatters.

Distribution of cropmark enclosure types

The distribution of the cropmark enclosure types was examined.

The most common form (Table 2, Class 1b: *single* rectilinear enclosure) is scattered evenly over the study area (Fig. 5). *Clustered* enclosures Class 2) are also scattered, but only appear once along a north–south block of cropmarks midway between the rivers Idle and Ryton (Fig. 5), where the Class 3 enclosures occur. However, these enclosures are not restricted to this location (Fig. 6).

Circles (Class 1c) occurring on their own (16 instances), are all within 1km of the rivers bar two instances; however, if circles within enclosures are also considered, they are found in all bar the southwest block between the rivers Ryton and Idle (Fig. 7). Circles are found within enclosures of both Class 2 and 3 (but not within Class 1 by definition – see above).

This analysis of distribution suggests that there is no obvious clustering of the classified cropmark enclosure types within the study area, and is not pursued further.

Fieldwalking data

The express aim of the fieldwalking programme was to assess the artefacts recovered from the enclosure clusters within the field-systems. This was achieved by walking (Table 2, Appendix 1):

- 61 of 119 enclosure-groups,
- 15 of 152 single enclosures/circles
- 18 areas within the field-systems
- 3 areas having no identifiable enclosures or cropmarks.

Thus, although the original aim of the project was to target the enclosure-groups, other elements of the cropmark landscape were included.

Ninety-seven separate Areas were walked comprising 491 ha. In addition, eleven of these Areas were rewalked on a separate occasion (below and Table 3). The artefacts are listed by each Area walked and grouped by cropmark classification in Appendix 1. Table 3 is discussed further below.

All artefacts recovered by fieldwalking at 10m spaced transects, inspecting a 2m width, were individually recorded on site (method described fully in Garton 2007, 17) so that the distribution patterns could be directly compared with cropmark plots. The findspots were subsequently digitized and imported into ArcView so that the artefact distributions could then be viewed and analysed in relation to the cropmarks.

Four classes of artefact were recorded and collected *viz*. flintwork, all pottery of medieval and earlier date, metalwork and worked stone. In addition, the location of fire-cracked pebbles and unworked foreign stone was recorded (not collected), together with the topography and any changes in soil colour and type. The most numerous artefact type recorded was Romano-British pottery, but only in 73% of the Areas walked. The Areas that produced reasonable quantities of Romano-British potsherds are mostly different from those that produced reasonable quantities of medieval sherds (Garton 2007, Table 3). Undatable fire-cracked pebbles were the second most numerous artefact-type recorded, and they occurred in most (over 90%) of the Areas walked. Quern fragments, though relatively rare, were found most frequently in the fields that produced quantities of Romano-British potsherds. Very low densities of struck flint were

TABLE 3

Sherwood Sandstone: comparison of recovery of Romano-British pot fabric groups and other artefacts in fields walked twice

	Enclosure Cropmark	Babworth B36B		Mattersey B28C		Hodsock A11B		Eaton B39		Lound B22A		Hayton C8A	
	Site name for excavation									Wild Goose			
	Area No	**88**	23	**17**	19	**45**	186	**83**	84	**86**	138	**90**	173
	Transect spacing m	10	10	10	2	10	10	10	2	10	5	10	10
	total ha walked	8.2		5.6	0.6	4.3		5.9		5.7		3.6	1.5
	No RB sherds+tile	89	161	220	462	218	34	92	428	16	21	20	21
*Fabric**	*Code**												
Black burnished	BB1			+	+	+				+		+	
Shell-tempered	CT			+	+						+		
Dales ware	CTA2		+		++	+			+				
Early shelly	CTB		+	+	+++	+				+			
Derbyshire ware	DBY			++	+	++	+						
Dressel 20 amphora	DR20			+	+	+	+						
White wares	FLA1			+	+								+
Grey wares	GRA1–10		+	++	+++	+			+				
	GRB1–2	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
	GRC1			+									
	GT			+									
Trent Valley type wares	GTA 1–10		+	++	+++	+		+	+		+	+	+
Oxidised grey ware fabric	OAA–C + OBB		+		+	+	+	+	+		+	+	+
Mortaria	MOR			+	+	+	+		+	+	+	+	
Nene Valley colour-coat	NV	+			+						+		
Samian	TS			+++	+++							+	
Brick/tile	TILE			++		+	+	+	+			+	
FCPs		+++	nr	+++	nr	+++	+++	+++	+	+++	+++	++	+++
Flint		+		+		+++				++			
Medieval pot		+++	+++										

+ = 1–5 items, ++ = 6–10 items, +++ >10 items The Area in **bold** is that used in the analysis by RSL * Descriptions as Appendix 3 FCPs = fire-cracked pebbles, nr = not recorded

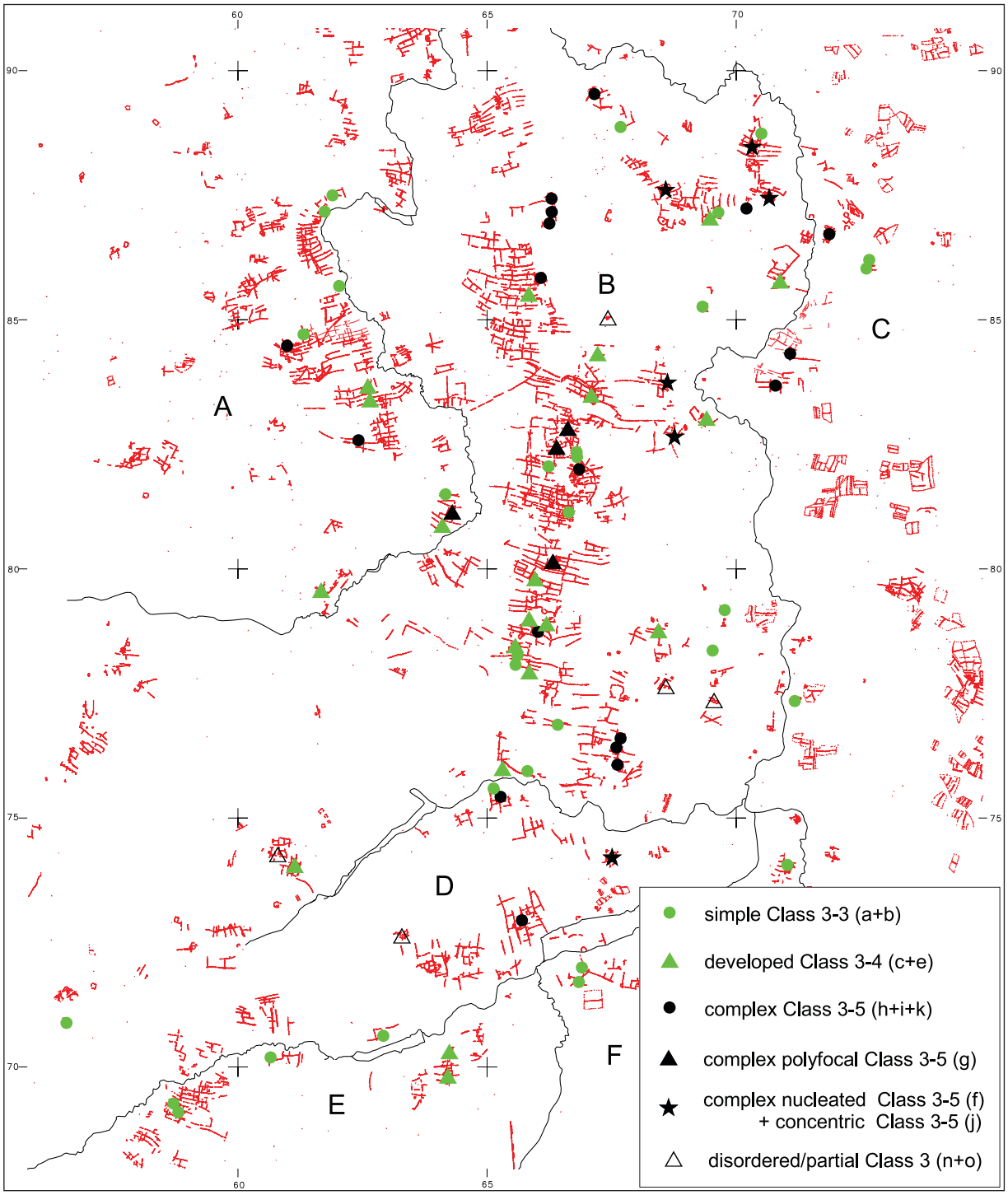

FIGURE 6: Sherwood Sandstone: distribution of enclosure groups (Class 3) by morphological group (see Table 2). A–F are the landscape blocks between the rivers. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

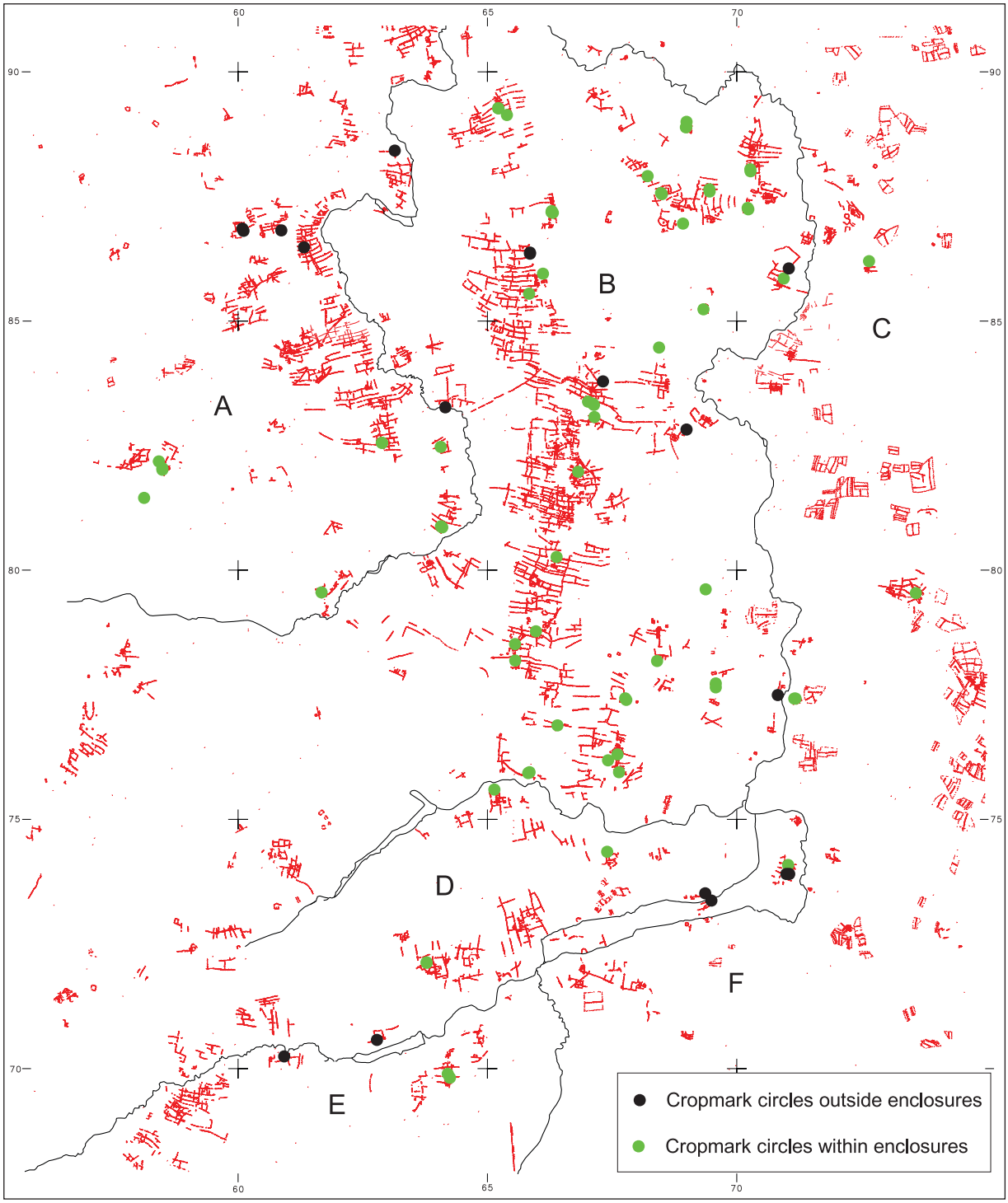

FIGURE 7: Sherwood Sandstone: distribution of cropmark circles (Class 1c: Table 2), with those within enclosures coloured green and those apparently outside enclosures coloured black. A-F are the landscape blocks between the rivers. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

found, with no obvious correlations with other artefacts or cropmarks (Garton 2007, Table 1).

For the cropmarks and artefacts discussed here, each is referenced first by the parish name (as given by the Ordnance Survey [OS]), then a division of the cropmark landscape using a letter, a number, and another letter. The landscape was divided into the interfluves between rivers, named A–F, as illustrated in Figs 2,5,6,7. Each interfluve was then divided into *landscape blocks* (numbered) where a block is the field-system, or a group of cropmarks, which conjoin or are on the same alignment. Where there are large areas covered by field-system cropmarks the 'gaps' between the cropmarks, or changes of alignment, were used to divide the landscape blocks (*e.g.* in dividing Babworth B3, B5 and B32, see Fig. 19). Within each landscape block each enclosure-group was lettered; hence, Hodsock A11B is in the parish of Hodsock, landscape A, cropmark block 11, enclosure B. For the purposes of analysis of cropmarks in the archive, the enclosure-groups were subdivided further, but this analysis is not used within this report.

The pottery data was grouped in sherd clusters and related to the landscape, cropmark block and enclosure-group it lay near (described above and on p.27). For example, the pottery collected from Elkesley B33D (Fig. 29), was divided in archive into three pot-groups, two of which lay clustered over different parts of the *complex* enclosure-group, with the third off/just outside of the eastern *single* enclosure: these are given the labels (pot1), (pot2) and (pot3) in Table 5. Where the pot distribution coincided with the enclosure-group, or there is only one distribution, these pot labels have been dispensed with for this report in the interests of ease of use. Hence, it must be appreciated that a pot distribution may not wholly match the limits of the cropmark enclosure-group, however, except in discussing intra-site distributions of artefacts (below p.59), this detail is probably insignificant.

The cropmark types and labels and the archive fieldwalking Area numbers are listed in Appendix 1, together with the parish, 1km grid reference and OS field number (as used for flint and medieval pottery in Garton 2007), so that the Romano-British artefacts can be located, and cross-referenced, to other artefact types, and cropmarks, without access to the archive.

Romano-British pottery and brick/tile

Excavations of the cropmarks have shown that when artefacts are associated, they are Romano-British in date (Appendix 2): it is therefore assumed that the scatters of Romano-British pot and tile from fieldwalking are related to the features represented by the cropmarks. This material was studied by Ruth Leary (with Ron Firman on the brick & tile, and with Margaret Ward on the samian) to assess inter- and intra-site differences in chronology, function, status/choice in access to pottery and trade and supply patterns.

2547 (33,344gm) sherds of pottery were recovered during initial fieldwalking from 61 sherd clusters and a further 20 diffuse scatters. A further 1515 (15,852gm) sherds were recovered from subsequent rewalking of eleven Areas (p.27 + Table 3). These are not included in the analyses but are considered in respect to how they add to our knowledge of the sites. The pot fabrics are described in Appendix 3, the pot date groups in Appendix 4 and the construction of the pot diversity groups in Appendix 5. A listing of the longevity and diversity of the pot-clusters is in Table 5.

Handmade sherds

Handmade, probably prehistoric, sherds are lacking at all bar two sites (Babworth B32A and Perlethorpe E4C). Handmade pottery is usually only recovered in small quantities in fieldwalking, even when subsequent excavation demonstrates its abundance (*cf.* Gamston, Notts, figures noted in Garton 2002, 31), and this is usually attributed to its friability (*cf.* Crowther 1983, 35; Gaffney and Tingle1989, figs 9.1 and 9.6). This issue is considered further by comparing the recovery of the 'native' wares of the 1st BC/AD from fieldwalking and excavation below. Handmade Saxon pot was also generally lacking, though a single pierced lug (Babworth B5I illustrated in Garton 2007, fig. 5), was recognised by Vicki Nailor within a scatter of later medieval sherds (*ibid.* table 3). When Saxon

features have been identified in excavation elsewhere within these cropmark landscapes, the amount of these sherds recovered by fieldwalking prior to excavation is tiny (*cf*. O'Neill 2001b, 272 and 284).

Metalwork

Little metalwork was found during fieldwalking, but metal-detector survey was conducted under archaeological supervision on selected sites. All were examined by Jane Cowgill, and those identified as probably Romano-British are listed in Table 6.

Stone artefacts and fire-cracked pebbles

The diagnostic stone artefacts were mostly querns (Table 7, undiagnostic pieces of millstone grit or sandstone not included): the most complete examples are catalogued by Liz Wright in Appendix 6.

Pebbles were only accepted as fire-cracked if both the surface was crazed and they were irregularly fractured: many were quartzite pebbles identifiable macroscopically as probably originating from the Sherwood Sandstone. Such pebbles, without clear contextural association with other datable artefacts, may be of almost any date, as detailed in Garton (2002, 27). However, fieldwork and preliminary analysis indicated some correlation between the distributions of Romano-British pottery and fire-cracked pebble scatters (*ibid*., 35–6), which is explored further below.

Fieldwalking analysis

Fieldwalking can be used to answer a limited set of research objectives as the methodology is restricted to the recovery of durable artefacts present in reasonable quantities in the ploughsoil. This fieldwalking inspected a nominal 20% sample of the surface, and the material on the ploughsoil surface is variously reckoned to be between 0.5–7% of that present in the ploughsoil at any one time (Ammerman 1985; Tingle 1987, 89; Clark & Schofield 1991, 94–100). Hence, a single fieldwalking episode, as reported here, will probably only be dealing with maximum of a 1% sample of the material in the ploughsoil: any scarce artefacts will hardly be represented, if at all. Hence, deductions must be made on the presence or absence of common, durable artefacts along with the tentative conclusions one can draw of their date. The uneven durability of the Later Iron Age and Romano-British pottery (below), and the variability of duration of use, introduces other complications when attempting to use fieldwalking data in understanding the mechanics of how any landscape functioned over time. In addition, it is also well known that the distribution of artefacts will be influenced by a host of non-archaeological factors (*e.g*. ploughing regimes, the biases of individual fieldwalkers [Shennan 1985, 40–44]) as well as multifarious factors that cannot be interpreted through fieldwalking evidence alone (*e.g*. lack of artefacts through function or date of cropmarks, contemporary attitudes to material culture and middens/rubbish, past farming practices, alluviation & colluviation). Finally, as the plots represent one single walking of each field they should not be considered as a reliable reflection of the pattern of surface artefacts, though this is considered further below. Any conclusions drawn here should therefore be considered as a hypothesis for testing.

Reliability of the fieldwalking plots

In order to use the collected data, is important to establish that the plots are a reasonable representation of the ploughsoil assemblage for this recovery method, in terms of both their overall pattern and the range of material recovered. One way to assess the reliability is to replicate the fieldwalking exercise, and this was conducted in 11 of the 97 fields walked. The distribution of artefacts was broadly comparable in each repeated instance, but only six produced sufficient quantities of Romano-British pot to assess the reliability of the range of material recovered (Table 3). Three of these fields were rewalked at a more intensive coverage shortly after the first walking (Mattersey B28C, Eaton B39G, Lound B22A) to test whether the same range of artefact types were recovered using a more intensive transect spacing within a smaller area. Table 3 shows that the most common fabric group was overwhelmingly grey wares (various types described in Appendix 3 by RSL are

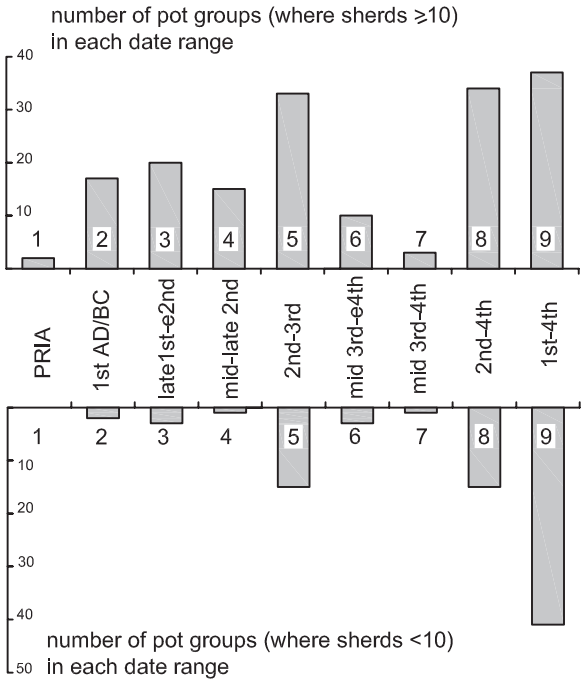

FIGURE 8: Sherwood Sandstone: number of pot-groups in each date range.

grouped here), with small quantities of other fabrics. At 10m transect intervals, where there are more than 5 sherds in any fabric group, this fabric is represented in both sessions of walking. The only exception is Dales Ware (CTA2) in Mattersey B28C, but since rims are the only certain indicator, and body sherds in shelly wares (CT) are present, it is likely that it is the diagnostic rim-form that is missing. The generally small numbers of 'native' wares (including CTB and GTA types) are considered further below in relation to excavated assemblages.

These results suggest that:

- the overall pattern of findspots is replicated in different sessions of walking
- a transect interval of 10m is sufficient to recover the major Romano-British pottery fabric groups from sites with clusters of potsherds
- grey wares are the most common fabric group where there are reasonable numbers of artefacts found (>30), fabric types other than grey ware are represented (*cf*. Evans 1991, 70 where it is suggested that a group of 30–50 sherds will give reliable results for pottery quantifications)
- where there are more than 5 sherds in any fabric group this fabric is represented in both sessions of walking
- 'native' sherds are present in fieldwalking collections, but their absence may not be reliable (see below).

Since many of the pot collections from the fieldwalking groups were small (over half the pot-groups had less than ten sherds Table 5, Fig. 8), the interpretations should be considered as models to test, rather than firm conclusions. A preliminary analysis by RSL of the relationship between assemblage size and diversity/longevity indicators suggested that groups of nine sherds or less gave low diversity and longevity scores but those with ten or more sherds gave a range of scores (Table 5). When these small and medium assemblages are examined as a group, patterns did emerge, such as the second to third century bias of the short-lived groups (examined further below). In addition to the analysis presented in Table 3, analysis of pot-groups from East Carr, Mattersey (unpublished) suggests that although the general makeup of the groups is similar, differences in the relative proportions of traded and fine wares suggest variations in function, status/choice as well as date (*cf*. Cooper 2004, 91–2). Therefore, even although interpretations may be tenuous, the analyses suggested further investigation was warranted, and that the evidence of the small groups could not be ignored wholesale.

One of the concerns of this project was whether the pot from the potentially earliest phases of occupation would survive in the ploughsoil (*cf*. Lane 1993, 83). On the basis of the excavations at Pickburn Leys, S Yorks where the earliest pot is LPRIA of date group 1 (Sydes 1993, and Appendix 2), and Dunston's Clump, Notts where the earliest occupation is primarily of date group 2, the 'native'

pots of the 1st centuries BC/AD (Leary 1987, 43–4 and Appendix 2), these pot-types are generally in fabrics which are not so hard-fired, and are therefore more fragile and vulnerable to breakage than the later Roman wares (*cf*. Sydes 1993, 42). These 'native' types also form the bulk of the earliest sherds in the collection recovered in salvage excavation at Wild Goose Cottage, Notts (unpublished). The fieldwalking collections from both the Nottinghamshire sites did contain date group 2 sherds, with date group 1 sherds only from Dunston's Clump (Table 5). The Wild Goose Cottage cropmark was fieldwalked twice. A single date group 2 sherd, a diagnostic rim of CTB shelly fabric came from the initial walking (Lound B22pot1 in Table 5), and, 'Trent Valley' type sherds (GTA) from a second session of walking (Area 138 in Table 3). Hence, in both these instances, although the fieldwalking collections did not match the abundance of the relatively fragile pottery from the excavations, sherds of date group 2 were present, so in that sense, the fieldwalking collection did reflect the below-ploughsoil assemblage. Inspection of Table 3 shows that recovery of early shelly (CTB) and Trent Valley type wares (GTA) is variable when small numbers are collected, and inspection of Fig. 8 shows that date groups 1–4 are probably under-represented in the very small collections; hence, their absence can only be accepted with some caution, particularly in the smaller groups.

Siting of cropmark enclosures and sampling bias

The topography of the fields walked was sketched in the field onto 1:1000 plans (Garton 2007, 17). After 6 seasons of fieldwork, DG had the clear impression that many of the cropmark enclosures were sited with respect to the local topography, particularly to include the tops of the (mostly) gentle hillocks and scarps (*cf*. Riley 1980, 73–4), though in most instances the elevation was slight so this information is not recoverable from available Ordnance Survey mapping. An attempt to crudely represent this was made by categorisation of enclosure siting in the archive: this shows a third of enclosures were located on the tops of hillocks, ridges, or at the top edge of a scarp, the rest being roughly equally divided between flattish and undulating ground: perhaps significantly, only one was recorded as in the bottom of a valley and only one at the base of a slope. In retrospect, it is clear that it would have been necessary to consider the detailed topography of the *whole* landscape to show a clear preference for the siting of the cropmark enclosures: the new development of topographical mapping by LiDAR (*e.g*. Challis 2006, figs 2, 9) would make future wide-scale analysis possible. If this could be achieved, it might suggest constraints in the way that the enclosures and field-systems were laid out, and thus have implications for both their origin and agricultural use.

One of the consequences of the undulating ground, particularly on the friable, sandy soils of the Sherwood Sandstone, is that the soils will have been subject to erosion and deposition. Hence, where enclosures are on slightly elevated hillocks, ridges or scarp edges, particularly where subsoil is being brought to the surface, we might also expect fresh cultural material to be brought into the ploughsoil. Where no/few artefacts are recovered in such situations, and it seems likely that the area has suffered considerable plough-damage, this may reflect friable, delicate artefacts (like hand-made pottery), or function (*i.e*. that artefacts were not being discarded or used there). On undulating ground, ploughsoils may be thicker from the accretion of sediments at the base of slopes (through hillwash and windblow – *cf*. Riley 1980, plate 16), and thus archaeological remains may be protected from ploughing, so that artefacts are not present/rare within the ploughsoil. This can be illustrated from the excavations at Dunston's Clump and Scrooby Top. Both were sited on roughly level benches on sloping hillsides (Garton 1987, 19; Davies 2000, 17), and both also contained middens rich in Romano-British pottery located towards the back of these benches. The midden at Scrooby Top was buried by colluvium at some 0.38–0.55m *below* the base of the modern ploughsoil (Davies 2000, 17): such deeply buried deposits are unlikely to have been recovered by any fieldwalking exercise (which was not undertaken in this instance). At Dunston's Clump, despite the clear soilmarks which showed active truncation of the archaeological deposits prior to excavation (Garton 1987, plate 1), fieldwalking gave no clue to

the midden located in the northern part of the enclosure (*ibid*. 61), which, had it been significantly disturbed by ploughing, should have produced a pottery scatter. In both these instances, any *detailed* consideration of the fieldwalking scatter in relation to the pattern of enclosures within the cropmark group would have been seriously flawed. Hence, the possibility of differential recovery because of topography, and an absence of artefacts not reflecting the buried remains, are *caveats* that must be appreciated.

In addition to the variables of topography and fresh subsoil, the size and weight (as an indication of fragmentation), and degree of abrasion on the potsherds was recorded as part of the pottery analysis. Before interpreting the pottery distribution patterns and associations, the methodological biases within the data were assessed. Were the size and diversity of the group the result of the degree of plough damage and the vulnerability of the sites? Were the patterns such as could be expected from a random sample? The pottery data was compared with the presence or absence of subsoil, dark soil and foreign stones noticed during fieldwalking, to assess biases due to differential site destruction. In short, there were few obvious correlations. For example, the presence of fresh subsoil did not correlate with either the number of sherds, their diversity/longevity, or the topographic position. There was little difference between the assemblage sizes from areas with or without these indications of vulnerability, but in the case of the enclosure siting, those in flat positions included more small assemblages than those in any other position, and it was noted that on these flat sites, the largest pot-groups were from areas where no subsoil had been recorded. This may be because the Sherwood Sandstone is very friable, and although fresh subsoil is easy to spot and a graphic reminder of potential plough-damage, it is also quickly incorporated into the ploughsoil. The hill/scarp sites did include most of the larger assemblages, but subsoil was recorded equally (about 50% of the records) between large and small groups. Of those nine areas with the largest sherd groups, all but two were characterised by high diversity assemblages with traded and imported pottery, suggesting the reason they yielded large sherd groups was linked to the nature of the sites in antiquity, rather than their destruction pattern alone. Thus although the topography of the site may have influenced artefact recovery, clearly other factors were also significant, and there is no evidence that the character of the collections is severely distorted by factors relating to site vulnerability.

Interpretation of fieldwalking distributions

The small proportion of the ploughsoil population sampled (probably less than <1%, see above), and the single episode of walking, must constrain interpretation. However, there are wide scale patterns, which were obvious prior to analysis

TABLE 4

How the fieldwalking data could be used in interpretation

Interpretation of	*Romano-British pot*	*Other indicators*
chronology	date of sherds absence of pot	
status/choice	traded/imported pot types rarity/diversity of pot types presence of tablewares	 brick + tile presence
function/discard patterns	presence of tablewares pattern of sherds	fire-cracked pebble pattern brick + tile distribution
preservation	sherd size + abrasion	topography subsoil presence

using ArcView, in that the artefacts are variably distributed over the landscape:

- lithics are very thinly scattered
- the Romano-British potsherds tend to be clustered
- the brick & tile (presumed Romano-British) is rare and coincides with the larger Romano-British pot-clusters
- clusters of fire-cracked pebbles tend to coincide with Romano-British pot-clusters
- the medieval potsherds tend to be scattered over discrete areas

The medieval pottery and lithics have been reported elsewhere (Garton 2007).

We intended to study the patterns of Romano-British artefacts at two different levels:

- at the field-systems scale to examine intra-regional variations of chronology, access to material culture and function
- at the scale of the enclosure-group to examine variations in discard patterns, chronology and preservation

The results of the analyses at these two different scales form the main focus of this report, though the analysis at the scale of individual enclosure-groups has been limited because the results from excavations (p.34) showed that this would not be reliable where the land is not flat.

THE ROMANO-BRITISH ARTEFACTS: CHRONOLOGY AND DIVERSITY

Ruth S. Leary

In this section, the chronology of the assemblages will be assessed and related to the form of the cropmark enclosures (classification and scoring detailed above pp.22–7). The range of ceramic types, in terms of both the longevity and diversity of the collections will be examined, and these elements are assessed in relation to cropmark complexity. The system for labelling cropmarks and artefacts is described above (p.31), with a listing of all artefact categories and cropmark classifications in Appendix 1. The overall plans showing the distributions of date groups are in Figs 10–12 with examples of the different artefact distributions in relation to the cropmark plots illustrated in Figs 20–34, each located in Fig. 19. The detailed information used to produce these plots is available at http://ads.ahds.ac.uk/catalogue/resources.html?brickworkplan_eh_2009.

Chronological groups

The Romano-British pottery came from eleven principal sources or traditions (codes used in analysis detailed in Appendix 3) – handmade wares, early shelly wares, 'Trent Valley' wares, grey wares, BB1 wares, Dales ware, Derbyshire ware, colour-coated ware, samian, amphorae and mortaria. These could be divided into nine chronological groups (Appendix 4, Fig. 8): prehistoric wares, first century 'native' wares, late first to early second century wares, Antonine types, types broadly dating to the second and third centuries, mid-third to early-fourth century wares, mid-third to fourth century types, types only broadly datable to the second to fourth centuries and those which could only be dated to the Roman period. Several of the groups (detailed in Appendix 4) overlap in real time but are

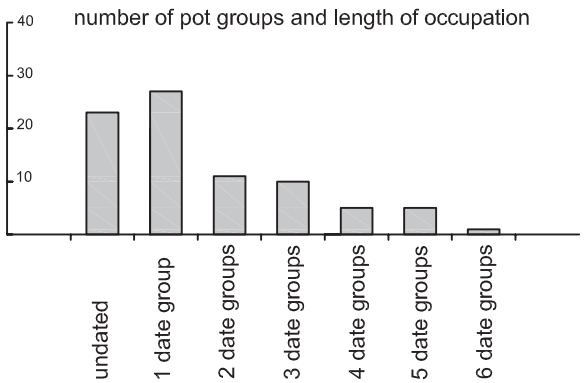

FIGURE 9: Sherwood Sandstone: number of pot-groups and length of occupation.

useful typological groupings for dating purposes. The allocation of sherds to these date groups by pot-cluster is detailed in Table 5. The allocation of the pot-groups to diversity groups is detailed in Appendix 5 and discussed further below (p.43).

The numbers of sites yielding each pottery date group displayed peaks in the 1st–early 2nd century and in the second to third century group (Fig. 8), with most sites yielding only one of the date groups plus ill-dated sherds of groups 8–9. The sites with pot from a single date range numbered nearly as many as the multiple date range sites in total (Fig. 9).

Date Group 1: Late Iron Age (Fig. 10)

Only two sites yielded any prehistoric pottery, Babworth B32A (Fig. 27: the site later excavated as Dunston's Clump, Garton 1987) and Perlethorpe E4C (Fig. 32). The Babworth group contained other early, first or second century 'native' types, whereas Perlethorpe did not.

Date Group 2: first century 'native' forms which continue into 2nd (Fig. 10)

Nineteen sites contained group 2 pottery, and, of these, twelve also yielded pottery of two or more later date groups following on from group 2, five yielded second to third century pottery only, and two yielded group 2 pottery with sherds of groups 8 and 9 only. Thus most of the sites yielding this pot-group were long-lived, and, when their diversity scores were checked, ten scored highly and the rest only yielded pottery of low diversity. These ten high diversity sites are also the long-lived sites. Unfortunately most of the group 2 types were of diversity group 1 so it is hard to assess the diversity score for the first century element of the assemblage. The few first century traded wares or tablewares identified came from multi-period sites such as Mattersey B28C (samian: Fig. 26), Hodsock A11B (fine fabric suggestive of tableware: Fig. 20) and Haughton F4A (a finer jar or probably beaker form: Fig. 34). These results suggest that if occupation is present in the first century, the site is more likely to continue at least into the second or third century and around half the sites developed into long-lived, high diversity sites.

Date Group 3: late 1st–early 2nd wares (Fig. 10)

Group 3 pottery was found on 25 sites. In 22 cases these site had a diversity score of 3 or more and in 23 cases the sites were occupied over more than one date range. Indeed 20 of the clusters included pottery types of three or more date groups. Nearly half the groups had pottery of group 2 or 4, and those that yielded only group 3, and/or displayed little ceramic diversity, were low-density scatters over the fields or cropmarks and may give unreliable results. Thus a similar pattern to the group 2 sites was identified with around half of the sites developing into long-lived, high diversity, sites and nearly all of them receiving some traded wares and/or mortaria and pottery of two or three date groups.

Date Group 4: mid–late 2nd Antonine types (Fig. 11)

Pottery of this group came from 16 sites and the overwhelming majority of these were long-lived and of high diversity ceramics. The sites are almost invariably going to have a high diversity score since the principal diagnostic type is samian, which attracts a score of 5. However, even discounting the samian score, all but three sites would still achieve a diversity score of 10 or over. All but three clusters had pottery of earlier date, 12 clusters also had pottery of group 5 and nine clusters had pottery of groups 6 or 7. Babworth B32C(pot2+3) and Hayton C9A (Table 5) are exceptional in containing pottery of this date alone except for one sherd tentatively identified as from an Oxfordshire red colour-coated bowl from B32C (pot3).

Date Group 5: predominantly later 2nd–3rd (Fig. 11)

This is by far the largest group (48 clusters/scatters) other than the ill-dated groups and includes nearly all the clusters with group 4 pottery. Nearly half the scatters/clusters, however, have pottery of this date group only. Seven of these are scatters across the field-system and the remainder are over enclosure cropmarks. All but one of these apparently short lived sites, Warsop E7D (Fig. 33), only yielded local and/or traded coarse wares and had

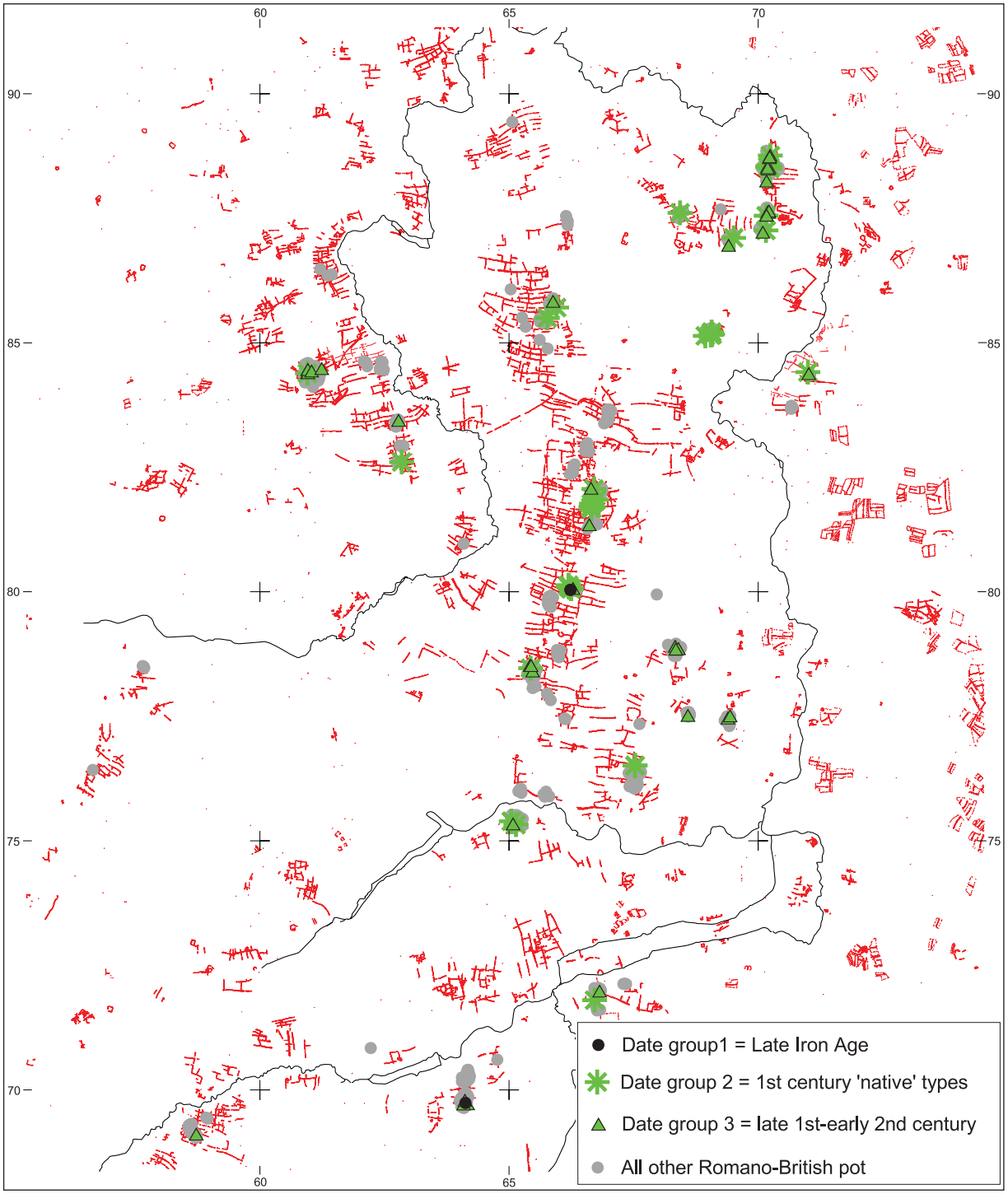

FIGURE 10: Sherwood Sandstone: distributions of pot-groups 1–3 = 1st BC/AD +2nd century AD (Appendix 4). Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

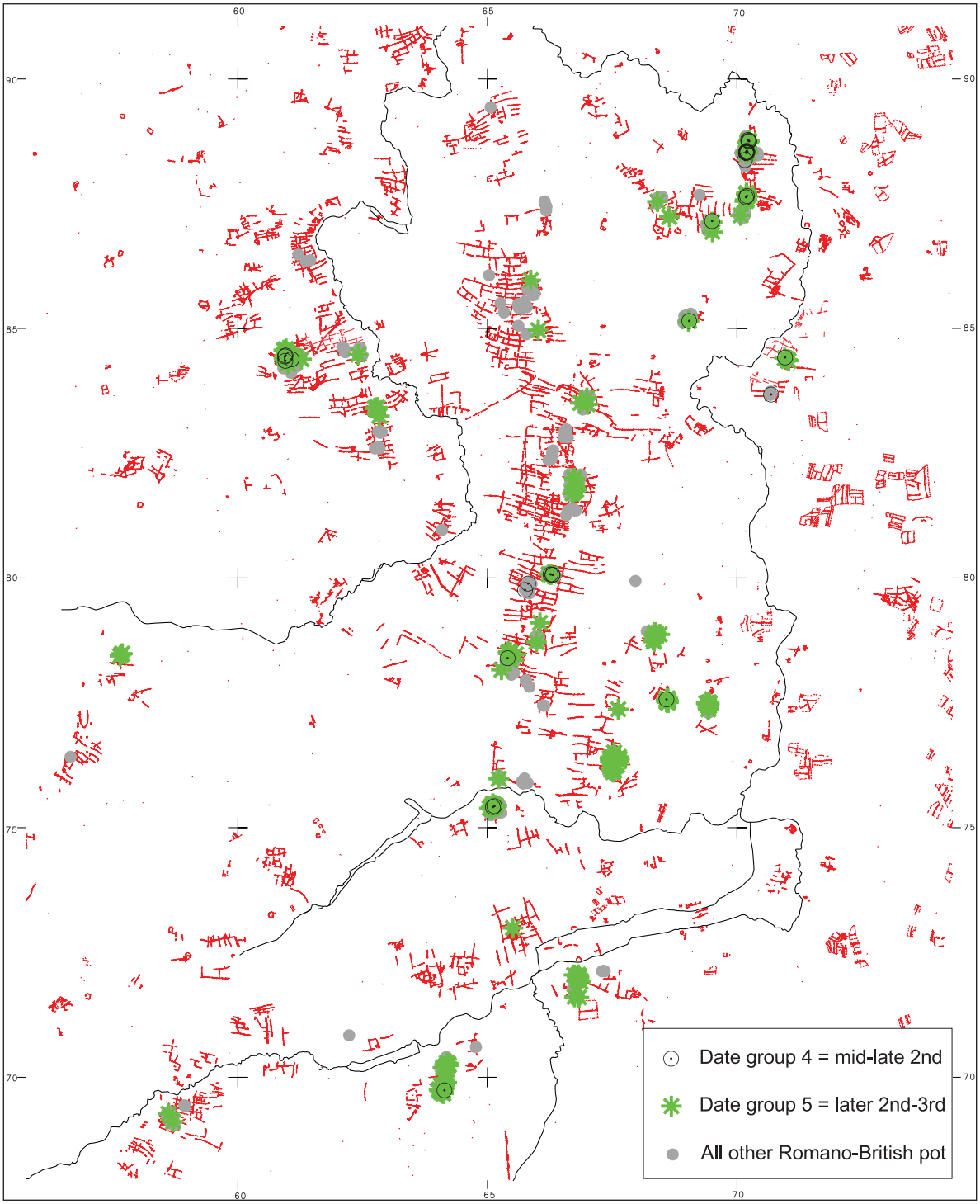

FIGURE 11: Sherwood Sandstone: distributions of pot-groups 4–5 = 2nd + 3rd centuries AD (Appendix 4). Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

low diversity scores. Two thirds of these 'short-lived' sites had small assemblages so it is difficult to be sure that they are all reliable samples. A further two sites had group 5 or later pottery only. Over half of the longer-lived sites yielded high diversity assemblages with samian, mortaria and/or colour-coated wares.

Date Group 6: mid 3rd–early 4th (Fig. 12)

Group 6 pottery appeared on 17 sites, including three field scatters. Except for the field scatters, all the clusters also included group 5 pottery, 8 also had group 4, 12 had groups 2 or 3 and one had pottery of group 7. Nine clusters had a diversity score of 9 or more. The relative absence of third century samian, early to mid-third century mortaria and colour-coated beakers coupled with the relatively small quantities of flanged bowls and Dales ware (Table 5), may suggest either that some sites fell into disuse or that their inhabitants no longer accessed traded wares.

Date Group 7: mid 3rd–4th (Fig. 12)

Four clusters included group 7 pottery: the field near Hodsock A11(pot2), Babworth B32C(pot3), B36B and Mattersey B24 (Table 5). The pottery from Hodsock A11(pot2) (Fig. 20) is a late colour-coated bowl from a group of four sherds in the fields to the east of the main distribution, which, although it does not include pottery of this group, it certainly has 3rd–4th century types and this particular sherd is likely to be associated with its use. The site at Babworth B36B (Fig. 31) is a *complex* enclosure with pottery of group 5 and the isolated fourth century colour-coated bowl is of uncertain significance. Babworth B32C(pot3) (Fig. 27) is otherwise made up of date group 5 pottery and Mattersey B24 (Fig. 26) of pottery of groups 2, 3 and 5.

Date Groups 8 & 9: 2nd–4th and non-diagnostic Romano-British sherds

Most groups included sherds that could only be broadly dated to the 2nd–4th (group 8), or sherds that were clearly Romano-British, but were not further diagnostic (group 9).

Longevity and diversity of pot-groups

Longevity (Fig. 14)

The longevity of the pot-clusters was compared with the cropmark morphology (Fig. 13). Longevity was scored according to how many date groups were represented (Appendix 4; Table 5), and the cropmark morphology was scored by complexity (detailed above p.27).

The longevity scores are defined thus:
0 walked with no pottery
1 pottery of groups 8–9, ill-dated pottery
2 pottery of one date range only
3 pottery of two date ranges
4 pottery of three date ranges etc

Areas of field-system principally yielded ill-dated pottery or pottery of only one date range, and, where datable, six groups were of group 5, two of group 6 and one group 7. The higher longevity scores from field-systems (Table 5: Babworth B36(potS) [Fig. 31] and Mattersey B28(potS) [Fig. 26]) came from adjacent to long-lived and diverse groups associated with *complex* cropmarks.

The enclosures devoid of pottery were overwhelmingly of *single* enclosures (Class 1 in Fig. 13). The *single* enclosures that produced pottery were predominantly ill-dated or had a single date range of pottery (Fig. 13). The exception, around Hodsock A13D, was where the pottery was clustered just outside of a double-ditched enclosure (Fig. 22). The *clustered* enclosures (Class 2) yielded similar pottery to the *single* enclosures, namely no pottery, or pottery of ill-dated type, or single date range (Fig. 13). Where datable to a single date range, *single* and *clustered* enclosures were predominantly of date group 5 (5), with one dated to group 3 and one in group 2.

Nearly all of the Class 3 enclosure-groups yielded some pottery and, although a similar range of pottery longevity could be detected at all three types, the longest-lived pot-groups tended to come from the *complex* enclosures (Class 3-5: Fig. 13). Eight enclosure-groups yielded no pottery at all. Only five of the *simple* and *developed* enclosure-groups (Class 3-3 and 3-4) yielded pottery of more

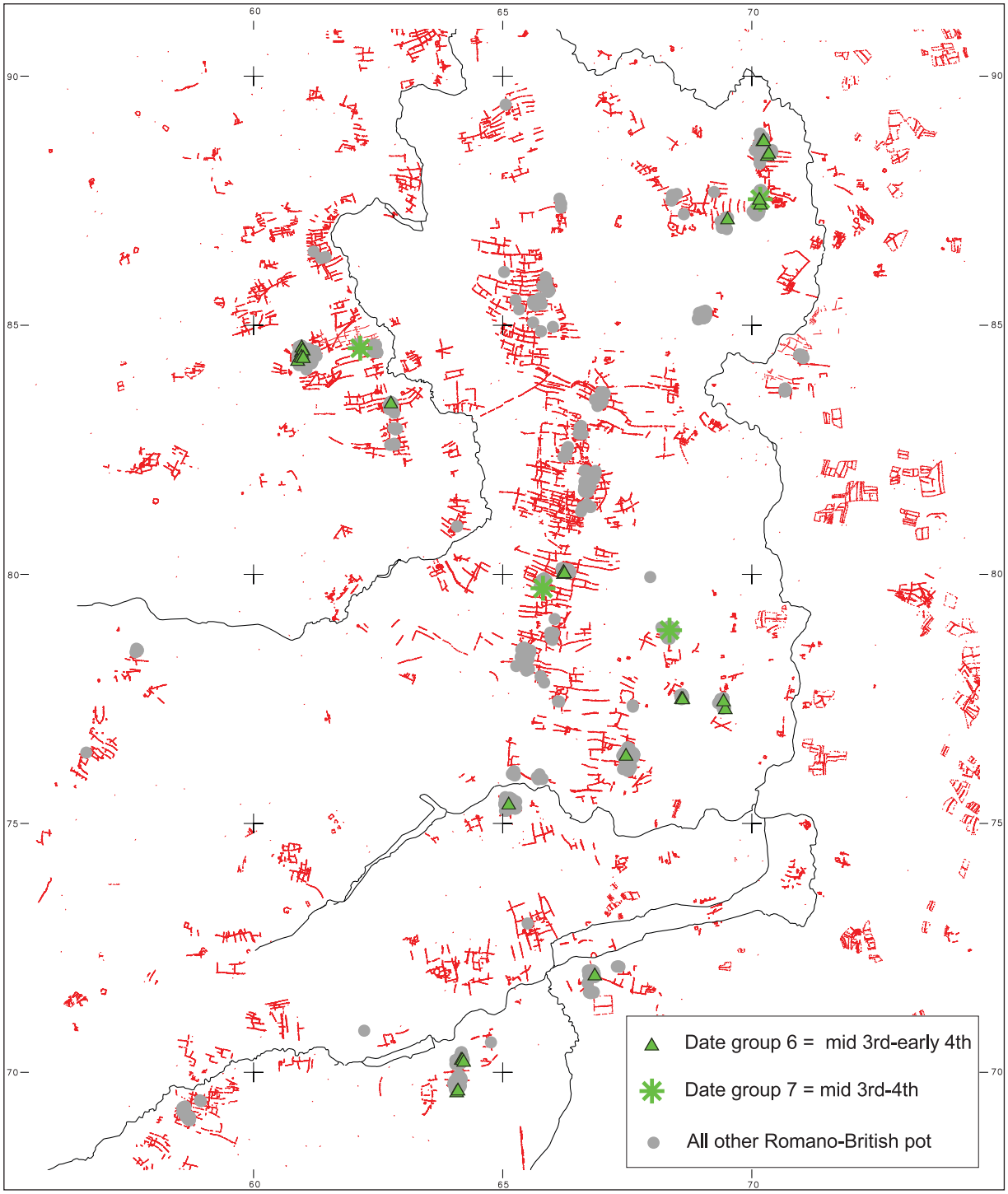

FIGURE 12: Sherwood Sandstone: distributions of pot-groups 6–7 = mid 3rd + 4th centuries AD (Appendix 4). Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

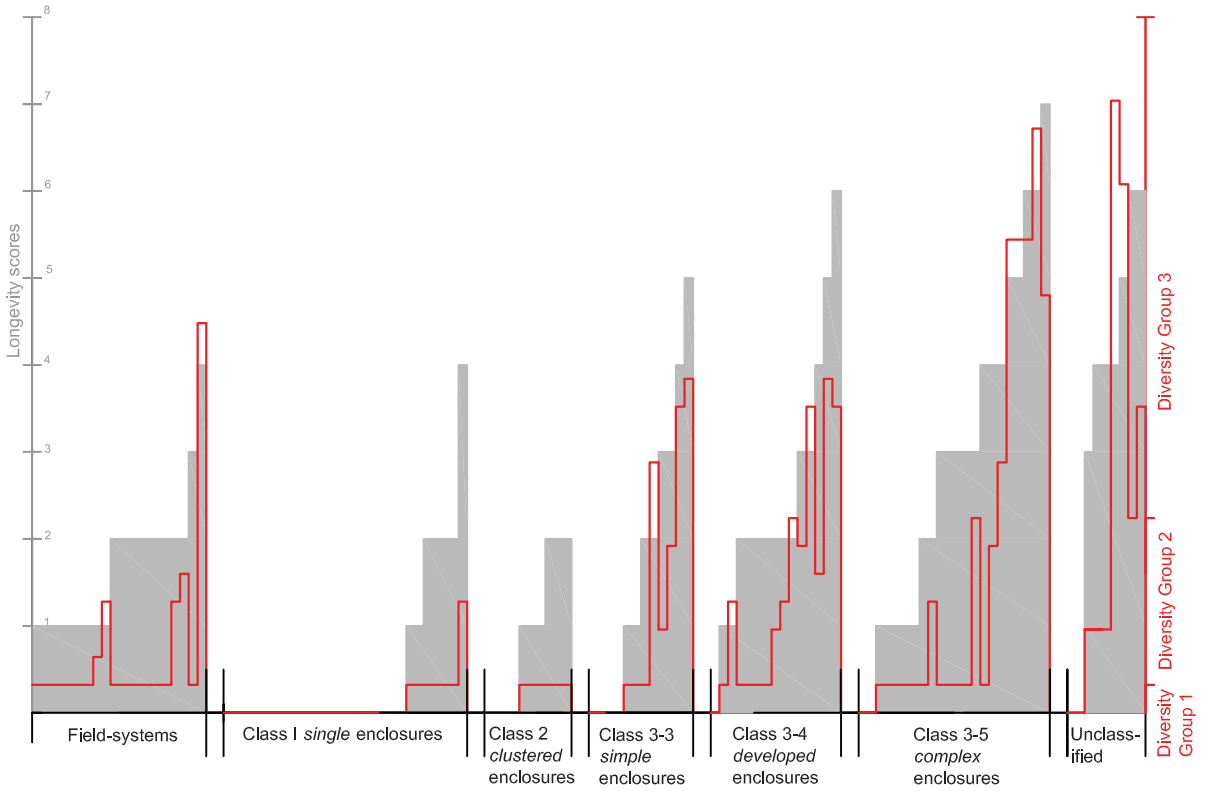

FIGURE 13: Sherwood Sandstone: longevity (grey) and diversity (red) scores (Appendix 5) of Romano-British pottery plotted against cropmark complexity (as defined in Table 2).

than two date ranges contrasting with eight of the *complex* enclosure-groups (Class 3-5). To these can be added the six pot-clusters with pottery of more than two date ranges over areas with no cropmarks. These assemblages are similar to those from over the *complex* enclosures (Class 3-5); reappraisal of some of the air-photographs suggests that at least some of these areas have cropmarks of fragmentary enclosures which are not drawn on the NMP plots.

Around a third of the ill-dated and single date range groups were from cropmark enclosures of Class 3 (Fig. 13). Some of these enclosure-groups were polyfocal (*e.g.* Barnby Moor B5B [Fig. 24], Babworth B32C [Fig. 27], Warsop E7D [Fig. 33]) and therefore of doubtful contemporaneity and, in one case, the focus of the pot-cluster was not centred on the enclosure, but outside it (Elkesley B33F [Fig. 29]), suggesting they may not be directly related. If viewed as individual enclosure-groups, rather than several units forming a polyfocal or *complex* enclosure (Class 3-5), they would belong with the *simple* and *developed* enclosure-groups (Class 3-3 and 3-4), and strengthen the pattern of *complex* enclosures (Class 3-5) yielding pottery of longer date range. Of the *developed* and *complex* enclosures (Class 3-4 and 3-5) with a single date group, two dated to the first, or first to early second, century group, and the remainder (9) yielded second to third century low diversity groups (date group 5). This strengthens the evidence for a distinct phase of pot-discard in the second–third century suggested by the other single period sites (detailed above) and suggests that this settlement took the form of *simple* and *developed* enclosure-groups.

The evidence, therefore, points to a correlation between the *single* or *clustered* enclosures and no, ill-dated or single date range pottery. A general

correlation between site longevity and complexity is suggested by the analysis for the most *simple* and most *complex* enclosure types (Class 3-3 and 3-5: Fig. 13), but this cannot be applied without consideration of other factors such as the contemporaneity of the cropmark constituents. There also seems to be a group of *single*, *clustered*, *simple* and *developed* enclosures with single date range of pottery (date group 5) of the second to third century (20 clusters). Although the majority of these are small assemblages, the cumulative evidence coupled with large assemblages like those around Elkesley B33D+F (see below, Fig. 29), dating or beginning in this period, point to a significant increase in assemblages of this date group.

Comment

The distribution of the sites by date range groups illustrates the apparently sparse settlement pattern before the late Iron Age/Conquest period (Fig. 10). Ceramically visible settlement spread significantly during the first and early second centuries and most of the long-lived settlement can be detected during this period (Fig. 10 and *cf*. Fig. 14). In the second to third centuries a further expansion is suggested by the pottery and these additional settlements are principally of relatively short duration on apparently previously unoccupied sites. However, some settlements, in Elkesley B33 (Fig. 29), Babworth B32 (Fig. 27), Gamston and Eaton B39 and Perlethorpe E3 (Fig. 32), begin in this period and continue into the third and fourth centuries. The third and fourth century distribution suggests contraction with a possible abandonment of much of the Babworth and Barnby Moor area (Fig. 12). The latest Romano-British pottery is thinly distributed around areas of long-lived settlement, characterised by high diversity assemblages such as Hodsock A11B (Fig. 20) and Mattersey B28C (Fig. 26), and relatively high diversity such as Babworth B36B (Fig. 31).

Pottery Diversity (Fig. 15)

In order to investigate the possible function and status the sherds were scored in respect to diversity of types present in the same way as it was for chronology. Pottery types were grouped according to their function, their value as indicated by the distance they had been traded, and changes in methods of food preparation which may indicate a higher level of Romanization (Appendix 5). The presence of each group within the pot-clusters was scored, since the relative quantities of most of these groups are so small that further analyses would not be profitable. The pottery diversity scores fell into three groups, sites with coarse kitchenwares only (diversity group 1), those with group 1 and small amounts of fine tablewares and traded coarse wares (diversity group 2), and those with imported wares (diversity group 3: Fig. 15).

Although there was clearly some correlation between the size of the pot-group and its diversity, nearly 20% of the small groups (<10) scored diversity groups 2 or 3 (Table 5). In addition, some correlation between the enclosure types and the pottery diversity could be detected, reflecting the pattern for longevity described above (Fig. 13).

Diversity Group 1: coarse kitchenwares only, apparently locally made

Forty-two scatters had diversity group 1 pottery only. Twenty-six assemblages with diversity group 1 pottery only came from *single* or *clustered* enclosures (Class 1 and 2), *simple* enclosure-groups (3–3) and scatters over field-systems (Fig. 13). The majority of these scatters were undated or single date range sites and most numbered less than 10 sherds. The single date range sites with diversity group 1 pottery alone were predominantly of date group 5, second to third century AD.

The low diversity sites with more than one date range were from *developed* or *complex* enclosure-groups (Class 3-4 and 3-5) with nine or more sherds (Fig. 13). The groups in Babworth B5I(pot6), Lound B19F and Elkesley B33D(pot1) all date from the 1st to 2nd/3rd centuries and have reasonable sized assemblages (Table 5). They therefore might be expected to yield samian and fine local tablewares. The enclosure sites in this group were made up of seven with undiagnostic grey ware scatters, one with 1st–2nd century pottery, four with 2nd–3rd century pottery and seven longer-lived sites. Elkesley B33(pot1–4), a large, polyfocal

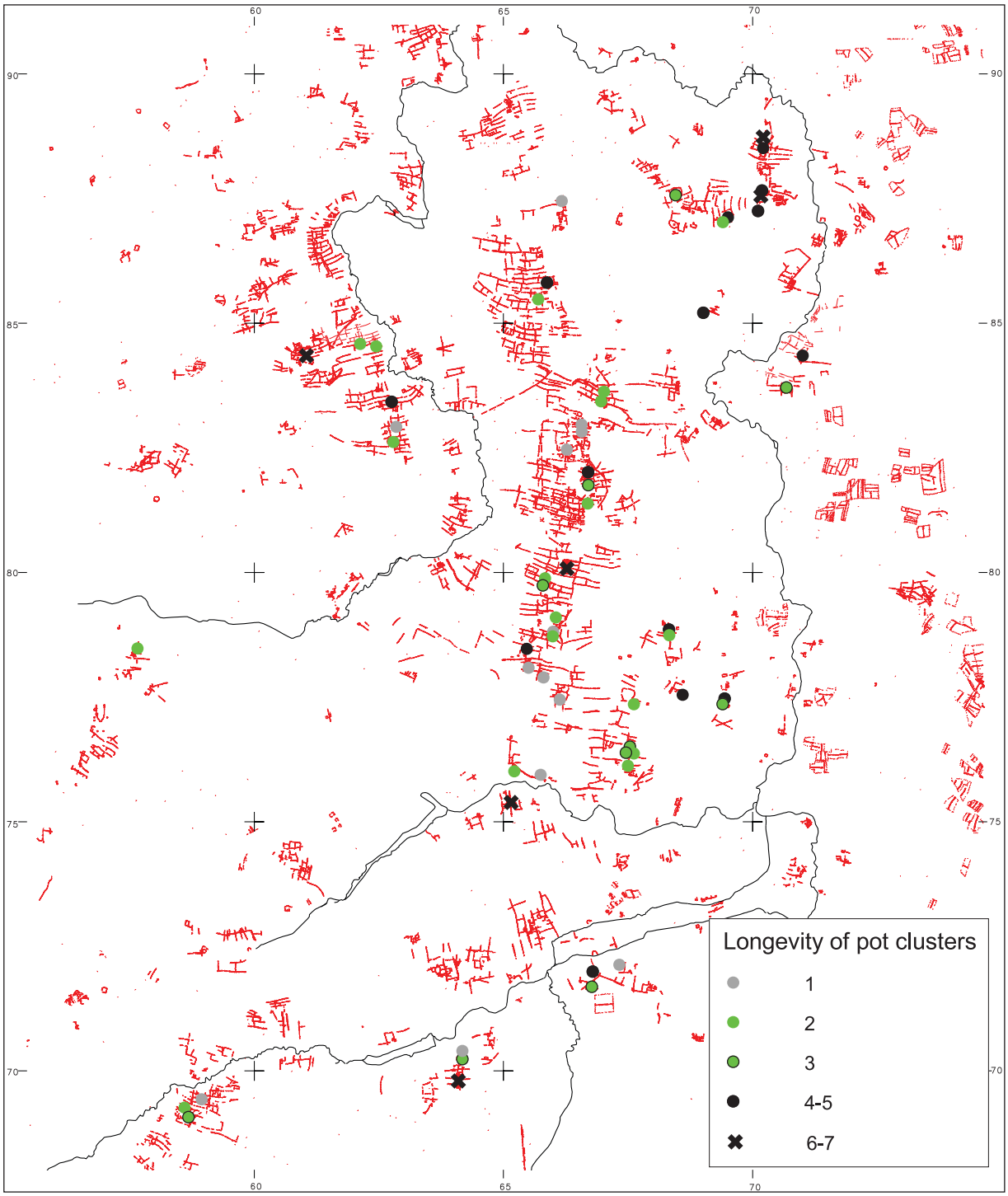

FIGURE 14: Sherwood Sandstone: distribution of pot-clusters by longevity. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

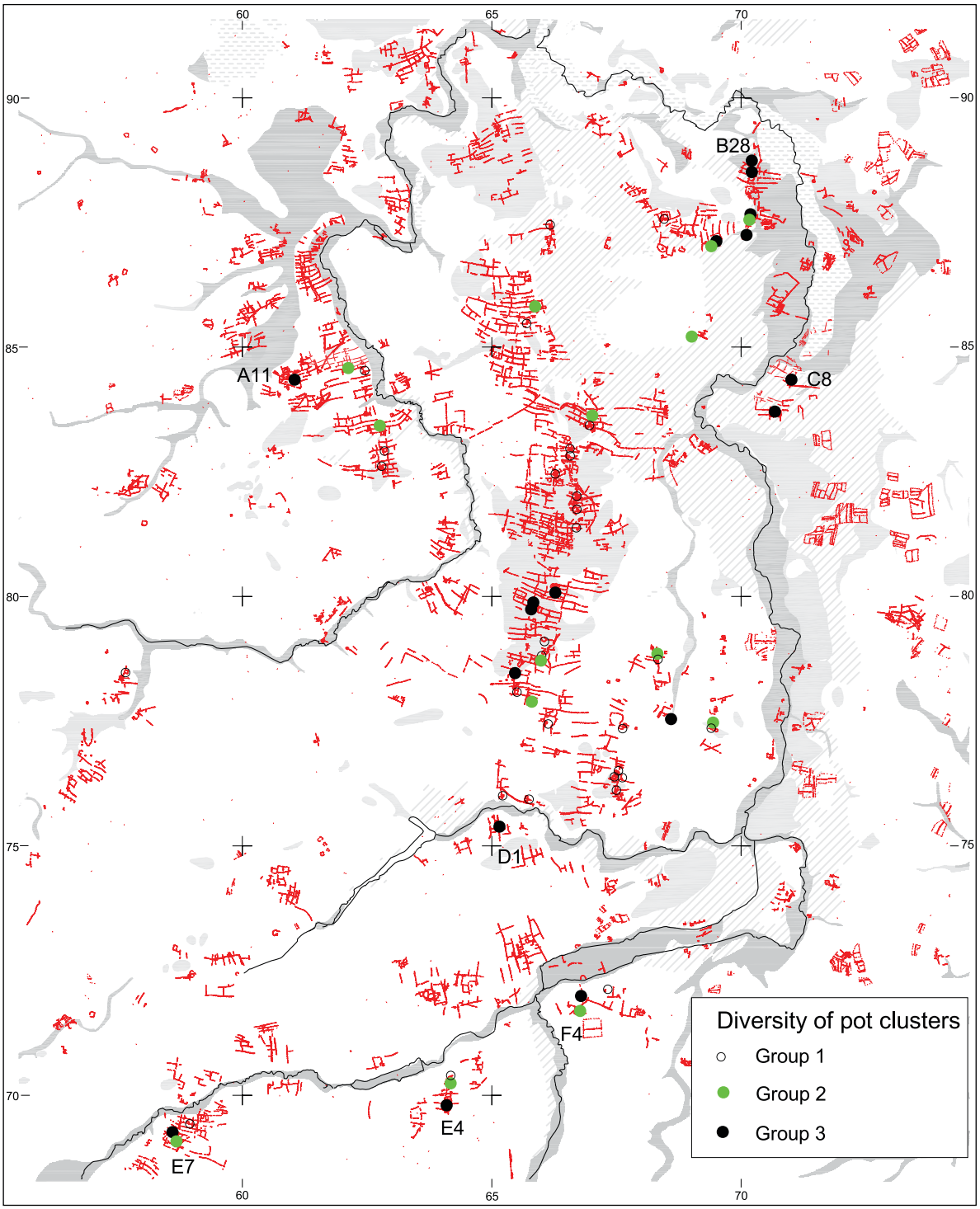

FIGURE 15: Sherwood Sandstone: distribution of pot-clusters by diversity. Superficial deposits in grey as Fig. 2, under Licence 2003/072, British Geological Survey, © NERC. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

scatter of grey ware, fell over enclosures D and F (Fig. 29), and Lound B19F, a small scatter of sherds, clustered in the corner of a concentric rectilinear enclosure (Fig. 25).

There is, therefore, a strong association of low-density groups with low diversity, low to medium longevity and low cropmark complexity, but the reverse is not true, since a significant number of *developed* and *complex* enclosures also yielded low diversity but reasonable sized assemblages with more than one date range.

Diversity Group 2: coarse kitchen and tablewares with some traded types

Most of the assemblages of diversity group 2 were from enclosure-groups – with *developed* and *complex* groups (Class 3-4 and 3-5) best represented (Fig. 13).

There was only one diversity group 2 cluster associated with a *single* enclosure (Class 1), and this lay just outside of the enclosure which was double-ditched (Hodsock A13D, Fig. 22). The scatter may have been pot discard away from this enclosure, but it's apparent uniqueness merits further consideration. The cropmark pattern close to this *single* enclosure invites comparison with the *complex* enclosure that lies just to the northwest (Hodsock A11B), where the pot-scatter lay away from the double-ditched enclosure lying on its northern edge (Fig. 20). If similar, then perhaps this *single* enclosure (Hodsock A13D) is related to the enclosures to the west and northwest (Hodsock A13A+C, not walked), and the scatter relates to the whole group. So, this could be unique, or form part of the pattern of association of diversity group 2 cropmarks with *developed* and *complex* enclosures.

The three sites with no cropmarks were large groups with three or more date range identified: as commented above, at least some of these areas have cropmarks of fragmentary enclosures which are not drawn on the NMP plots.

Three of the diversity group 2 sites from field-systems lie close to *developed* or *complex* enclosures (Class 3-4 and 3-5), perhaps showing spread from the enclosure-groups. The fourth example is from a single Nene Valley sherd over a set of fragmentary cropmarks, which merely scores highly because of its type.

More than half of these groups had more than ten sherds and eight were occupied over two or more date ranges. It may be that the undiagnostic nature of low diversity pottery results in single date range sites. This, however, would make the eight better dated sites even more remarkable.

Diversity Group 3: coarse and tablewares with traded and imported wares

All of the sites in this group had ten or more sherds and nearly all spanned more than one date range. Most were from enclosure-groups (Class 3), with half from *complex* enclosures (Class 3-5, Fig. 13). That recorded as from field-systems (Mattersey B28pot S: Fig. 26), lies adjacent to *simple and complex* (Classes 3-3, 3-5) enclosures that produced two of the high diversity groups.

Two of the pot-clusters from unclassified cropmarks are known to relate to cropmark enclosures not recorded by NMP, the third was from fragmentary cropmarks where they do not seem to register consistently. These groups are likely to be from enclosure-groups: they all yielded large assemblages spanning several date ranges.

Pottery diversity and longevity compared with enclosure type

A trend can be detected in the analysis of the distribution of the pottery diversity and longevity groups. The fields, and *single* and *clustered* enclosures, tend to be associated with assemblages of undiagnostic or single date range pottery of low diversity (Fig. 13). The majority of these groups were small assemblages but not invariably so. The pottery of multiple date groups and higher diversity come from the more complicated enclosure-groups (Fig. 13: or areas with no cropmarks, which, in at least some cases, are known to have enclosures not recorded by the NMP plots used for this analysis, above p.XX). However the reverse is not true. The enclosure-groups do not all have multiple date range/high diversity pottery. For all the levels

TABLE 5

Sherwood Sandstone: date groups of sherds in pot-clusters – ordered by number of potsherds (continued over)

Cropmark label	*Pot-cluster*	*Pot-cluster type*	*Cropmark Class (Table 2)*	*Cropmark morphology (Table 2)*	*Pot count*	*Pot weight*	*Diversity score (Appendix 5)*	*Longevity (p.40)*	*Date groups (number of sherds) as defined in Appendix 4*								
									D1	*D2*	*D3*	*D4*	*D5*	*D6*	*D7*	*D8*	*D9*
B1A	B1potS	CS	2	2g	1	2	1	1									1
E1	E1potS	FS	0	FS	1	1	4	1								1	
D17	D17potS	FS	0	FS	1	1	1	1									1
B32H	B32pot4	CS	1	1a	1	13	1	2					1				
B50	B50potS	FS	0	FS	1	84	1	1									1
B33	B33potS	FS	0	FS	1	3	2	1									1
D11	D11potS	FS	0	FS	1	16	1	2					1				
	potS	N	0	N	1	10	0	1									1
B22	B22potS	FS	0	FS	1	1	1	1									1
A20	A20potS	FS	0	FS	1	74	1	1									1
E7C	E7pot3	CS	1	1b	2	5	1	1									2
B5E	B5pot4	CS	3-5	3g	2	12	1	1									2
B4	B4potS	FS	0	FS	2	24	1	2					1				1
B5E	B5pot3	CS	3-5	3g	2	19	1	1								1	1
B34D	B34pot1	CS	2	2f	2	30	1	2					1			1	
B32U	B32pot10	CS	2	2d	2	24	1	1									2
B23	B23potS	FS	0	FS	2	57	1	2						1			1
A2	A2potS	FS	0	FS	3	42	1	1								1	2
B32Q	B32pot9	CS	3-4	3c	3	36	4	1								2	1
B32P	B32pot8	CS	3-3	3a	3	39	1	1								1	2
B19	B19potS	FS	0	FS	3	13	1	2					2				1
B32K	B32pot5	CS	3-5	3h	3	24	1	1									3
E4	E4potS	FS	0	FS	3	27	1	2						1			2
A13G	A13pot3	CS	2	2b	3	22	1	2		1							2
E3A	E3pot2	OFF	3-4	3c	3	57	1	1								1	2
F2A	F2pot1	OFF	1	1b	3	38	1	1									3
B3	B3potS	FS	0	FS	4	76	1	1									4
B2A	B2pot1	CS	3-5	3h	4	41	1	1									4
A11	A11pot2	FS	0	FS	4	44	5	2							1	1	2
B32	B32potS	FS	3-3	3a	5	55	1	2					2				
3A13	A13potS	FS	0	FS	5	64	1	2					1				4
B48A	B48pot1	CS	2	2f	6	119	1	2					3				3
A13E	A13pot2	CS	2	2f	6	177	1	1								3	3

Cropmark label	*Pot-cluster*	*Pot-cluster type*	*Cropmark Class (Table 2)*	*Cropmark morphology (Table 2)*	*Pot count*	*Pot weight*	*Diversity score (Appendix 5)*	*Longevity (p.40)*	*Date groups (number of sherds) as defined in Appendix 4*								
									D1	*D2*	*D3*	*D4*	*D5*	*D6*	*D7*	*D8*	*D9*
A13	A13potS	FS	0	FS	5	64	1	2					1				4
B48A	B48pot1	CS	2	2f	6	119	1	2					3				3
A13E	A13pot2	CS	2	2f	6	177	1	1								3	3
B5P	B5pot8	FS	1	1b	6	78	1	2			1					2	3
B33I	B33pot5	CS	3-3	3a	6	13	1	1									6
C9A	C9pot1	PART	3-5	3i	6	76	7	3				1					5
B19L	B19pot3	CS	3-4	3c	6	29	3	2			1						5
B5I	B5pot5	CS	3-5	3g	6	149	1	1								1	5
B5	B5potS	FS	0	FS	7	57	1	2					1				6
B32K	B32pot6	PART	3-5	3h	8	132	4	2					1			1	6
E3A	E3potS	FS	0	FS	8	90	4	2					1			3	4
B36B	B36potS	FS	0	FS	9	182	1	3			1		1				7
F4A	F4pot2	CS	3-3	3a	9	39	3	3		4			2				3
B39G	B39pot2	CS	3-3	3o	9	179	1	3					1	1		1	6
B33J	B33pot6	CS	3-4+	3c+	9	75	1	2					1			1	7
B32C	B32pot3	CONC	3-4	3e	10	50	11	3				1			1	1	7
B19M	B19pot2	OFF	3-3	3a	10	221	12	5		1		1	2	1		2	3
E7D	E7pot1	PART	3-3	3a	10	84	9	2					1			3	6
B32C	B32pot2	CONC	3-4	3e	10	128	7	2				1				2	7
B5B	B5pot2	CS	3-4	3c	11	108	1	2					1			1	9
B3D	B3pot2	CS	3-4	3e	12	138	1	2		1						1	10
B19F	B19pot1	PART	3-5	3j	12	112	1	3		1			1				10
B5B	B5pot1	CONC	3-4	3c	13	282	4	2					1			3	9
B22A	B22pot1	PART	3-5	3h	14	175	9	4		1	1		1			1	10
B5I	B5pot7	FS	3-5	3h	16	89	1	3		6			4				6
A11D	A11pot3	OFF	1	1b	16	265	1	2					1			2	13
C8A	C8pot1	PART	3-5	3i	18	301	17	5		1	1	1	4			3	8
B3E	B3pot1	CONC	3-5	3h	19	416	6	4		1	1		1			5	11
B33D	B33pot1	PART	3-5	3h	19	185	1	3		2			1				16
B36B	B36pot3	PART	3-4	3c	20	318	1	2					1			2	16
B5I	B5pot6	CONC	3-5	3h	21	358	1	4		1	1		2			5	12
B24	B24pot2	N+		N	22	218	6	6		1	1		4	1	1	2	
12E7E	E7pot2	PART	3–3	3a	24	316	6	3			1		1			6	16
B28	B28potS	FS	0	FS	24	458	14	4			1	1		2		4	16
B33D	B33pot3	OFF	1	1b	27	348	1	2					5			3	19
B21	B21pot1	N+	+	N/2o	31	286	3	4		4		1	2			1	23
B24	B24pot1	N+	+	N/2o	33	446	21	4			3	2	3			2	23

Cropmark label	*Pot-cluster*	*Pot-cluster type*	*Cropmark Class (Table 2)*	*Cropmark morphology (Table 2)*	*Pot count*	*Pot weight*	*Diversity score (Appendix 5)*	*Longevity (p.40)*	*Date groups (number of sherds) as defined in Appendix 4*								
									D1	*D2*	*D3*	*D4*	*D5*	*D6*	*D7*	*D8*	*D9*
A13D	A13pot1	OFF	1	1d	41	571	4	4			1		3	1		10	26
E3A	E3pot1	OFF	3-4	3c	43	444	6	3					6	3		4	30
F4A	F4pot1	CONC	3-3	3a	46	615	11	4			1		7	1		8	29
B32N	B32pot7	PART	3-4	3e	47	495	12	5		1	3	1	6			4	32
B33F	B33pot4	OFF	3-5	3h	57	573	1	2					6			2	49
B36B	B36pot2	OFF	3-4	3c	59	565	5	4			3		10		1	3	42
B28	B28pot1	N+	+	N/3b	77	1290	10	6		1	3	4	9	2		10	48
B32A*	B32pot1	CONC	3-5	3g	84	848	14	7	2	5	1	3	3	3		11	56
E4C	E4pot1	PART	3-4	3e	136	1308	11	6	1		3	1	13	1		12	105
D1B	D1pot1	PART	3-5	3h	147	1474	21	6		2	1	2	11	1		12	118
B28C	B28pot2	PART	3-5	3f	179	4116	17	5		10	13	9	17			30	100
B39	B39pot1	N		N	238	3219	3	4			2		33	1		1	201
B33D	B33pot2	PART	3-5	3h	248	1995	1	3					21	1		5	221
B38	B38pot1	N+	+	N/3o	268	2619	18	5			1	1	31	3		12	220
A11B	A11pot1	PART	3-5	3h	311	5561	17	6		1	7	4	34	12		39	214

* Dunston's Clump walked intensively at 2m intervals with artefacts collected within 10m grid squares

Pot cluster type: CONC = cluster over cropmark enclosure, PART =cluster over part of cropmark enclosure, CS = scatter over cropmark enclosure, FS= scatter over field-system, OFF = part of scatter off cropmark, N = no cropmark

+Inspection of air-photographs (by R Sheppard) shows sets of enclosures not mapped by NMP.

Nb. Total pot-counts here relate to defined spatial clusters in ArcView, whereas totals of Romano-British pot in Appendix 1 relate to the Area fieldwalked.

of enclosure-group complexity, there is a range of pottery assemblages in terms of size, longevity and diversity, with the enclosure-groups (Class 3) including around 27 sites (out of 51 walked) with no or low diversity pottery. Further investigation revealed that, where datable, six of these included 1st century types and later, one included types of the late 1st–2nd and later and seven included sherds of the 2nd–3rd centuries and later. This is in keeping with the evidence for two clusters of occupation sometime in the later first century and in the Antonine period. Around seven of these enclosure-groups with low diversity had more than one date range of pottery present and one site had more than two date ranges. This evidence suggests that, at times in the first and second centuries, *complex* enclosures were occupied by people with relatively modest ceramics. In some cases the apparent complexity of the enclosures may be misleading (see above) and most of these low diversity sites may have been *simple* enclosure-groups with other enclosures nearby occupied at a different time (*e.g.* Elkesley B33D(pot1, 2) and B33F(pot4) [Fig. 29], Barnby Moor B5B(pot2), Babworth B5E(pot4), B5F, B5I(pot6+7) [Fig. 24] and B36B(pot3) [Fig. 31]). Indeed, in some cases, perhaps some of the cropmark group may relate to the 1st century sherds and other cropmarks may relate to the 2nd–3rd century sherds.

Equally the distribution patterns of longevity and diversity scores are related but not identical (Fig. 13), the best correlation being at each extreme. Study of Table 5 suggested that where the diversity and longevity scores were dissimilar, this could not always be explained as a result of small samples as some small samples scored highly on both criteria and some scored highly on only one.

Without excavation we cannot be certain that a single fieldwalking episode gives a reliable representation of the underlying deposits (above p.34). However, with that caveat heeded, a possible interpretation of these patterns would be that the more complicated enclosure-groups tended to be of higher diversity and longer duration, and that *simple* (Class 3-3), and *developed* enclosures (Class 3-4) with low diversity assemblages, were occupied for one or two date ranges. These may relate to expansions of settlement in the late 1st and then 2nd–3rd centuries.

Comment (Fig. 15)

The low diversity sites, starting in the 2nd–3rd century, were concentrated in Babworth B5, B32 and B33, located within a coherent block of cropmarks running along the central spine of the Sherwood Sandstone between the Rivers Ryton and Idle (Figs 24, 27). There were some enclosures with high diversity within this part of the landscape (Babworth B32A, B32C and B32N: Figs 27, 28), but most lay off this spine. The high diversity groups were from Hodsock A11 to the west (Fig. 20), to either side of the River Idle in the northeast (Lound B19, B22, Mattersey B28, Hayton C8, and C9: Figs 25, 26), and towards the southern edge of the study area in Elkesley D1 (Fig. 30) and Perlethorpe E4 (Fig. 32).

Metalwork (DG with identifications by Jane Cowgill)

All of the metal artefacts collected were briefly examined by Jane Cowgill at an initial stage of the post-survey work: further description or analysis of these artefacts was not commissioned. Most are inherently undatable, some are medieval (see Garton 2007, 20), but those of probable Romano-British attribution are listed in Table 6. Metal-detectorists were able to accompany us on some occasions (16 Areas, some during second sessions of fieldwalking): their finds were inspected by DG and plotted and collected along with the artefacts recovered by fieldwalking. (Thanks to Betty & Larry Salter and Arthur & Yvonne Heap for their help, and keeping to our methodological constraints.) In addition, a coin hoard, recovered by a metal-detectorist and now in the Bassetlaw Museum, was plotted in Babworth B36B (p.71 below).

Metal objects of Romano-British date were rarely picked up during fieldwalking (three items identified in italic in Table 6). The only certain Romano-British items retrieved by fieldwalking were a probable 4th century coin from Hodsock A11B (Fig. 20) and a lead steelyard weight from Lound B19F, though a lead spindle-whorl from

TABLE 6

Sherwood Sandstone: possible and probable Romano-British metalwork from fieldwalking survey (identifications by Jane Cowgill)

Cropmark label	*Area*	*Find code*	*Material*	*Object*	*Comment*	*Date*	*Parish*	*SK*	*OS field no.*
B36	23*	023/0732	pb	weight? miscast spindle whorl?		?RB	Babworth	6878	1700
B38	59	059/0559	pb	weight	pierced	?RB	Babworth	6877	4667
B32C	31	031/0503	pb	bun	part perforated	?RB	Babworth	6679	9400
B32C	31	031/0502	pb	spindle whorl		?RB	Babworth	6679	9400
A11B	*45*	*045/0200*	*ca*	*Coin ?1/2 centenionalis (BA)*	*?Constantine I 306–337 AD or Magnentius 350–353 AD (BA)*	*RB 4th century (BA)*	*Hodsock*	*6084*	*8245*
B19F	*21*	*021/52*	*pb*	*steelyard weight*		*?RB*	*Lound*	*6887*	*3469*
B22A*	138*	138/0702	ca	Fibula head of bow-brooch		RB 2nd–3rd	Lound	7087	0018
B22A*	138*	138/0618	ca	coin of denomination ? Dupondius (BA)	badly worn and corroded	RB probably 1st–2nd century AD (BA)	Lound	7087	0018
B22A*	138*	138/0795	ca+en	fibula head of bow-brooch		RB 2nd–3rd (BA)	Lound	7087	0018
B28C	*17*	*017/2185*	*pb*	*spindle-whorl*		*?RB*	*Mattersey*	*7087*	*1937*
B28C*	19*	019/0192	ca+en	disc brooch		RB	Mattersey	7088	1937(2)
B28C*	19*	019/0148	pb	spindle whorl?	miscast?	?RB	Mattersey	7088	1937(2)
B28C*	19*	019/0180	ca	fibula spring		RB	Mattersey	7088	1937(2)

pb = lead, ca = copper alloy, en = enamel
* 2nd walking with metal-detector survey conducted concurrently
Lines in italic are artefacts found by fieldwalking, all others by metal-detector survey under supervision of DG.
(BA) = some additional information kindly given by Bob Alvey.

TABLE 7

Sherwood Sandstone: querns from fieldwalking survey (identifications by Liz Wright). Undiagnostic Millstone Grit and sandstone not included

Cropmark label	*Area*	*Millstone Grit Querns*					*Lava*	*Sandstone (or as specified)*	*Parish*	*SK No*	*OS Field*
		Flat	*Beehive*	*Saddle*	*?Polisher/ rubber/ sharpener*	*Fragment*	*Flat*	*Fragment*			
A11	94					1		1	Hodsock	6284	0066
A11B	45	1							Hodsock	6084	8245
A11B*	186*	1 (726)									
		1 ?millstone				1			Hodsock	6084	8245
A11B	168		1		1	2			Hodsock	6184	0930
A13	182	1							Hodsock	6283	6640
B3E	166				1 ?saddle quern rubber				Torworth	6585	8100/ 8472
B5I	32						1		Babworth	6681	8160
B5I	142							1	Babworth	6682	6100
B19	98					1			Lound	6886	7700
B24	86		1						Lound	7087	1340
B28	47					1			Mattersey	7088	3853
B28C	17	2	1 (Q1)	1		1			Mattersey	7088	1937
B28C*	19*	3 (2066)	2 (2380)		1			1	Mattersey	7088	1937
B31								1 (SMR 05027)	Sutton	7185	Chainbridge Lane
B34D	119		1						Babworth	6777	5838
B36B	88							1	Babworth	6878	1700
B36B*	23*	1 ?millstone					1		Babworth	6878	1700
C8A	90	1							Hayton	7084	9627
C8A*	173*	1							Hayton	7184	9627
C9A	192	1							Hayton	7083	6659
E3	160					1	1		Perlethorpe	6470	0021
E4C	152	1(Q2)							Perlethorpe	6370	0001
		1 ?millstone									
E7	148+	1+							Warsop	5869	9000
E7	178					1			Warsop	5869	7300
F4A	184	1 (459)							Haughton	6672	8000/7519
B2	171							1 granite (146)	Ranskill	6687	1944

* five fields which were walked twice produced a second set of querns 17/19; 88/23; 192/130; 90/173; 45/186: the querns from the second walking are not included in Fig. 16. + quern in farmyard, but approx. location ascertained from farmer, not included in Fig. 16. Millstone Grit pieces with no diagnostic features, *i.e.* no shaping or ground surfaces, are not included. (Bracketed numbers are artefact codes of the querns described by Liz Wright in Appendix 6).

Mattersey B28C (Fig. 26) might also have belonged with the Romano-British occupation. It is noticeable that the first two items were recovered from Areas that produced some of the widest range of materials and pottery types. Some of the other metal artefacts were located within the clusters of Romano-British pot, perhaps encouraging their attribution to that period, though a medieval spur fragment was found within the pot-cluster around Elkesley B33F (not plotted in Fig. 29) showing that co-incidence of location cannot be taken to mean contemporaneity.

During the second session of walking at Lound B22A (=Wild Goose Cottage), no metalwork was found by the fieldwalkers, but three diagnostic Romano-British artefacts were recovered from concurrent metal-detecting (not plotted in Fig. 26 as this records the first session of walking): they were two fragments of head stud brooches (one enamelled) of the 2nd–3rd centuries AD and a badly worn and corroded ?Dupondius coin of the 1st–2nd centuries AD (identified by B. Alvey).

Finally, it became clear by talking to metal-detectorists that many were using Riley's maps (1980) for targeting areas to search: some were reported to Metal Detector Clubs and some individuals reported artefacts to the Retford and Mansfield Museums. Since this fieldwork was conducted, the Portal Antiquities Scheme has been established. The results from this reporting and museum collections have not been investigated but would repay the effort on the basis of the results from other areas (*cf*. Dearne and Parsons 1997).

Melon bead (DG)

Half of a glass paste/ceramic melon bead, with a bright turquoise faience glaze surviving only in the bottoms of the gadroons was found. It is some 24mm max diameter and 20mm high, with a perforation 9mm across. Such beads are commonly found on 1st and 2nd century military sites, but are also found in post-Roman contexts (Guido 1978, 100; Crummy 1983, 30). It was found outside of the Haughton F4A *simple* enclosure and to the west of the pot-cluster (Fig. 34): in the context of the brickwork-plan field-systems, it is a curiosity. (Thanks to J. Henderson, L. Laing, C. Pickersgill and Y. Sablerolles for help with this identification).

Querns (DG with identifications by Liz Wright)

The stone artefacts and querns were catalogued by Liz Wright detailing size (width, breadth, thickness, and where possible estimated diameter), lithology (Millstone Grit, lava, sandstone, granite), form (flat, beehive, saddle, millstone, polisher/rubber/sharpener) and portion (upper, lower, edge): they are listed in Table 7. The querns that merited some comment on their form/date, or other feature, are described in Appendix 6 by Liz Wright. All the identifiable quern types are plotted in Fig. 16, but it should be noted that the saddle quern (Mattersey B28C Fig. 26) and possible saddle quern rubber (Torworth B3E Fig. 23) are almost certainly prehistoric, and that where beehive querns are in context they are predominantly Iron Age (Hayes *et al*. 1980, 307), although they were found *in situ* in later Roman contexts at Dalton Parlours, Yorkshire (Buckley and Major 1990, 117, 281). Flat rotary querns seem only to be found in Romano-British contexts (*ibid*. 117–9). Three lava quern fragments were also recovered. Until recently, their northern distribution was thought to be essentially military (Buckley and Major 1990, 117), but they are known from high status and very late Roman contexts in this region (Heslop 2001, 201), so it might be of no co-incidence that these querns were recovered from sites which produced Romano-British pottery of date groups 6 or 7 (*i.e*. mid 3rd–4th centuries, *cf*. Figs 12 and 16). However, lava querns are also known from Saxon and medieval contexts in this region (Watt 1995, 283–4), and two of the three lava querns were in areas that produced medieval pottery scatters. In fact, the lava quern from Babworth B5I was found in a relatively dense scatter of pottery, including Saxon and Saxo-Norman types (Garton 2007, 20), away from the Romano-British pot-cluster over the cropmark enclosure to the northeast (Fig. 24). Hence, the attribution of lava querns by date should remain uncertain. However, just as the saddle and beehive querns could represent prehistoric activity that is otherwise barely registered in the fieldwalking collections, so these lava querns could be indicative of late and sub-Roman activity within these enclosure-groups that,

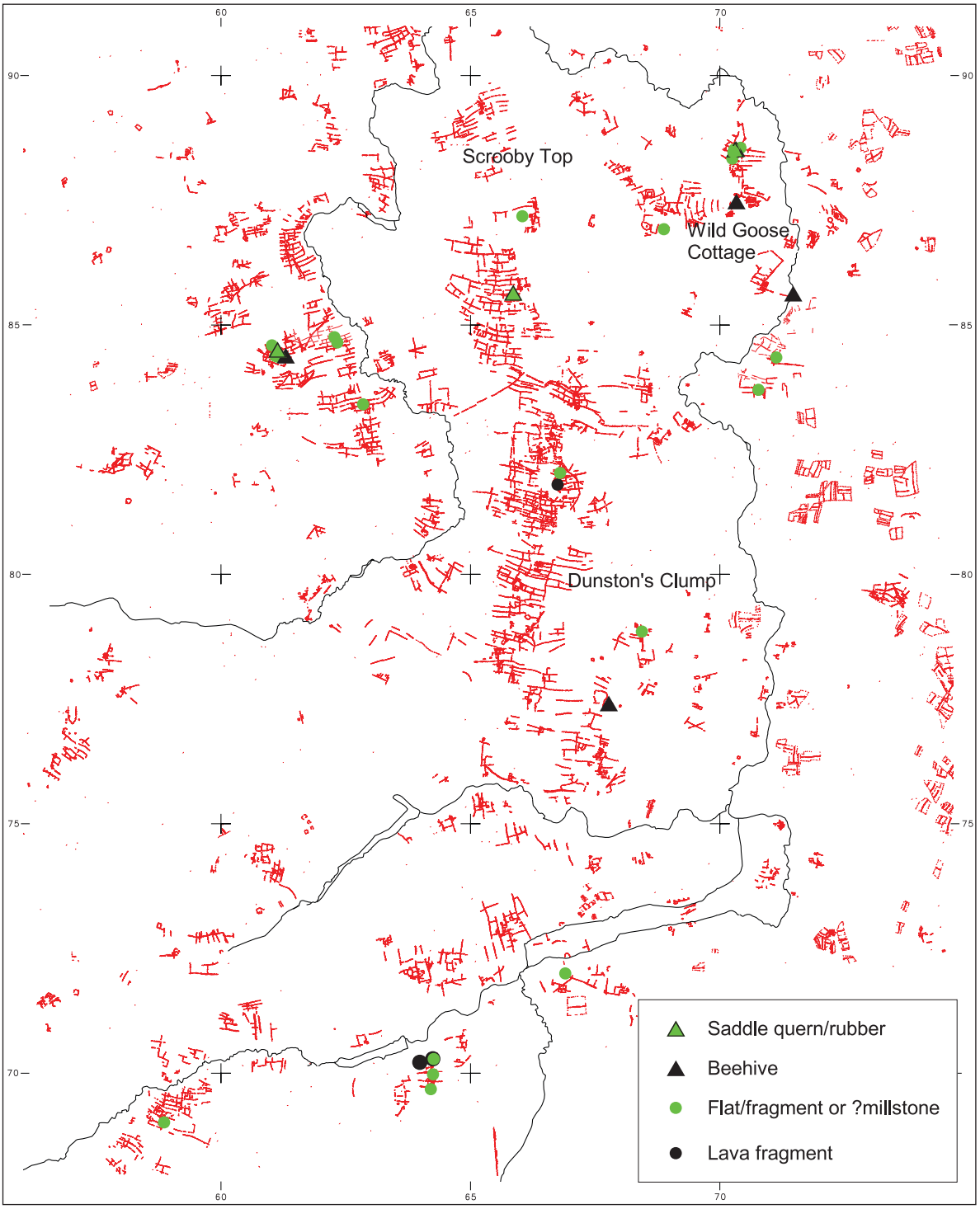

FIGURE 16: Sherwood Sandstone: distribution and types of quern. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

again, is not adequately represented in the pottery collections.

Consideration of the detailed locations of the querns is a salutary reminder of the frailties of fieldwalking evidence. First, there are those which have clearly been moved short distances, including ones found under hedges almost certainly put there to stop them damaging ploughshares: for example, Hodsock A11B (not plotted in Fig. 20); a beehive recorded by T. Sumpter at SK6480 7825 (report in SMR); and a complete beehive probably re-used as a gateweight (Sutton B31 – and it may be remarked that such re-uses might partly explain the frequent iron-staining on some querns: Wright and Brown, 1999, 55). Others, not included on the distribution plots, have been seen in farmyards (*e.g.* Warsop E7 Area 148/QNN1). Second, artefacts that are not present in large quantities, like querns, may not be recovered fieldwalking, even when they are as robust as querns tend to be. For example, there were none from fieldwalking of either Dunston's Clump or Wild Goose Cottage, yet they were present on excavation (Babworth B32A, Fig. 27, Fenton and Garton 1987, 56–8. Lound B22A: fieldwalked on two occasions – the beehive fragment mapped in Fig. 26 was found some 200m to the north of this enclosure, Garton and Salisbury 1995, 38, Plate 2, Fig. 10a). This is despite the fact that many of the recognised querns are Millstone Grit, which is fairly easy to recognise during fieldwalking since it does not occur locally and even the quern fragments tend to be much larger than the prolific Sherwood pebbles: hence any small, possibly worked, fragments of this rock type will probably have been inspected then collected/recorded. Of the five fields that were rewalked which produced querns on the first walking, four of these produced further querns on a second walking (* in Table 7), so, it would appear that there were reasonable quantities of querns on at least these sites.

The stone items that were certainly quern fragments shows a distribution that mirrors the later Romano-British pottery *i.e.* there was only one fragment from the central spine of Sherwood Sandstone between the Rivers Ryton and Idle (Fig. 16: three undiagnostic Millstone Grit and two undiagnostic sandstone fragments are not plotted). As noted above, this contrasts with the excavated evidence (which also includes Scrooby Top, excavated, but not fieldwalked, which includes one quern fragment Davies 2000, appendix 7.2). On the sites where more than one quern was recovered, several types are present (Table 7): these include the large, long-lived and/or diverse, pot-groups (Babworth B36B, millstone with sandstone and lava fragments [Fig. 31]; Hodsock A11B beehive, flat and millstone [Fig. 20]; Mattersey B28C beehive, flat and saddle [Fig. 26]; Perlethorpe E4C, flat and millstone with a lava quern fragment in E3A immediately to the north [Fig. 32]). This suggests that these sites have access to a repertoire of domestic goods, with the variety of quern forms perhaps being related to their longevity (discussed above). Excavation shows that other sites clearly have at least some of this repertoire of goods, but this does not always register in the fieldwalking collections.

Brick & tile (DG with RSL and Ron J. Firman) (Fig. 17)

It was recognised that Romano-British brick and tile would be difficult to spot when fieldwalking unless it had diagnostic features, or very different fabrics, from post-medieval brick and tile: we must admit that we could have missed it fieldwalking unless it was clearly different from the abundant tile (probably from field-drains) that were strewn on many of the fields walked. However, of the brick and tile collected, 69 fragments of brick, tile and fired clay were considered of likely Romano-British character on the basis of their form/fabric. Of these, 23 could be firmly identified as Romano-British in type on the basis of their form – 9 flue tiles with linear grooved patterns, 12 tegula, 2 possible imbrices (identified on the basis of their curvature). The remaining pieces comprised 16 fired clay lumps, 13 tile fragments and 15 brick fragments which were undiagnostic and could possibly be later than the Roman period. The fabrics were categorised, and possible geological sources identified by Ron J. Firman, whose full report is in archive. RFJ comments that there is clearly one group of fine-grained, largely homogeneous, textured fabrics which are probably made from the Green Beds or Edlington Marls of the Mercia Mudstone Group

(Smith and Warrington 1971), which are indistinguishable lithologically from those recovered from the well at Wild Goose Cottage (Firman and Garton 1995, 38). The diagnostic Romano-British forms were all in this fabric. The second group (9 items) uses a range of raw materials, probably including the sandy facies of the Edlington Marls, glacial till, alluvium and alluvium derived from till. These fabrics are scattered singly throughout the fields plotted in Fig. 17, bar Babworth B36B, where two items occur, one within each of the clusters of Romano-British pottery (Fig. 31).

The only fields that produced more than two brick and tile items were also those that included diagnostic fragments, namely Hodsock (A11B: Fig. 21) and Mattersey (B28C: Fig. 26), though others, on the basis of their fabric or sanded finish, were also considered to be likely candidates. 36 fragments came from the fields around Hodsock A11B and these included 9 flue tiles and 12 roofing tiles. Two of the flue tiles from Hodsock had parts of vent holes surviving and one of the tegulae had a nail hole for securing to the roof structure. The flue tiles had combed patterns of intersecting lines. Curiously, some of these tiles were fired very hard and of these, some were grey throughout. A single diagnostic piece came from Mattersey B28C, a curved, probably roof, tile (Fig. 26). A further 28 fragments of fired clay and brick or tile were recovered, some from the second walking of Mattersey B28C: unfortunately these were all small fragments of indeterminate form and could not even be certainly identified as Romano-British.

The overall distribution of brick and tile most readily resembles the pattern of later dated pottery (groups 6,7), with sparse evidence for this artefact type along the central spine of cropmarks between the Rivers Ryton and Idle (*cf*. Figs 12, 17). The sparsity of this building material does not suggest extensive survival of building destruction deposits, and excavations this far do not suggest stone/brick Romanized buildings within the cropmark enclosures – there was none from fieldwalking nor excavation at Dunston's Clump (B32A Fig. 27; Garton 1987, 64), and little from the excavations at Scrooby Top (only two tiles with lips perhaps tegula – Davies 2000, appendix 7). However, the recovery of brick/tile from the deep well and excavated parts of enclosure ditches at Wild Goose Cottage (Garton & Salisbury 1995, 37–8, 40) contrasts with its total lack from two fieldwalking sessions of the cropmark enclosure (Table 3), so its lack in fieldwalking collections cannot be taken to represent its absence of use.

Fire-cracked pebbles (DG)

Inspection of the pattern of densities of fire-cracked pebbles per hectare showed three groups, *viz*. low @ 0–2.9 per hectare (62 fieldwalked Areas), moderate @ 3–6.9 per hectare (16), and high at more than 7 per hectare (15 fieldwalked Areas: left hand part of the graph in Fig. 18). When these densities were plotted against enclosure complexity (right hand graphs in Fig. 18), the moderate and high densities of fire-cracked pebbles tend to correlate with the *developed* and *complex* enclosures (Class 3-4 and 3-5). In addition, inspection of Appendix 1 shows that in the six Areas where fire-cracked pebbles were absent, no Romano-British pottery was recovered either: this is not wholly a function of poor retrieval since flint or medieval pottery was recovered from three of these walked areas. Hence, the distribution of fire-cracked pebbles broadly follows the pattern of pot longevity and diversity (Fig. 13) in that the moderate and higher densities of fire-cracked pebbles tend to be from the more complex cropmarks (Fig. 18).

This relationship has already been pointed out in a slightly different way (Garton 2002, 34–6), where it was commented that, on the Sherwood Sandstone, clusters of Romano-British pottery seemed to be closely associated with the enclosure-groups, and that the fire-cracked pebbles, show a similar, if more extensive, pattern (Garton 2002, fig. 9). It was suggested that this artefact discard, and particularly the contrast in patterns with cropmark enclosures in the Trent Valley at South Muskham, related to the intensity of agricultural use.

Inspection of the pattern of fire-cracked pebbles over all the fieldwalked areas shows that although this pattern is broadly correct, there is actually a considerable range of variation (Figs 20–34). The

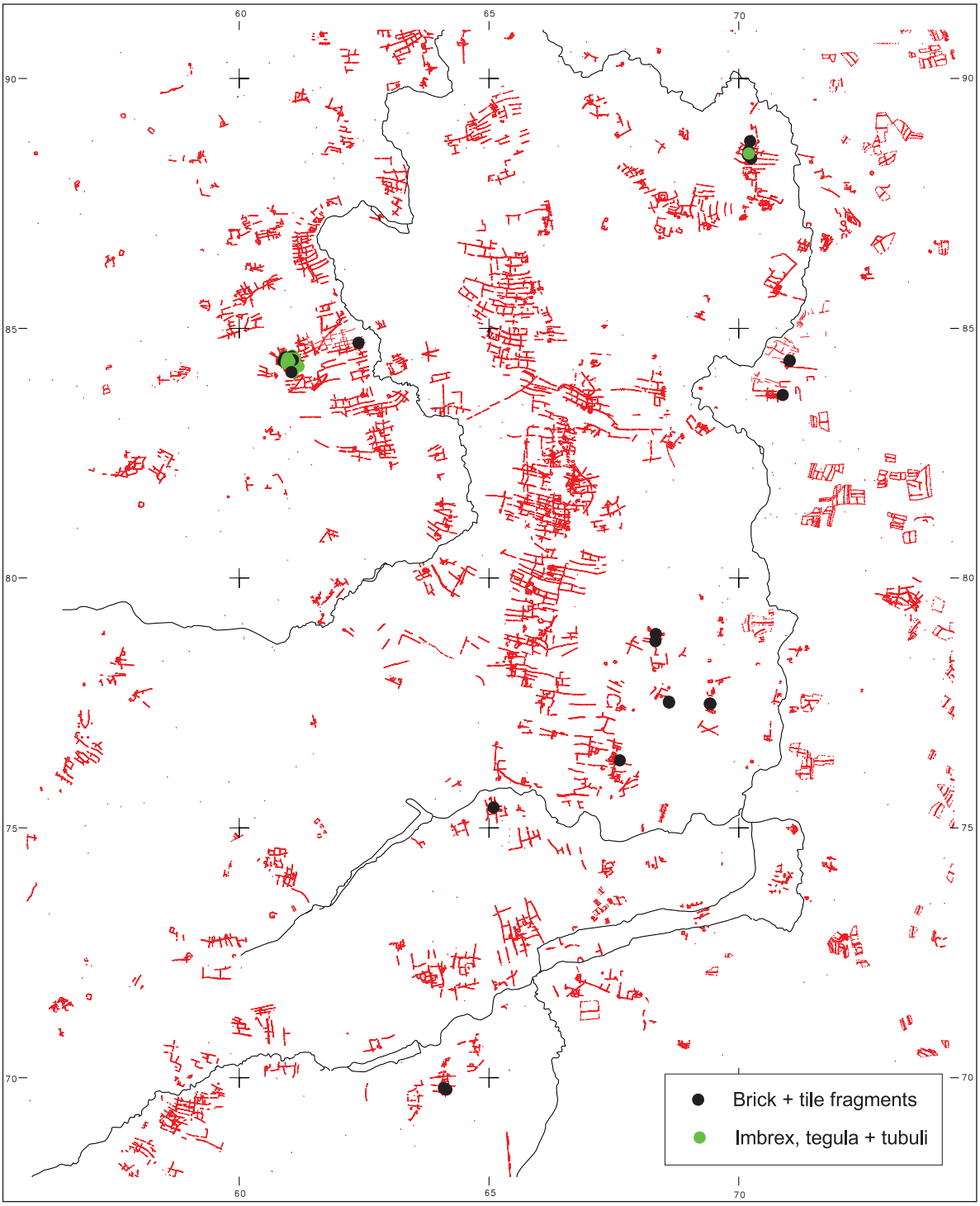

FIGURE 17: Sherwood Sandstone: distribution of brick and tile. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

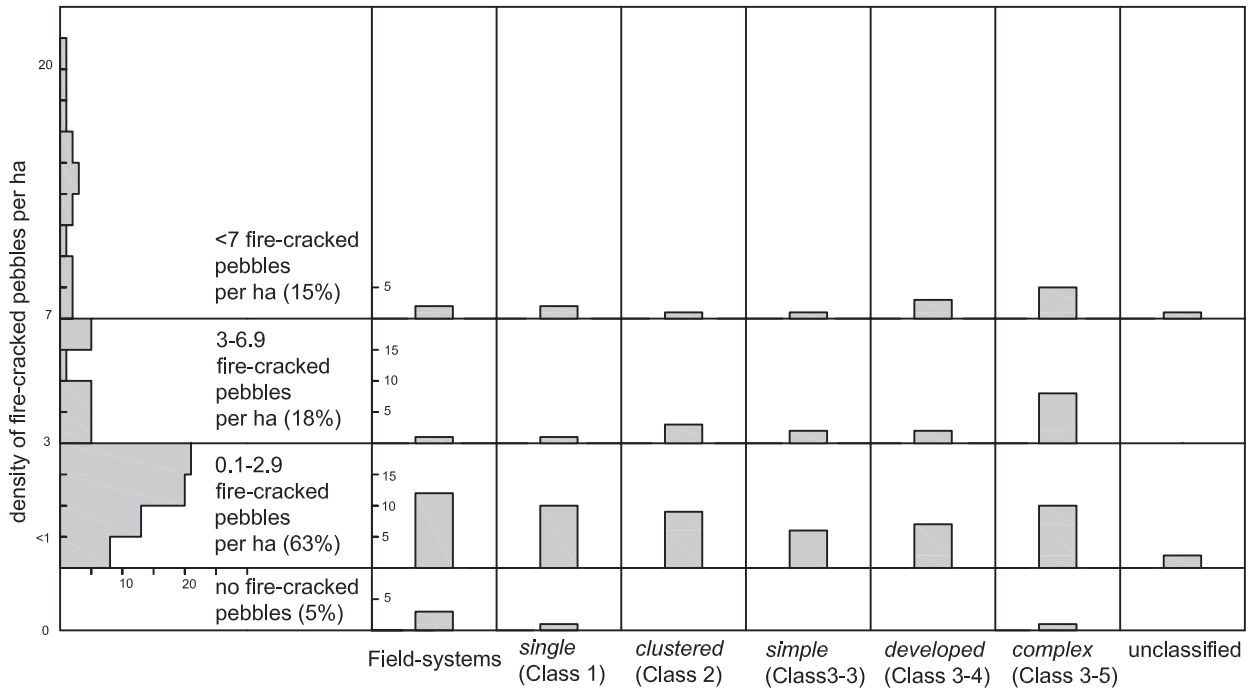

FIGURE 18: Sherwood Sandstone: graphs of fire-cracked pebble densities plotted against cropmark complexity (as defined in Table 2).

high density, long-lived pot-clusters at Hodsock A11B (Fig. 20) and Mattersey B28C (Fig. 26) have dense fire-cracked pebble scatters, but the density of fire-cracked pebbles over other enclosure-groups with pot-clusters vary (*e.g.* low at Lound B22A [Fig. 26], moderate at Barnby Moor B3D [Fig. 23], high at Elkesley D1B [Fig. 30]).

There are clearly examples where the activities that generate the different scatters are variably distributed. At Perlethorpe E4C (high fire-cracked pebble density [Fig. 32]) and Lound B19F (low fire-cracked pebble density [Fig. 25]), the fire-cracked pebble scatter covers the entire enclosure group, yet the pottery predominates, or is restricted to, one part. This suggests that the activities producing these different artefact types might not be closely spatially related. This is reinforced by inspection of the plots which show a series of enclosures which have produced fire-cracked pebble scatters, but no, or few potsherds – these are overwhelmingly the *single* (*e.g.* Babworth B34A-C [Fig. 27], Elkesley B33H, J [Fig. 30]) and *clustered* enclosures (Barnby Moor A13E [Fig. 22], Lound B19H [Fig. 25]). The recovery of moderate to high densities of fire-cracked pebbles suggest that these deposits are being truncated, so the lack of potsherds probably reflects at least a low density within the cropmark enclosure, if not their absence, and supports the disjunction of activities which produced the two scatter types in some instances. This is confirmed by the few enclosures where pot was relatively abundant (20 or more sherds), but fire-cracked pebbles rare (Babworth B32C+ N [Figs 27, 28], Haughton F4A [Fig. 34]).

Finally, a caveat. At Mattersey East Carr B28 there are scatters of fire-cracked pebbles that did not lie over, or even close to, cropmark enclosures (Fig. 26). Salvage recording and excavation during and prior to quarrying show these to be above prehistoric and burnt mound activities. Since burnt mounds, particularly, seem to have a riverine distribution, and this project focussed upon cropmarks which are predominantly outside of the floodplain (East Carr being one of the few large

areas within the floodplain), the co-incidence of burnt mounds, at least, may not be significant within the areas fieldwalked. However, this does warn that fire-cracked pebbles are inherently undatable (see Garton 2002, 27), and any fieldwalking associations should be treated with some caution. That said, it appears that a case for the association of the fire-cracked pebbles scatters with the enclosure-groups can be demonstrated by the repeated pattern of their broad co-occurrence, and that it is noticeable that where blocks of field-systems have been walked and enclosures are absent, fire-cracked pebble scatters also tend to be of low density or absent *e.g.* Warsop E7 (Fig. 33), Barnby Moor B4 and Torworth B3E (Fig. 23), Babworth B32 (Fig. 27, 28). In addition, where cropmarks have been excavated, fire-cracked pebbles are present in features that also contain Romano-British pottery. At Scrooby Top their distribution within the enclosure was shown to be variable; they were concentrated in particular horizons within the southern and eastern enclosure ditches, but rare in the adjoining field-boundary ditches (Davies 2000, 23, 41 and Robbins 2000, 86–9), perhaps thus reinforcing the pattern from fieldwalking observed above.

Intra-site artefact distributions (RSL)

The intra-site Romano-British pottery distribution patterns can be divided into groups (Table 5):

- walked cropmarks with no pottery (34 examples)
- diffuse, low density spreads over the cropmarks (CS – 25 examples)
- diffuse, low density spreads over the field-system (FS – 38 examples)
- medium – high density clusters restricted to the enclosure area (CONC – 11 examples)
- medium – high density clusters restricted to parts of one or two adjacent or adjoining enclosures (PART – 18 examples)
- medium – high density clusters partially overlying an enclosure and partially outside the enclosure (OFF – 10 examples)
- medium – high density spreads overlying an area devoid of cropmarks (N – 6 examples).

Some of the larger groups, apparently not associated with cropmark enclosures, may be deceptive, since at least two of these have enclosure-groups recognised subsequent to the NMP plot used here (*e.g.* Mattersey B28 and B24, Fig. 26), and in others, the complicated cropmarks hint at the incomplete registering of buried ditches (*e.g.* near B5I, Fig. 24). The clusters all fall within *c.* 30m of the cropmark ditches of the enclosures. In the few scatters that spread as far away as 30m from the enclosure cropmarks, these outliers form parts of a diffuse spread.

The categorization of the distributions below are led by the commentary on the pottery, with the locations of any metalwork, brick & tile, querns or fire-cracked pebbles also noted. The cropmarks and artefact distributions discussed below are located in Fig. 19. As noted above (p.20), Lound B22A and Mattersey B28 will be discussed elsewhere. These fieldwalking patterns are subject to the caveats discussed above (particularly comparison of field-walking results with excavation [p.34], variable artefact survival [p.34], and the single episode of walking [p.32]): however, taken together, they illustrate more general patterns, and could form models against which to test future investigations.

Intra-site pot-clusters over parts of cropmarks

This group of clusters raises several possibilities about areas within the enclosure-groups. In some cases, different functions can be suggested such as domestic areas kept clear of ceramic debris and midden areas. In other cases, larger enclosed areas may have had some agricultural use that did not result in surviving debris. The analysis suggests that individual enclosures within some of the *complex* enclosure-groups may not have been contemporary. Differences in the types of pottery found within these different but adjacent enclosures suggest the possibility of different functions or status.

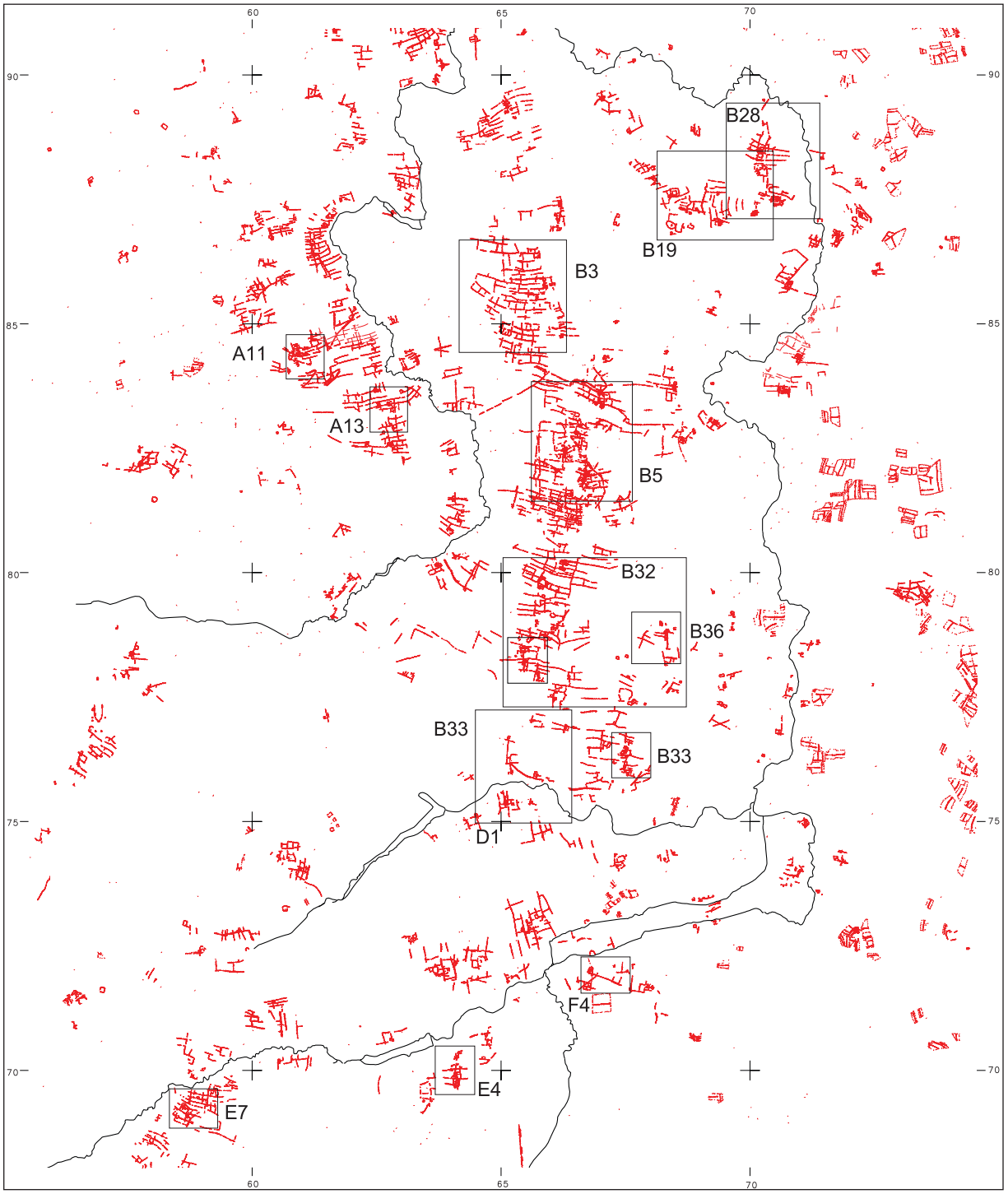

FIGURE 19: Sherwood Sandstone: location of detailed fieldwalking plots Figs 20–34. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:125,000.

Hodsock A11B (Figs 20, 21: Class 3-5 complex rectilinear enclosure group)

There are clearly at least two alignments of cropmarks; those of curving brickwork-type and those spaced more widely, cutting across the field-systems at an angle. Some of the enclosures appear to be partitions within the curving set of field-system cropmarks (*e.g.* B3), whilst A11A and B1 are set at an angle. The pottery from *complex* enclosure A11B was variable in density, suggesting separate foci of discard/activity. Within the enclosure group, the large units contained lower densities of pottery than the small units, with the enclosures lying to the north (A11A, A11B1) and south (A11C) of the main group virtually devoid of pottery. A low-density pottery scatter was recovered to the east over small enclosures and part of a field-system. It seems likely that the larger units had a different function. Brick and tile were also variably distributed, but all found within the southern part of this enclosure group, with none in the northern part at all, also suggesting some functional difference. The recovery of roofing tiles (tegula and imbrex), together with, hypocaust tubli may suggest a Romanized building, but it is widely scattered with no clear focus (Fig. 21). The querns (Table 7) were found outside of the higher density pot-clusters, with fragments from inside the enclosures, a beehive to the east in fields, and a flat quern from just outside B1. A polisher/rubber was also found to the northeast of the highest density cluster of pot. The fire-cracked pebble density was high, except that none were present within/close to the double-ditched enclosure B1.

Sherds of tablewares were concentrated in the western units. The second–third century types clustered to the southeast of the northern unit (B1), with the Antonine samian only found in the southern part of this enclosure group. A coin, probably of Constantine I or Magnentius (306–353AD, identified by Bob Alvey, Table 6), unless a fortuitous, casual loss, represents 4th century activity here, not otherwise identifiable in the diagnostic pottery sherds. The beehive quern fragment might represent activity at the other end of the chronological spectrum: it appears that this site was long-lived compared with many in this survey.

At Maddle Farm villa, fieldwalking revealed a negative relationship between the distributions of ceramics and building debris (Gaffney and Tingle 1989, 99–100): one explanation for this pattern was that the underlying building was kept relatively clear of pottery. At Knighton Bushes (Gaffney and Tingle 1989, 101–3) a related pattern was detected where surface pot clustered away from the cropmarks. Here, excavation suggested that the ceramic debris came from farmyard deposits, rather than buildings, and that sarsen spreads were associated with the structures and lay between the pottery scatters. If such an explanation were extended to Hodsock A11B, it might suggest that the small enclosures functioned as yards or midden areas, while the larger units were kept clearer of such debris.

Babworth B32 (Figs 27, 28)

There are several groups of enclosures in this area of regular brickwork-plan fields, most of which only produced very small pot-groups, but, where present, concentrated over/adjacent to cropmark enclosures. This pattern is particularly clear at B32C and B32N (both Class 3–4 *developed* mixed curvilinear and rectilinear enclosure-groups).

The small groups of pottery from each set of enclosures at B32C both included a sherd of Antonine pottery, with two sherds of colour-coated ware from the southern enclosures, one a fourth century sherd of red colour-coated ware, possibly from Oxfordshire. Two small lead items (Table 6) were recovered by metal-detector survey from the curvilinear enclosure group; they are perhaps indicative of settlement activity not otherwise represented by pottery or fire-cracked pebbles.

Forty-seven sherds were clustered within and adjacent to B32N, a rectilinear enclosure set at an angle across other field or enclosure ditches and apparently enclosing a circle. This is one of the few clear palimpsests from the cropmark evidence, and might be interpreted as an enclosure containing a roundhouse set out prior to the field-system. The pottery included date groups 2–5 with types datable from the 1st–3rd centuries, with the cluster principally comprising kitchenwares and including

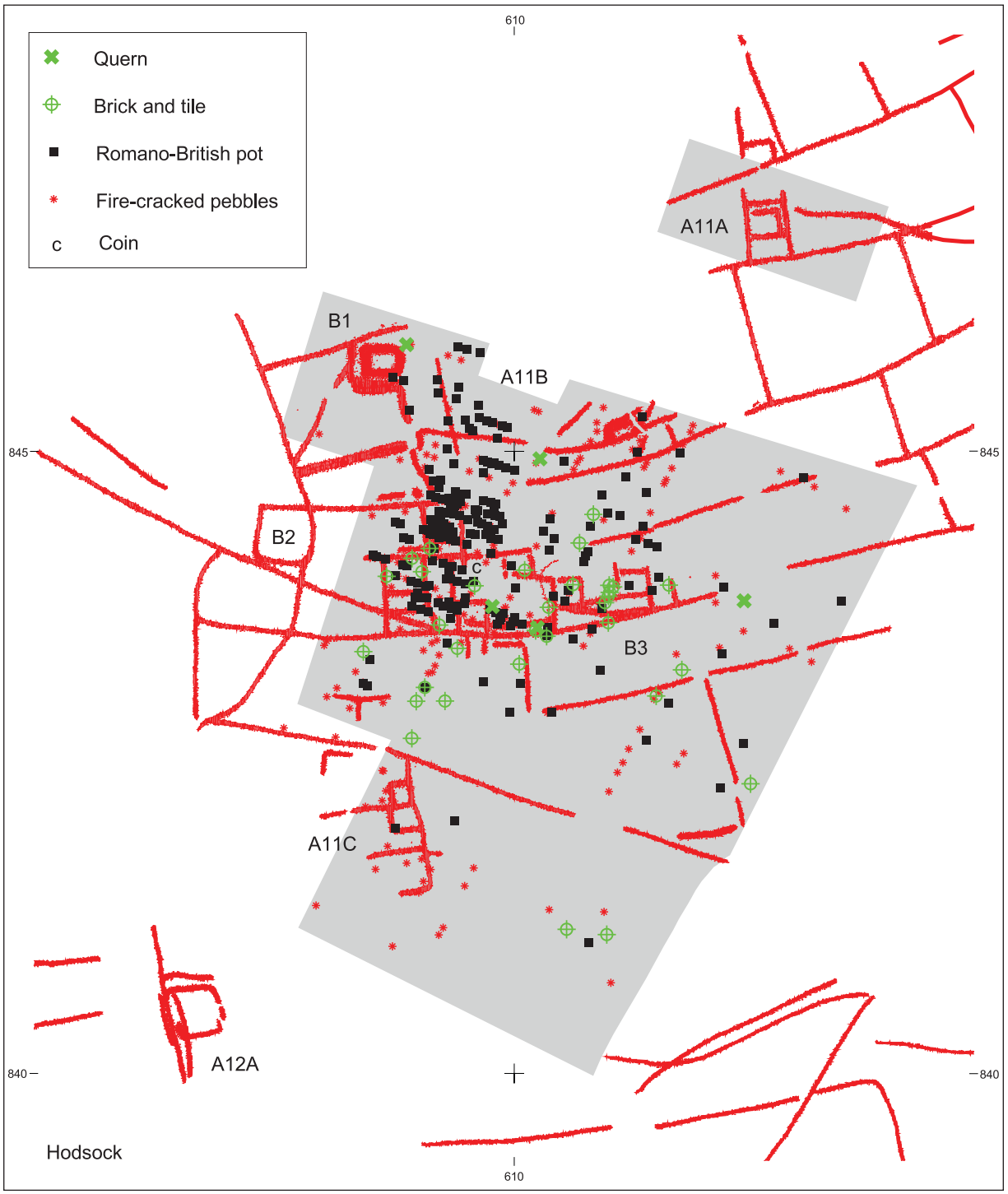

FIGURE 20: Sherwood Sandstone: Hodsock A11B: distribution of Romano-British artefacts and fire-cracked pebbles. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

FIGURE 21: Sherwood Sandstone: Hodsock A11B: distribution of brick and tile types. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

FIGURE 22: Sherwood Sandstone: Hodsock A13D & Barnby MoorA13E: distribution of Romano-British artefacts and fire-cracked pebbles. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

FIGURE 23: Sherwood Sandstone: Torworth B3B-E & Barnby Moor B3D, B4: distribution of Romano-British artefacts and fire-cracked pebbles. Trenches by Samuels & May excavated at College Farm were located at the southwestern corner of Torworth B3E (reported in Riley 1980, 78–81). Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:12,500.

FIGURE 24: Sherwood Sandstone: Barnby Moor B5B & Babworth B5D-I: distribution of Romano-British artefacts and fire-cracked pebbles. Trenches by Samuels & May excavated at Green Mile Lane were located along the long double-ditch of B5I (reported in Riley 1980, 74–81). Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:12,500.

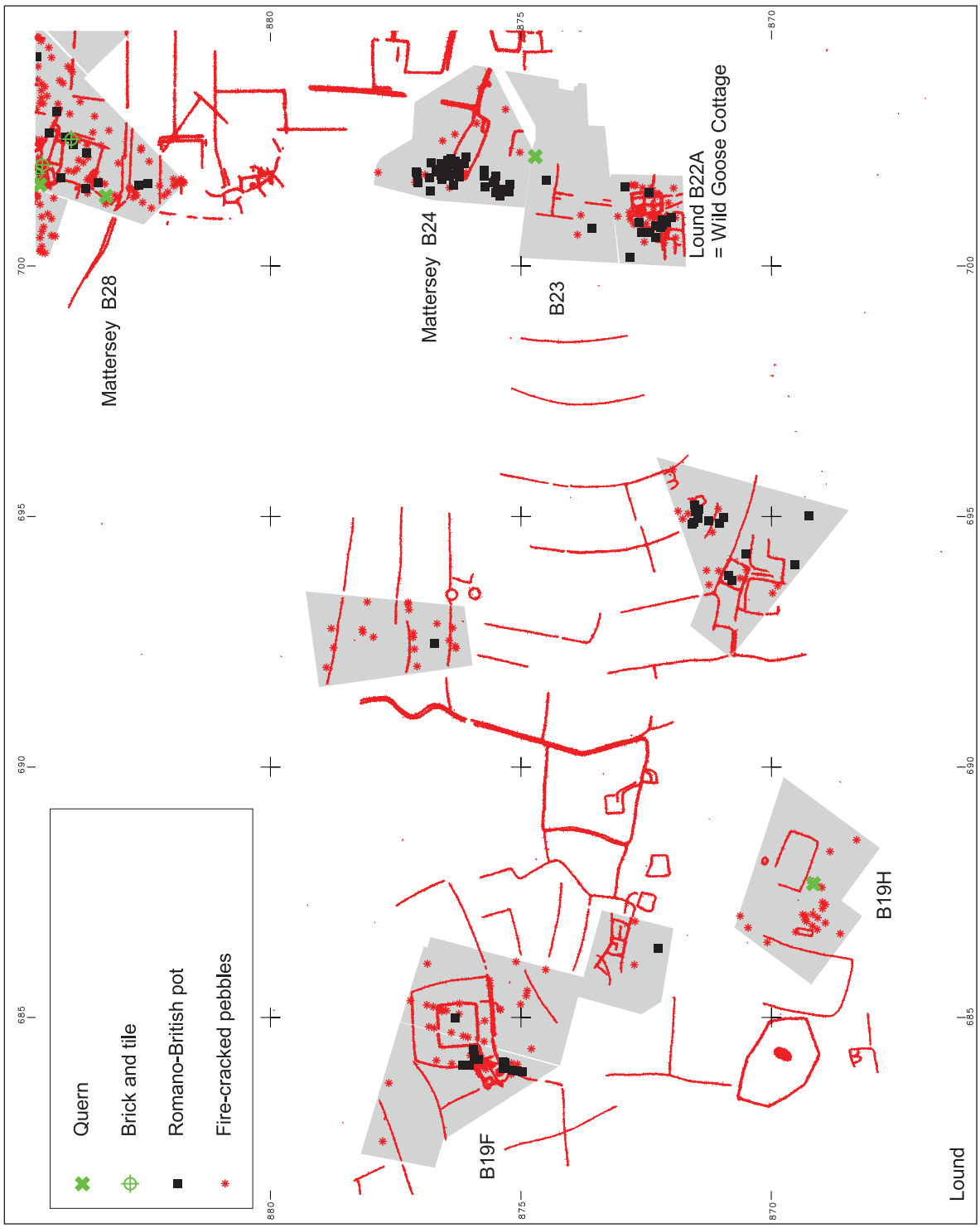

FIGURE 25: Sherwood Sandstone: Lound B19F-23 & Mattersey B24: distribution of Romano-British artefacts and fire-cracked pebbles. Well at Wild Goose Cottage at B22A reported in Garton & Salisbury 1995. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:12,500.

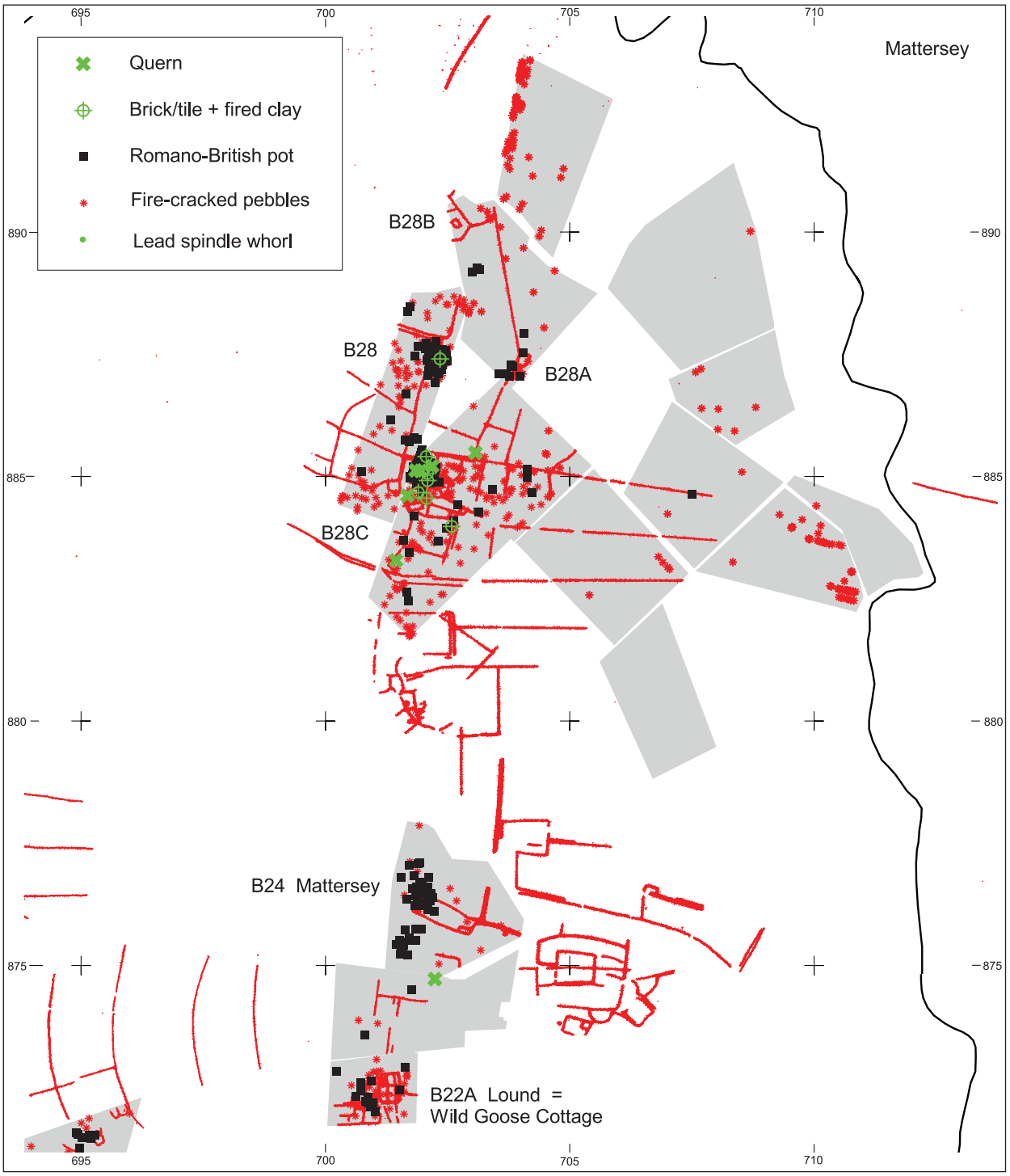

FIGURE 26: Sherwood Sandstone: Lound B22A-23 & Mattersey B24–28: distribution of Romano-British artefacts and fire-cracked pebbles. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:12,500.

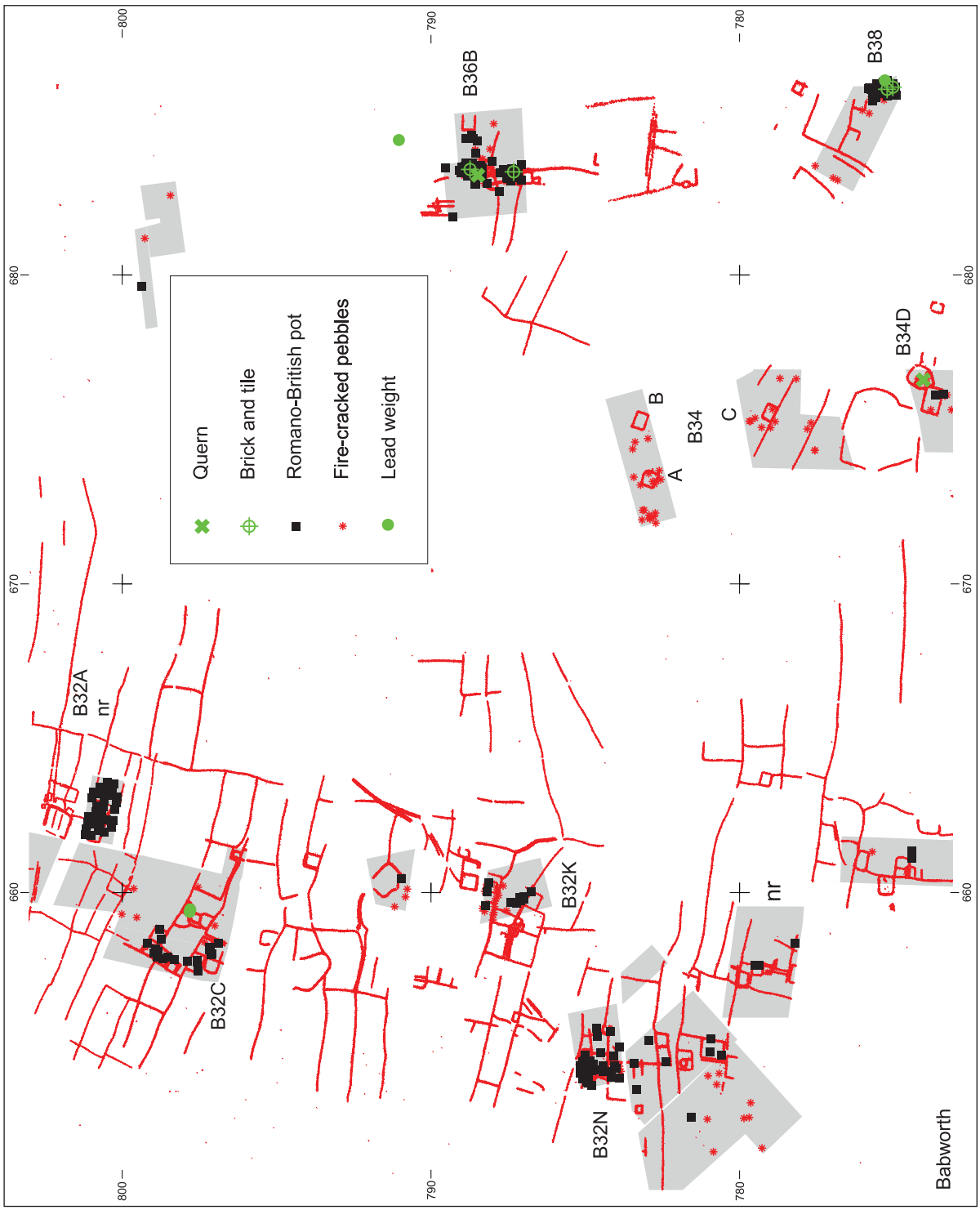

FIGURE 27: Sherwood Sandstone: Babworth B32A-B36B: distribution of Romano-British artefacts and fire-cracked pebbles (where not recorded, labelled nr). The enclosure at B32A (Dunston's Clump: Garton 1987) was fieldwalked at *c*. 2m transect intervals, rather than 10m as in all other plots. Detail of B32N-Q in Fig. 28, and B36B in Fig. 31. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:20,000.

FIGURE 28: Sherwood Sandstone: Babworth B32N-Q: distribution of Romano-British artefacts and fire-cracked pebbles (where not recorded, labelled nr). Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

one sherd of Antonine samian and one carinated beaker. There was a very low density of fire-cracked pebbles, and no quern fragments.

Elkesley B33 (Figs 29, 30)

This block includes two small scatters near *simple* enclosure-groups (B33I,J: Class 3-3), two enclosures with no pottery (B33A,H) and a polyfocal distribution pattern associated with a cluster of *single* and *complex* enclosures (B33D/F: Classes 1 and 3-5). The fire-cracked pebble densities are variable, with high densities correlating with thin pot scatters and moderate to low densities with the polyfocal pot distribution.

The distribution of pottery over B33D-F comprises four foci (Fig. 29). A small cluster overlay the northern units of B33D, a larger cluster centred on a unit towards the southern end and a small cluster lay partially over and partially to the east of a *single* enclosure on the eastern side of an area clear of finds. B33F, just to the south, included a double ditched rectilinear enclosure. The potsherds clustered to the north of the double-ditched enclosure, mostly outside the enclosed area.

The pottery diversity of all these clusters was very low and all the groups were predominantly of date group 5 with a single BSB burnished sherd of early type from the northern cluster and a flanged grey ware bowl of third to fourth century date from the south western cluster.

No querns, and only a single fragment of brick/tile were recovered. Fire-cracked pebbles were sparse both within and outside of the pot-clusters.

The enclosed area, clear of finds in B33D, compares well with other sites such as Hodsock A11B (Fig. 20), Lound B19F (Fig. 25), enclosures around Mattersey B28C (Fig. 26), Babworth B32C (Fig. 27) and Hayton C8 and 9. The lack of potsherds and fire-cracked pebbles from within the double-ditched enclosures B33F (Fig. 29) and B33A (Fig. 30) also compares with Hodsock A11B1, which was also double-ditched (Fig. 20).

Babworth B36 (Fig. 31: Class 3-4 developed rectilinear enclosure group)

This field was walked immediately after we were informed that a coin hoard had been recovered. The location of the coin hoard, identifiable by the lack of crop growth, was plotted: it comprised nearly 3,500 late 3rd century AD coins (Gallienus-Tetricus) almost certainly buried within a grey ware pot (information from M. Dolby). A small excavation was conducted by the fieldwalking volunteers to retrieve artefacts from the ploughsoil and disturbances after the hoard had been retrieved: no *in situ* deposits were removed (unpublished).

Cropmark B36B was partially walked and pottery dated to the 2nd–3rd/4th centuries was recovered. Two clusters were detected to north and south, with the northern one having more pottery of longer date range and diversity (Fig. 31), also containing the coin hoard. Its position partially outside the cropmark enclosure may suggest, as in the case of Hodsock A11B (Fig. 20), removal of midden waste outside of a habitation site perhaps represented by the very small enclosures. A sandstone quern fragment was recovered from inside the northern enclosure. One fragment of brick/tile was also recovered from each pot-cluster. There were low densities of fire-cracked pebbles. A miscast spindle whorl or weight (identified by Jane Cowgill: Table 6) was recovered by metal-detecting to the north of the fieldwalked area. This field was walked when the crop was sown and just coming through, so we were unable to conduct metal-detector survey under controlled conditions.

Perlethorpe E4C (Fig. 32: Class 3-4 developed mixed curvilinear and rectilinear enclosure group)

A large group of pottery was recovered from this multi-phase cropmark. A wide date range of material was identified including a handmade, slag-tempered sherd of Iron Age type and shell-tempered 'native' jars. Fine oxidised tablewares included a flanged bowl of Antonine date. Later types included Dales ware and a flanged bowl. Samian was not represented but Parisian ware, Derbyshire and Dales ware and mortaria were all represented.

FIGURE 29: Sherwood Sandstone: Elkesley B33D-F: distribution of Romano-British artefacts and fire-cracked pebbles. Trenches by Samuels & May excavated at Flint Hill were located on the southwestern side of the double-ditched enclosure B33F (reported in Riley 1980, 73–80). Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

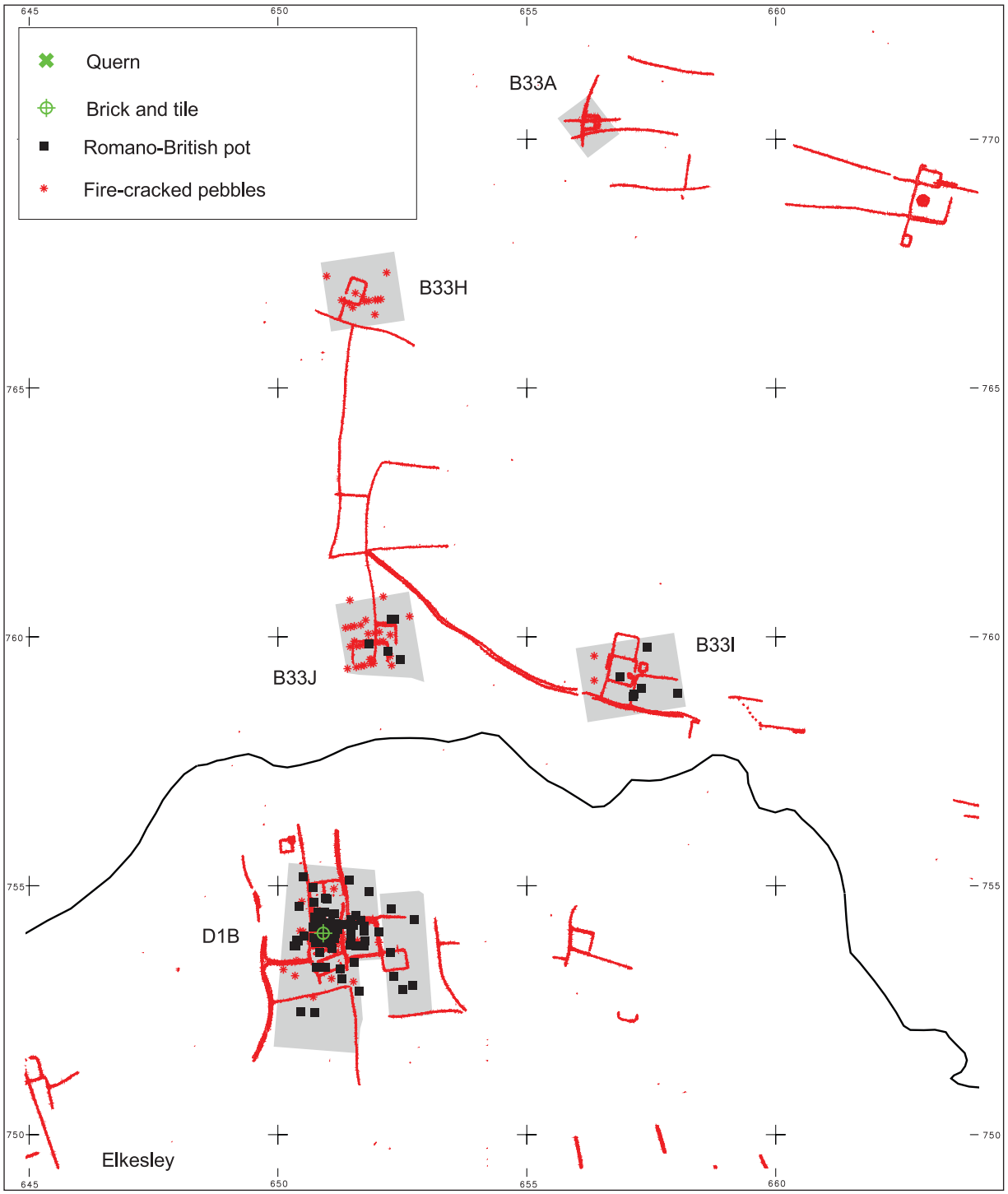

FIGURE 30: Sherwood Sandstone: Elkesley B33A, H-J, D1B: distribution of Romano-British artefacts and fire-cracked pebbles. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:12,500.

FIGURE 31: Sherwood Sandstone: Babworth B36B : distribution of Romano-British artefacts and fire-cracked pebbles. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

Diagnostic pottery was concentrated in the south of the enclosure-group and the sherds of high diversity clustered around the southern tip. Two querns were recovered: that from the southern cluster was the upper stone of a flat quern of Roman type, decorated with radial lines of pecking (Appendix 6), with a probable millstone fragment from the northern part of the cropmark enclosures. Two fragments of brick/tile were recovered from the northern edge of this pot-cluster.

Fire-cracked pebbles were variably distributed, but still register as a high density scatter overall. They were distributed principally around the southern pot-cluster, and from the northern part of the enclosure where the pot scatter was sparse.

Within this group, a *simple* rectilinear enclosure can be identified aligned with the southern NW–SE field boundary but misaligned with the rest of the enclosures. The curvilinear cropmarks, coupled with the evidence for circles and the Iron Age sherd, raises the possibility that much of this cropmark group is of earlier date. If so, it is noticeable that sherds are less dense over the parts of the cropmarks with the circles: it is unclear whether this is because of the date of activity, or whether such locations were kept clear of debris.

Perlethorpe E3 is discussed below.

Warsop E7 (Fig. 33)

An area of field-system and enclosure-groups were walked in E7 and two small clusters of pottery were recovered from adjacent *simple* rectilinear enclosure-groups E7D and E7E (Class 3-3). Two undiagnostic sherds were recovered from E7C but none from E7B, also fieldwalked (both *single* enclosures: Class 1). The assemblages were small, but concentrated in the north and middle sections of E7D and E respectively. Such diagnostic pottery as was present could be dated tentatively to the second century, with one grey ware 'native' jar possibly dating to the 1st century. Only local and traded kitchenwares (Derbyshire ware) were represented bar one sherd of mortaria from the southeast corner of E7D. A single quern fragment was recovered by fieldwalking (outside of the enclosures), although a second complete flat rotary stone had been removed by the farmer from somewhere within this set of fields (Table 7). The fire-cracked pebbles were moderately numerous around enclosure-group E7E, and appeared to concentrate southwest of a cropmark running at an angle across the enclosures, but were barely present over E7D. Since this variation between enclosures was within the same modern field that was cultivated in the same way throughout, this difference between the enclosure-groups can be confidently said to represent some past difference in activity.

Clusters partially over and partially outside cropmark enclosures

This group of pot-clusters is difficult to interpret. Two possibilities spring to mind, namely that the pottery relates to a feature situated outside the cropmark enclosure, such as a midden, or that the pottery is completely unrelated to the cropmark.

Hodsock A13D (Fig. 22: Class 1 single double-ditched rectilinear enclosure)

Around 2km to the south of Hodsock A11B lies a pottery scatter near A13D. Similarly to A11B, the scatter seems to avoid the double-ditched enclosure, so may be related to something beyond the enclosure, or be an example of debris being cleared out of an enclosure. This impression is reinforced by the fire-cracked pebble scatter, which is similarly absent from within the enclosure, but present outside, and is more extensive than the pot scatter. A single quern fragment came from within the enclosure, with a piece of brick/tile from the cropmarks of its southeastern corner.

The datable sherds are mostly of the second or third century with one shell-tempered basal sherd, probably Dales ware.

The enclosures to the south at A13E and G yielded virtually no pottery and sparse scatters of fire-cracked pebbles.

FIGURE 32. Sherwood Sandstone: Perlethorpe E3A-E4C distribution of Romano-British artefacts and fire-cracked pebbles. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

FIGURE 33: Sherwood Sandstone: Warsop E7B-E: distribution of Romano-British artefacts and fire-cracked pebbles. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

Perlethorpe E3 (Fig. 32: Class 3-4 developed rectilinear enclosure-group)

A large group of pottery was recovered from E3, found mostly to the east of a fragmentary rectilinear cropmark E3A and north of E4C (see above). This assemblage comprised local and traded kitchen-wares (Derbyshire ware) with 2nd to 3rd/4th century types such as everted-rim jars, flat-rim and flanged bowls. The proximity of this cluster to that at E4C raises the possibility that E3A may be related to the later activity at E4C in the 2nd to 3rd/4th centuries, possibly representing polyfocal activity like that at Elkesley B33D+F (pp.71, 88).

Low to medium density scatters over cropmark enclosures

Torworth B3E/D (Fig. 23)

Enclosure-groups B3D (Class 3-4 *developed* mixed curvilinear and rectilinear) and B3E (Class 3-5 *complex* rectilinear enclosure-group) were fieldwalked together with significant areas of cropmark field-systems to the west and south. A very thin scatter of grey ware bodysherds and very low densities of fire-cracked pebbles were found on the cropmark field-systems. Diffuse scatters of kitchenware pottery overlay the two enclosures and datable sherds included some first century 'native' jars, a jar of Flavian-Trajanic type, although still circulating in the mid-second century, and grey ware deep bowl (*cf*. Buckland *et al*. 1980, type Hc-d). The early 'native' wares are of interest since not only do several circles lie to the north, but the northern part of enclosure B3D also appears to intersect with a circle. The scatter of pottery and fire-cracked pebbles around B3D is very diffuse, whereas both mostly lay within the enclosures of B3E. It would be interesting to walk the parts of the enclosure to the east: excavations here by Samuels and May (1980, 78) recovered very small quantities of abraded and undiagnostic grey ware only. A single probable saddle quern rubber fragment was found between the two sets of enclosures. This could belong with the early 'native' wares and cropmark circles (presumed roundhouses) described above, or be indicative of earlier activity since a few flints (none diagnostic of date) were recovered from these fields (Garton 2007, fig. 1). No brick & tile of possible Romano-British date was recognised.

Barnby Moor/Babworth B5 (Fig. 24)

There are several adjacent enclosure-groups or polyfocal *complexes* in this landscape block with differences in the date groups present. All the pot-clusters have low diversity pottery (Table 5) and only the northernmost group from B5B has a diversity score of more than 1 (Class 3-4 *developed* rectilinear enclosure-group). The pottery is, for the most part undatable or of date group 5. There is, however, a group of shell-tempered sherds (CT and CTB2) in the southern part of B5I, a cluster of enclosures that clearly include several phases (Class 3-5 *complex* rectilinear group). These bodysherds are not certainly first century, since it can be difficult to distinguish early shell tempered bodysherds from Dales ware. Indeed excavation at B5I (Green Mile Lane, Samuels and May 1980, 80) recovered Dales ware, along with other grey ware types dated to the third century by the excavators, and belonging to our group 5.

Three of these sets of enclosures produced hardly any, or no, pottery, yet two of these produced moderate/high densities of fire-cracked pebble clusters (B3E [Class 3-5 *complex* rectilinear enclosure-group], B5D [unclassified]). The enclosure-groups with pottery (B5B, B5I) both produced high densities of fire-cracked pebbles.

Only one quern fragment was recovered, a sandstone fragment, from outside of the northwest corner of enclosure B5I.

Haughton F4 (Fig. 34: Class 3-3 simple rectilinear enclosure-group)

The only sizeable, medium density, cluster (46 sherds), which is clearly focussed within the cropmark enclosure-group, is at Haughton F4A. The cluster includes a range of 2nd–3rd century types and flanged bowls and is made up of local and traded kitchenwares (Derbyshire ware) and one mortaria sherd. The cropmark elements of pit-alignment, field-system and the southern part of the enclosure-group overlie in such a way to suggest

FIGURE 34: Sherwood Sandstone: Haughton F2-F4: distribution of Romano-British artefacts and fire-cracked pebbles. Cropmark plot © Crown copyright, National Monuments Record. Figure based on Ordnance Survey mapping © Crown copyright Ordnance Survey. All rights reserved. Scale 1:5000.

TABLE 8
Codes for sites used in Figs 35–6 and Table 9 (the first letter denotes the county, D = Derbyshire, N= Nottinghamshire, Y = Yorkshire), their dating and bibliographic references

Rural settlements			
Y A1N	A1 north near Ferrybridge, site C4SA	mid-late third and early fourth century group	Leary 2007b
Y Armthorpe	Armthorpe West Moor Park	1 = third to mid-fourth century group	Leary 2007a
		2 = second to late third century group	Leary 2008
Y Bawtry	Bawtry	mid-third to mid-fourth century group	Leary 2006a
D Bolsover	Sherwood Lodge, Bolsover	predominantly mid- to late third century group	Leary 1995a
N Holme PP	Holme Pierrepont, site 3	late first to third century group	Leary unpublished a
Y Parlington H	Parlington Hollins	mid second to first half of fourth century group	Evans 2001b
D Roystone G	Roystone Grange	second century group	Leary unpublished b
N Sherwood S	Brickwork-plan field-systems on the Sherwood Sandstone		this report
Y Stainton	Stainton, Holme Hall Quarry	early to late third century group	Leary 2007c
Y Sykehouse	Sykehouse	PRIA to second century group	Roberts 2003
Military & Urban settlements			
D Brough-on-Noe	Brough-on-Noe, vicus	late second to early third century group	Leary 1993
Derby Little Chester	Derby, Little Chester	D3 = phase 3 Antonine	Dool *et al*. 1985
		D4 = phase 4 late second-early third century	Dool *et al*. 1985
Y Doncaster HS	Doncaster High Street, vicus	HS 2 = second century group	Leary 2004
		HS 3= late 2nd to third group	Leary 2004
N Glebe FB	Glebe Farm, Brough-on-Fosse	late second/early third to mid-third century group	Leary forthcoming b
Lincoln	Lincoln, group 9/2	late second to third century group	Darling 1984
N Sturton LS	Sturton-le-Steeple	third-fourth century group	Leary unpublished c

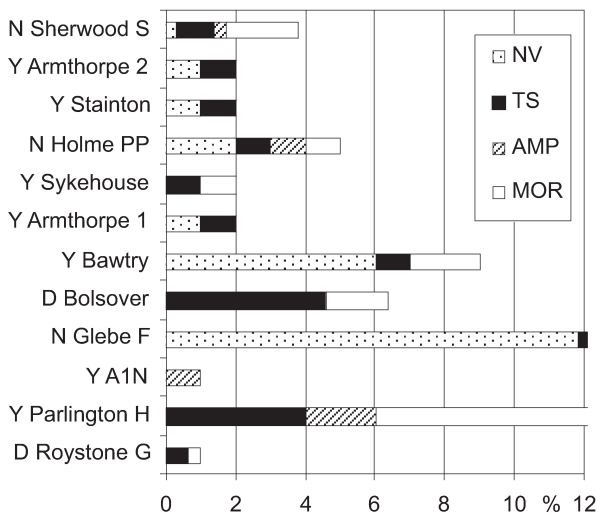

FIGURE 35: Relative quantities of traded wares at rural settlements (using sherd count). Sites along side axis, with codes, dating of sites and references in Table 8. Ware codes as Appendix 3.

that they clearly multi-period. The earlier material could be contemporary with a fragment of a glazed melon bead found outside of the enclosure (p.53). Only low densities of fire-cracked pebbles were found throughout. The quern fragment from within the enclosure had roughly incised vertical lines decorating its edge (Appendix 6). This quern and the bead are small reminders of the range of material culture often available to Romano-British rural communities, but which seem to be rarities within this survey.

THE ROMANO-BRITISH POTTERY: TRADE AND EXCHANGE

R.S. Leary

The pottery distribution disclosed some patterns potentially relating to trade and exchange. The early GT and CTB coarse wares disclosed no obvious patterning across the study area. Trade in shell-

tempered jars of this form has been suggested at Gamston where shell was not readily available (Knight 1992, 43). There it was suggested that the nearest sources were the Lincolnshire Limestone and the Penarth group near Cotgrave. Recent petrological and chemical analyses of shell-tempered wares, now vesiculated, from excavations at Ferry Lane Farm, Collingham, Nottinghamshire and Stainton, South Yorkshire (Vince 2005a and b) showed these were dissimilar to Iron Age /early Roman shell-tempered wares from central and northwest Lincolnshire and suggested a source within the Trent Valley, probably the lower Jurassic clays or perhaps exposures of the Penarth Group within the Trent Valley. Analysis of sherds with extant shell would allow more precise sourcing but a local Trent Valley source need not be doubted. CTB fabrics in the assemblage were used for simple bead-rim jars and also deep, bucket shaped jars/bowls. The bead-rim jars develop from jar types of late pre-Roman date (Knight 1992, 50) and continued in use at Lincoln as late as the second century (Darling 1984, 89). The deep bucket shaped jars/bowls were found in north Lincolnshire in a shell-tempered fabric in early Roman contexts and GT wares (*cf*. Stead 1976, fig. 74 nos 9, 11–12). The bead-rim jars are likely to be of Trent Valley origin but the shell-tempered bucket-shaped bowls may be from north Lincolnshire.

The GT fabrics compare with pottery studied by the author on Trent Valley sites, such as Holme Pierrepont (Leary unpublished a) and also with similar wares in Lincolnshire (*cf*. Darling and Jones1988, fabric 103). These wares have not been studied petrologically or chemically to any great extent. They clearly include early first century wares which, in north Lincolnshire are replaced by a grey ware with argillaceous inclusions during the 2nd century (similar to GTA10, Catherall, Leary and May unpublished), used to make a variety of forms but especially deep, bucket shaped bead and club-rim jars similar to Buckland *et al*. 1980 type Hc-d. The form was present at the kiln excavated at Raymoth Lane, Worksop in both fabric GREY, described as grey with subrounded quartz and occasional larger quartz and grey clay pellets (Darling 2004, 41, nos 28–9 and 34), and a coarser

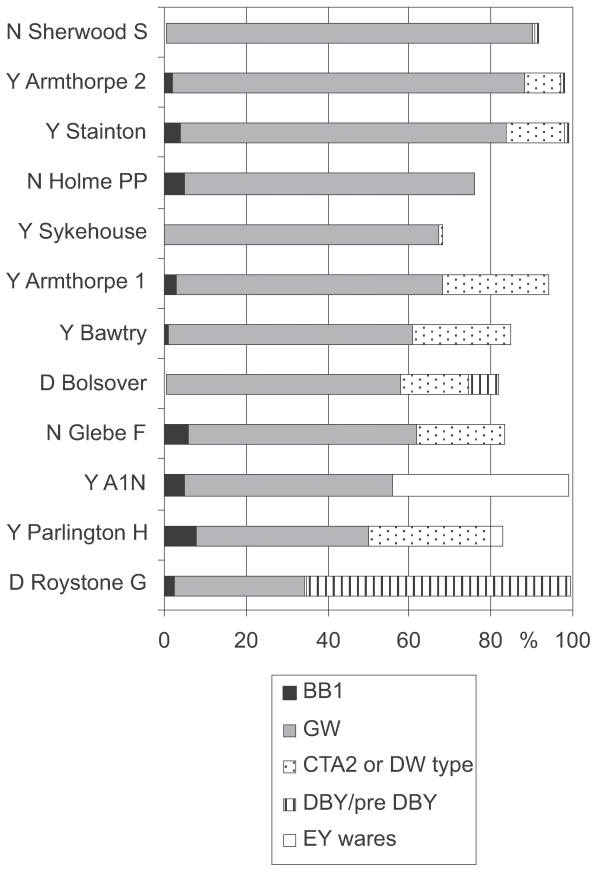

FIGURE 36: Relative quantities of coarse wares at rural sites (using sherd count). Sites along side axis, with codes, dating of sites and references in Table 8. Wares as Appendix 3; EY= East Yorkshire wares (Crambeck and Holme-on-Spalding wares and East Yorkshire calcite-gritted wares, as Tomber and Dore 1998, 196–8, 158 and 201).

grey fabric GREYC which is variously noted as having grey rock, calcareous inclusions or clay pellets. It is likely that the fabrics at Raymoth Lane are a later version within the GT group represented here by fabric GTA10. Some of the early GT fabrics also compare with 'Trent Valley' ware (Todd 1968a) but the distinctive Trent Valley ware forms were not present in the fieldwalked collection. This fabric group is also present at Doncaster (Buckland and Magilton 1986 fig. 38 nos 149–152; Leary 2004), Lincoln (Darling 1999, 87 IAGR), north Lincolnshire (Catherall, Leary and May unpublished) and along the Fosse Way (Todd 1968a) but not at Derby Little Chester or Strutt's Park.

The most distinctive early form present is the rare cordoned neck jar in GTA4 from Hayton C8A. This form has recently been discussed (in Leary 2001, 112–3 and Leary forthcoming a) and parallels cited throughout Nottinghamshire, as far north as Pickburn Leys, South Yorkshire (Sydes 1993, fig. 41 vessel 2), west to Ockbrook, Derbyshire (Leary 2001, fig. 6 no. 20), east to Rampton (Ponsford 1992, fig. 19 nos 4, 7 and 8 where it is thought to develop into the split-rim jar form of the 2nd–3rd centuries, and south to Holme Pierrepont, Nottinghamshire (Guilbert, Fearn and Woodhouse 1994, fig. 3), found in contexts dating from the mid-1st century BC to Conquest period. This type dates to the very end of the Iron Age but does not seem to have continued in use far beyond the mid-1st century AD.

Most of the grey ware is broadly datable to the 2nd–4th centuries. A small number of sherds could be dated to the late first to early second centuries (date group 3, Fig. 10). These comprised grey ware copies of the early 'native' jars, CTB and GT deep bowls in better fired, sandier fabrics, and grey ware carinated bowls and short, everted-rim jars of a type common in Flavian-Trajanic groups (*cf*. Dool *et al*. 1985, table 4 no. 3, table 6 no. 65 and table 7 no. 66). All of these forms could be expected to survive as late as the early Antonine period, so it is extremely difficult to reconstruct the ceramic repertoire for this period from fieldwalked assemblages, but, such evidence as there is suggests the 'romanization' of 'native' forms and the addition of new types such as the everted-rim jar and carinated beakers. No kiln groups of this date have been uncovered in the immediate area. Although the kiln structure at Raymoth Lane was dated to AD 60–110 archaeomagnetically, on typological grounds the vessel sherds were thought to be of slightly later deposition in the early–mid second century in a redundant feature (Darling 2004, 42). Small quantities of pottery of late first–early second century date in a comparable range of forms and fabrics were recovered at Dunston's Clump (Leary 1987, 44, fig. 17 II–III and table 2). At Scrooby Top (Davies 2000) similar pottery was recovered and it was suggested that the shift from locally made pottery by non-specialists, to centrally produced grey wares, took place at the beginning of the Antonine period when the Rossington Bridge kilns commenced and this was accompanied by the arrival of other wares such as traded pottery. This picture seems to be generally true for the study area where only small numbers of late first–early second century grey wares, samian and other fine wares, were identified. A similar pattern is found in South and West Yorkshire (Evans 2001b, 174–5) where traded wares, such as Verulamium mortaria and a South Carlton flagon, are uncommon and military types, such as rusticated wares, unusual.

From the mid-second century much of the pottery was grey ware and could not easily be sourced. The forms present were comparable to those made in the South Yorkshire kiln group, but similar forms also appear at the kilns situated in the Trent Valley at Little London, Newton-on-Trent, Lea and at Raymoth Lane near Worksop. One of the most common and distinctive forms, the deep bowl/jar, developing from the CT and GT versions in the earlier Roman period, was also made at these kilns (Little London, Oswald 1937, nos 96–109; Raymoth Lane, Darling 2004, nos 26–34; Lea and Newton-on-Trent, Field and Palmer-Brown 1991, fig. 16 no. 49 and fig. 17 no. 20 respectively) and compares with a type common in Antonine contexts in north Lincolnshire (Stead 1976, fig. 83 no. 87). The form contrasts with the wide-mouthed jars common in Lincolnshire in the third and fourth century (Todd 1968b, types 1 and 2), Derbyshire (Leary 2003a, fig. 11) and in south Nottinghamshire sites such as Margidunum (Oswald 1956, PL. II, no. 1) but was still present in the South Yorkshire kilns (Buckland *et al*. 1980, type Hc-d). The other common forms: flat-rim dishes/bowls and everted-rim jars are very widespread types but compare closely with the vessel forms made in the South Yorkshire kilns (Buckland *et al*. 1980, types Ca and Ea) or at the Trent Valley kilns (Oswald 1937, nos 67–76 and no. 86, Field and Palmer-Brown 1991, figs 15–17) although flat-rim dishes may be less common at Little London because of its later date. Darling noted dishes were uncommon at Raymoth Lane, Worksop (Darling 2004, 40). The few narrow-necked jars are of the large jar type F made in the South Yorkshire kilns (Buckland *et al*. 1980) rather than the narrow-necked jars of the East Midlands burnished ware (Todd 1968b, types 4–5) and exemplified at Little

London (Oswald 1937, nos 9, 11, 18–20). Other grey ware forms can also be paralleled in the South Yorkshire and Trent Valley kilns such as the split-rim jars, the colander, the carinated beaker and sherds of folded jar or beaker (Buckland *et al*. 1980, Ec and Ha, and *cf*. Oswald 1937, nos 117, 47, 53 and 58; Field and Palmer-Brown 1991, table 1 and fig. 15 nos 13–16, fig. 16 nos 29, 35–8 and fig. 17 no. 9, 14, 15; Darling 2004, nos 35, 47–9, 65 and 86 with colander and folded bodysherds present). There thus seems little doubt that the pottery from the brickwork-plan field-system area was in a tradition strongly influenced by the South Yorkshire industry with traits drawn from North Lincolnshire as well as the late Iron Age ceramic tradition of the Trent Valley and adjacent region. More scientific analyses of the fabrics in future may permit vessels to be attributed to kiln sites.

These grey wares were supplemented by more easily identified traded coarse and fine wares such as BB1, Dales and Derbyshire wares, colour-coated wares and white wares with imported samian and amphora. Much of these categories were too sparsely distributed to make much of the pattern. However, a slight distinction could be detected in the distribution of Derbyshire and Dales ware with Dales ware concentrated in the north and Derbyshire to the south. The BB1 ware was mostly to the north but, in addition, was found only on sites also yielding samian, except for one instance (Fig. 37). This may indicate that this ware was distributed using the 'samian network' rather than the coarse ware 'network'. The Antonine forms in this ware are likely to come from the kilns at Rossington Bridge, Doncaster. Flagons are also limited to the north and are very uncommon (Fig. 37). Mortaria was spread throughout the study area and comprised vessels from the Mancetter-Hartshill potteries near Coventry, two vessels from the kilns at St Albans and unidentified vessels, probably from local or South Yorkshire kilns. Samian was absent in the far south. This may have been linked to the remoteness of the sites from fort sites such as Doncaster although Nene Valley ware was concentrated in the south. Nene Valley colour-coated ware was uncommon but more appeared in the south than the north where it was restricted to Mattersey B28 and Hodsock A11 (Fig. 37).

Thus the overall distribution of the pottery confirms the large local north Nottinghamshire/south Yorkshire element in the assemblages and suggests at least two other distribution patterns: a north–south division of the market for late lid-seated jars such as Dales ware in the north and Derbyshire ware in the south and a possible spread of BB1, samian and possibly flagons from military centres such as Doncaster. The Nene valley colour-coated wares were also concentrated in the south, nearer to their source. The distributions reflect to some degree access by road using the Doncaster–Lincoln road in the north (Margery 1967, fig. 7a; Bishop n.d.), the Mansfield to Bawtry road passing near Hodsock A11 (Walters 1910, 10) and the two short stretches of undated cropmark road at the southern limit of the study area near Ollerton (Deegan 1999; Fig. 37). River access may also have facilitated the movement of pottery via the Fossdyke and Car Dyke from the Trent Valley, Lincoln and Nene Valley kilns. The distribution is not even along these routes and it is clear that the traded wares tend to be restricted to more complex and long-lived sites. However, as illustrated above (p.34) fieldwalked pottery does not always reflect ceramics in the underlying features, as in the case of Scrooby Top, and the ceramic debris in those features can be spatially limited to confined areas of those features, as at Horse Ings (p.91). Such considerations would result in a data set that only gives us a partial plot of the ceramic distribution and of the ancient distribution of specific wares. These interpretations are extremely tentative due to the small sample but could be re-assessed as further work is carried out.

Direct comparison of this supply pattern can be made with the rural settlements in areas to the north around and beyond Doncaster, to the south along the Fosse Way, south and east in the Trent Valley and to the west at Bolsover as well as at the forts and towns outside the study area. In terms of high status goods such as imported samian and amphora the study area compares well with rural sites in adjacent areas (Fig. 35). The groups from Parlington Hollins, South Yorks, Bolsover, Derbys and Glebe Farm, Notts have more samian ware, although still within the norm for rural northern sites (Evans 2001a), but Parlington Commons also

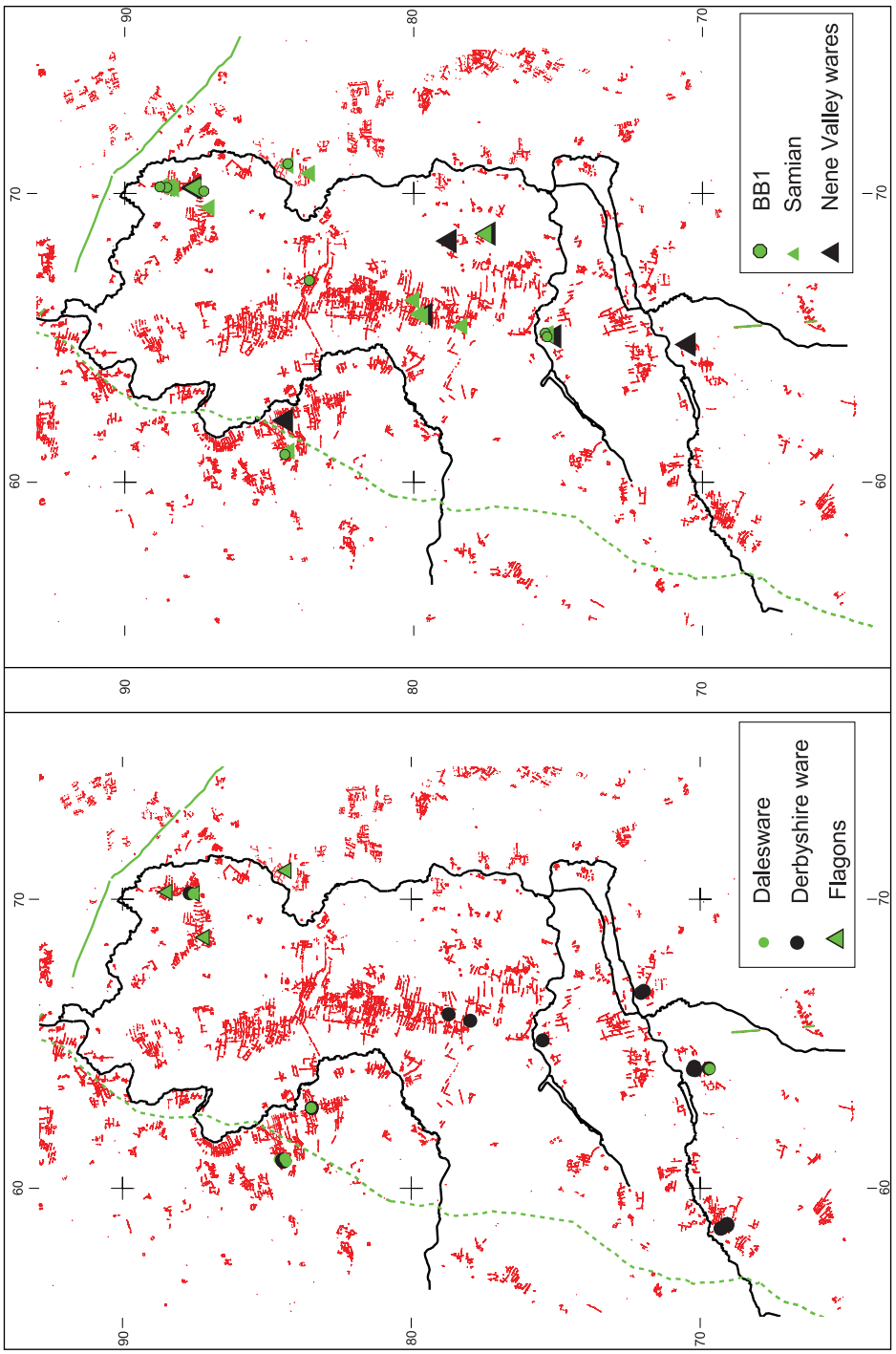

FIGURE 37: Distribution of Derbyshire, Dales ware and flagons (left), with BB1, Samian and Nene Valley wares (right). Probable and possible Roman roads in green: Lincoln-Doncaster (continuous); Mansfield-Bawtry (Leeming Lane, dashed); undated cropmarks near Ollerton (short green lines in southern part of map). Scale 1:250,000.

had more amphora setting it aside as a higher status rural settlement in south and west Yorkshire (Evans 2001b), Glebe Farm was on the outskirts of the small town at Brough-on-Fosse (Leary forthcoming b) and therefore also likely to have a richer ceramic assemblage. The distribution of Nene Valley traded fine wares in the study area was concentrated in the south of the region and this trend can also be in the adjacent regions where sites such as Holme Pierrepont and Brough-on-Fosse, in south Nottinghamshire and on or near the Fosse Way, have larger quantities. The larger amount at the late group from Bawtry (Leary 2006a) illustrates a chronological trend, reflecting increasingly wider distribution of Nene Valley wares at that time.

The coarse ware analysis (Fig. 36) shows the study area as heavily dependent on grey wares, most of which could have been obtained within the Nottinghamshire/South Yorkshire region. The Dales ware element at several of the Yorkshire, north Nottinghamshire and Derbyshire sites is likely to result from the later date range of those settlements which continued into the later third century and early fourth century. Although Dales ware types were made at the Trent Valley kilns, most of the CTA2 group are likely to be of north Lincolnshire/Humberside origin and represent a change in the supply of coarse wares. The supply of BB1 seems to also reflect chronological differences with more BB1 (as much as 8% at Parlington Hollins) at the later sites in south Yorkshire where a Dorset source is likely. The shortage of BB1 on the earlier Nottinghamshire and Yorkshire sites suggests that the Rossington Bridge BB1 was not distributed in the surrounding area to any great extent. Even at Doncaster High St the quantity of BB1 in the Hadrianic-Antonine groups when Rossington Bridge kilns were operating is half that in the following period (Table 9, Leary 2004). In Derbyshire, Derbyshire ware took the place of grey ware as the dominant coarse ware and in Yorkshire the East Yorkshire grey and calcite-gritted wares acquired at least 40% of the market in the fourth century. The low numbers or lack of both Dales ware and the East Yorkshire wares in the study area along with the small amounts of fourth century pottery may indicate a change in settlements at this time. Evans noted a lack of late fourth century ceramics on settlements in south and west Yorkshire in 2001 and suggested economic distress at that time (Evans 2001b, 175). Recently sites of this date have been found near Ferrybridge (Leary 2007b), Bawtry (Leary 2006a) and Wattle Sykes (Leary in prep.) and their nature suggests that the East Yorkshire wares were reaching these areas. Unpublished groups at Bawtry and Gringley-on-the-Hill (examined by author at Sheffield Museum) suggest that in north Nottinghamshire the ceramic repertoire of the later fourth century were largely made up of shell-and grit-tempered lid seated jars, Nene Valley wares, some South Yorkshire type grey wares and small amounts of East Yorkshire wares. The evidence from the Ferrybridge sites indicated a decline in the amounts of South Yorkshire products reaching rural settlements in the early to mid-fourth century in favour of East Yorkshire products (Leary 2007b).

In terms of the coarse ware types, unsourced by fabric, the vessel typology discloses links with the North Lincolnshire kilns (North Lincolnshire type deep bowl with club- rims), the South Yorkshire kilns (Buckland *et al*.1980, types E everted and lid-seated jars, F constricted mouth jars and H deep bowls and wide-mouthed jars), the Derbyshire kilns (Derbyshire cupped- and hooked-rim jars, Kay 1962), the Lincolnshire kilns (Swanpool types such as the inturned flanged bowl, necked wide-mouthed jars with bead rims and double lid-seated rim jar, Webster and Booth 1947, types D13–23, D37–43 and H) and the Trent Valley (Dales ware type jars and bifid, rebated-rim jars like those from the kilns at Little London, Oswald 1937, nos 12B–13B, 116 and 9–19). It is clear that all these areas were contributing to the ceramics of the study area either through exchange of pottery vessels or, in some cases, of ideas to local potters. The study of excavated groups and analysis of pottery fabrics will enhance our understanding of this network of exchange.

Compared with the surrounding towns and forts (Table 9), the rural settlements in the study area have very few traded wares and depend heavily on locally produced coarse wares. Detailed evidence suggests that the rural settlements were only able to obtain small amounts of fine or traded wares and

TABLE 9

Sherwood Sandstone: relative quantities of wares from the study area (by sherd count) compared with military and urban settlements. Sites (along top), their codes and dating as Table 8. Ware codes described in Appendix 3 with GW = GRA, GRB, GRC; O = OA, OB; MOR= M1, M2, M3; AMP = Dr20 amphorae.

Proportion of wares (using sherd count)	*N Sherwood S*	*Y Doncaster HS 2*	*Y Doncaster HS 3*	*N GlebeFarm, Brough-on-Fosse*	*Derby Little Chester D3*	*Derby Little Chester D4*	*D Brough-on-Noe*	*Lincoln 9/2*	*N Sturton LS*
FLA	0.2	7.5	17.7	-	11.0	9.0	2.0	8.0	0.5
BB1	0.3	7.0	14.6	5.8	8.0	16.0	6.0	2.0	-
GW	90.0	49.4	52.3	55.8	60.0	35.0	27.0	56.0	81.0
CTA2	0.4	0.1	-	21.7	-	1.0	0.1	4.0	2.0
DBY	1.0	-	1.2	0.2	4.0	26.0	34.0	-	-
O	0.9	5.0	0.7	0.7	-	-	9.0	2.0	2.0
NV	0.3	0.9	1.5	11.8	-	1.0	1.0	16.0	5.0
TS	1.1	5.0	3.9	2.6	7.0	6.0	10.0	6.0	5.0
AMP	0.3	17.0	3.7	0.2	6.1	3.0	2.0	1.0	1.0
MOR	2.1	1.4	1.5	0.7	2.0	2.0	6.0	1.0	1.0

proximity to a road, river or fort along with either greater disposable income or a greater desire for Roman vessels. Further detailed work on site assemblages may shed further light on the relationship between town, fort and country. The distribution patterns suggest there are differences in the make-up of assemblages from the north and south of the study area and these may reflect differences in the pottery reaching the main centres in those regions. So the larger amount of Nene Valley ware in the southeast quarter of the study area accords well with the greater quantities from Lincoln and Sturton-le-Steeple to the east and Glebe Farm at Brough-on-Fosse to the south. The northwest/southeast divide for Dales ware and Derbyshire ware is in agreement with former work on the distribution of these wares (Loughlin 1977, fig. 11). Other lid-seated jars were used in the study area, along the Trent Valley and in South and West Yorkshire. The grey lid-seated jars in Yorkshire were the most common type in the late second–third century (Swan 2002, fig. 12 no. 158) whereas in the Trent Valley the bifid, rebated rim jar, commonly with a rilled body (Swan 2002, fig. 12 nos 159–60) was very common. Both these types of jars were present in the study area, which were obtained from a wide range of sources both locally and in adjacent areas. The study area clearly lies on the border of several stylistic ceramic zones and acquired pottery from all the adjacent areas. The military/urban exchange network affected what was available in different areas but, as with other rural settlements, fine tableware and luxury traded goods were largely absent. Most of the ceramics date to the mid-second to third century and this may reflect differences in the nature of the settlements and/or the availability of ceramics at that time.

COMMENTS & DISCUSSION (DG)

The issues that seem to emerge from the previous sections are discussed below, bearing in mind caveats outlined above, *viz*. the single episode of fieldwalking, the fragility/rarity of some pot types, and the possibility that some activities did not include pot use/discard. The following observations are offered for future testing.

1) Of the cropmark sites with more than ten sherds, all bar one produced 2nd–3rd century types (date groups 4, 5) and non-diagnostic Romano-British sherds (date groups 8, 9: Table 5). This pattern is also detectable in the sites that have produced less than ten sherds. So, **this cropmark landscape is certainly Romano-British in use** (see

also Appendix 2 for a summary of dating from excavations), though the dates of its inception and demise are rather more problematical.

2) The **inception of this cropmark landscape** is more difficult to assess from fieldwalking evidence, because we are dependent upon material almost entirely derived from the enclosures (not the fields – see below) and the earlier pottery tends to be not only more fragile than the later, Romanized, wares, but also less closely datable (Appendix 4). Despite this caveat, early sherds of date groups 1 or 2 (Late Iron Age and 1st-century 'native' forms) were recovered in twenty of the fieldwalked areas, covering most of the area studied (Fig. 10). Most of these sites have also produced later potsherds, and half developed into long-lived sites with a high diversity of pot types. It is therefore hardly surprising that all bar three of the cropmark enclosures with early pottery are *developed* or *complex* types (Classes 3-4 and 3-5, Table 2).

Where the Roman road between Lincoln and Doncaster cuts across 'nuclear' and 'irregular' fields at Rossington, just to the north of our study area, Branigan (1989, 163–4) followed Riley's lead (1980, 25–26), suggesting an early phase of settlement (1st-century BC/AD) located within nuclear and irregular field-systems with circles/roundhouses, followed by a 2nd-century infilling with brickwork-plan field-systems, extending over the spine of the Sherwood Sandstone. This hypothesis is not supported by the evidence from the excavations on the Sherwood Sandstone spine at either Scrooby Top (Robbins 2000, 83–5) or Dunston's Clump (Leary 1987, 44), where 'native' types of the 1st-century BC/AD form the earliest datable groups. Neither is it supported by the finds from fieldwalking, which collected these 'native' types (date groups 1 and 2, Fig. 10) all across the area studied here.

If the cropmark circles are correctly interpreted as roundhouses, then the enclosures containing them might relate to some of the earliest activity within these field-systems (but note 4th-century coins and pottery associated with a 'roughly circular cobble floor' thought to have represented a roundhouse at Gringley, Notts, Bartlett, 1956; *cf.* Hingley 1989, 34; King 2004, 348). In three of the instances where cropmark circles/roundhouses lie within enclosures (Barnby Moor B3D, Fig. 23; Babworth B32N, Fig. 28; Perlethorpe E4C, Fig. 32), variable ditch-alignments suggest longevity of use in a cropmark palimpsest. No material of early date was located within those three enclosures (though single sherds of early pot [respectively date – groups 2, 2 and 1] were located close by), but it has been remarked above (p.33) that their absence from fieldwalking-collections cannot be reliably construed as absence from the site.

By gaining some evidence for the earliest pottery from a wide range of enclosures across the area studied, this fieldwalking does contribute in a minor way to the issues of inception and economic organisation, despite the caveats above. Once the cropmark landscape is in use, the fieldwalking does give rather more robust data on how the enclosures that were integrated within the field-systems fared in terms of pottery supply, and this is explored below through an interpretation of the socio-economic development of the landscape over time.

3) RSL has identified around twenty pot-clusters that contained diagnostic sherds of a single date group, mostly of group 5 of the late 2nd to 3rd centuries AD (Table 5, Appendix 4). They occurred over all types of enclosure-group, with nine from enclosures classified as *developed* and *complex* types (Classes 3-4 and 3-5, p.27). All bar two of the pot-clusters from these enclosures also have low diversity scores. These nine groups are amongst the largest pot-clusters, so we can be reasonably confident that the restricted ranges do not merely reflect the recovery of a small number of sherds. This could represent an **expansion of 2nd-century types, mostly by local ceramics including few tablewares.** If this also represents an expansion in occupation, then it seems to be integrated within the wider framework of field-systems at Barnby Moor B5B and Warsop E7D (Figs 24 and 33), though the fragmentary cropmark record means that the relationship of enclosures to fields is not so clear-cut at other sites.

Inspection of Table 5 shows that five of these pot-clusters were found in two locations: two at Barnby

Moor B5B and three at Elkesley B33D+F. At the latter (Fig. 29), a fourth pot-cluster includes potsherds of date groups 2 and 5 (*i.e.* both 'native' and later 2nd–3rd centuries). Since this is the smallest pot-cluster here by far, this difference in datable sherds may not be merely due to the small number of sherds recovered. The pot-clusters at Babworth B36B, Perlethorpe E3 and Warsop E7 also have adjacent clusters that include date – group 3 sherds (late 1st–early 2nd centuries), suggesting an earlier focus nearby. These patterns could indicate an increase in discard reflecting the greater availability of these wares, new occupation, or a shift in the occupation/discard focus over time. This possibility of a shift in occupation/discard is perhaps supported by the evidence from Lound B22A, where the cropmarks are not overtly polyfocal, but where the Romano-British pottery scatter from fieldwalking came principally from the area of an enclosure lying adjacent to, and west of, that containing a roundhouse, which itself produced Late Iron Age and 'native' pottery in salvage excavation (Fig. 25). The possible polyfocal occupation of enclosures at Dunston's Clump (Appendix 2) and some of the field-systems to the north (O'Neill 2001b, 277) is also noted, though none on the Sherwood Sandstone appear to show the degree of agglomeration suggestive of 'villages' (*cf.* Millett 1990, 205), as perhaps represented in some enclosures along the Trent Valley and elsewhere within the region (Knight *et al.* 2004, 136–41; Taylor 2006, 150).

4) All types of enclosure-group include some examples that have produced either very small collections of pottery or none at all. However, those **with no sherds are overwhelmingly *single* enclosures** (Class 1; Fig. 13). Where *single* enclosures did produce pottery, it is predominantly ill-dated or had a restricted date-range – and this is also true of the *clustered* enclosures of Class 2. The recovery of fire-cracked pebbles over many of these enclosures (*e.g. single* Babworth B34A-B [Fig. 27] and Elkesley B33H, J [Fig. 30]; *clustered* Barnby Moor A13E [Fig. 22] and Lound B19H [Fig. 25]), suggests that the deposits have been truncated, so the lack of potsherds probably reflects a low density of these Roman wares over these enclosures, if not their absence. This demonstrates that the activities that produced Roman pot and fire-cracked pebbles were not necessarily the same, and suggests that *single* enclosures were used in a different way to the more complicated types of enclosure.

To the author's knowledge, the only *single* enclosure to have been excavated is the northern-most one at Dunston's Clump (also classified by Riley [1980, 37, his reference to fig. 6] as one of the many *single* enclosures scattered throughout the field-systems). Limited excavation suggested this enclosure could be dated to the pre-conquest period (Appendix 2; Leary 1987, 44). Given the relatively fragile pottery recovered by excavation there (date groups 1 and 2), it can only be surmised that, had it been fieldwalked, it might have been typical of the *single* enclosures in producing no, or virtually no, potsherds.

Whether the lack of Roman sherds reflects function and/or date, it is clear that these *single* enclosures (and perhaps the *clustered* enclosures too) fulfilled, or came to fulfil, a different purpose to those that were, or became, complex and produced the patterns of pot-discard that we associate with Romano-British habitation foci. There is functional variability in other cropmark landscapes (*cf.* Pryor 1996, 319–21; Roberts 2005, 212), so it should be of no real surprise that this was the case on the Sherwood Sandstone.

5) RSL discusses **the sources of the pottery** above. She identifies 'native' forms of pottery of 1st-century BC/AD date that are found widely throughout the region, and suggests that from the 2nd century onwards the bulk of the pottery recovered here was probably sourced from the north Notts/South Yorks kilns around Rossington Bridge. These grey wares were supplemented by wares from more distant sources, including late lid-seated jars such as Dales and Derbyshire wares, and a small number of tablewares like samian, flagons, and Nene Valley colour-coated wares (Fig. 37), perhaps reflecting access to military centres along Roman roads and waterways. The wares traded over longer distances tend to be restricted to the cropmark sites with long-lived pot-groups, though, as on other rural settlements, fine tableware and luxury traded goods seem largely absent.

6) This fieldwalking data set seems to confirm the evidence, initially recovered in excavation at Dunston's Clump (Leary 1987, 45), that some of **the cropmark enclosures go out of use, or at least do not receive diagnostic pottery, after the 3rd century AD**. This is most evident at the enclosures located on the broad spine of the Sherwood Sandstone, between the rivers Ryton and Idle, where the most coherent set of field-system cropmarks lie (Fig. 12).

If the distribution of enclosures producing pot of date groups 1, 2 and 3 (1st BC/AD–early 2nd centuries, Fig. 10) is compared with those producing pot of groups 6 and 7 (mid 3rd–4th centuries, Fig. 12), some overall patterns emerge, bearing in mind that the number of diagnostic datable sherds is very small. Most of the enclosures walked have produced some early pottery (Fig. 10), yet the diagnostic later pottery, at least some of which should be easier to recognise during fieldwalking (below), is generally absent, even in the larger groups (Fig. 8 – though RSL notes that some types could be late, but do not change typologically). There are only two sherds of diagnostic mid 3rd–4th century pottery from the central spine of the Sherwood Sandstone, where the cropmarks are virtually continuous and where many of the enclosures were walked (Fig. 12), so it seems highly improbable that we have missed the sites. This apparent rarity of diagnostic/traded later 3rd–4th century Romano-British pot is confirmed by the excavation evidence from the only two sites extensively excavated within this spine – Dunston's Clump (B32A Fig. 27: Leary 1987, 45) and Scrooby Top (Davies 2000, 44–6).

Fourth-century pottery was clearly reaching the region, since it is known from sites in Bawtry and Gringley on the Hill (both just to the north of the study area: Leary 2006a and examined by RSL at Sheffield Museum) and Newark (to the south, in the Trent Valley: Timby 2005, 56). Friable, hackly, Dales ware can be difficult to spot in fieldwalking, but no more so than the early 'native' calcite-gritted wares which were recovered, while the other diagnostic 4th-century pot-types – mortaria and colour-coat – should be spotted in fieldwalking with relative ease because their colour makes them more obvious than most of the items actually retrieved, such as grey wares. In addition, the recovery of a single 4th-century coin at Hodsock A11B (Table 6), suggests continuation of activity well into the 4th century within at least this enclosure-group, where this period is not represented by diagnostic pot-sherds (none of date group 7). Further, if pottery of this date were present, it should perhaps be better represented in the ploughsoil than earlier types, since it might derive from the latest/highest of any stratified deposits (*cf*. Leary 2001, 121). So, whatever the reason (cultural, access, cost, or change in use), this pottery is generally not reaching this landscape (*cf*. Lane 1993, 85; Evans 2000, 40).

7) There are a number of enclosures with access to a wider range/diversity of pottery (Fig. 15). These are spaced at much wider intervals across the landscape than are the enclosures producing only early material (compare Figs 10 and 15). When this pattern of enclosures with diverse pottery is compared with those that also produced diagnostic pottery of the mid 3rd and 4th centuries (Fig. 12), the similarity is remarkable, even recalling the small number of sherds in these later groups. Along the spine of the Sherwood Sandstone, where the cropmarks are virtually continuous, the enclosure-groups are distributed at *c*. 1km intervals (Garton 1987, 65), but those that produced both **long-lived and diverse pot-groups in fieldwalking are spaced at 5–6km intervals** (Figs 14, 15). The implications seem to be that, of the original distribution of enclosures, many may not have received traded pottery after the beginning of the 3rd century and that a smaller number of widely-spaced enclosures continued in occupation. These enclosure-groups are all of Class 3, and include *simple* (three examples, *e.g*. Haughton F4A, Fig. 34), *developed* (three examples, *e.g*. Perlethorpe E4C, Fig. 32), *complex* (seven examples, *e.g*. Hodsock A11B, Fig. 20; Elkesley D1B, Fig. 30) and unclassified forms (three examples, *e.g*. Mattersey B24, Fig. 25 which is almost certainly incomplete), so there seems to be no simple relationship between the complexity of the cropmark and longevity or diversity. Whether such changes might be interpreted as the development of a different social/wealth structure (particularly given the perceived aspirations of communities to the north and west *cf*. Millett 1990, 123, 157; Mathews

1997; Hingley 2004, 328), or perhaps a reflection of changing land-use patterns, is unknown. Whatever the reason(s), a reduction in settled enclosures probably from the later 3rd–4th centuries is also apparent in some cropmark enclosures associated with field-systems to the north (Roberts 2005, 216).

8) When plotted against the **geological superficial deposits (including glacial tills and alluvium)**, it is noticeable that many of the diverse and long-lived pot-groups occur on these deposits, rather than on the Sherwood Sandstone (Fig. 15: this correlation of a coherent block of field-systems with sandy boulder-clay, which would have improved the agricultural value of the land, was also noted by Riley 1980, 63). It is suspected that the glacial tills are more extensive than mapped, particularly given the broad nature of the available geological mapping at scale 1:50,000, together with the fact that superficial deposits less than 1m thickness are not mapped (A.J. Howard *pers. comm.*). If so, sites like Elkesley D1, Haughton F4, Hodsock A11, mapped in the gaps between tills and alluvium (none more than 400m across), may also actually be located on superficial deposits. Of these diverse and long-lived pot-groups, only Warsop E7 and Perlethorpe E4 lie well away from the alluvium confined within the Meden valley-floor. These superficial deposits would be more moisture-retentive than the free-draining Sherwood Sandstone, so could it be that these damper – and therefore possibly richer – agricultural soils are one of the reasons for these longer-lived and more diverse groups of pot?

It should also be noted that the two collections which dominate in terms of collection size, longevity and diversity of pottery, and the recovery of other artefact types (*i.e.* Hodsock A11 and Mattersey B28), are both on the edges of some of the most extensive alluvial spreads within the area.

9) Where field-systems located at some distance from enclosure-cropmarks were fieldwalked, Romano-British pottery was scarce (*e.g.* Mattersey, Fig. 26; Barnby Moor, Fig. 23), and this is supported by the small amount of pottery recovered from excavated cuttings across field-ditches (Samuels and May 1980, 77–9; Chadwick 1999, 162; East Carr, Mattersey, unpublished). The clusters of potsherds seem to be largely confined to the enclosures (p.59), even where the pot-groups are long-lived (*e.g.* Hodsock A11B, Fig. 20; Mattersey B28C, B22–24, Fig. 26). Whatever the **agricultural regime relating to the cropmark landscape, manuring from debris containing pot generated within the enclosures does not appear to have been undertaken**. This is also true of the fire-cracked pebbles, which seem to be generated by activity within the enclosures (not always in the same areas as the pot-clusters p.58), but they too were evidently not removed from the enclosures onto the fields.

In the medieval period, the spread of pottery onto fields is documented as having resulted from manuring with domestic debris (Lamond 1890, 19–23; Woodward 1990, 253–8), and, as such benefits are known to the Roman classical authors (White 1970, 23, 36), this was presumably appreciated by rural Romano-British populations (Fenton 1981, 210). The spread of pottery around Romano-British settlements is certainly known elsewhere, and is widely attributed to manuring (*e.g.* Maxey, Cambs – Crowther 1983, 40; Littlebury Green, Essex – Williamson 1984, 228; Maddle Farm, Berks – Gaffney and Tingle 1989, 210–16; Raunds, Northants – Parry 2006, 81–3, 273).

So, is the lack of Romano-British pot on the fields of the Sherwood Sandstone cropmark landscape due to a lack of manuring with organic waste, or is there some other reason? For potsherds to be incorporated into manure taken onto fields away from habitation, at least three conditions must apply:

a) animals were confined and/or human waste was collected at specific locations within the enclosures (which might have included bulky plant materials like straw or heather along with faeces);

b) once pottery was no longer useful, it must have eventually been deposited in similar locations;

c) recognition of the potential of manure and investment in carting.

The recovery of pot-scatters around settlements as referenced above, suggests that the last condition does apply elsewhere in Roman Britain. On the Sherwood Sandstone, the multiplicity of small, ditched enclosures forming many of the cropmark groups does suggest separation of activities, of which intensive horticulture and animal-keeping are obvious possibilities (also recognised by Riley [1980, 39] who refers to some enclosures on the periphery of the cropmark-clusters as 'paddocks', though similar divisions elsewhere have been suggested to represent boundaries of social exclusion or demonstrations of status [Hingley 1990, 101–2], and structuring the use of social space [Chadwick 2004, 95]). These activities may not leave much archaeological trace, particularly for fieldwalking. However, there does seem to be some evidence that pot-discard was focused into midden areas or dumps in ditch-fills (hereafter both termed 'middens' for brevity) at the enclosures excavated (*e.g.* Dunston's Clump [Garton 1987, 33], Edenthorpe [Chadwick and Cumberpatch 1995, 43–5], Scrooby Top [Davies 2000, 44–8; Chadwick 2004, fig. 2], Horse Ings, Mattersey [unpublished]), with additional examples in Yorkshire cited by Chadwick (2004, 98, 102), where this might be supported by the evidence for separation of different bone types, as commented by Richardson (2001, 216). This pattern of discrete midden areas perhaps correlates with the pattern of localized artefact clusters recovered by field-walking, which are rarely spread over the entire enclosure-group (Figs 20–34, and particularly 28, 29, 32). It is unfortunate that the generally poor preservation of organic remains means that the original content of the excavated middens is unknown; at Scrooby Top and Horse Ings the middens included high densities of fire-cracked pebbles (Davies 2000, 34), but not much charred plant material (which was probably derived from different activities than those which generated organic waste). The very fact that these middens survive to be excavated within enclosures shows that such material was not removed off-site, though this might reflect many things, including the content of the midden/dump (and thus its potential soil-improving qualities) and contemporary attitudes to the disposal of 'rubbish' (*cf.* Hill 1995, 125–6; Fulford 2001, 216).

The very localized pattern of artefact-clusters on the Sherwood Sandstone does not even encourage discussion of manuring of a set of infields adjacent to settlement, as interpreted for the Romano-British enclosures at Moor Pool Close, Rampton, Notts, in the Trent Valley, some 12km to the east (Knight *et al.* 2004, 143). As already pointed out, the pattern on the Sherwood Sandstone also contrasts with that at South Muskham, Notts in the Trent Valley (some 25km to the southeast), where the Romano-British pottery-scatters did not cluster within the cropmark-enclosures (Garton 2002, 33–4). Where extensive areas have been fieldwalked to the west of the Sherwood Sandstone, there is some similarity in that Romano-British potsherds tend to be rare (Elmton, Derbys some 12km away – Knight *et al.* 1998, fig. 6; the high plateau of the White Peak, Derbys, some 45km to the west – Garton and Malone 1999, 199–200).

A similar pattern of recovery, in that the density of sherds outside any clusters was tiny or absent (in nearly half of the areas walked), has also been noted for the medieval pottery recovered during the same fieldwalking episode on the Sherwood Sandstone (Garton 2007, table 4). This is thought to have reflected the documented infield/outfield regime (Holdsworth 1972, lxviii; Fowkes 1977; Beresford and St Joseph 1979, 45–8), where the outfield was managed as extensive sheepwalk with intermittent brecks or enclosures (Garton 2007, 29), but this does not seem to resonate with the division of the Romano-British landscape into small fields, which suggests a very different agricultural regime.

Consideration of several factors, including the theoretical areas farmed from the enclosures, the potential agricultural productivity, and the man-power required, led Hayes (1981, 118), followed by Branigan (1989, 164), to suggest a basically pastoral economy, with the scarcity of surface water favouring sheep, rather than cattle. This interpretation is commended by the traditional medieval uses of this area (above), and the general lack of pottery (manuring) scatters on the fields. The changes in pottery use/discard outlined above suggest that this was not a static pattern of land-use, and this may have implications for the ways this

land was farmed through the period illuminated, however dimly, by the fieldwalking record.

10) When this fieldwalking project started in 1984, the **concepts underpinning this field-walking** seemed straightforward enough. For individual enclosures it was initially thought that the scatters would be a reflection of the activities within/outwith them (given the caveats of function and date outlined above p.32), but consideration of the only two extensive excavations within the brickwork-plan landscape has shown that, because of the undulating topography and colluviation (above p.34), this simple deduction could not have held true, even without the variables of pot-usage and discard. So within any enclosure-group, fieldwalking evidence must be regarded as inconclusive even for consideration of the locales of habitation/domestic activity as compared with non-pot-using activities like animal-keeping.

On a wider scale, it was supposed that, broadly, the amount, range and extent of Romano-British artefacts would indicate something of the wealth and status of the occupants of the enclosures, with villas representing a rural elite (*cf*. Gaffney and Tingle 1989, 239). Villas are lacking in the cropmark record on the Sherwood Sandstone, though they are no longer necessarily seen as directly reflecting agricultural productivity (Millett 1990, 94–101). However, because of this lack of obvious Romanized buildings, it was initially thought that the outcome of this project might be some visible ranking in the pattern or complexity of the cropmark-enclosures, or in the composition of the artefact-scatters, and that these might be interpretable in terms of the socio-economic hierarchy within the rural landscape. There are patterns which can be described in terms of expansion and contraction of settlement (above), and, since the sites which continued to access pottery from the early 3rd century onwards were also mostly those with the tablewares and imported wares (above – some of which also included some Roman building materials), this perhaps hints of some differentiation of wealth, or at least choice in access to pottery. However, this is not identifiable in our characterization of the cropmarks, and RSL comments (above) that the non-local tablewares seem as rare here as in other rural settlements of the region (*cf*. similar comments by Lane [1993, 84–5] on the Lincolnshire northern fen-edge). To the north and west of the Sherwood Sandstone, it has been suggested that, although it was in plentiful supply, the occupants of rural sites were not choosing to use pottery or to display their wealth in such a way (Millett 1990, 123, 157; Taylor 2001, 49, 56; Hingley 2004, 328); and this may be one element, not anticipated initially, which needs to be considered in any interpretation of pottery-scatters across these cropmark-landscapes (*cf*. Evans 2001a, 28; Evans 2001b, 173). Where access to pottery was limited for whatever reason, less of it will be broken and discarded, giving less opportunity for recovery in fieldwalking, impacting upon our interpretations of any 'settlement' and any 'manuring' scatters recognised (above), and on future methodologies and expectations (*cf*. Willis 1999, 85–90). In short, in any future fieldwalking to investigate *this cropmark landscape*, it would be advisable to search initially at much wider intervals, so as to locate the scatters, then rewalk any scatters or clusters more intensively to collect larger groups of artefacts for analysis, recognising that, on the Sherwood Sandstone, manuring is unlikely to be identified by proxy. In addition, a study of the metal-detector finds reported to museums and to the Portable Antiquities Scheme (Worrell 2007), might help to refine chronologies of occupation (*cf*. Taylor 2006, 139). However, this project has demonstrated that, despite the generally small numbers of sherds recovered, there are wide-scale changes in the pottery identified over the Romano-British period, which will have been related to equally wide-scale dynamics of settlement and agricultural land-use.

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APPENDIX 1

Sherwood Sandstone: Romano-British artefacts by cropmark type and Area walked

This appendix gives the numbers of artefacts from each fieldwalking Area (p.31) ordered by the morphology of the cropmarks (Table 2).

Cropmark morphology (Table 2)	*Cropmark label*	*Area (p.31)*	*Hectares walked*	*Totals of*				*Parish*	*OS grid square*	*OS field number*
				Romano-British potsherds	*Metal*	*Quern*	*Fire-cracked pebbles*			
la: single curvilinear enclosure	A18A	34	10.60	0			4	BARNBY MOOR	SK6382	0063
	B32H	73	2.20	1			4	BABWORTH	SK6679	0013
lb: single rectilinear enclosure	A11D	108	3.00	16			21	HODSOCK	SK6284	2100
	A11D	107	1.20	16			2	HODSOCK	SK6284	5300
	B32B+	1	4.50	0			nr	BABWORTH	SK6680	0002
	B33A	69	8.00	0			0	ELKESLEY	SK6577	6100
	B34C	54	8.40	0			13	BABWORTH	SK6777	5881
	B5P	126	3.20	13			7	BABWORTH	SK6681	5500
	E1A	150	3.30	1			4	PERLETHORPE CUM BUDBY	SK6470	8643
	E7C	144	3.00	2			8	WARSOP	SK5869	9135
	F2A	132	1.80	3			4	HAUGHTON	SK6772	3600/5500
lb: single rectilinear enclosure × 2	B34A,B34B	50	5.30	0			20	BABWORTH	SK6777	3136
lc: single circle	D17	154	5.20	1			1	PERLETHORPE CUM BUDBY	SK6270	1700
1d: single double-ditched rectilinear enclosure	A13D	182	5.50	41		1	50	HODSOCK	SK6283	6640
1d: single double-ditched rectilinear enclosure + lc: circles × 2	B3A,B,C	134	8.50	0			16	TORWORTH	SK6586	5744/5633
2b: clustered rectilinear enclosure complex	A13G	198	8.30	3			6	BARNBY MOOR	SK6282	9145
	B43A	56	7.50	0			9	WORKSOP	SK6380	6700
2b: clustered rectilinear enclosure complex?	E7A	146	4.00	0			6	WARSOP	SK5969	1138
2d: clustered triple rectilinear enclosures, link + lb + lc	A2D,E,F	40	3.50	3			22	HODSOCK	SK6186	1845
2d: clustered triple rectilinear enclosures, linked	B32U	48	5.90	2			1	BABWORTH	SK6677	1851
2f: clustered single and complex rectilinear enclosures	A13E	197	2.70	6			23	BARNBY MOOR	SK6283	8300
	B34D	119	4.90	2		1	7	BABWORTH	SK6777	5838
	B48A	36	5.60	6			7	WORKSOP	SK5778	6046
	B50A	190	2.20	0			2	WORKSOP	SK5676	5817
2g: clustered single rectilinear + curvilinear enclosures	B19H	98	6.50	0		1	22	LOUND	SK6886	7700
	B1A	38	4.50	1			24	SCROOBY	SK6589	1749
	B1A	202	3.10	0			2	SCROOBY	SK6589	2134
	B39F	81	6.40	0			1	EATON	SK6977	4665
3a: simple rectilinear enclosure group	A11A	187	1.50	0			0	HODSOCK	SK6184	2463
	B21A	180	2.20	0			10	SUTTON	SK6985	1825/2925

Cropmark morphology (Table 2)	*Cropmark label*	*Area (p.31)*	*Hectares walked*	*Totals of*				*Parish*	*OS grid square*	*OS field number*
				Romano-British potsherds	*Metal*	*Quern*	*Fire-cracked pebbles*			
3a: simple rectilinear enclosure group	B32P	10	1.30	8			nr	BABWORTH	SK6578	5623
	B32S	12	13.40	8			8	BABWORTH	SK6578	3000
	B33I	67	3.00	6			2	ELKESLEY	SK6578	7100
	E7D	148	3.80	10		1	2	WARSOP	SK5869	9000
	E7E	178	8.60	34		1	53	WARSOP	SK5869	7300
	F4A	156	4.40	55			9	HAUGHTON	SK6671	6473
	F4A	184	6.30	46		1	12	HAUGHTON	SK6672	8000/7519
3b: simple rectilinear enclosure group + lc: circles	B28D+	25	5.60	101			108	MATTERSEY	SK7088	0043
3c: developed rectilinear enclosure group	B32Q	3	7.80	3			nr	BABWORTH	SK6577	7100
	B33J	63	2.10	0			13	ELKESLEY	SK6576	1560
	B33J+	65	2.40	9			33	ELKESLEY	SK6576	2400
	B36B	88	8.20	88		1	12	BABWORTH	SK6878	1700
	B5B	112	6.30	31			53	BARNBY MOOR	SK6683	9651
	B9A	79	3.30	0			4	EAST RETFORD	SK6983	0006
3c: developed rectilinear + 3b simple curvilinear enclosure	B19L,M	136	7.40	19			14	LOUND	SK6987	3800/5100
3c: developed rectilinear enclosure group?	E3A	160	4.80	57		2	10	PERLETHORPE CUM BUDBY	SK6470	0021
3e: developed mixed curvilinear and rectilinear	A20C	110	3.80	0			11	WORKSOP	SK6380	8500
	B32C	31	9.00	20	2		6	BABWORTH	SK6679	9400
	B32C	7	4.20	20			nr	BABWORTH	SK6579	6500
	B32N	15	3.80	47			4	BABWORTH	SK6578	5047
	B3D	165	6.90	16			28	BARNBY MOOR	SK6585	9999
	E4C	152	8.00	136		2	92	PERLETHORPE CUM BUDBY	SK6370	0001
3f: complex nucleated rectilinear enclosure group	B28C	17	5.60	203	1	5	115	MATTERSEY	SK7088	1937
3f: complex nucleated rectilinear enclosure group?	B7B	77	3.10	0			13	SUTTON	SK6883	3037/4187
3g: complex polyfocal rectilinear enclosure group	B32A*	158	2.20	84			nr	BABWORTH	SK6680	2400
	B5E	102	9.20	4			34	BABWORTH	SK6682	7000
	B5F	114	5.00	6			5	BABWORTH	SK6682	0047
3h: complex rectilinear enclosure group	A11B	45	4.30	212	1	1	46	HODSOCK	SK6084	8245
	A11B	168	14.40	82		4	92	HODSOCK	SK6184	0930
	B22A	86	5.70	17		1	16	LOUND	SK7087	0018/1340
3h: complex rectilinear enclosure group	B2A	171	4.70	4		1	3	RANSKILL	SK6687	1944/2220
	B32K	75	3.40	3			13	BABWORTH	SK6678	0065
	B33D	27	7.40	295			30	ELKESLEY	SK6776	2854

Cropmark morphology (Table 2)	*Cropmark label*	*Area (p.31)*	*Hectares walked*	*Totals of*				*Parish*	*OS grid square*	*OS field number*
				Romano-British potsherds	*Metal*	*Quern*	*Fire-cracked pebbles*			
3h: complex rectilinear enclosure group	B33F	29	6.10	57	1		17	ELKESLEY	SK6776	5113
	B3E	166	8.80	19		1	22	TORWORTH	SK6585	8100/8472
	B5I	142	3.80	21		1	28	BABWORTH	SK6682	6100
	B5I	32	5.00	23		1	32	BABWORTH	SK6681	8160
	B5I	140	4.90	28			53	BABWORTH	SK6681	8300
	D11A	195	2.90	0			0	BOTHAMSALL	SK6572	7173
	D1B	104	2.20	147			29	ELKESLEY	SK6575	0006
3i: Tiln-type complex	C8A	90	3.60	18		1	7	HAYTON	SK7084	9627
	C9A	192	5.50	6		1	5	HAYTON	SK7083	6659
3j: large rectilinear enclosure + concentric enclosures	B19F	92	8.60	15			29	LOUND	SK6887	6544
	B19F	21	5.80	12			11	LOUND	SK6887	3469
3o: disordered curvilinear enclosures	B39G	52	3.90	9			2	GAMSTON	SK6977	4623
	B39G	83	5.90	86			13	EATON	SK6977	4246
FS: brickwork-plan	All	94	6.00	4		2	15	HODSOCK	SK6284	0066
	A2	41	2.60	3			7	HODSOCK	SK6186	5027
	A20	118	9.30	1			18	WORKSOP	SK6481	0014
	B3	169	2.90	0			4	TORWORTH	SK6585	4879
	B3	170	2.50	4			1	TORWORTH	SK6585	2347
	B3	121	8.40	4			5	TORWORTH	SK6586	1200
	B3	162	8.80	6			3	BARNBY MOOR	SK6585	6900
	B4	204	6.70	0			0	BARNBY MOOR	SK6485	7800
	B4	203	1.90	0			0	BARNBY MOOR	SK6584	4000
	B4	164	2.20	2			4	BARNBY MOOR	SK6584	0084
	B5	116	2.00	0			0	BABWORTH	SK6582	8800
	B50	189	5.10	1			2	WORKSOP	SK5676	5532
	Dll	194	1.60	1			1	BOTHAMSALL	SK6573	5700
FS: fragmentary	B21+	100	4.30	31			49	LOUND	SK6885	9717
FS: fragmentary	B24+	96	5.90	55			12	MATTERSEY	SK7087	2461
	B38+	59	5.20	268	1		5	BABWORTH	SK6877	4667
FS: irregular	B19	71	4.80	3	1		19	MATTERSEY	SK6987	2500
	B28	47	3.90	24		1	56	MATTERSEY	SK7088	3853
no cropmark	+	205	1.40	0			1	BABWORTH	SK6879	0001
	+	209	2.60	0			1	BABWORTH	SK6879	6200
Unclassified group	B5D	61	4.10	0			45	BABWORTH	SK6783	0006

* Babworth B32A is the fieldwalking conducted over Enclosure 2 at Dunston's Clump prior to excavation: it was conducted by walking at *c*. 2m intervals with artefacts collected within 10m grid squares, so the results are not directly comparable unless reduced to mimic the 20% coverage of the later fieldwalking.
+ Inspection of air-photographs (by R Sheppard) shows sets of enclosures not mapped by NMP.

APPENDIX 2

Sherwood Sandstone: dating from large-scale excavations conducted within the study area (compiled February 2006)

Dunston's Clump, Nottinghamshire – a note on the dating and phasing of the enclosures relative to the field-systems

Most of the interior of the cropmark forming Enclosure 2, and the inter-relation of a field-system ditch to Enclosures 1 and 3, were investigated in 1981 (Garton 1987, 19–21; figure reproduced here as Fig. 38).

The relationship of Enclosure 2 to the field-system cropmarks seems clear: they are aligned, but the latest fills of the enclosure ditch cut through the field-system ditch, so the two were interpreted as broadly contemporary features (Garton 1987, 23). The earliest pottery (from phase I and II features) within Enclosure 2 was probably 1st century AD (Leary 1987, 45) and included 'native' types of our date group 2 (Appendix 4).

The relationship of Enclosures 1 and 3 to the field-system ditches was more complex. Examination of the aerial photographs of both soil and cropmarks (Garton 1987, Plates 1, 2) suggests that Enclosure 3 is not linked to the cropmark field-systems (*ibid*. fig. 2) even though the field-system ditch seemed to be heading pretty directly for its southern side (*ibid*. plate 2). Excavation confirmed that the field-system ditch actually bent to the south to meet the larger Enclosure (1) and then ran along its eastern side (*ibid*. fig. 15). The field-ditch, and recuts of Enclosure 1, contained a few 3rd century sherds (Leary 1987, 52), but there was *no dating evidence from the earliest deposits*.

The limited excavation through the ditch and interior of Enclosure 3 (Garton 1987, 41–2), suggests that this ditch was infilled with material from 1st century occupation (*ibid*. 41; which RSL attributes to date group 1 *i.e*. LPRIA [Appendix 4]), with the recovery of an *unstratified* decorated Iron Age sherd from the lower ploughsoil within its confines (*ibid*. 41, fig. 19, no. 48) also suggestive of pre-Roman occupation.

The reason for rehearsing this data here should be clear – it is one of the cropmark elements indicating chronological depth, and there is some indication of the date for inception (*i.e*. a field-ditch being laid out towards an enclosure ditch apparently filled by the 1st century AD). If so, then there is a LPRIA enclosure (3), an enclosure (1 undated) which was incorporated into the field-system sometime after its ditch had started to infill, and an enclosure (2) of the 1st-3rd centuries broadly contemporary with these field-systems (*pace* Branigan 1989, 163).

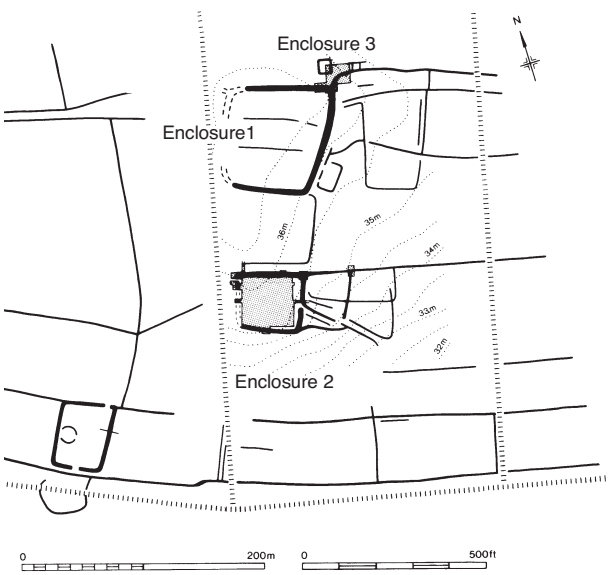

FIGURE 38: Cropmark plan of Dunston's Clump with Enclosures numbered. Reproduced from *Trans Thoroton Soc Nottinghamshire* 91, 1987, fig. 2, with permission.

Pickburn Leys, S Yorkshire

In addition, cropmarks just to the west of those published by Riley in 1980, were excavated at

Site name	*Cropmark landscape*	*Centred at SK*	*Fieldwalking*	*Geophysics*	*Excavation*	*Watching brief*	*Date range from excavations*	*Principal references*
Babworth, Dunston's Clump	B32A	662 800	+		+		1st BC/AD – mid 3rd AD	Garton, D. 1987
Lound, Chain Bridge Lane	B31B	707 858 705 860			+	+	1st AD – mid 3rd AD (topsoil find Corieltauvian silver coin 50BC-10AD)	Eccles, J. Caldwell, P. and Mincher, R. 1988 Garton, Leary, Malone & Southgate 2000.
Lound, Wild Goose Cottage	B22A	701 872	+	+	+	+	well early – late 3rd AD; enclosure + roundhouse PRIA – mid 3rd AD (in prep.)	Garton, D. & Salisbury, C.R. 1995
Mattersey, East Carr & Horse Ings	B28A	707 887	+	+	+	+	Horse Ings late 2nd – early 3rd AD (in prep.)	Morris, T. & Garton, D. 1998a Morris, T. & Garton, D. 1998b
Scrooby, Scrooby Top	B1B	652 891		+	+		1st BC/AD – 3rd AD	Davies G, 2000
Worksop, Menagerie Wood	B48A	577 784	+		+		late 2nd – 4th AD	Garton, D. Hunt, C. O., Jenkinson, R.D.S. and Leary, R.S. 1988
Worksop, Raymoth Lane	A17A	580 815			+		enclosure ditch later Iron Age-late 2nd, burials 3 – 4th AD	Palmer-Brown, C. and Munford, W. 2004
Retford, Glebe Farm	B9A	693 831	+		+		Iron Age + 2nd – 4th AD	Cox, C & Hurcombe, L. 1989

+ conducted as part of the project

Pickburn Leys, S Yorks (Sydes 1993) at SE534 067. Though on limestone, the character of the cropmarks are similar to those on the adjacent sandstone, in that an approximately square-ditched enclosure and linear 'trackways' with field divisions were noted prior to quarrying (Sydes, unpublished report in Sites & Monuments Record, South Yorkshire Archaeology Service). On excavation, further boundaries and partial circular structures were located (Sydes 1993, fig. 38). Sections through the enclosure ditch suggested that it had several re-cuts, with the first, which penetrated to its base, including substantial portions of two vessels together with bone (*ibid*. 37, fig. 41 vessels 1 and 2). Vessel 1 is LPRIA and Vessel 2 is a cordoned-neck jar which, on present associations, RSL suggests dates from the mid 1st-century BC to the Conquest period, and seems not to have continued into the second century (p.107, Appendix 4).

Note added in proof

Balby Carr, S Yorkshire

Excavations of part of an irregular field-system identified in cropmarks some 12km north-west of the Ryton–Idle confluence (SE586 004), have produced some evidence for the date of these field-systems. Wood fragments in the fill of a curvilinear ditch, which appeared to be contemporary with the second phase of a ditch forming part of a rectilinear field-pattern, were radiocarbon dated (Jones *et al* 2007, 20–3). Two samples, from the top and bottom fills of the curvilinear ditch, both gave dates spanning the first centuries cal BC/AD (*ibid*. table 1, part reproduced opposite).

Context	*Material*	*Lab No.*	*Radiocarbon date*	*Time period*
Top of ditch CD1 (F65)	Wood fragment	Wk-12979	1989±43BP	100 cal BC–130 cal AD
Base of ditch CD1 (F65)	alder	Wk-12978	1968±43BP	50 cal BC–130 cal AD

Jones, L. *et al*. 2007. 'Archaeological excavation of a brickwork plan field system at Catesby Business Park, Balby Carr, Doncaster, South Yorkshire 2002', *Yorkshire Archaeological Journal* 79, 17–54.

APPENDIX 3

Sherwood Sandstone: Romano-British pottery fabrics (RSL)

The pottery was examined by eye, using a x10 hand lens and a x30 microscope where necessary, and divided into fabric groups on the basis of their colour, hardness, feel, fracture and the type, quantity, sorting, shape and size of any inclusions. The vessel form, if known, and any decoration were recorded by reference to a type series being developed for the region. The archive comprises fabric descriptions; form type series with verbal descriptions, references to published parallels; pottery catalogue in Access database format; list of codes used in the pottery catalogue; quantification of forms and fabrics represented on the site, using sherd count and weight values and rim percentage values.

Fabrics

The sherds were examined rapidly by eye with selected use of an x30 binocular microscope and x10 hand lens. The sherds were divided into fabric groups (Fulford and Huddleston 1991, 41), such as grey ware or oxidised ware, with distinctive, known fabrics such as the Nene Valley ware and grog-tempered ware fabrics being given their own fabric codes.

Colour: narrative description only

Hardness: (after Peacock, 1977)
- soft – can be scratched with a finger-nail
- hard – can be scratched with a penknife-blade
- very hard – cannot be scratched with a penknife-blade

Feel: tactile qualities
- smooth – no irregularities felt
- rough – irregularities felt
- sandy – grains can be felt across the surface
- leathery – smoothed surface, like polished leather
- soapy – smooth feel, like soap

Fracture: visual texture of fresh break (after Orton, 1980)
- smooth – flat or slightly curved, with no visible irregularities
- irregular – medium, widely-spaced irregularities
- finely irregular – small, closely-spaced irregularities
- laminar – 'stepped' appearance
- hackly – large and generally angular irregularities

Inclusions:

Type: (after Peacock, 1977)
Frequency: indicated on a 4-point scale – abundant, moderate, sparse and rare, where abundant indicates the break is packed with a particular type of inclusion, rare indicates the break has only one or two pieces of that inclusion
Sorting: indicates the homogeneity of size of a type of inclusion
Shape: (after Orton, 1980)
angular – convex shape, sharp corners
subangular – convex shape, rounded corners
rounded – convex shape, no corners
platey – flat or concave

Size:

fine – 0.10–0.25mm
medium – 0.25–0.50mm
coarse – 0.50–1.00mm
very coarse – 1.00mm or greater

Fabrics

BB1: As Williams 1977 Black burnished ware category 1.

BSB1: Brown. Hard with sandy feel and irregular fracture. Moderate, well-sorted, medium-sized, subangular quartz; sparse, coarse, platey vesicles and buff inclusions. This fabric is likely to be first and probably early second century in date. Present also at Holme Pierrepont and Dunston's Clump.

CT: wares with calcareous temper, usually shell. It was difficult to differentiate early 'native' shell-tempered wares from Dales ware or other late shell-tempered wares.

CTA2: dark brown, sometimes with buff areas. Fairly soft, rough feel and laminar fracture. Moderate, ill-sorted, fine to coarse, platey voids and shell; moderate, well-sorted, medium-sized, subrounded quartz. Dales ware (Loughlin 1977). Certainly a fabric group with some variation in colour, quartz content and firing.

CTB: early shelly ware group

CTB1: grey or buff. Soft with rough feel and laminar fracture. Moderate, ill-sorted, medium to coarse, platey vesicles; rare, medium-sized, subrounded quartz.

CTB2: grey. Soft with smooth feel and laminar fracture. Sparse, ill-sorted, medium to coarse, platey vesicles; moderate, well-sorted, fine quartz.

CTB3: Grey. Hard with smooth feel and laminar fracture. Abundant, ill-sorted, coarse to medium-sized, platey white inclusions, shell. Smooth surface unlike CTA2. Date unknown.

CTB8: greyish brown. Hard with slightly sandy feel and irregular fracture. Moderate, ill-sorted, medium to fine shell; sparse, well-sorted, fairly fine, subangular quartz. Iron age.

DBY: Derbyshire Ware (as Kay, 1962).

Dr20: Dressel 20 amphora

FLA1: buff or cream. Soft, smooth feel with finely-irregular fracture. Sparse, medium-sized, subangular quartz; sparse, medium-sized, rounded, black and brown inclusions, probably iron oxides.

GRA1: grey, often with lighter grey core. Soft, smooth feel with smooth, often conchoidal, fracture. Rare, fine, rounded quartz; sparse or moderate, fine, well-sorted, rounded, brown or black inclusions, probably iron oxides. Compared closely to fine grey ware from Derby Little Chester kilns.

GRA2: Grey. Soft with smooth feel and finely irregular fracture. Moderate, well-sorted fine, subangular quartz; rare, ill-sorted, medium-sized, white inclusions; rare, fine, rounded black inclusions. General group of fine grey wares.

GRA6: grey with grey core and buff margins. Soft with smooth feel and fracture. Rare, fine, subangular quartz; sparse, well-sorted, fine mica. Includes Parisian ware and possibly is Elsdon 1982, fabric 2 but some sherds included here may originally have had darker surfaces and be GRA7.

GRA7: Grey with black exterior surface. Soft with sandy feel and finely irregular fracture. Rare, fine, subangular quartz; rare, well-sorted, fine mica. Parisian ware, originally with burnished black surfaces. Possibly Elsdon 1982 fabric 1.

GRA10: pale grey or brownish grey with darker grey surfaces. Fairly hard with smooth feel and fairly smooth fracture. Moderate, well-sorted, fine, subangular quartz; rare, coarse to medium-sized white inclusions.

GRB1: this is a large group of fabrics covering otherwise undifferentiated grey wares with moderate quantities of medium-sized quartz and sparse iron oxide inclusions. Only fabrics which can be reliably identified and/or linked to some other attribution such as form or stylistic group or kiln, are separated out from this category.

GRB1L: as GRB1 but separated out because of its' distinctive lead-grey burnished zones (*cf*. East Midlands burnished ware, Todd 1968b).

GRB2: Grey. Hard with slightly rough feel and finely irregular fracture. Moderate well-sorted, medium-sized, subangular quartz; sparse, ill-sorted, coarse to fine, platey shell and vesicles; sparse, fine, rounded brown inclusions. A similar and possibly identical fabric occurs among the kiln products of Little London.

GRC1: medium to light grey. Hard with rough feel and hackly fracture. Abundant, ill-sorted, medium to coarse subangular quartz; sparse, medium-sized, rounded, black iron oxides.

GTA1: reddish brown surface with brown-grey core. Hard, smooth or leathery feel with irregular fracture. Moderate, ill-sorted, very coarse, angular or subangular argillaceous inclusions, similar to grog.

GTA4: Grey to buff, often with lighter grey margins. Hard with slightly sandy feel and irregular fracture. Moderate, well-sorted, medium-sized, subangular quartz; sparse, coarse shell; sparse, coarse, rounded buff inclusions, probably grog; moderate, well-sorted, medium-sized, rounded, greyish buff inclusions, probably grog; sparse, medium-sized, rounded, black iron oxides. Used to make everted rim jars of Trent Valley ware type, sometimes with combed decoration. Trent Valley ware was dated by Todd (1968a) from AD 50–60 to at least the end of the first century. GTA4 is a rather sandy version.

GTA5: Grey-brown-buff, sometimes with reddish brown margins and dark brown or grey core. Sparse, ill-sorted, medium-sized shell; moderate, ill-sorted, coarse, angular, buff or grey grog; moderate, medium-sized, rounded, brown inclusions; sparse, medium-sized, subangular quartz. As GTA4 but less sandy and more typical of Todd's Trent Valley ware.

GTA8: buff or grey. Hard with slightly grainy feel and irregular fracture. Moderate, well-sorted, fine, rounded, opaque, quartz; sparse, ill-sorted, fine to medium-sized, white, laminar inclusions; sparse, well-sorted, coarse, angular grey and buff grog.

GTA10: light grey. Hard with slightly rough feel and irregular fracture. Sparse, well-sorted, fine, subangular quartz; sparse, ill-sorted, coarse to fine, angular and subrounded, grey and buff grog or some clay pellets; sparse, ill-sorted, medium to coarse, rounded black inclusions. Very like GTA8 except for colour.

M1: Mancetter-Hartshill with red/black trituration grits.

M2: Mancetter-Hartshill with black trituration grits.

M3: Verulamium region mortarium.

NV: Nene Valley colour-coated ware. NV1 is white with black or brown colour coat. NV2 is brown or orange with brown or reddish colour coat.

OAA1: As GRA1, but orange or pinkish orange.

OAB1: Orange. Soft, rough feel with irregular fracture. Moderate, medium-sized, well-sorted, subangular quartz; moderate, medium-sized, well-sorted, rounded, black or brown inclusions, probably iron oxides; sparse, fine, well-sorted, white inclusions.

OBA1: As GRA1, but buff.

OBB1: as OAB1 but buff.

OAC1: Orange. Hard, rough with irregular fracture. Moderate, coarse, ill-sorted, subangular quartz, often crystalline appearance suggesting quartzite; moderate, coarse, ill-sorted, rounded,

black or brown inclusions, probably iron oxides. Similar to 'pre-Derbyshire' ware (Brassington 1971, 59, Leary 1993, 120).

PQ2: medium quartz-tempered handmade fabric, compares with prehistoric fabrics.

PS1: medium, shell-tempered handmade fabric, compares with prehistoric fabrics.

ROX: Oxfordshire red colour-coated ware.

SL1: brown. Hard with rough feel and irregular fracture. Sparse, ill-sorted, medium to coarse, rounded, fuel ash slag; moderate, well-sorted, fine, subangular quartz.

TS: samian ware. SG: South Gaulish, CG: Central Gaulish.

APPENDIX 4

Sherwood Sandstone: definitions of Date Groups (RSL)

Fabrics are defined in Appendix 3.

Date Group 1

Very few prehistoric sherds were recovered but three fabrics (PQ, PS and SL1 above) are likely to belong to the Iron Age, probably late in that period.

Date Group 2

Rather more material typical of the early Romano-British period was recovered, comprising brown shell-tempered ware and GT jars with bead rims, storage jars and bead-rim bucket-shaped jars. These are of 'native' type and, unfortunately, continue circulating elsewhere in the Midlands as late as the end of the second century (Darling 1984, 89). They cannot, therefore, be taken as unambiguous evidence of early first century settlement but may point to likely sites of pre-Flavian date. At Dunston's Clump pottery of this kind was certainly much less common in the phase III features (Garton 1987, fig. 16), dated from the second to third centuries. The GT wares include some cordoned sherds from a beaker-like vessel from Mattersey. These compare with the 'Trent Valley' ware type 3 jars (Todd 1968a, fig 1 no. 2a). 'Trent Valley' ware was dated by Todd from AD50–100 with the possibility of survival into the second century. Later excavations have identified other closely related fabrics in Lincolnshire (Darling 1984, fabric 103, Darling and Jones 1988 fabric 103) used for 'native' cooking jars in the early Roman period but not in Iron Age levels. During a study of pottery from field walking at Nettleton East Field, Lincolnshire the author identified a range of 'Trent Valley' type fabrics used to make 'native' bead-rim jars and also Roxby type A-C jars (dated second to third century, Stead 1976, fig. 84) and deep, wide-mouthed jars with bead or clubbed rims similar to the deep bowls found in the South Yorkshire kilns. These latter vessel types are found in North Lincolnshire in deposits dated from the Claudio-Neronian period to the Antonine period in shelly wares and the author has examined early examples of the deep bowl type from Winterton and from a mid- to late second century group on the Skitter-Hatton pipeline (Bonner and Griffiths 1994 site 247). In Lincolnshire, therefore, this fabric group seems to have been used from the early post-Conquest period until late in the second century for 'native' bead and everted-rim jars, Roxby jars type A-C, storage jars and large, deep bowls with bead and club rims.

A cordoned neck jar form (*cf*. Leary 1987 fig. 17 no. 3) from Hayton may have a shorter date range, confined to the first century. In Nottinghamshire and Derbyshire, recent study is suggesting fabrics similar to the GT ware group appeared in the late Iron Age (at Ockbrook, Derbyshire, Leary 2001, unpublished groups from Holme Pierrepont and Hoveringham) in handmade and wheel-thrown forms, including a cordoned neck jar. This form occurred at Dunston's Clump in shelly ware associated with a handmade Iron Age type jar but sherds of Roman grey ware were also found in this phase. A pre-Roman date has been suggested for a cordoned neck jar from Pickburn Leys (Sydes 1993, Fig. 41, vessel 2) associated with a fine cordoned and carinated bowl and a 'native' jar. All three pots

had quartz and some shell inclusions. The form is very common at Rampton, Nottinghamshire in shelly ware (Ponsford 1992, figs 19–20) where they are dated c. 50BC to AD50. At least one of the stratified examples is associated with a wheel-made carinated bowl, possibly of late Iron Age date (Ponsford 1992 nos 23 and 24) but others are associated with later wares (Ponsford 1992, no. 20 with nos 21–11, red-slipped wares). At Margidunum this cordoned neck form was found in contexts dated 45–80AD (Todd 1969 fig 14 nos 9–10). There is, therefore, no evidence at present for this form continuing into the second century and every indication that it began very early, in all probability pre-Conquest.

Date Group 3

This group comprised types of broadly late first to early second century date, including 'native' type jar forms in grey ware, rebated-rim jars, short, everted-rim jars, rusticated ware and carinated beakers and bowls. To what extent the presence of these forms demonstrate Flavian-Trajanic activity is difficult to establish without excavated groups. These forms continued to appear as late as the mid-second century at Derby (Dool *et al*. 1985 tables 4 and 6) but they are characteristic of the Flavian-Trajanic period. There are only two samian sherds dating to before 120AD (both from Mattersey) suggesting there may have been less occupation during the early Roman period or that samian was not in circulation. Thus although these types have been extracted as a chronological group, like the 'native' jars, they may overlap with groups 2 and 4 in real time use.

Date Group 4

The bulk of the samian ware dated to the Antonine period with 61% dating later than the middle of the second century (unpublished report prepared by Margaret Ward). No third century types were identified. These sherds were grouped with other types dated firmly to the mid to late second century such as some BB1 vessels, and flanged and hemispherical bowls (*cf*. Dool *et al*. 1985 fig. 40 no. 36). Only a small number of sherds could be dated to such a narrow date range.

Date Group 5

Much of the coarse pottery comprises types well known at the South Yorkshire kilns but of lamentably long circulation (*cf*. Buckland *et al*. 1980, types E and H, Buckland and Dolby 1980, 34). In an attempt to maximise the dating potential, forms were grouped together which *commonly* but not *exclusively* occur in the same date range. There is an overwhelming predominance of grey ware, everted-rim jars amongst the medium-necked jars (*cf*. Buckland *et al*. 1980 157 dated to the latter half of the second century into the third century), of flat-rim forms (most common in the second century kilns, examples from later kilns are triangular or bead rims) amongst the bowls and dishes, medium-sized examples amongst the deep, wide-mouthed jars (Buckland *et al*. 1980 type Hb and c, a type which tends to get larger with time) and some folded beakers. The predominance of types most commonly found in late second to third century groups agrees with the evidence of the samian and to this can be added a small quantity of late second to early third century colour-coated barbotine beakers from the Nene Valley kilns. The low quantities of some third century or late second to third century forms, such as plain- or grooved-rim dishes and cupped-rim, medium-necked jars and large jars might suggest that occupation declined sometime in the third century.

Date Group 6

Ceramic types which appear after the beginning of the third century make up another distinct group, comprising Dales ware (present in the first half of the third century but not common in Lincoln until the mid-third century) and flanged bowls (dated from *c*. AD270 by Holbrook and Bidwell 1991, 98). This group cannot be readily separated from the next group, the late third to fourth century colour-coated wares and mortaria, because the coarse wares overlap in use.

Date Group 7

A small number of diagnostically late third to fourth century colour-coated wares and shelly ware

can be identified and used to indicate the latest recognisable occupation. These comprise late Nene Valley colour-coated dishes and bowls and shell-tempered double lid-seated jars.

Date Group 8

This group comprised a very large number of sherds which could only be broadly dated to the second to fourth century, such as many of the deep bowls typical of the South Yorkshire kilns, everted-rim narrow-necked jars, plain- and grooved-rim dishes, most of the Derbyshire ware and many of the large grey ware jars (*cf.* Buckland *et al*. 1980 types H, Gb, Cb, Eb and F respectively).

Date Group 9

This group comprised Romano-British sherds which were not otherwise diagnostic and were included to demonstrate the 'background scatter'.

APPENDIX 5

Sherwood Sandstone: pottery diversity (RSL)

Diversity scores

Each pot-group was scored according to the following criteria:

1. Coarse kitchen wares, apparently locally produced – medium-necked cooking jars, straight-sided bowls and dishes with plain, grooved, flat and flanged rims, deep, wide-mouthed jars with bead and everted-rims of different types, storage jars and narrow-necked ovoid jars. The latter fall between groups 1 and 2 since their elaborate decoration suggests that some examples were for display and their association with wells imply use as water containers and sometimes buckets (Leary 1995b, 34). At Roystone Grange, the distribution of these coarse ware narrow-necked jars suggested they were used as 'flagons' in place of the more usual white ware or colour-coated types during the second century. Evans has suggested narrow-necked jars were used as liquid containers on account of their height to rim diameter ratio falling between that of jars and flagons and their common occurrence in well deposits (1993, 96–7).

2. Fine table wares, apparently locally produced – carinated and hemi-spherical bowls, carinated beakers, funnel-necked beakers, folded, beakers, poppy head beakers and bag beakers.

3. Traded coarse wares such as black burnished wares, Dales ware and Derbyshire ware.

4. Traded fine wares such as Nene Valley ware, white wares and fine wares such as those made at Derby and in the 'Parisian' ware tradition.

5. Traded specialist wares such as mortaria.

6. Imported wares such as samian and amphora.

The scores for each pot-group were then added together, and the following groups identified (Figs 13, 15):

- diversity group 1 – sites with diversity score 1 only
- diversity group 2 – sites with scores of 1 and small amounts of 2–4, scoring 2–6
- diversity group 3 – sites with imported wares, scoring 7–18.

APPENDIX 6

Sherwood Sandstone: descriptions of selected querns by Liz Wright

Full listing of findspots (including fragments not described here) in Table 7.

Haughton F4A, 459

Poorly sorted millstone grit with specks of limonite/geothite and red iron inclusions, probably from Ashover Grit. Flat quern fragment, probably Roman. Quern edges roughly incised with vertical lines of decoration, possible from same quarry/workshop as Hodsock A11B 726.

Hodsock A11B, 726

Well sorted coarse to medium-grained feldspathic millstone grit, including white/grey/pale yellow colour kaolinite and specks of limonite/goethite. Fragment of quern of distinctive Roman type with large dished hopper and curved, shaped edge, possibly a product of a distinct quarry/workshop. Similar examples known from Scratta Wood, Shireoaks and Doncaster.

Mattersey B28C, Q1

Poorly sorted fine to coarse feldspathic millstone grit showing false bedding features and much altered feldspar +kaolinite. About 1/4 of a low-type of beehive upper stone with an upstanding decorative rim around the hopper.

Mattersey B28C, 2066

Millstone grit. Fragment of distinctive Roman upper quern with double hopper and stone bridge. Querns of this type are known from Doncaster and Roman military sites elsewhere in Britain, and also from Scratta Wood, Shireoaks. Finely worked straight edge to stone bridge.

Mattersey B28C, 2380

Poorly sorted feldspathic white/grey millstone grit with some yellow iron stains. Fragment probably from beehive quern stone of low type. Raw material compares well with examples from Scratta Wood, Shireoaks.

Perlethorpe E4C, Q2

Coarse feldspathic millstone grit with fresh pink feldspar and specks of goethite/limonite. Upper quern of flat Roman type. Radial fragment with inset handle slot in upper surface. Smooth, worn, grinding surface. Decorated with roughly pecked radial lines on upper surface and edge at approx. 3cm intervals. Believed to originate from a distinct quarry/workshop on Ashover Grit of Derbyshire. Comparable to examples from Scratta Wood, Shireoaks and Hopton Wood, Derbyshire (example in Sheffield City Museum).

Ranskill B2, 146

Pink biotite granite with white mica. A small proportion of querns in the region are manufactured in this raw material, probably from glacial erratics. They are usually of Roman date or influence, though have characteristics of earlier Later Iron Age forms.

Sutton B31, Chainbridge Lane, found by a modern gateway, perhaps having previously been used as a gateweight (SMR 05027)

Medium-grained sandstone. Complete upper stone of tall beehive quern. Flat, worn grinding surface with slight lifting facet at edge opposite handle-socket. Spindle-wear opposite handle-socket 7cms high up interior of feed-pipe. Feed-pipe off centre. Sub-rectangular handle-socket. The raw material, shape and manufacture details, suggest the quern could be a product of the Wharncliffe quarry, near Deepcar, Yorkshire (Wright 1988). Both feed-pipe and handle have sub-triangular cross-sections indicating the method of drilling.