

Please cite the Published Version

Edwards, BG (2011) Social structures: pits and depositional practice in Neolithic Northumberland. In: Regional perspectives on Neolithic pit deposition: beyond the mundane. Neolithic Studies Group Seminar Papers, 12 . Oxbow Books. ISBN 9781842174685

Publisher: Oxbow Books

Version: Accepted Version

Downloaded from: <https://e-space.mmu.ac.uk/621186/>

Additional Information: This is an Author Accepted Manuscript of a chapter accepted for publication in Regional perspectives on Neolithic pit deposition: beyond the mundane, published by and copyright Oxbow.

Enquiries:

If you have questions about this document, contact openresearch@mmu.ac.uk. Please include the URL of the record in e-space. If you believe that your, or a third party's rights have been compromised through this document please see our Take Down policy (available from <https://www.mmu.ac.uk/library/using-the-library/policies-and-guidelines>)

Social Structures: Pits and Depositional Practice in Neolithic Northumberland

Dr Ben Edwards, University of Liverpool

Introduction

This paper examines Neolithic depositional practices in Northumberland, identifying long-term changes in social development. In doing so, this study attempts to break from the traditional approach to the study of pit-deposition – one focused upon the individual and unusual – instead analysing a large number of features and repeated practices. The study is focused on the extensive pit-site at Thirlings (Miket & Edwards 2008), and the henge complex around Milfield (A. Harding 1981; Miket 1981; Waddington 1999; Passmore & Waddington 2009); see figure 1 for the location of the study and the sites mentioned in the text. Deposition at these sites reveals a very specific regional trajectory of practice, represented by several trends in the manner that pit-deposits were prepared and created throughout the Neolithic and into the Early Bronze Age. These trends were bound up with changes in the role of architecture and the construction of spaces. Three such themes are identifiable, which relate, first, to the importance of the *process* of depositing material culture versus the appearance of the finished product; second, to the manner in which certain Neolithic activities were discrete or ‘bounded’; and third, to the role of architecture in structuring social action. However, more than this being a simple comparative examination of several regionally important sites, this is also an attempt to analyse depositional data in an original manner and from a different perspective. This paper will begin with an outline of the theoretical background to the study, before proceeding to a appreciation of the sites considered, concluding with a discussion of trends in depositional practices that provide an insight into the changing Neolithic use of architecture, and thereby the very construction of social life.

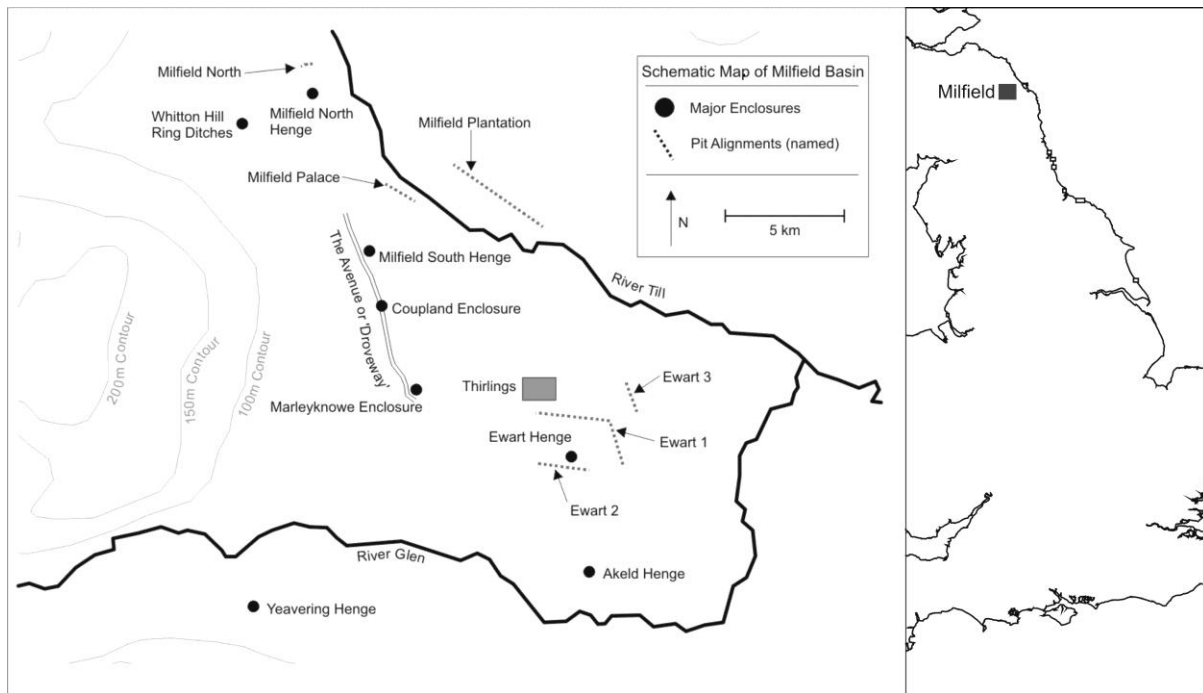


Figure 1: The location of Thirlings and associated henges at Milfield, Northumberland

Theoretical Background: the *Longue Durée*

The premise of this research is that the role of archaeology is to identify and explain long-term social change. Thus, the study of pits in the Neolithic of Northumberland is undertaken in the context of understanding its relationship with slowly changing patterns of architecture and subsistence. This idea of understanding change over the *longue durée*, to borrow the precept of the Annales historians, is not new or contentious. It is interesting though, that recent studies of pit-deposition, with some notable exceptions (e.g. Garrow *et al.* 2005), by those whom we might term ‘post-processualist’ in theoretical orientation, expose an almost exclusive focus on individual features, at the expense of long-term or geographic variation. Usually, this takes the form of a particularist approach, based on the recognition of the ‘structured’ deposit (after Richards and Thomas 1984), generally equated with some ‘unusual’ arrangement or placement of material culture, the Coneybury anomaly is an excellent example (Richards 1990, 41), but also see the dichotomy set up between pits at Firtree Field (Barrett *et al.* 1991, 77). Where a deposit lacks obvious structuring principles, as is often the case in the Earlier Neolithic, a oppositional structure is introduced into interpretation, where the ‘simple’ is opposed to the ‘complex’, the latter being symbolically more ‘important’. In problematising this approach, this paper sets out to change the analytical

scale at which we investigate deposition (Mathieu and Scott 2004), moving away from the importance of single deposits to whole sites, from single events to long-term narratives of practice.

The approach advocated here rejects the *primacy* of the ‘particular’ in archaeological explanation (though not its role altogether), because it is at odds with long-term narratives. Particularism (i.e. a focus upon an individual deposit or site), most usually produces explanations which, whilst reasonable, may not be relevant or ‘demonstrable’ beyond the individual site under study. As these interpretations are built upon what is *unique* about a certain data-set, their accuracy cannot be compared with data from other sites effectively or legitimately in any form other than basic empirical comparison. When set in the context of the post-modern doctrine of *plurality* (Tilley 1989, 191; Buchli 1995, 191; Preucel and Hodder 1996, 299; Thomas 1996, 64), there are difficulties in validating interpretations. We must recognise that there are no means by which differing particularist explanations can be reconciled, no means by which they can inform our understanding of long-term change at a more general level. Furthermore, particularism has always advocated the primacy of individual human experience. Thus post-processualism has witnessed the rise of phenomenological approaches that authorise explanations based upon contemporary experience, whilst simultaneously justifying the relevance of this *modern* encounter to the beliefs of past peoples (Tilley 1994; Watson 2001; Cummings 2003; Tilley 2004).

Particularism may be problematic if one uses it as a template for interpretation, but it becomes relevant and useful when treated as the basis for a *method*. This is because a danger of interpretation across the *longue durée* lies in the possibility of subsuming variability beneath an imagined broad-scale narrative; Colin Renfrew’s Neolithic chiefdoms are never far away (Renfrew 1973). Activity at the scale of the individual agent cannot be ignored. It must be recognised that any broad-scale change is composed of myriad individual actions. So, if one takes a particularist focus upon the formation of individual features, and multiplies the tight focus of these investigations across whole landscapes and periods, then the foundation can be laid for a long-term narrative based solidly upon a large quantity of *data*; the idea being that one builds a grand narrative from the bottom-up. The object of study amongst the data to be amassed in a study of long term-change is *variability*: difference, and the presence or absence of change.

The Pits at Thirlings

The Site

The Neolithic archaeology at Thirlings was entirely composed of pits, which varied widely in character. 228 pits, of which 39 held datable Neolithic material culture, were excavated between 1973 and 1981 by Roger Miket and Colm O'Brien (site plan: figure 3). For a full report of these excavations see Miket and Edwards (2008). Some pits were relatively straightforward single-fill affairs, and there were a large number of single postholes, yet many exhibited startling complexity and a unique approach to the combination of material culture. The site lies at 45m above ordnance datum on a gravel terrace of the River Till in the Milfield Basin (figure 1), an area well known for its Neolithic henge complex and pit alignments (A. Harding 1981; Miket 1981; Waddington 1999; Passmore & Waddington 2009); Thirlings is around 500m from the nearest of these henges at Ewart.

Some 523 potsherds originating from at least 80 separate vessels were recovered from the 39 pits that provided Neolithic evidence, alongside a very small amount of flint. In addition to the material culture, the majority of pits contained contexts rich in charcoal and evidence of organic decomposition. It was these contexts that provided the range of dates from the site, below, which span the Earlier and Middle Neolithic. The first group of dates represent samples sent for radiocarbon determination to the Harwell laboratory between 1973 and 1981; the second group are the results of a more recent programme in 2006 by the Oxford Accelerator laboratory. Figure 2 is the OxCal plot of the determinations, grouped by pottery style into dates associated with Carinated Wares, Impressed Wares, and those with no association. The site appears to have been almost exclusively associated with Carinated and Impressed ware deposition, going out of use before the currency of Grooved Ware in the Later Neolithic.

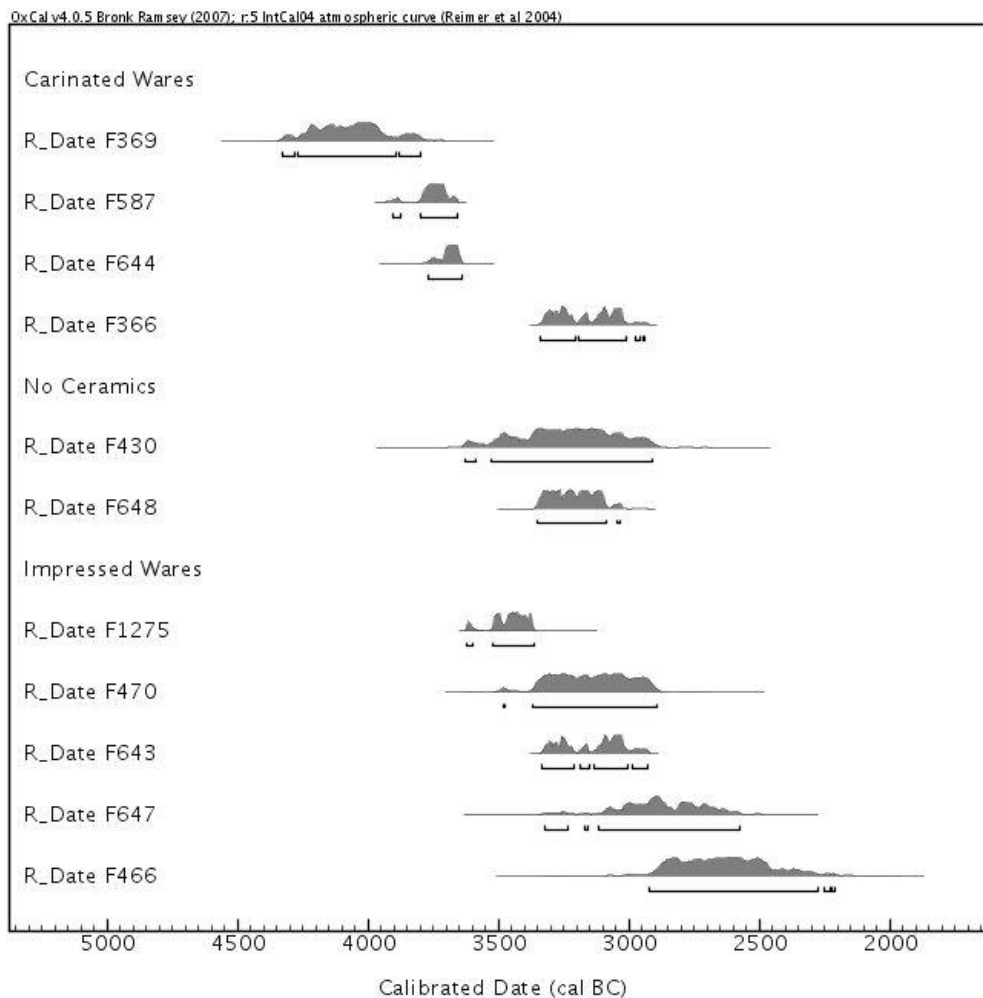


Figure 2: Calibrated C14 dates from Thirlings grouped by pottery type

This analysis is not a site report but the complex nature of deposition on the site does require some illustration. Every pit at Thirlings was entirely unique, some were marked by posts, even series of posts; many contained multiple layers of depositional activity; some were recut immediately; and a few were arranged in seemingly structured clusters. One example is illuminating. Pit F466 was lined with clay into which potsherds were then pressed; it was filled with a variety of different layers, recut and refilled at least twice, then marked with a central post surrounded by a ring of stakes. All of this occurred over a very short period of time, as there was no evidence of silting or collapse of the very unstable gravel subsoil. This pit was unique, but not unusual.

Background to the Analyses

In light of the theoretical orientation of this study, and with such a large data-set available, it was felt that the individual structure of each pit should not become the focus of investigation. The strength of the data lay in the variability between pits and, crucially, the characteristics of the material culture deposited in them, and how these changed over time. What follows is a summary of the wide variety of statistical analyses that were applied to the pits themselves, the potsherds within, and spatial relationships between them. For a full description the statistical analyses see Edwards (2009).

Much of the analysis relies upon our ability to recognise three different ‘types’ of pit, as follows. Post-holes: pits dug for the purpose of setting a vertical post as their primary purpose; depositional pits: those dug to receive deposits of *any kind* without evidence of a post or timber; and post-marked depositional pits: those dug to receive material culture and marked with a timber or series of timbers. Post-marked depositional pits differed from post-holes because of the form and contents of the pit, and the stratigraphic relationship with the post; for example: there may have been a large number of layers below the post; the shape may be highly irregular; there may have been a number of contemporary posts; it may have been too large to be considered a post-hole for the posts present; and/or there may have been evidence of successive re-cuts and secondary instances of deposition prior to the erection of posts.

Whatever the category, pits were grouped on the basis of structural form alone, *not* the quantity of material culture deposited within them, in order to keep the variables entirely independent. The overriding assumption was that, if it contained no structural indicators of a post, a pit was *de facto* for deposition due to its loam/organic-rich fill, regardless of the presence/absence of pottery.

The Neolithic Features at Thirlings

Legend

- ## - Early Neolithic Pits
- ## - Middle Neolithic Pits
- Undated Pits

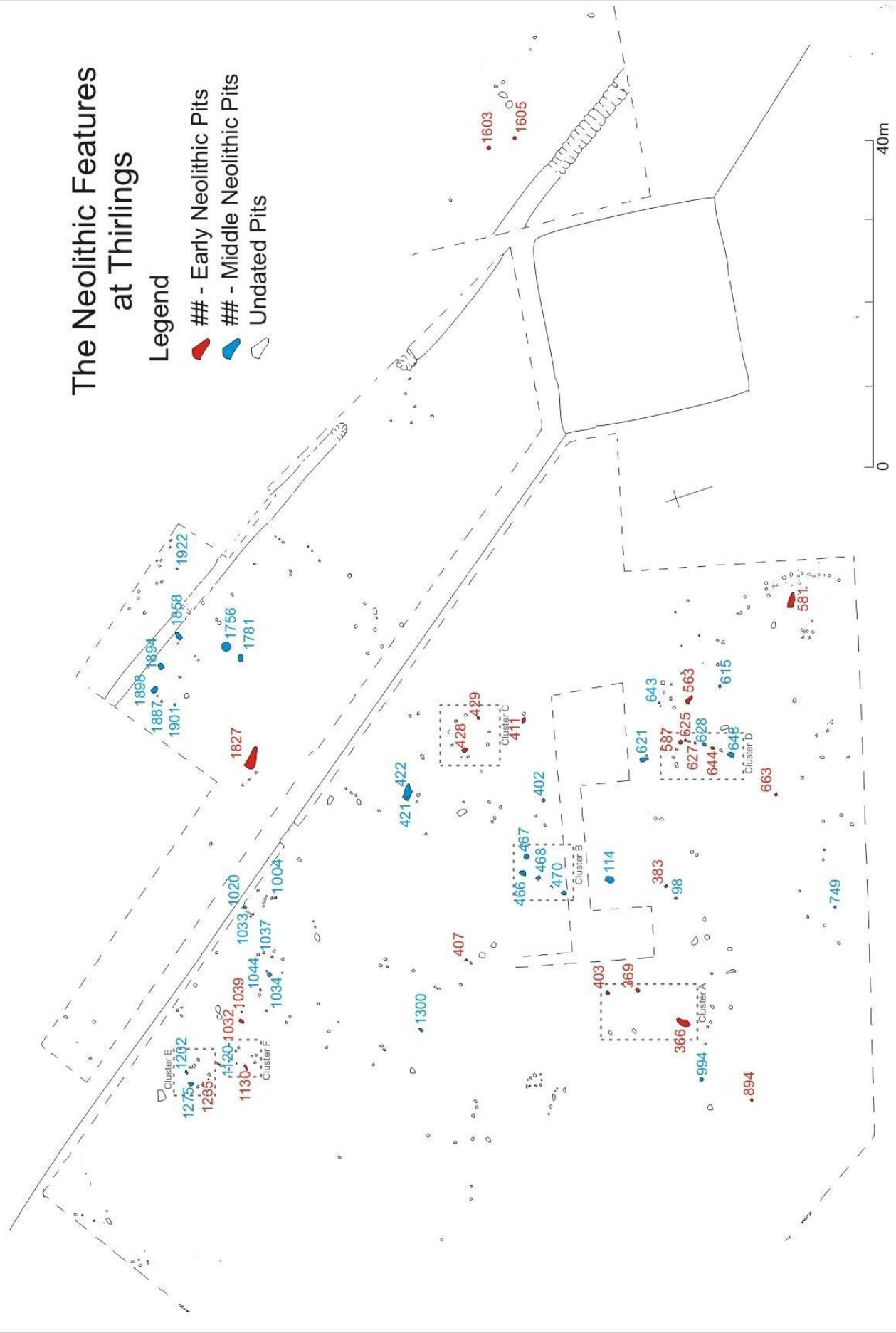


Figure 3: Thirlings site plan

A Spatial Analysis of the Pits

As a first stage in the examination of the Thirlings data, various spatial analyses were undertaken concerning the distribution of the pits across the site. These tests were undertaken using statistical functions available in the GIS package ArcView 9.1. Their summary here will be brief because they revealed very few patterns in the data. Basic clustering behaviour by period was tested using 'Nearest Neighbour' analysis, which calculated the average observed distance between pits and compared this with the expected distance if they were spread randomly across the maximum area. There was no patterning beyond a weak clustering of pits of the same broad period, which were otherwise spread randomly across the site. A more nuanced form of analysis was undertaken using the spatial autocorrelation test 'Moran's I', which analysed the distribution of pits based upon a particular variable; the distribution of pottery weights and abrasion levels were tested and revealed no significant patterning.

The only spatial patterns visible on the site were those evident in the structured clustering of pits into repeated L and C shaped groups (figure 5). Many pits in these clusters contained no datable remains, whilst some groups had pits of different dates or producing different pottery styles, indicating a lack of contemporaneity. Moreover, the pits in these clusters were all of different types, some were post-holes, some depositional pits, and some held complex post arrangements (figure 4). This immediately ruled-out any suggestion of roofed structures.

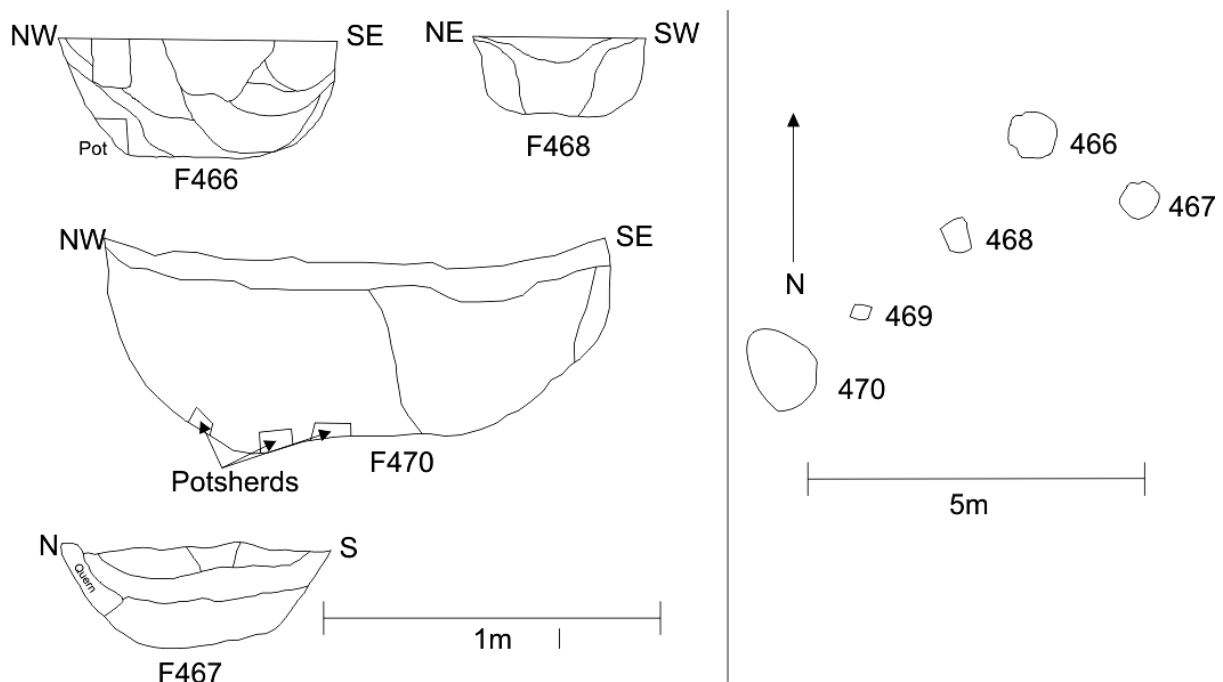


Figure 4: Section diagrams of the complex pits in cluster B

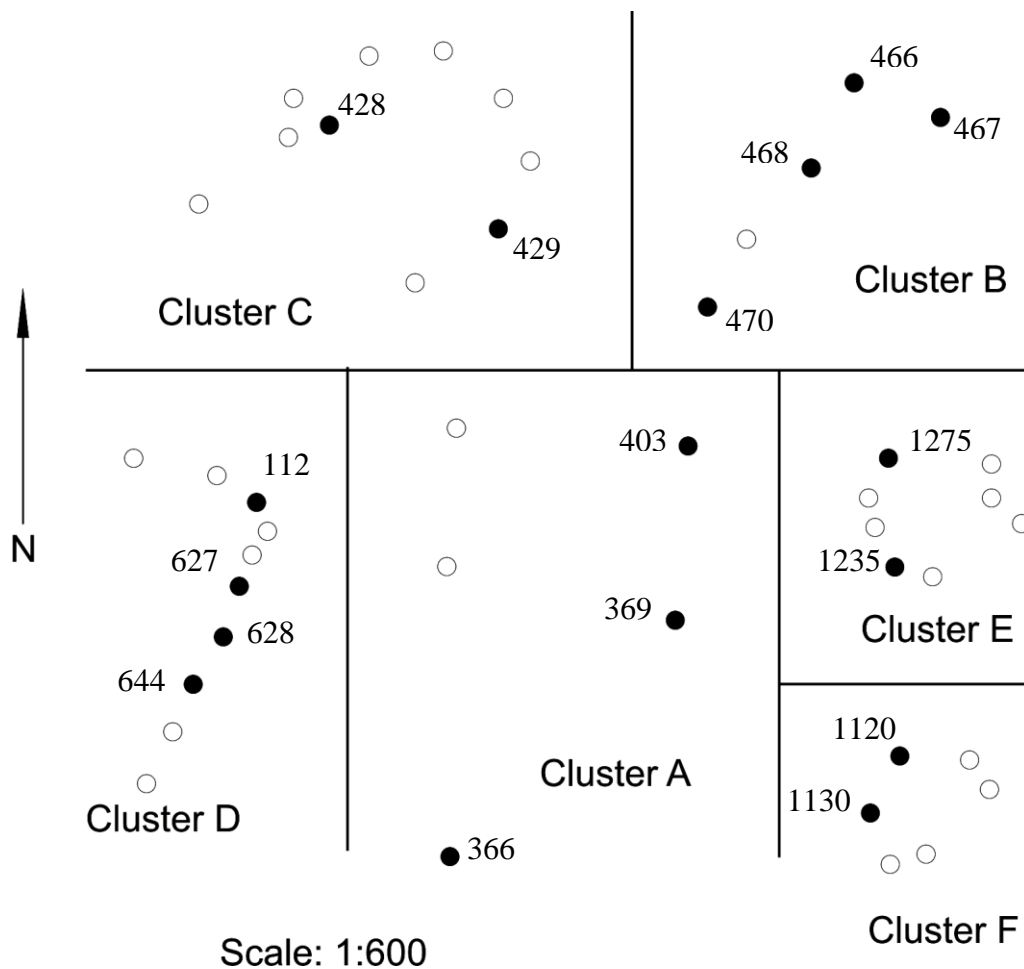


Figure 5: Clusters of pits at Thirlings, dark spots indicate datable pits (distances true, pit shape schematic)

The interpretation of this activity is confusing given the juxtaposition of pits of different date, and considering that clustering is, quite literally, the limit of spatial relationships between pits. It implies that deposition must have occurred in these areas over a period of time in which at least one pit in the cluster was visible to the excavators of the next. It is the only example of people showing any interest in placing a pit in reference to a foregoing example.

Inter-cutting and Re-cutting

None of the pits on the site ever inter-cut; i.e. a later episode of pit-digging never disturbed an earlier feature. The interpretation of this pattern of activity, indeed, how it is possible given the large number of pits on the site, is difficult. It seems most likely that earlier pits must have been deliberately avoided, although how this was possible given the number of pits on

the site, its long period of use, and fact that so few of the pits were marked in any way, is also difficult to understand. Perhaps, upon removal of the turf, if evidence of a previous deposit was encountered, through contrast between the yellow gravel of the subsoil and the dark humus of a pit, a new site was immediately sought. The practice of re-cutting pits also deserves a brief mention: only thirteen of the 228 pits showed any evidence of having been recut. None of the recut pits contained any evidence for silting between the initial fills and the recut, indicating that they were dug, filled and recut almost immediately, as the unstable sands and gravels of the Milfield Basin collapse into open excavations in a matter of days.

The Content of Pits - The Origin of the Material Culture

The analysis must now turn to a consideration of the 39 pits that produced datable material culture (either by radiocarbon or pottery typology) in order to examine depositional practice more closely. Briefly, however, it is worth considering the origin of this material. The pottery from Thirlings was excavated from within a matrix of charcoal-flecked, loamy soil that almost certainly represents the presence of decayed organic matter. This is not unusual in pits of the period, where previous excavations have generally characterised this as domestic, settlement or occupation refuse, as at Hurst Fen (Field *et al.* 1964); the Grooved Ware pits of Yorkshire (Manby 1974); pits in the Chilterns (Matthews 1976); and those at Spong Hill (Healy 1988); Biggar Common (Johnston 1997); Beckton Farm (T. Pollard 1997); Rowden (Woodward 1991, 43); and Cassington (Case 1982). Even accounts that stress the symbolic or ritual *act* of pit deposition also posit a mundane *source* for the material (Evans *et al.* 1999, 247-249; J. Pollard 1999; Barrett *et al.* 1991, 84). Whilst the 'domestic' label is highly problematic and should be discarded, it is clear that the material culture deposited in pits, especially organic remains, can be considered the refuse of everyday activities. Human life during the Neolithic must, after all, have generated organic waste. The same is true for the pottery sherds: a growing body of evidence from the analysis of lipid residues indicates that the major Neolithic pottery styles were a multi-purpose technology throughout their respective periods of prominence (Mukherjee *et al.* 2007; Copley *et al.* 2005a; Copley *et al.* 2005b; Dudd *et al.* 1999). It is unlikely that the pottery was produced 'for' deposition.

The Content of the Pits - A Statistical Analysis

The dateable features produced a comparable minimum number of Earlier and Middle Neolithic pots, represented by similar numbers of sherds (figure 6).

Total Sherds		Total Pots	
Earlier	270	Earlier	37
Middle	253	Middle	43
Total	523	Total	80

Figure 6: Total pottery numbers at Thirlings

Having divided the pits producing datable material into the three categories of post-hole, depositional pit and post-marked depositional pit, it was instructive to consider differential pottery deposition across the three types. This was undertaken using raw sherd counts, sherd sizes, minimum pottery numbers, and total pottery weights.

Average Min. No. Pots by Pit Type			Average No. Sherds by Pit Type		
	Earlier	Middle		Earlier	Middle
Deposition (all)	2.33	2.40	Deposition (all)	20.5	14.47
Deposition (post-marked)	2.67	3.4	Deposition (post-marked)	28.67	17.4
Deposition (no post)	2.22	1.90	Deposition (no post)	17.78	13
Post-Holes	1.50	1.17	Post-Holes	4	6

Figure 7: Average numbers of pots and sherds by pit type

The average number of sherds per pot can also be compared:

Earlier Neolithic

avg. post-marked pit: 28.67 (sherds) / 2.67 (pots) = 10.74 sherds per pot
 avg. unmarked pit: 19.88 (sherds) / 2.22 (pots) = 8.95 sherds per pot

Middle Neolithic

avg. post-marked pit: 17.4 (sherds) / 3.4 (pots) = 5.12 sherds per pot
 avg. unmarked pit: 13 (sherds) / 1.90 (pots) = 6.84 sherds per pot

Average Weight (g) of Pottery by Pit Type			Average Weight (g) of a Sherd by Pit Type		
	Earlier	Middle		Earlier	Middle
Deposition (all)	252.17	312.78	Deposition (all)	13.07	29.12
Deposition (post-marked)	471.40	389.28	Deposition (post-marked)	18.89	17.89
Deposition (no post)	203.46	274.53	Deposition (no post)	11.77	34.74
Post-Holes	121.30	62.55	Post-Holes	16.68	17.48

Figure 8: Average pottery weights by pit type, important differences highlighted (see below)

Figure 9 displays the mean length of sherds, their mean maximum length, their mean minimum length, and the mean range between the two preceding values; all concern length along the longest axis.

Sherd Dimensions by Pit Type						
	EARLIER			MIDDLE		
	Post-Marked	No Post	Posthole	Post-Marked	No Post	Posthole
Avg	46.82	38.99	42.44	41.06	50.45	45.19
Avg Max	74.50	52.33	66.25	63.75	75.13	54.17
Avg Min	30.50	33.00	29.50	25.25	33.25	38.83
Avg Range	44.00	19.33	36.75	38.50	41.88	15.33

Figure 9: Sherd dimensions, important differences highlighted

In both the Earlier and Middle Neolithic there is a tendency towards a greater number of sherds in post-marked pits, though we may wish to discount the Earlier Neolithic example as it comes from a single pit. This indicates that was a differential degree of pottery fragmentation between the two types of depositional pit. Further differential fragmentation is evident between the Earlier and Middle Neolithic: on average there were fewer sherds per pot in both types of depositional pit during the Middle Neolithic. Statistics of pottery weight support these results: in the Earlier Neolithic there was a large difference between the volume of pottery deposited in the single post-marked pit compared to unmarked pits, which contained 131% less pottery. The Middle Neolithic sees a 42% difference, which, again, is more statistically reliable given the increase in number of post-marked pits. More interesting is that, in the Middle Neolithic, individual sherds weighed 94% more in unmarked pits than they did in post-marked ones, despite the fact that *overall* there was a lesser weight of pottery in those same unmarked deposits. The significance of this observation is assured when the size of sherds is factored into the analyses. The sherds from Middle Neolithic unmarked pits were also *larger*, in every measure of size, than those from post-marked pits. The trends are summarised in a simplified form in figure 10:

Pit Type	Total Pottery Weight	Individual Sherd Weight	Individual Sherd Size
<i>Middle Neolithic</i>			
Deposit (no post)	Lesser	Greater	Larger
Deposit (post-marked)	Greater	Lesser	Smaller

Figure 10: Trends in pottery deposition and fragmentation by pit type

So, in the Middle Neolithic, post-marked deposits held more pottery by weight, but this was composed of smaller and lighter sherds than those recovered from the unmarked pits. A picture emerges of the deliberate deposition of differentially fragmented sherds, perhaps through selection by size or through deliberate fragmentation; in any case a definite degree of human intentionality is evident.

The Contents of the Pits – Abrasion Analyses

If differentially fragmented sherds were deposited within different types of pit, particularly in the Middle Neolithic, then it seems likely that there was a process of *deliberate selection* of pot/sherds for burial based on size. An abrasion study was undertaken in order to consider what processes or social activities may have produced these sherds prior to their burial. The principle behind the study is that the present condition of a pottery sherd provides indications as to the processes that created that condition (Schiffer and Skibo 1989, 101). At its most basic, abrasion usually dictates that sherds with a long history of post-breakage disturbance, such as trampling, will get smaller through time, and the number of sherds will increase (Bradley and Fulford 1980, 86). The fragmentation of ceramics usually stops when the size reached provides enough stability to resist further breakage or the sherds are buried (Schiffer 1987, 129). The method here follows, with a few variations, that described by Sørensen (1996) in her consideration of the middened pottery deposits at the Bronze Age site of Runnymede Bridge. Sørensen's scheme was slightly elaborated, into four levels for edge abrasion, one being the least and four the most abraded.

In order to assess whether any particular level of abrasion characterised the sherds from Thirlings, and whether the distribution of these abrasion levels was statistically significant, average abrasion values within pits were analysed using a Kolmogorov-Smirnov one-sample test for distribution. Cumulative percentages of average abrasion values were tested for randomness (Fletcher and Lock 1991, 101), to assess whether sherds were selected for deposition based upon being in a particular state of decay, or just a random sample of the potential abrasion values. Full workings for this, and all subsequent tests can be found in Edwards (2009).

Kolmogorov-Smirnov One Sample Test for Random Distribution

Earlier Neolithic

For a random distribution D must be less than 34.9 (95% probability)
D = 19.04 – the distribution is random.

Middle Neolithic

For a random distribution D must be less than 31.8 (95% probability)
D = 21.56 – the distribution is random.

Statistically, the test demonstrates that a) the average abrasion values of potsherds were randomly distributed amongst pits, and b) there is no particular difference between the two periods considered. The indication is, therefore, that potsherds were not selected for deposition on the basis of their level of abrasion.

From the previous test it was evident that no particular state of abrasion characterised the potsherds, there was a range present from very fresh breaks to the very eroded. However, it is clear from the fragmentation analysis that sherds were selected for deposition on the basis of their size. The question remained, therefore, whether sherds were *deliberately* fragmented in order to achieve the desired size, or whether they were selected from a stored and abraded resource. In order to examine this issue a Kendall’s Tau test was used (Fletcher and Lock 1991, 135). This measured the level of association between two variables: sherd length and abrasion level. Figure 11 displays the data required. Tau-c is used as the tables are not square.

Earlier Neolithic Sherd Lengths and Abrasion Levels

	Sherd Length						
Abrasion Level	1-20mm	21-40mm	41-60mm	61-80mm	81-120mm	120mm+	Total
1	1	26	9	3	1	0	40
2	0	54	25	11	6	1	97
3	1	29	12	4	2	0	48
4	0	9	3	0	1	0	13
Total	2	118	49	18	10	1	198

Middle Neolithic Sherd Lengths and Abrasion Levels

	Sherd Length						
Abrasion Level	1-20mm	21-40mm	41-60mm	61-80mm	81-120mm	120mm+	Total
1	0	22	21	6	2	0	51
2	0	24	29	8	0	0	61
3	1	27	20	0	5	2	55
4	1	5	3	2	2	0	13
Total	2	78	73	16	9	2	180

Figure 11: Frequency of abrasion levels within each division of sherd length

Kendall's Tau (τ) Test of Association

A result near 0 indicates no association between the variables, a result near -1 or 1 indicates association

$$\tau = \frac{2k(P-Q)}{n^2(k-1)}$$

n = total frequencies (198 & 180 respectively)

k = number of rows or columns, whichever is smaller (4 rows)

P = sum of every cell multiplied by the frequencies in every cell below and to the right

Q = sum of every cell multiplied by the frequencies in every cell below and to the left

Earlier Neolithic

$\tau = 0.001$ – no association

Middle Neolithic

$\tau = -0.031$ – no association

Kendall's Tau indicates that the size of a sherd is not related to its level of abrasion. Sherd sizes do not drop as abrasion levels increase, so abrasion was not the result of the processes that caused sherd fragmentation (Bradley and Fulford 1980, 86). Thus, at Thirlings there was an unusual a disconnection between abrading and fragmenting processes, indicating that sherds were subject to some form of weathering in an environment that allowed gradual decay, probably over a long period of time, but controlled fragmentation to a degree. The length of time between breakage and deposition, during which abrasion could take place, also differed between pots, as some were highly abraded and others less so.

Thirlings – A Summary

It has been shown that pits physically marked by an upright post always experienced quantitatively different levels of pottery deposition than those without. In the Middle Neolithic there was a deliberate attempt to deposit smaller, more fragmented sherds in post-marked pits, and yet these marked features continued to hold more pottery on average despite the decrease in sherd size. This situation is further complicated, because the fragmentation of potsherds was not a direct result of their abrasion by mechanical means, as would normally be expected. They did not get smaller as they became more abraded. So, sherds seem to have been conserved by some means prior to being selected for burial on the basis of their size. Whatever form this conservatory practice took it did not prevent their gradual weathering, nor can it have occurred post-burial (Bradley and Fulford 1980, 90). Sherds were either

fragmented to the appropriate size before storage, or sherds of the appropriate size selected from the stored resource. They appear not to have been deliberately broken to the desired size immediately prior to burial, as many had old, abraded breaks.

Spatially, there existed very few connections between any variables and the physical location of a pit. Pits within clusters exhibited few connections beyond their proximity and, in a number of cases, clusters contained pits from different periods of the Neolithic. However, it is likely that the location of a pit on the site could have been significant to a certain degree; structured cluster were created, and there is the simple fact that the site actually existed. Yet in most instances the location of a pit was *fundamentally disconnected* from the specific acts of pit digging, the choice of the form of pits, and the material placed within them. Once located in reference to other acts of deposition, which generally meant nothing more than within the same hectare, spatial referencing ceased. The most deliberate reference to existing pits appears to have been *avoidance*, as no pits ever inter-cut.

Perhaps the entire pit, including its recuts and post-marking, should be taken as the unit of analysis, and evidence of a series of events that occurred in a relatively restricted period of time. Overall we are drawn to seeing pits as individual statements, largely alienated from their contemporaries, and in many cases not even marked above the ground. Indeed, given the intricacy of the practices involved in storing sherds and then creating complex deposits, it is remarkable that so few were marked with posts. In summary one is drawn to the conclusion that the *process* of creating a pit deposit was, therefore, more important than its visual product, and that pits were *bounded* acts of disposal, with minimal reference to their immediate context.

Deposition after Thirlings – The Later Neolithic and Early Bronze Age

The analysis of deposition at Thirlings provides statistically verified information on trends in activity, allowing interpretations based upon evidence of repeated practices occurring over long periods of time. This body of reliable data can now be compared with other sites where the data-set may not be as large. Activity ceased at Thirlings at some point between 2920 and 2210 cal BC (on the basis of pre-AMS radiocarbon determinations), but it began to take new forms of expression elsewhere in the Milfield Basin. During the Later Neolithic, a henge complex gradually developed that would, by c.1900 cal BC, comprise at least seven henges, a

number of pit alignments, several ring ditches and a ditch-defined avenue (figure 1). The development and purpose of the different elements in this complex are explored elsewhere (Edwards 2007), and it suffices to note that the henges varied widely in character, and probably in date, and that the Avenue appears to be one of the latest features: as it passes through the centre of the Coupland henge, it respects the entrances and ditch termini, and swerves to avoid another henge at Marleyknowe. The various pit alignments may also be late features, as one is aligned on the henge at Milfield North, and another encloses the henge at Ewart. Several of the monuments have been excavated in recent times; including four of the henges (A. Harding 1981; Waddington 1999), two ring-ditches (Miket 1981) and two pit alignments (A. Harding 1981; Miket 1981). For the purposes of this comparison with Thirlings, the depositional activity that took place at the henges of Milfield North and Milfield South will be considered.

Deposition at Milfield North

The henge at Milfield North enclosed four large pits (A. Harding 1981, 109-112); these pits were not of regular shape nor were they placed in any particular arrangement. However, each pit did contain a complex series of deposits, which the excavator interpreted as indicative of burial (figure 12). The smallest of the four pits, Pit A, contained a homogeneous upper fill concealing the cover slab of a well-constructed cist, which was however, totally empty, lacking even a soil fill because of the quality of its construction. The soil analysis by Michael Alexander concluded that it was unlikely a burial was ever present, due to the average levels of phosphate recovered from the small amount of material in the base (*ibid.*, 134). The pit was interpreted as a grave, but with a function that was never fulfilled. Pit B was larger and deeper, with a substantial deposit of stones extending from 0.4m to 1m in depth; from amongst these stones was recovered the fragmented remains of an atypical pot that might represent either a Beaker or Food Vessel as its form is irregular (*ibid.*, 114-5). Beneath, there was a setting of two stone slabs at opposing ends of the long axis of the pit. A flint scraper was also recovered from this level. Pit C was a large pit, but contained a less visually structured set of deposits: beneath a loam containing large stones was a deposit of charcoal, which provided the only date from the four pits (2460-1950 cal BC, HAR-1199), under this was a complete Food Vessel pot (*ibid.*, 115). The final pit of the four (Pit D) was also the simplest, its fill was almost entirely a gravely brown soil; however, within this layer and near the base was a rectangular deposit of charcoal, measuring 1.3m by 0.2m, which Harding

interprets as a charred plank. Though unusual, this deposit is not unique: Llandegai B produced two pits, each containing a burnt plank (Lynch and Musson 2001, 64).

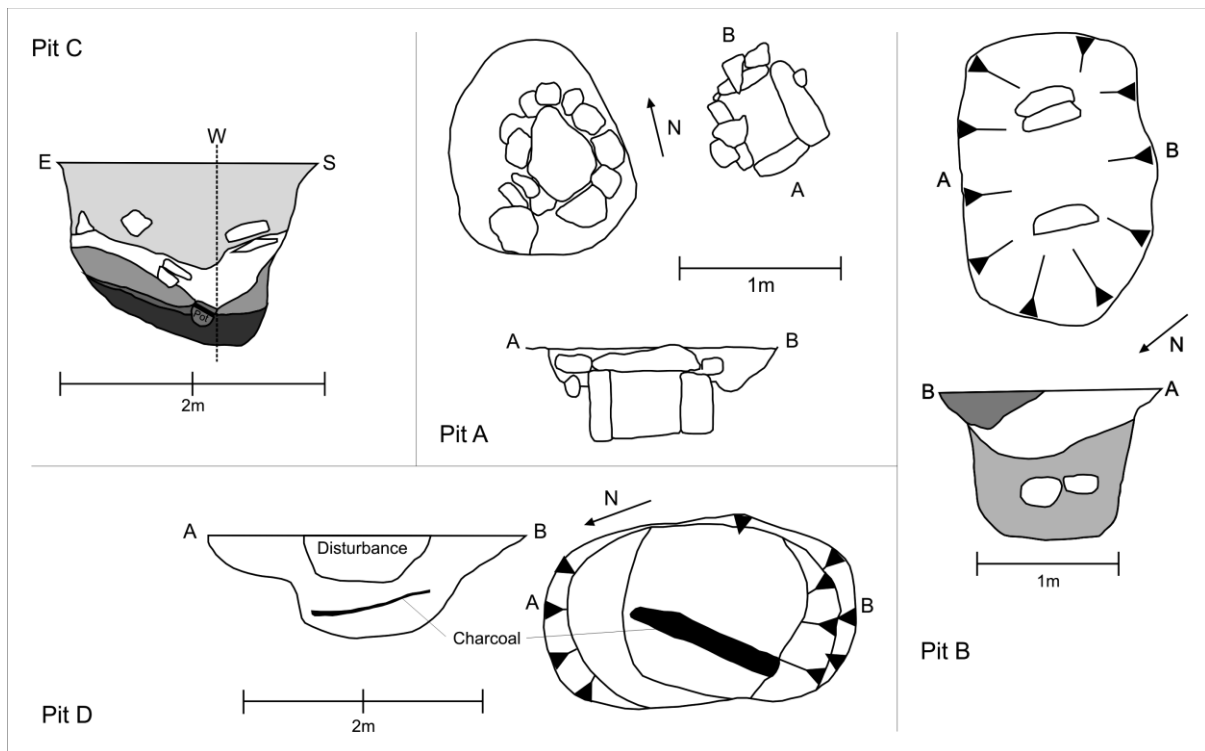


Figure 13: The central pits at Milfield North (after Harding 1981)

Harding interprets all four pits as holding evidence for burial or grave architecture, and whilst one may question this interpretation for the stones in Pit B and the deposition in pits C and D, it is definitely the case that the pits share common features. All appear to have been dug and filled almost immediately: there is no evidence of silting, or collapse of the gravel sides, as one would expect if they had been left open for any length of time. Thus the activity at the pits appears to have been temporally restricted. Yet in the selection of material culture the pits within Milfield North become distinctive. It appears that very different *types* of artefact were selected for deposition in each of the four pits. Pit A saw the creation of an empty, almost sealed cist; Pit B the deposition of one flint scraper at its base, and pottery fragments in the fill; Pit C the deposition of a whole pot; and Pit D a charred wooden plank. Now, the conceptual categories we recognise for these artefacts may not have been valid in the past; so that there may have been little distinction between a broken pot and a whole one, for example. However, it is certainly true that these artefacts were made of different materials, and it seems likely that this is a reasonably secure basis upon which to qualitatively distinguish them. This selection of different artefact types could be attributed to mere chance,

especially as the sample size is small; however, at Thirlings there was a huge volume of pottery deposited in a very complex manner but almost no flint, so it seems that material culture was rarely chosen at random. This relationship of difference between the four pits implies almost contemporary deposition, or at least acts occurring within living memory of one another; and once again the pits do not inter-cut. Thus the differences in the material culture between the four pits must be the result of deliberate human choice. If at Thirlings it seemed that the *process of creating pit deposits* was more significant than their location or their finished design; then at Milfield North it seems that *content* had become more significant. It must be stressed, however, that *process* certainly did not diminish in significance, because it is clear that deliberate care was undertaken in relation to the production of the individual deposits, the quality of the cist for example.

Deposition at Milfield South

The henge at Milfield South yielded only one feature of interest in this discussion: its large, complex central pit, which was very different to those nearby at Milfield North. No pottery was deposited in this pit, but a stone setting was constructed at its base; charcoal from the fill of this setting produced a date of 2840-2040 cal BC (HAR-3071) and 2190-1620 cal BC (HAR-3040). A cup-marked stone was deposited within the stone setting. The pit then appears to have been left open for a time, before a post was inserted and packed with large stones; banding of the gravels around the post may indicate that erosion of the pit sides continued to accumulate material around the packing. Finally, the post was removed, shown by pronounced tip-lines in the later contexts (A. Harding 1981, 97).

In contrast to every other pit studied in the Milfield basin the central pit was left open, so the stone setting and the cup-marked stone deposited within it would have been visible for a longer period than the pits at Milfield North or Thirlings, which were filled immediately. Moreover, when the time came for the pit to be filled, its location was still marked with a substantial post. This sequence of events demonstrates a distinct difference in practice. Here a deliberate choice is made to maintain a visual effect, thus we can suggest that the *finished visual product* was more significant than at Thirlings and Milfield North, where the stress fell more upon the *process* of pit creation.

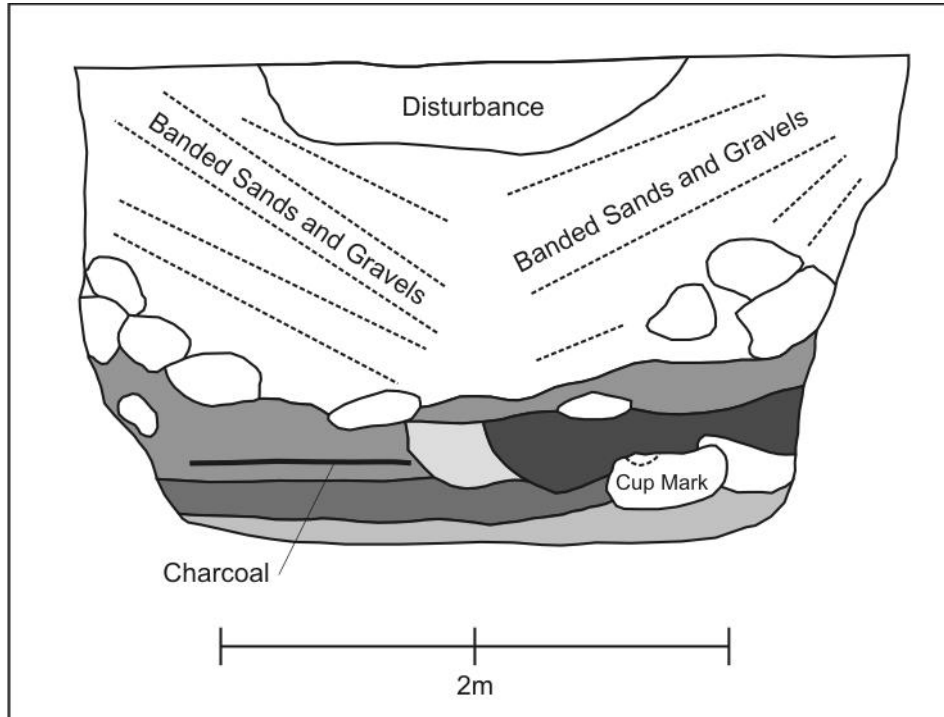


Figure 13: Section through the internal pit at Milfield South (after A. Harding 1981, 98)

Milfield North and South – a common theme

Finally, and quite remarkably, the deposition in the centre of Milfield North and Milfield South shares a common theme with the structure of the henges themselves. At both henges the treatment of the central pit or pits reflects exactly the treatment of the surrounding henge ditches. At Milfield North, where the pits were filled immediately, the henge ditches were immediately backfilled to half their depth with a mixture of original subsoil and organic and burnt material (A. Harding 1981, 87). Whilst at Milfield South, the ditches were left open to silt up naturally, in the same manner as the central pit. Thus, in the very terminal Neolithic to Early Bronze Age, depositional practice changed to become more *referential* to its context, in contrast to the spatial dislocation at Thirlings during the earlier periods.

Discussion – Trajectories of Practice

Despite the potentially mundane origins of the material culture involved in the pit-deposits, it is clear that it was active in social life; even if sourced from everyday activities it was deposited in a highly esoteric manner, and subject to complex pre-depositional processing. This is not particularly surprising, as it is often in the everyday repeated practice that references to the ontologies of communities are found, especially in the highly complex

disposal of what Western society would unproblematically classify as 'refuse' (Moore 1982, 75; Hill 1995, 4; Brück 1999, 334; Chapman 2000). Using the evidence from the Milfield Basin, three major trends can be identified in depositional practice: a movement from an emphasis on processes of depositing, toward the importance of a visual product; a change from bounded 'statements' in deposition to increasingly contextually referential examples; and an increase in the overt expression of architectural control over space. We will consider these in turn.

Creating Processes, Creating Products

Process and product do not exist in a dichotomous relationship. It would be incorrect to state that the increase in the significance of the 'finished product' of deposition occurred at the expense of the significance of the process of creation. Rather, an Earlier Neolithic focus on process, to the extent of denying the visual existence of certain actions, developed to include the creation of a definite visual statement by the end of the Later Neolithic. The process of *achieving* something was more significant than the specific details of the thing *achieved*. This was evident in the pits from both the Earlier and Middle Neolithic at Thirlings. Various structures of pits existed, representing different intentions and different juxtapositions of material, but the majority of these pits were backfilled immediately and went unmarked on the site. There was clearly some motivation to create a unique pit, but it is apparent that providing long-term visual evidence was relatively unimportant compared to *doing it*. An increase in the number of post-marked pits, though remaining in the minority, during the Middle Neolithic presaged the developments later seen in the henge complex, with an increase in visibility.

Exactly the same set of significances is evident in the treatment of the pottery prior to deposition. In every case, the fragmentation of pottery was disconnected from the processes that weathered and abraded it. No particular level of abrasion characterised the sherds from Thirlings. So, it was clearly significant to include potsherds in pit deposits that had been weathered to certain degree, but the amount of weathering appears to have been incidental; a side effect of having stored the pottery prior to deposition. Once again, importance is vested in the pottery having experienced a particular set of processes, not the final appearance of that pottery.

It is in the later Neolithic to Early Bronze Age, after Thirlings falls out of use, that the significance of creating a finished visual product appears to increase. This is most evident at Milfield South, where the central pit is left open with the deposit of a cup-marked stone in the base. Yet it is equally clear that the general Neolithic stress on process had not disappeared; slow silting at Milfield South is clearly also a process; whilst the pits at Milfield North, despite containing very complex deposits, were backfilled immediately. None of the henge ditches are ever recut to maintain their visual effect.

From the Bounded to the Referential

In tandem with visual products becoming of greater concern there was a development towards greater degrees of referencing between deposits or elements of sites. 'Referencing' refers to the idea that an aspect of a particular deposit could share common features with those deposits around it. At Thirlings, it was statistically demonstrated that there was no visible connection or spatial patterning between any of the pits aside from a few instances of structured clusters and their existence in the same hectare. Each pit was a unique statement in deposition. Moreover, this boundedness extended to a prohibition on disturbing any previous act of deposition: no pits ever intercut, despite the very large number on the site by the end of its use. The only element of referencing between these deposits was, therefore, an emphasis on locating new deposits near old ones; and it is in this context that the clusters of pits were interpreted. Deposition in the Earlier and Middle Neolithic was self-consciously unique, and spatially and temporally bounded.

In contrast, the Later Neolithic and Early Bronze Age sees the development of referencing between acts of deposition. This is most obvious in the striking parallels between the formation of the Milfield henge ditches and the pits within their circuits. At Milfield North the four pits were excavated and backfilled very rapidly; similarly, the henge ditch was excavated and then almost immediately backfilled (A. Harding 1981, 108, 134). This referencing also existed *within* the henge, where the four pits exhibited what appeared to be deliberate categorisation in their respective artefacts. At Milfield South the central pit was, as we have discussed, allowed to silt up naturally; the henge ditches were likewise excavated and then left to accumulate sediment with no further interference.

Structuring Space

'Architecture' can be defined as an arrangement of material culture that has a particular effect on the perception of space (Preziosi 1979, 5). Now, because architecture is the juxtaposition of artefacts of various types in space, almost any piece of material culture can cause what can be described as an 'architectural effect': i.e. any artefact can affect perception and movement. Just as henges are pieces of architecture because they are various items of material culture (stones, earth, posts etc) arranged in space, pits, as similar combinations of artefacts (potsherds, organic material, post etc), can also cause an architectural effect, even if they are entirely concealed beneath the ground. This is important, because it allows the comparison of very different sites in a similar manner. Pits, even those without posts, demonstrably affected the perception of space and its utilisation. We saw at Thirlings how pits were never disturbed once they had been completed. Even in their invisibility, they had an effect on human activity. To avoid intercutting, people must have ceased excavating a pit if, on removal of the turf, a previous deposit was located – the site for the new pit was then changed. With an increase in the number of pits with posts into the Middle Neolithic, this implicit architectural effect became, to a limited extent, more overt – posts prevented disturbance more directly.

It is with advent of henges, however, that the architectural effect becomes truly explicit. By placing deposits within their circuits (or alternatively by enclosing pits within henges), the perception of and movement around a feature was overtly affected. The direction from which a deposit could be approached, moved around and seen was limited. Henge architecture achieved the end in a particularly permanent and emphatic manner, in comparison to the earlier effect at Thirlings, where interference was prevented by social convention. Similar arguments have been advanced for the restriction of movement and visibility at Avebury (Watson 2001), but more specifically by the deliberate placing of posts and stones at the post circles sites of The Sanctuary (J. Pollard 1992), and Woodhenge (J. Pollard 1995).

Alternatively, the architecture of henges has been interpreted in terms of 'containment' of pre-existing features, or of something threatening, such as those at Balfarg, or the burials at North Mains (Barclay 2005, 92; after Warner 2000). However, even after the construction of the henges, the significance of the architectural effect continued to grow. The development of the Milfield Avenue, cutting directly through the henge at Coupland, and the proliferation of post-alignments in the Basin shows how the construction of the Milfield monument complex came to structure movement around the henges, just as henges did around pits.

Depositional Practices in Context

We can set these three trends in pit-deposition into a wider context. First, the formation of the pits at Thirlings and other sites in Northumberland cause us to consider the regional nature of the Neolithic in Britain. The idea of regionality in the Neolithic is by no means a new one (J. Harding 1997; Barclay 2000), but it is particularly relevant here. In terms of the classic means by which regions are compared, for example via differences in monument typology, settlement architecture or burial tradition, the north-east of England is not particularly distinctive. Aside from the Milfield complex its range of hengiform enclosures is undistinctive (A. Harding 1987), its long barrows are relatively simple (Masters 1984), and pottery styles owe a great deal to neighbouring regions (Manby 1973, 221; Burgess 1984, 138). However, cross-cutting these site-types are pit-deposits, which exhibit a signature unique to the region. Few regional or large-scale studies of pits have been undertaken in Britain, yet in those instances where research has been carried out, such as East Anglia (Garrow 2006) and Wessex (Thomas 1999), it reveals specific regional trajectories of practice, with completely different 'rules'. In defining regional differences, it may be worth looking beyond the obvious comparisons of monuments, and consider the specific depositional practices, shaped by the forces of everyday social life, that took place within these architectural arenas.

Whilst other regions may not have seen the three trends identified here played out in their pits, these themes do have a resonance in evidence from the rest of Britain. Consider the standard progression of enclosure types in southern England: causewayed enclosure to cursus to henge. Causewayed enclosures are epitomised by the process of deposition; they are created entirely by and for the depositional process. Cursuses embody the process of moving through the landscape, but by this point process is becoming controlled – movement is channelled and directed. By the Later Neolithic, the visual product becomes more important. Now enclosure becomes the arena for deposition, rather than being constituted by its processes. The trend away from the dominance of process, and the trend toward a greater architectural control surrounding pit deposits in Northumberland, is echoed in the progression of monument types in other areas. One could also relate this to the reduction in landscape-scale mobility for a pastoralist Neolithic, interpreted from Wessex evidence by Julian Thomas (1999, 29).

Conclusions

Whilst many of the pits at Thirlings showed evidence of startling originality and complex formation, their true value lies in the size of the dataset to which each pit contributes. A quantified examination of the variability of pits has allowed this paper to address regional trajectories of practice. These would be lost if one treated the interpretation of the meaning of individual pits, or indeed a single site, as the end of archaeological explanation. By focusing on the *longue durée*, this study has identified trends in practice that were repeated so often, and over such a long period of time, that they must represent something of particular social importance. If pits allowed the manipulation of everyday objects and substances in socially determined ways, then they were the arena for the expression of fundamental, ontological schemes that relied upon and reinforced the classification of those objects and substances. Whatever the precise meaning of these expressions, now lost, we are able to trace long-term change in the manner in which people viewed the world. The Neolithic was a time in which perception of the environment and a person's place in it seemed to change: the idea of *process* was to become eclipsed by a rise in the importance of more fixed architectural statements, social life was becoming more bounded, and as spaces became more defined, so references between the contexts of human action seemed to increase.

References

- Barclay, G. J. 2005. The 'henge' and 'hengiform' in Scotland. In V. Cummings & A. Pannett (eds) *Set in Stone: New Approaches to Neolithic Monuments in Scotland*. Oxford, Oxbow, 81-94.
- Barrett, J., Bradley, R. & Green, M. 1991. *Landscape, Monuments and Society*, Cambridge, Cambridge University Press.
- Buchli, V. A. 1995. Interpreting material culture. In I. Hodder, M. Shanks, A. Alexandri, V. Buchli, J. Carman, J. Last & G. Lucas (eds) *Interpreting Archaeology*. London, Routledge, 181-193.
- Bradley, R. & Fulford, M. 1980. Sherd Size in the Analysis of Occupation Debris. *Bulletin of the Institute of Archaeology*, 17, 85-94.
- Brück, J. 1999. Ritual and rationality: Some problems of interpretation in European archaeology. *European Journal of Archaeology*, 2(3), 313-344.
- Burgess, C. 1984. The Prehistoric Settlement of Northumberland: A Speculative Survey. In R. Miket & C. Burgess (eds) *Between and Beyond the Walls*. Edinburgh, John Donald, 126-175.

- Case, H. J. 1982. Cassington 1950-2: Late Neolithic Pits and the Big Enclosure. In H. J. Case & A. W. R. Whittle (eds) *Settlement Patterns in the Oxford Region*. Council for British Archaeology and The Department of Antiquities, Ashmolean Museum Research Report 44, 118-151.
- Chapman, J. 2000c. 'Rubbish-dumps' or 'Places of Deposition'? Neolithic and Copper Age Settlements in Central and Eastern Europe. In A. Ritchie (ed.) *Neolithic Orkney in its European Context*. Cambridge, McDonald Institute for Archaeological Research, 347-362.
- Copley, M. S., Berstan, R., Dudd, S. N., Aillaud, S., Mukherjee, A. J., Straker, V., Payne, S. & Evershed, R. P. 2005a. Processing of milk products in pottery vessels through British prehistory. *Antiquity*, 79, 895-908.
- Copley, M. S., Berstan, R., Mukherjee, A. J., Dudd, S. N., Straker, V., Payne, S. & Evershed, R. P. 2005b. Dairying in antiquity. III. Evidence from absorbed lipid residues dating to the British Neolithic. *Journal of Archaeological Science*, 32, 523-546.
- Cummings, V. 2003. Monuments and Landscape. Encounters at Cairnholy. *Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society*, 77, 23-36.
- Dudd, S. N., Evershed, R. P. & Gibson, A. M. 1999. Evidence for Varying Patterns of Exploitation of Animal Products in Different Prehistoric Pottery Traditions Based on Lipids Preserved in Surface and Absorbed Residues. *Journal of Archaeological Science*, 26, 1473-1482.
- Edwards, B. 2007. A Henge Too Far? Reinterpreting the Neolithic Monument Complex at Milfield, Northumberland. *Proceedings of the Prehistoric Society*, 73, 61-76.
- Edwards, B. 2009. *Pits and the Architecture of Deposition: Narratives of Social Practice in North-East England*. University of Durham, PhD Thesis.
- Evans, C., Pollard, J. & Knight, M. 1999. Life in Woods: Tree-Throws, 'Settlement' and Forest Cognition. *Oxford Journal of Archaeology*, 18(3), 241-254.
- Field, N. H., Matthews, C. L. & Smith, I. F. 1964. New Neolithic Sites in Dorset and Bedfordshire, with a Note on the Distribution of Neolithic Storage Pits in Britain. *Proceedings of the Prehistoric Society*, 30, 352-381.
- Fletcher, M. & Lock, G. R. 1991. *Digging Numbers: elementary statistics for archaeologists*, Oxford, Oxford University Committee for Archaeology.
- Garrow, D. 2006. *Pits, Settlement and Deposition in the Neolithic and Early Bronze Age in East Anglia*, Oxford, British Archaeological Reports 414.
- Garrow, D., Beadsmoore, E. & Knight, M. 2005. Pit Clusters and the Temporality of Occupation: an Earlier Neolithic Site at Kilverstone, Thetford, Norfolk. *Proceedings of the Prehistoric Society*, 71, 139-157.
- Harding, A. F. 1981. Excavations in the Prehistoric Ritual Complex near Milfield, Northumberland. *Proceedings of the Prehistoric Society*, 47, 87-135.

- Harding, A. F. 1987. *Henge Monuments and Related Sites of Great Britain*, Oxford, British Archaeological Reports 175.
- Harding, J. 1997. Interpreting the Neolithic: the monuments of North Yorkshire. *Oxford Journal of Archaeology*, 16(3), 279-295.
- Healy, F. 1988. *The Anglo-Saxon Cemetery at Spong Hill, Part VI: Occupation during the Seventh to Second Millennia BC*, East Anglian Archaeology Report 39.
- Hill, J. D. 1995. *Ritual and Rubbish in the Iron Age of Wessex*, Oxford, British Archaeological Reports 242.
- Johnston, D. A. 1997. Biggar Common, 1987-93: an early prehistoric funerary and domestic landscape in Clydesdale, South Lanarkshire. *Proceedings of the Society of Antiquaries of Scotland*, 127, 185-253.
- Lynch, F. & Musson, C. 2001. A prehistoric and medieval complex at Llandegai, near Bangor, North Wales. *Archaeologia Cambrensis*, 150, 17-142.
- Manby, T. G. 1973. Neolithic Pottery from Hasting Hill, Co. Durham. *Archaeologia Aeliana*, 5th Series, 1, 219-222.
- Manby, T. G. 1974. *Grooved Ware Sites in Yorkshire and the North of England*, Oxford, British Archaeological Reports 9.
- Masters, L. 1984. The Neolithic Long Cairns of Cumbria and Northumberland. In R. Miket & C. Burgess (eds) *Between and Beyond the Walls*. Edinburgh, John Donald, 52-73.
- Matthews, C. L. 1976. *Occupation Sites on a Chiltern Ridge*, Oxford, British Archaeological Reports 9.
- Mathieu, J. R. & Scott, R. E. 2004. Introduction: Exploring the Role of Analytical Scale in Archaeological Interpretation. In J. R. Mathieu & R. E. Scott (eds) *Introduction: Exploring the Role of Analytical Scale in Archaeological Interpretation*. Oxford, British Archaeological Reports International Series 1261, 1-10.
- Miket, R. 1981. Pit Alignments in the Milfield Basin and the Excavation of Ewart 1. *Proceedings of the Prehistoric Society*, 47, 137-146.
- Miket, R. & Edwards, B. 2008. Thirlings: a Neolithic Site in Northumberland. *The Archaeological Journal*, 165, 1-106.
- Moore, H. L. 1982. The interpretation of spatial patterning in settlement residues. In I. Hodder (ed.) *Symbolic and Structural Archaeology*. Cambridge, Cambridge University Press, 74-79.
- Mukherjee, A. J., Berstan, R., Copley, M. S., Gibson, A. & Evershed, R. P. 2007. Compound-specific stable carbon isotope detection of pig product processing in British Late Neolithic pottery. *Antiquity*, 81, 743-754.
- Passmore, D.G. & Waddington, C. 2009. *Managing Archaeological Landscapes in Northumberland. Till-Tweed Studies Volume 1*. Oxford, Oxbow.

- Pollard, J. 1992. The Sanctuary, Overton Hill, Wiltshire: A Re-examination. *Proceedings of the Prehistoric Society*, 58, 213-226.
- Pollard, J. 1995. Inscribing Space: Formal Deposition at the Later Neolithic Monument of Woodhenge, Wiltshire. *Proceedings of the Prehistoric Society*, 61, 137-156.
- Pollard, J. 1999. 'These places have their moments': thoughts on settlement practices in the British Neolithic. In J. Brück & M. Goodman (eds) *Making Places in the Prehistoric World*. London, UCL Press,
- Pollard, T. 1997. Excavation of a Neolithic settlement and ritual complex at Beckton Farm, Lockerbie, Dumfries and Galloway. *Proceedings of the Society of Antiquaries of Scotland*, 127, 69-121.
- Preucel, W. R. & Hodder, I. 1996. Material Symbols. In W. R. Preucel & I. Hodder (eds) *Contemporary Archaeology in Theory: A Reader*. Oxford, Blackwell, 299-314.
- Preziosi, D. 1979. *The Semiotics of the Built Environment*, Bloomington, Indiana University Press.
- Renfrew, C. 1973. Monuments, mobilisation and social organisation in Neolithic Wessex. In C. Renfrew (ed.) *The Explanation of Culture Change*. London, Duckworth, 539-558.
- Richards, C. 1990. *The Stonehenge Environs Project*, London, Historic Buildings and Monuments Commission.
- Richards, C. & Thomas, J. 1984. Ritual activity and structured deposition in Later Neolithic Wessex. In R. Bradley & J. Gardiner (eds) *Neolithic Studies*. Oxford, British Archaeological Reports 133, 189-218.
- Schiffer, M. B. 1987. *Formation Processes of the Archaeological Record*, Albuquerque, University of New Mexico Press.
- Schiffer, M. B. & Skibo, J. M. 1989. A Provisional Theory of Ceramic Abrasion. *American Anthropology*, 91(1), 101-115.
- Sørensen, M.-L. S. 1996. Sherds and pot groups as keys to site formation processes. In S. Needham & T. Spence (eds) *Runnymede Bridge Research Excavations Vol.2, Refuse and Disposal at Area 16, Runnymede*. London, British Museum Press, 61-73.
- Thomas, J. 1996. *Time, Culture and Identity*, London, Routledge.
- Thomas, J. 1999. *Understanding the Neolithic*, London, Routledge.
- Tilley, C. 1989. Interpreting material culture. In I. Hodder (ed.) *The Meanings of Things*. London, Unwin Hyman Ltd, 185-194.
- Tilley, C. 1994. *A phenomenology of landscape*, Oxford, Berg.
- Tilley, C. 2004. *The Materiality of Stone*, Oxford, Berg.

Waddington, C. 1999. *A Landscape Archaeological Study of the Mesolithic-Neolithic in the Milfield Basin, Northumberland*, Oxford, British Archaeological Reports 291.

Warner, R. B. 2000. Keeping out the otherworld: the internal ditch at Navan and other Iron Age 'hengiform' enclosures. *Emania*, 18, 39-44.

Watson, A. 2001. Composing Avebury. *World Archaeology*, 33(2), 296-314.

Woodward, P. J. 1991. *The South Dorset Ridgeway*, Dorset Natural History Society Monograph Series 8.