A Biography of Ceramics: food and culture in Late Neolithic Orkney

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A Biography of Ceramics: food and culture in Late Neolithic Orkney

Summary

This study comprises an examination of the relationship between material culture and social identity. The relationship is explored through a study of the social practices concerning the production, use and deposition of a particular class of pottery; Late Neolithic Grooved ware.

The examination of these issues required a detailed contextual study of the Grooved ware from a single site; Barnhouse, Mainland, Orkney. This contextual examination was integrated with two major forms of scientific analytical technique. The first, petrological thin-section analysis was carried out to determine the differences in the production and organisation of production of the pottery. The second, residue analysis, was carried out to determine the differences in use of different categories of pottery, providing a clearer understanding of the relationship between pottery categories and their use in the storage, cooking and consumption of different foodstuffs. An examination of the Grooved ware from Barnhouse found that there were a number of categories of Grooved ware produced and used at the site, these categories were demarcated by differences in volume, fabric and decoration as well as their relationship to certain foodstuffs and social practices.

The biographies of each of these various categories of Grooved ware were examined from their production, through use to deposition. It was found that each had a differing biography which was shaped by their involvement in certain social practices. These social practices, it is argued, are related to the expression and representation of certain aspects of social identity.

Chapter One

Pots and People

Introduction

Little Honey kept watching and remembering everything. Her mother had her tools beside her, things which were kept in a hide bag hung from a stick in the cracks of a stone wall, and must not be touched, the shells that were either cutters or scrapers or with the smooth roundness outward, smoothers and pressers. Yet sometimes a fingernail was the best, or you might use a lamb's bladder blown up and tied, good for shaping.

Little Honey liked to roll the clay between her hands. It moved, it became long, it was made to curve. Another was laid above it with stroking and smoothing and then another; it rose into a pot shape. At first she could not make the rim into the clean full-moon shape her mother seemed to do without effort. But she saw the shape so clearly in her mind that at last, after three days, she found she had it right and after that it went mostly as she wished. By now her mother had stopped hitting her or making angry noises. Instead she made Little Honey put her voice into the potter's song and also she showed just how to use the shells to make the marks which were signs that the potter had truly handled and given life to her pot.

There was more to be done. Before the clay at the base of each of these pots that they had made hardened into something like a tough hide, the pot must be up-ended. Then it must be nursed on the lap, while the first thick clay ring was squeezed thinner without losing its shape. At last, with one hand inside the pot and the other outside, the ring was made to join together. Now the pot was itself. After that the marks could be made, clothing it all round, each woman making her pot children a little different from those of her neighbours, so that she could know them and speak to them in their working life, even if they were in another house. (Naomi Mitchison 1987, 98-99)

The above extract from Naomi Mitchison's *Early in Orcadia*, captures the essence of this study. Not only does she base her story of life in prehistory in the Orkney Isles, the focus of this study, but more importantly she considers in detail the process of pottery making. Mitchison's approach to the subject is a literary one, she carefully considers the practicalities of pottery making, but alongside these practicalities she also considers the relationship between pottery and people, between the process of production and certain aspects of social identity. Writers deal with their subject through a series of metaphors and they weave these metaphors together to create a seamless whole, a story in which the social and human aspects of the world

are uppermost. Alongside this imaginative play of metaphors the archaeologist's task seems hopelessly pale in comparison. How can we hope to gain an understanding of pottery as full of colour and humanity as this one? The archaeologist equally deals in metaphors, but typically these metaphors are unconscious and reveal little of importance concerning the lives and actions of past peoples. Nevertheless the aim in this study is to begin to understand the relationship between pots and people. This task may involve detailed description and analysis, but the central aim is to achieve an understanding of the metaphors which guided the actions of people in the past.

The relationship between pots and people has been an implicit aspect of pottery analysis since the discipline began. The typological classification of pottery has become the primary tool for archaeologists seeking to acquire knowledge concerning the chronology of a site. This is due to the assumed relationship between past peoples and the pottery they produced; pots have consistently been employed by archaeologists as a fine grained indicator of the presence of specific cultural groups. Archaeologically, pots appear to equal people. However this relationship requires further examination. Precisely what relationship exists between pottery and people, and why is pottery assumed to be such a precise indicator of cultural groups? The aim of this study is to examine this relationship in detail. While a primary interpretative analysis of artefactual material comprises the core of this study, the manner in which this study has been undertaken has involved using a series of scientific analytical techniques in order to examine the nature of the material. Each analytical technique has been drawn on in order to examine and define the relationship between pottery, social practices and social identity.

Importantly, pots have traditionally been studied as objects divorced from their cultural context. This is in itself a general problem of artefact analysis, however in order to understand the ways in which pots are fully embedded within the social structure which created them it is essential not only to study individual aspects of pots

such as function (Braun 1983), production (Wardle 1992), use (Evershed et al 1995) or deposition (Richards and Thomas 1984), or the symbolic aspects of pottery (Hodder 1982a, Tilley 1984). Rather it is essential to understand that since pots are made by people, who are themselves embedded within a particular social structure, then all the above aspects are important. Pots are at all times linked with each field of activity. Just as the processes of production, use and deposition of pots are linked, so the functional and symbolic aspects cannot be separated. What is more, pots are used for the storage, preparation, cooking and consumption of food, amongst other things, and it is essential to view pots not simply as passive and decontextualised sherds, but as being actively produced and used according to the culturally specific needs of people.

Given the assumed status of pots in relation *to* people and in order to fully understand how this relationship is brought about, it is essential to examine the way in which pots are produced, used and deposited *by* people. Close attention will be paid to an examination of these problems in relation to Late Neolithic Grooved ware in this introductory chapter. To adequately understand the manner in which Grooved ware is produced, used and deposited and the way in which such actions are imbued with cultural significance, requires a detailed exploration of a specific body of material in order to draw out the way in which activities associated with this particular class of pottery are structured. The ground work for such a study is made in chapter 2, where the relationship between material culture, identity and the activities of production, use and deposition are discussed more generally, while also focusing on the methodology by which a study of these relationships may be carried out.

The first section of this study focuses then on the relationship between pottery and people, with particular reference to our problematic understanding of Late Neolithic Grooved ware. Having examined how this problem may most fruitfully be studied, the study focuses in more detail on the Orcadian Neolithic. Chapter 3 considers the nature of Grooved ware studies within Orkney, and their relationship to

accounts of social organisation and social identity during the Late Neolithic. This chapter sets the scene for a site specific study of a Late Neolithic 'Grooved ware' community; Barnhouse, Mainland. This chapter is fundamental in situating the site within the wider study of the Orcadian Late Neolithic.

Having characterised the nature of Orcadian Grooved ware studies, the study now turns toward the more detailed analysis of the Grooved ware from Barnhouse. Chapter 4 commences with a detailed characterisation of the Grooved ware from Barnhouse and discusses exactly which characteristics are employed in the categorisation of the assemblage. In order to examine the central theme of this study, the relationship between people and pottery, a series of analytical techniques were employed, as well as a traditional examination of the pottery. In chapter 5, the results of the thin-sectioning project are discussed. This element of the study was undertaken in order to understand the relationship between the use of materials for pottery production and specific groups of people within the Barnhouse settlement. A detailed examination of the relationship between the use of sources of temper and the production of pottery in particular locations within the site, involved a large scale petrological thin-sectioning program, which was aimed at gaining an understanding of the way in which pottery production was organised (see chapter 5 for discussion of results and appendix 1 for catalogue of results).

Linking this aspect of the analysis with an understanding of how different categories of Grooved ware were used in certain social contexts, required a quite different analytical technique; residue analysis. Residue analysis allows the extraction and analysis of biochemical compounds, fatty acids. The presence of these fatty acids may relate to the consumption of specific kinds of food within pottery (see chapter 6 for presentation and discussion of results and appendix 2 for catalogue of results). In order to examine how food was related to the use and deposition of pottery in different contexts on the site, the residue analysis was linked to a spatial and contextual analysis

of certain categories of pottery across the site (see chapter 7 for discussion). Particular attention was paid here to the combination of both the petrological and residue analysis techniques, in relation both to specific deposits and specific categories of pottery. This enables a clearer definition of the provenance of vessels prior to deposition. Having discussed and presented the Barnhouse Grooved ware, in chapter 8 we focus on the nature of social identity in relation to the production, use and deposition of pottery at Barnhouse. Having discussed this in some detail, we are now in a position to examine the wider use and deposition of Grooved ware in other contexts beyond the settlement. Finally, in order to contrast and emphasise the nature of social identity in relation to the production, use and deposition of Grooved ware we examine the nature of social identity in relation to the production, use and deposition of other Late Neolithic artefacts.

A broad study of the nature of faunal and botanical remains and their relationship to the Late Neolithic is presented in chapter 9. This enables a clearer examination of the way in which Grooved ware is related to the social use of food. Finally, in chapter 10, the detailed examinations of the production, use and deposition of Grooved ware undertaken in previous chapters is drawn together with an examination of the metaphorical and cosmological relationship between Grooved ware and specific kinds of social identity, essentially between pots and people.

Ceramics and culture: a critique

The peculiar durability of pottery coupled with the malleable properties of clay, mean that pottery has been widely appropriated in discussions of the chronological problems of prehistory. The creation of ceramic typologies based on the subtle variations of form and decoration enabled the construction of sophisticated schemes

which examined the nature of social change, cultural development and interaction and the movement of cultural groups both between and within the British Isles.

In this chapter I wish to explore the way in which ceramics have been used to describe a series of views of culture. In particular I wish to suggest that most archaeological views of culture perceive cultures as bounded. The perception of cultures as bounded then enables boundaries to be defined around cultures and allows these boundaries to be mapped spatially and temporally. Such mapping often takes the form of a centre and periphery model, with cultures spreading outwards from a fixed point, either spatially or temporally determined. Such models have been essential, in various guises, in equating cultural unity with the spatial and temporal distribution of artefacts.

Grooved ware will be used as a form of case study, allowing us to observe and document the ways in which perceptions of culture have changed over time. By examining the history of Grooved ware studies in some detail I wish to show how our notions of the nature and use of Grooved ware and its association with specific morphologically, decorative and geographical groupings are false. In particular I wish to examine the use of Grooved ware in the creation and maintenance of specific kinds of cultural identity, a theme which will be explored in detail throughout this study.

The culture-historical framework of Childe and others defined culture as 'an assemblage of associated traits that recur repeatedly' (Childe 1951a, 40). According to this definition, one of the essentials in defining culture was the process of identification, or assigning cultural identity. Here cultures are necessarily seen as homogeneous across specific units of space and time. The very similarity of these traits enabled archaeologists to classify artefacts and place them within these rigid frames of space and time. The classification of artefacts was the classification of society. Childe perceived the acquisition of cultural traits as a process of socialisation, in which cultural traits were handed down from generation to generation (1949, 2;

1951a, 42). According to this view cultures should remain internally stable and unchanging over time. However, change in material cultural traits was observed and could not be accounted for according to the stabilising, homogeneous influence of a normative culture.

The nature of cultural change and the apparent changing nature of material culture over time was accounted for by the triumvirate explanatory frameworks of evolutionism, diffusionism and functionalism. While Childe recognised the problems with accepting a single explanatory framework, he utilised all three in understanding what he described as social evolution. Importantly, each framework sees cultures as being bounded, and each framework also assumes relative cultural homogeneity through either time or space. According to diffusionism, change over space-time was due to the radiating diffusion of cultural traits. Evolutionism and functionalism perceived change over time as due to localised individual constraining circumstances, either social or environmental. However when these frameworks were combined in culture-history, the radiating and changing culture could be seen as effecting peripheral social groups according to a process derived from evolutionary theory, typically genetics, often with the replacement of one population with another. The appearance of novel cultural traits was due to unconscious cultural processes which were related to the proximity of other related cultures in both space and time. Social and cultural identity was understood according to the use of homogeneous material cultural traits, which spatially and temporally signified the presence of a particular culture. Culture was something people had, and were constrained by, it was passively received by a form of social osmosis. As Renfrew rightly points out culture is typically formulated as a form of infection, with carriers and recipients (Renfrew 1984, 393).

As Jones (1995, 64) points out, this view of culture assumes regularities to result from close interaction between peoples, and discontinuities as due to social or physical distances, again culture could be transmitted organically by mere proximity.

While these approaches to culture were criticised as viewing culture as normative, the interpretative frameworks of new archaeology also employed the basic notions of bounded systems and centres and peripheries. As Barrett (1994, 160) points out, the notion of a bounded system in the work of Renfrew (1973, 1976) enabled the comparative study, and the drawing of a series of generalisations, concerning the regularities shared by societies of the same type. Although societies were seen to be guided by a series of internally equilibrating sub-systems, once a society was classified as a particular social totality then it was directly comparable with a similar society. This kind of approach allowed Renfrew to compare the territorial behaviour characteristics of areas as apparently distinctive as the Pacific islands and Rousay and Arran (Renfrew 1976). Again the homogeneity of cultural systems, or at least certain aspects of their behavioural sub-systems was stressed.

The boundedness and regularity of cultures also allowed direct comparison between a series of centres, or polities (Renfrew and Cherry 1986) of the same form, again culture is perceived to be the same, and does not change in its interaction with other systems. Cultures were seen as a series of polythetic overlapping systems each encapsulating bounded centres and peripheries (Clarke 1968). Interestingly the interactionist theory of cultural traits was retained, and the acquisition of certain cultural traits, such as pottery decoration, were mapped as a series of law like relationships (Wobst 1977). Again, cultural interaction and change was perceived according to an organic metaphor, the feedback mechanism, this time derived from ecology and cybernetics (Renfrew 1984).

Cultures are not simply things that happen through some form of normative, natural or regular interactive process, rather they are created and constructed in particular ways, and it was this point that post-processual approaches were concerned to stress. Here the interest was in the differences apparent in the creation of a meaningful understanding of the world and in the historically specific nature of

cultures. Of particular note is the textual approach, in which artefacts and the meanings associated with them were seen as arranged grammatically, as a structured set of differences.

Again, these differences may be seen as bounding and constraining meaning, making it unitary, this is particularly apparent in Hodder's (1986) contextual approach, where the context is seen to bound or frame the meaning of the artefact. Again the meaning associated with artefacts is homogeneous and contains an internal truth, or definitive meaning. Thus for Hodder only through recontextualisation can meaning change, thus meaning here is both rigid or homogeneous and bounded. Thus while culture is seen as meaningful, the meaning is constrained by a series of bounded contexts or events, although artefacts may have multiple meanings, this can only occur through the wholesale recontextualisation of the artefact. Barrett (1987) has criticised the rigidity and homogeneity of Hodder's understanding of context, and has suggested an approach which sees context as a shifting frame in the process of social reproduction (ibid., 472).

Nevertheless these approaches emphasise the way in which cultures are constituted. Rather than seeing people as having culture, a passive normative approach (Jones 1995, 63), cultures were now viewed as being constructed through the articulation of meaning. In order to understand not only the meaning associated with the object, but how identities are created and constructed by the use of artefacts, a much less rigid approach to meaning must be taken.

Jones (1995, 1997) has charted a way forward, following Barth's earlier formulation of ethnicity and identity as an aspect of culture which is entirely subjective (1969), by indicating that rather than stressing the homogeneous nature of meaning, and the constraints attached to context, the creation of meaning is a practical discursive action, in which structure and context relies for its form on the practices and representations of social actors. This approach, drawn from Bourdieu's (1977) notion

of habitus, allows us to see how cultures are shaped by the practical and meaningful activities that are conducted within them. The culture-historical approach, with its bounded homogeneous nature was largely reformulated and its boundaries redrawn within the framework of processualism. Both views saw culture as bounded, a view which enabled history, place and people to be tied together in an exclusive and monolithic fashion (Jones 1995, 65).

What I wish to point out here is that culture is a complex term which embodies a whole series of ideas such as identity, community, place and memory. According to a practical theory of cultural production, each of these things will be drawn out and represented culturally through the practical employment of material culture, and ideas such as ethnicity and identity may be drawn on as appropriate. Culture is then created through practical action and does not inhere in the material itself. How can we use these ideas to study the specifics of a given class of material culture? Firstly, according to the notion of prototype theory, artefacts are categorised through their assignment to fuzzy sets, although this model of categorisation involves the concept of centre and periphery, each set is non-bounded and each has a shifting centre and periphery according to context (Lakoff 1987). This means that while objects are categorised and contextualised, the unbounded nature of this process means that meaning is grid-like (Miller 1985) and the meaning associated with material culture is shaped and framed by the grid. However, due to the grid-like nature of the process the position of an object within the grid means that the meaning associated with it goes beyond the individual context and is associated with numerous other concepts and meanings simultaneously.

So while this allows us to understand how material culture is categorised, we can chart the process of contextualisation or categorisation in shaping identities through the notion of biography. Objects have individual biographies, and each have different ways of being produced, used and discarded. At each stage these

contextualisations, or categorisations may be shaped by a number of processes, in particular people's relations to place, identity etc. This takes us a considerable series of steps further than the notion that culture is meaningfully constituted through a series of bounded moments, to a position in which we can understand the non-bounded connections between meanings, and also how those meanings are used to construct cultural concepts such as identity, community, memory and place. This approach to the cultural construction of identities has been recently explored in detail by Thomas (1996), here he argues that identities are constructed by the strategic use of particular forms of material culture. These forms of material culture have specific biographies, or histories. These biographies are embedded in the social fabric and the circulation of these objects between people actually serves to create particular identities. This approach to material culture will be examined in more detail in the next chapter, however suffice it to say here that Thomas' approach enables us to understand far more clearly the way in which particular categories of objects are used in constructing identities, and the way in which the combination of particular types of object are actively and meaningfully used together in order to signify specific identities rather than simply reflecting culture. In the light of the above discussion I will proceed in examining the way in which Grooved ware has been discussed, and attempt to chart a course towards a fuller understanding of the ceramic.

The Rinyo-Clacton culture re-examined

To a certain extent, the history of Grooved ware is intimately related to other ceramic forms, and its status has always been constructed in relation to other ceramics. The study of Neolithic ceramics cannot obviously be divorced from studies of the Neolithic as a whole. Ceramics were seen as an essential signifier of the emerging Neolithic, with an increased sedentism seen as necessitating the use of ceramics.

While this functional relationship is largely unfounded I wish to note that the earliest discussion of pottery was associated with its use in food consumption (Thomas 1994).

The study of British Neolithic pottery was initially concerned to demarcate ceramic forms both chronologically and qualitatively. The pottery of the Earlier Neolithic was easily demarcated from the Peterborough ware of the Later Neolithic by two factors, the first being the stratigraphical separation of wares in the ditches of causewayed enclosures, particularly the Windmill Hill enclosure (Smith 1965), which allowed a neat chronological distinction. The second was slightly less clear and involved the distinction of the two wares in terms of quality of manufacture, finish and decoration. Earlier Neolithic pottery was generally thin walled, sparsely tempered and burnished, with minimum decoration around the rim and upper body, while Peterborough ware was thicker walled, coarsely tempered and had all-over decoration of a variety of distinctive types (Piggott 1931, 72). The earliest studies of Neolithic pottery recognised that the material was of considerable diversity, and following Hawkes' classification of Iron age pottery into A, B and C wares, Piggott (1931) classified the Earlier Neolithic wares A1 and A2 while Peterborough ware was designated B. While these ceramic forms were found in the same kinds of contexts, such as causewayed enclosures, and were therefore easily distinguishable, it slowly became apparent that another class of ceramic was produced in the British Later Neolithic: Grooved ware.

While examples of Grooved ware had evidently been excavated from a variety of contexts over a considerable period of time, in the absence of good stratigraphic associations and radiocarbon determinations, it was a question of recognising its nature. Although Grooved ware had been excavated from a number of sites in both the south and north of Britain (cf. list in Piggott 1936 for southern sites and Stevenson 1948 for list of northern sites), the general character of the material appeared questionable. Probably the largest assemblage of material came from Skara Brae itself

(Childe 1929, 1931a). Although Childe had excavated Skara Brae for some years he wrestled with placing it within any form of chronological context. By the publication of his final report he had assumed its date to be Pictish, drawing an analogy between the distribution of carved stone balls, which were so abundant at the site, and Pictish symbol stones within the Northeast of Scotland to support his statement (Childe 1931a, 102-3). While the pottery was published its nature remained largely undiscussed and was similarly assigned a Pictish date, however there were uncertainties in his assertion. In a synthesis of the same year (Childe 1931b) he had drawn differing analogies between the Skara Brae pottery and the encrusted urns described by Abercromby (1912), thus the date of Skara Brae shifted to the Bronze Age. This date remained as Childe began to draw comparisons between Skara Brae and sites such as Jarlshof in Shetland, also of a Bronze Age date (Childe 1935, 176-181). Here the Grooved ware was assumed to simply be part of the flat rimmed pot group of the later Bronze Age.

Meanwhile, the excavation and publication of a quantity of material from Lion Point on the Essex coast showed that there was considerable coherence between the material recovered from the site itself and others from southern England. As noted above, although Grooved ware had been excavated from a number of major sites such as Woodhenge and Stonehenge as well as Avebury, further isolated examples came from a series of pits mostly within Wiltshire and a number of other southern counties. The sheer quantity of material from Lion Point coupled with Piggott's decisive analogies finally enabled the unity of the ceramic class to be established, by association with Neolithic B or Peterborough ware material from the Kennet Avenue and at Orton Longueville. The date of Grooved ware was finally established as Late Neolithic (Piggott in Warren et al. 1936). Piggott noted, further, that there was not only coherence between sites in southern England but further afield, suggesting that the date and material culture of the then anomalous Skara Brae may be best regarded

as Late Neolithic, with the major pottery form as Grooved ware. A further Orcadian site, Rinyo, was excavated under the supervision of Childe (Childe and Grant 1938), and by this time Childe had begun to realise the date of both Rinyo and Skara Brae, with comparable Grooved ware coming from both sites. Piggott preferred to name the material Grooved ware, in part due to its material qualities, but also due to the fairly sparse series of geographical associations. However by the publication of his *Neolithic Cultures of the British Isles* (1954) and the further excavation of Rinyo in Orkney the wider material associations of this ceramic form had come to light. It was essential then to define this ceramic form as a cultural unity, having distinct material associations, thus Piggott reformulated the ceramic as the major defining element of the Rinyo-Clacton culture. Here then we see Piggott's understanding of culture as analogous to that of Childe, again a culture was defined by the clustering of cultural traits, in this case the use of a specific form of ceramic, along with other associated artefacts.

Smith's work on the Neolithic of southern Britain similarly sought to define Grooved ware as a cultural entity and here it was necessary to define the limits of the Rinyo-Clacton culture. Setting up boundaries both materially and temporally between the users of this pottery form and those of other forms of pottery, she was further concerned to define the cultural origins of Grooved ware, seeing the pottery as having a *genetic* relationship with later biconical urn forms and Aldbourne cups (Smith 1956, 159). As to the actual origins of the Rinyo-Clacton culture she attributed these, economically, to a characteristic of the result of a population of hunter-gatherers acquiring food-production by contact with primary Neolithic peoples, (ibid., 170). Here then, not only the material cultural traits but also the natural materials associated with them were seen as combining in particular, distinctive ways to form a coherent culture. Smith saw a direct relationship between ceramic forms and associated material culture and specific culture groups (ibid., 171).

Grooved ware was problematic to Smith since, unlike the Middle Neolithic ceramics and Peterborough ware which also formed the basis of her thesis, Grooved ware proved frustratingly slippery, having a degree of overlap with the contemporary Peterborough ware culture. Nevertheless, she set about to define the internal differences within the culture, thus she formulated the Clacton, Woodhenge and Woodlands styles, each distinguished by their decorative motifs. She further noted the quite different fabric qualities between the southern and northern ceramics, the southern forms being seen as technically superior (ibid., 190). It was possible then according to Smith's thesis to map the separate cultural elements spatially, this being an essential element of diffusionist and culture-historical approaches which sought to define the limits of a culture, either spatially or temporally, and to establish a series of centres, from which cultural influences may diffuse. Notably, Smith's Rinyo-Clacton culture involved a diffusion from south to north, from the technically superior to the technically inferior. Such ideas combined the frameworks of diffusionism and evolutionism which are so obviously ancestral to culture-history.

These basic concepts were implicitly carried through to the large scale redefinition of the pottery form by Wainwright and Longworth (1971), following the excavation of the henge at Durrington Walls, Wiltshire which was itself associated with a massive assemblage of Grooved ware. This approach was simply to further redefine the ceramic according to the principles outlined above, renaming Smith's Woodhenge style the Durrington Walls sub-style, while the Clacton, Woodlands and Rinyo sub-styles were retained. Here it would appear that each sub-style represents separate strands of a society which was seen to be linked by the manufacture of this form of pottery and its use in certain social contexts, for example within henge structures (Wainwright and Longworth 1971, 268). In order to show a measure of coherence they again renamed the pottery form Grooved ware. Each ceramic sub-style is defined by decorative motif and rim and base morphological details, notably the

sub-styles show a large degree of overlap, and appear to have no spatial definition whatsoever, apart from the gross difference between southern and northern forms, already noted by Piggott (1954, 322).

Although Wainwright and Longworth did not claim spatial integrity, their approach to the definition of Grooved ware sub-styles is again derived from the normative notions of culture-history, although here distinct bounded cultures are substituted instead for distinct bounded sub-styles, each distinguished by decoration and rim forms. Wainwright and Longworth's Grooved ware sub-styles seem to be normative in a number of ways. It is important to note that only a number of features are used to demarcate each sub-style and the Grooved ware within each sub-style is assumed to be of unitary size, no attempt is made to distinguish different decorations on different categories of vessel within an assemblage, or even a sub-style. Here we see an example of the functional and stylistic elements of material culture being studied in quite separate ways (see Fig 1.1 for example). Decoration and rim and base morphology appear to have been chosen since these elements are often thought to be used primarily as a device for demarcating differences between groups (Hodder 1982b, Wobst 1977).

Thus the very notion of singular, homogeneous sub-styles is false, no attention is paid to differences within the sub-style, like is not compared with like. Only for the Rinyo sub-style, the focus of this study, do they note that there are large size discrepancies between vessels (Wainwright and Longworth 1971, 242). However this observation remains unexamined through the rest of the definition of the sub-style. It would seem then that an arbitrary classification was created for the ceramic form, by utilising only a few features to distinguish between sub-styles, with little conceptualisation of how these features related to individual vessels of different size or fabric.

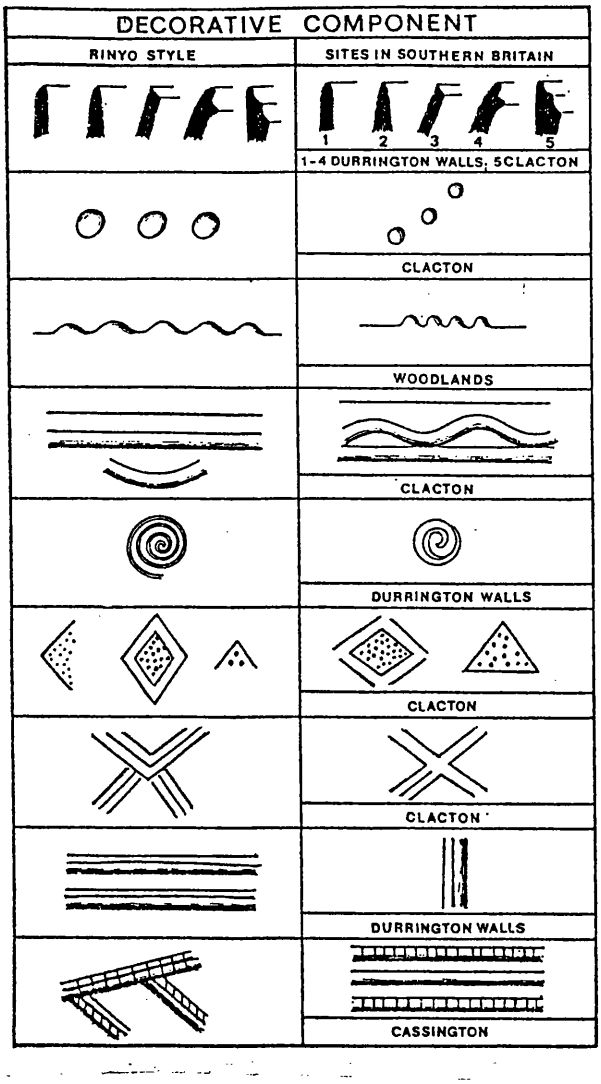


Figure 1.1 Comparison of decorative components of Rinyo sub-style with sites in southern England . Note the use of disassociated decorative and morphological components in comparisons made between pottery styles (from Wainwright and Longworth 1971, 245).

Indeed the presence of a number of different sub-styles on many sites, may well be the result of differences in decoration and rim and base morphology associated with different categories of vessel size or fabric, and indeed the overlapping presence of different sub-styles particularly in southern England may well be the result of quite different categories of vessel being used in differing contexts. Thus the sub-styles may relate more closely to these factors, rather than to overarching and diffuse normative sub-styles. As we shall see in chapters 4-8, there is considerable complexity to the way

in which Grooved ware from a single site may be constructed and decorated. These sub-styles can only really remain as a form of nomenclature, since spatially and temporally they appear to have very little coherence. A similar point has recently been advanced by Henshall (1993, 104) for the occurrence of Grooved ware in mainland Scotland.

Interestingly in their account of the Grooved ware from Durrington, Wainwright and Longworth, noted the possibility that Grooved ware may exist and be used alongside other Late Neolithic ceramics such as Peterborough ware and Beakers. The relationship between these pottery forms in eastern England was re-evaluated by Cleal (1985), by examining fabric, decoration and contextual associations. The outcome of this study, rather than showing the extreme difference between indigenous ceramics and Beakers, showed that there were considerable differences between certain aspects of Grooved ware and the other ceramic forms, Peterborough ware and Beakers. While the fabric of Grooved ware was distinctive to other ceramics, the decorative motifs do appear to overlap with Beakers. On another level contextually Grooved ware may be associated with both Peterborough ware and Beakers.

The above studies can in the main be characterised by the apparent necessity in defining and redefining the category of pottery under study, this is primarily a result of the initial late recognition of the pottery class, however it is also a result of the apparent slipperiness of the category, while Grooved ware is used as an apparently neutral descriptive term, Rinyo-Clacton culture carries with it connotations of cultural unity. These terms have been applied on and off to indicate the apparent coherence of the ceramic culturally, depending on the interpretative framework in which the ceramic has been studied. Smith found it problematic in delimiting the culture, seeing it as deriving from a mixture between indigenous groups and intrusive Western Neolithic groups, it became apparent that although there appeared to be some internal coherence to the Rinyo-Clacton culture as demonstrated by Piggott (1954, 321-346), it

was difficult to separate the group culturally from contemporary groups such as the users of Peterborough ware. Many of the flint and stone industries associated with both forms of pottery appeared to overlap, and Grooved ware and Peterborough ware were found in the same contexts, indeed this contextual congruity had been a means of dating Grooved ware from the outset. It would seem that Grooved ware has always been constructed as a distinct cultural artefact in relation to other ceramics, most obviously materially, through the relative absence of impressed or cording techniques and through its shape.

In the main it was the contrasting contexts in which the pottery was found which distinguished the ceramics, in the case of Grooved ware this was characterised as those contexts of a ritual nature; henges and pits. Bradley's (1982, 1984) approach to Grooved ware, took a more holistic approach in relation to Late Neolithic society, he noted that there was considerable chronological overlap between the use of various forms of Peterborough ware and Grooved ware (1984, 49). Furthermore the considerable temporal discrepancy between the initial use of Grooved ware in Orkney and northern Scotland and its introduction in the south was recognised, and from this perspective, Grooved ware was perceived as one element of a prestige goods economy. According to this model Grooved ware users were part of a complex society which sought to competitively obtain exotic materials in order to maintain power relations. This view of Late Neolithic society operates on a number of levels, firstly the notion of stratified spheres of exchange, which allows some degree of interaction but tends to view each sphere of interaction as bounded. The very use of a particular type of ceramic, whether Grooved ware or Peterborough ware defines and restricts the cultural identity of the group or community. On a broader level these communities are viewed as a series of bounded polities, each having little interaction between neighbouring areas, and more with distinct peer polities (Bradley and Chapman 1986). As noted above, this view of cultures as a series of homogeneous bounded units, is untenable.

Although the use of material culture is perceived here as active and generally competitive, the meanings associated with that material culture are constraining. Social groups become glossed simply as Grooved ware users.

A contextual approach to the nature of contrasting ceramic types in the Late Neolithic was put forward by Thomas (1991, 96-99) here he notes that Grooved ware along with Peterborough ware was employed spatially and contextually to make a series of statements concerning the social and material world, such as those divisions between individual and community, domestic and ritual. The interpretation of such material statements drew on extreme structuralist oppositions and therefore limited the meanings associated with the ceramic, as noted above meaning becomes both homogenised and rigid. Furthermore the actual material differences of the pottery class, in particular decoration, suggested that Grooved ware was involved in quite different activities from those of Peterborough ware.

It appears then that the material distinctions between these ceramics need not signal entirely different bounded cultures, rather as Thomas stresses in relating the two pottery styles contextually, it would seem that Grooved ware is as much defined by its context and material associations. According to Bradley's (1982, 1984) notion of material culture circulating in a series of overlapping spheres of exchange, material is seen to signal some form of social identity, here it is particularly important to retain an understanding of the structured nature of material in different contexts, and for the purposes of this study, to reconsider the importance of decoration as a crucial defining element in the expression of cultural identity (Bradley 1982, 36). Social groups are then defined by the material culture they use, while this can be seen as restricting, if we consider that rather than a series of stratified and bounded spheres of exchange, that material culture is used actively and contextually in order to emphasise a number of socialised statements of identity then as Thomas notes in regard to Peterborough

ware and Grooved ware (1996, 172), the contextual and knowledgeable use of artefacts can be seen as an important means of constructing culture.

Grooved ware: decoration and the exotic

As noted above, Wainwright and Longworth primarily used decorative technique as a means of distinguishing Grooved ware from other Later Neolithic ceramics, and decoration as a means of distinguishing between sub-styles. Decoration is of particular importance in the understanding of Grooved ware, since the decorative elements used on this ceramic form are highly distinctive. While it is essential to reconsider the structured nature of decoration on Grooved ware, at the same time decoration has been used as a single defining element in a number of studies of Grooved ware.

It has long been noted that the design of much Grooved ware decoration was analogous to that on many other forms of material culture (Fig 1.2) such as the art on Irish Passage graves (Piggott 1954, Longworth and Wainwright 1971, Shee Twohig 1981, Bradley 1984, 1989, Bradley and Chapman 1986, Cleal 1991), it also has a strong relationship with the art found on other objects such as the Folkton drums (Kinnes and Longworth 1985) and Garboldisham macehead (Edwardson 1965) and the carved stone balls of northern Scotland (Edmonds 1992). It was the apparently specialised, ritualised nature of the decoration which carried the study of Grooved ware forward.

It became necessary then to account for the patterns found in the deposition of Grooved ware within certain specific ritualised contexts, such as henges or pits. Thus Richards and Thomas (1984) set out to re-examine the nature of activity within Durrington Walls. Using the structure of decoration on complete vessels, a hierarchical series of designs were formulated, drawing in part on the earlier formulations of

Friedrich (1970), Plog (1980) and Hodder (1982a). The study noted firstly the decoration/non-decoration of Grooved ware and secondly the boundedness/non-boundedness of designs. It was noted that discrete patterns of material could be seen in different parts of the post-circle structures found within the henge, this was further found to concur with patterns of animal remains and flint and bone tools. Again, the decoration of the Grooved ware was divorced from the vessel itself, and became a means of signalling the differential use of decoration within the henge, this was partly due to the fact that the categories defined previously by Longworth and Wainwright were still retained in order to define the differences in decoration. These patterns were related to the structured, ritual use of the henge and the internal ritual division of space within the henge and its related structures. Despite the connection of these different decorative schemes to different areas of the henge, and with differing concentrations of animal bones and flint and bone tools, no link was made between decoration and the form and fabric of individual vessels.

By emphasising ritual as the single means of structuring Grooved ware use, the relationship between decoration, implicitly identified with ritual, and vessel function was ignored. However, an approach which combines the two would have enabled a clearer understanding of use and the relation of decoration to particular sorts of use. While this approach was correct to stress the structured nature of the archaeological record, its final conclusions reduced the structure simply to ritual action since the central aim was to distinguish structured ritual action from unstructured domestic action. However this familiar dichotomy belies the complexity of social action in general, and as Barrett (1991a) notes ritual action will tend to draw on the everyday for its effectiveness. Again, Grooved ware was used to define boundaries, albeit within one site, since the meanings associated with the differences in decoration were themselves bounded and rigidified.

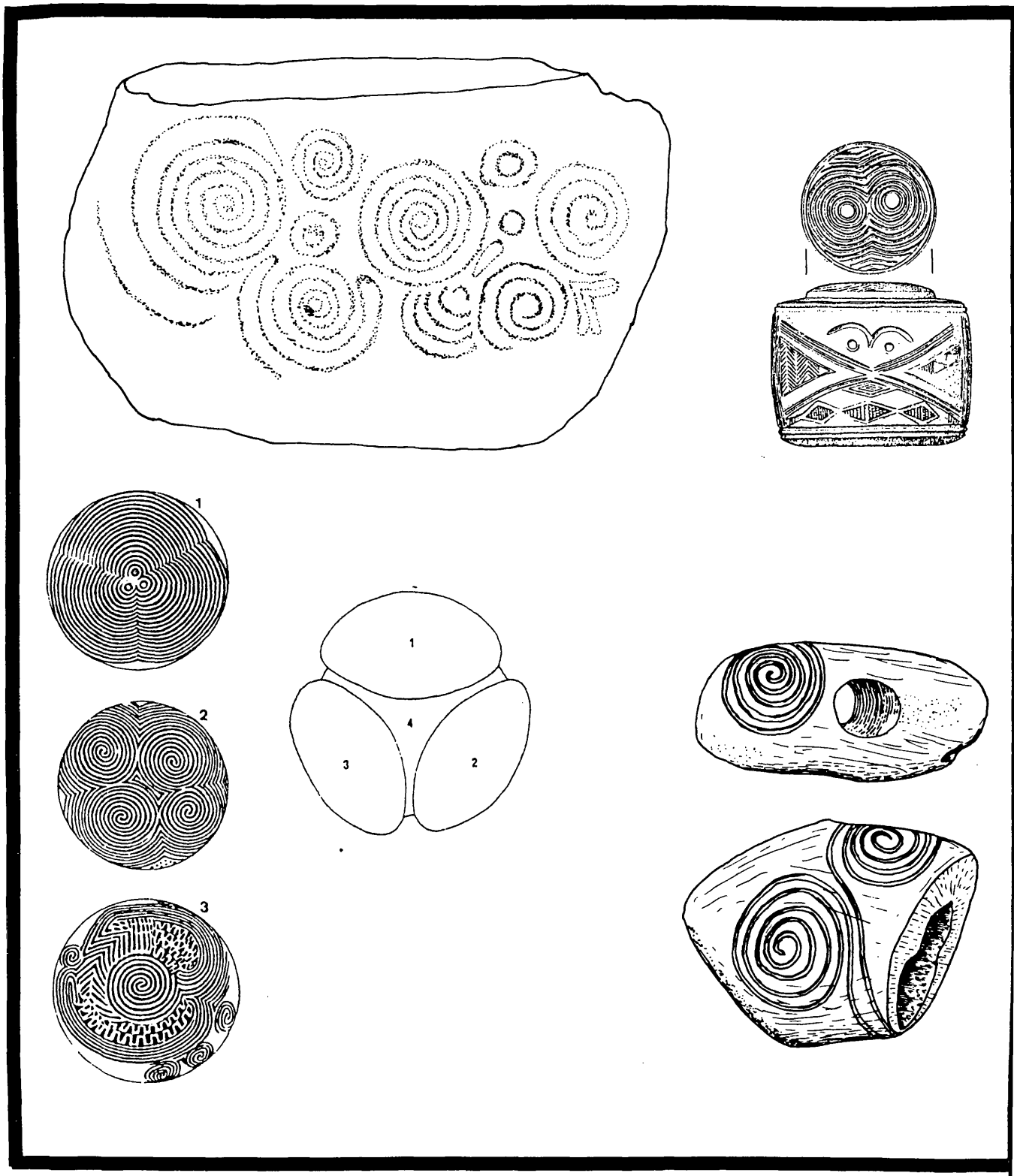


Figure 1.2 Examples of curvilinear art on material culture other than Grooved ware.

Top: Kerbstone K56, Knowth site 1 (after Eogan 1986, 105), Folkton 'drum' (from Edmonds 1995, 94).

Bottom: Towie carved stone ball (from Edmonds 1995, 94), Garboldisham antler macehead (from Simpson 1996, 304)

This approach to the study of Grooved ware has influenced a number of later studies of the ceramic at a number of major ritual complexes such as the Sanctuary, Overton Hill (Pollard 1992) and Woodhenge (Pollard 1995). In both cases the approach seems to be the simple description and definition of patterning in space. However, beyond this individual differences within Grooved ware assemblages are little realised and the material is typically used as a means of identifying structured activity, rather than describing the precise nature of this activity. Notably these later studies of Grooved ware, while more concerned with how individual assemblages are composed and used, do also appear to be preoccupied with the use of the ceramic in defining boundaries, and this can in some ways be seen to mirror the concerns of an earlier generation of scholars. Thus rather than examining the details and differences within an assemblage, a single variable is isolated, such as decoration, and differences within this variable are charted spatially in order to define spatial boundaries. While these boundaries may have been in operation in the Neolithic, it is difficult to assess functional differences within the assemblage, as the ceramic may be used to define activity areas as much as symbolic space, although these need not be mutually exclusive concepts.

Most of the detailed studies of Grooved ware have been undertaken on southern English material. This is in some ways paradoxical since the clearest evidence for the use of Grooved ware comes from Orkney, and as we shall see it is likely that the ceramic form was used far earlier in this area. Thus from a southern English perspective Grooved ware is seen as an explicitly ritual and exotic ceramic, in opposition to the more domestic Peterborough ware (Bradley 1984, 59). It is also simply one element of a complex late Neolithic repertoire that by the end of the late Neolithic also includes Beakers. Furthermore, with its decorative reference to Irish Passage grave art it is seen as an exotic ceramic. In short many of the assumptions associated with Grooved ware have been made with reference to southern English

material, where the ceramic is used in a quite different fashion to that of Late Neolithic Orkney.

The Northern provinces: Grooved ware and Orkney

The nature of interaction between Orkney and the south was seen to be problematic. While Piggott noted that Grooved ware appeared to have a northerly and southerly distribution with concentrations in Orkney and Wessex and the Thames valley (1954, 322) there appeared to be only sporadic find spots in between these areas such as at Knappers Farm, Hedderwick and Glenluce (Robertson-Mackay 1951, Stevenson 1948). Smith (1956, 171) saw the influence between the two areas as an example of degeneration, with the movement of technically superior Grooved ware from the south, with its technically inferior reinvention in the north.

This apparent distributional dichotomy led D.L Clarke (1970, 268) to suggest the notion of parallel development in both provinces with the influences of Unstan ware, Passage Grave art and Beakers in the north, and Peterborough ware and Beakers in the south. Such a viewpoint stems from a necessity to define boundaries and isolate cultural centres and peripheries. Surprisingly, this interpretation of the apparent dichotomy between Grooved ware in the two areas draws heavily on the functionalism and evolutionism of culture-history, in which apparently similar environmental constraints in each case lead to the development of the same material object, a form of cultural divergent evolution. This is especially surprising since Clarke as a major proponent of a more rigorous scientific archaeology, based on the positivist position of systems theory, eschewed the trappings of a normative culture-history approach. However, here the interpretation is based on the assumption that a mixture of cultural apparatus in two different areas may logically give rise to similar things, a clear case of the problems of predictive scientific analysis. More recent studies have shown that this

distributional discrepancy is false, with find spots of Grooved ware sites in the north of England and south of Scotland very much evident (Manby 1974, MacSween 1996). Furthermore, as Bradley (1984, 58) noted the radiocarbon dates from both areas reveal a considerable time span between the initial use of Grooved ware in Orkney and its inception in the south of England.

As we have seen above the history of Grooved ware studies is inextricably bound up with the Orcadian material. The contexts and associations of material in southern England, in particular pits and henges, have led to Grooved ware being characterised as an overtly ritual and exotic ceramic. The contexts in which Grooved ware is found in Orkney are quite different. Firstly, there are no pits to speak of within the Orcadian Late Neolithic, although the ceramic is found in the ditch and hearth deposits at the Stones of Stenness henge (Ritchie 1976). Further, as Thomas (1991, 99) notes Grooved ware is never found in mortuary contexts in Mainland Britain, however in Orkney Grooved ware appears to be a common component of mortuary assemblages in Passage graves and late chambered tombs, such as the Passage graves of Quoyness (Childe 1951b) Quanterness (Renfrew 1979) and Pierowall (Sharples 1984) and the chambered tombs of Isbister (Hedges 1983) and Taversoe Tuick (see Davidson and Henshall 1989, 74). Probably the most remarkable depositional location is that of Grooved ware in the numerous stone built settlements which characterise the Late Neolithic in Orkney. After the recognition of Skara Brae, Mainland as Late Neolithic, and the subsequent excavation of a well stratified and comparable material sequence from Rinyo, Rousay, the correlation of Grooved ware with such settlements was affirmed.

Summing Up

The view of Grooved ware as a unified, homogeneous bounded culture has a genealogy stretching back to Childe, and despite various reformulations, such as those by Wainwright and Longworth, this notion has remained largely intact. We have seen that in southern England Grooved ware has been constructed in relation to both Peterborough ware and beakers. Curiously, the initial chronological and material identification of Grooved ware was possibly due to its contextual association with Peterborough ware. It would seem that the notion of Grooved ware as a unified bounded culture, is no longer tenable, rather we appear to be seeing the contemporary use of ceramics in particular contexts. This is a point noted both by Bradley (1982, 1984) and Thomas (1991, 1996).

The perception of Grooved ware as being predominantly associated with both the ritual and the exotic has been constructed in relation to Grooved ware in the south of England. As this has confounded closer and more detailed analysis of the way in which the ceramic is used on a day to day basis, it seems profitable then to examine the rich evidence from Orcadian settlements as well as other contexts, in order to explore the ways in which the ceramic is recontextualised both within and between these contexts.

Overall, I would suggest there are a number of basic problems with the way in which Grooved ware is studied. These are highlighted most clearly by Cleal (1992) who notes that ceramics are very rarely presented as functioning objects. It would appear that a large bias has been placed on the examination of either decorative features, morphological features or fabric, without any coherent analysis of all of these features. It is only by examining all aspects of an assemblage that a fuller understanding of individual vessels within that assemblage may be understood.

The aim of this study, is to examine the way in which a single assemblage functions, to note the differences and variabilities between material in the way in which Grooved ware is produced, used and deposited. This will enable a clearer understanding of the kinds of social practices involved in the creation of material biographies, and the way in which this relates to the creation of particular forms of cultural identity.

Chapter Two

Social Worlds of Knowledge: material culture and identity in theory and practice

Introduction

This chapter sets out to examine in more detail the relationship between culture, identity and the production, use and consumption of things. This is an essential departure point for a broader examination of these ideas in relation to the production and use of Grooved ware in Orkney and in particular at Barnhouse. The problem of the production of things and their relationship to the cultural was a strong element of Childe's work. In the *'Social worlds of knowledge'* (1949) he espoused the view that the knowledge of how-to-do-things was transmitted through learning networks, from generation to generation. He was acutely aware that there was a link between the organisation of a culture and its material production and reproduction. However his view of the mechanisms by which this operated led to an essentially conservative view of cultural production which saw innovation as being external to the cultural system. Importantly, he maintained that during the Neolithic the relationship between 'mind and matter, society and nature, subject and object....had never been finally torn apart' (ibid.,19). This notion grounds the production and use of things very closely to people.

In order to understand the way in which the production and use of things is linked more closely to identity then it is essential to retain this basic idea. Indeed, Jones (1995, 1997) has argued that identity is inscribed through *habitus*, the habitual structures of action which serve to reproduce the social structures of society (cf. Bourdieu 1977), and here the relationship between the material world and these

habitual symbolic structures is integral, since it is by practically drawing on the surrounding material representations of these structures that *habitus* is reproduced. Of course within Bourdieu's conception of the habitus the structure may be restructured through reflective social action, and it is this which must be seen as an important point of departure. While Childe was correct to stress the use of the surrounding environment as a medium for the production and use of material culture, this need not lead to conservatism, but may in fact also be the instrument of change.

Such a point shifts the emphasis away from explaining why things change and places the emphasis instead on an examination of the mechanisms by which things remain the same. If we consider that material culture is used as an active medium for the expression of ideas related to the social structure, which may represent stasis or change, then we see that the examination of the relationship between material culture, social change and identity, involves a series of active expressions of identity, or representations (Jones 1997, 125). Jones suggests that in order to adequately examine the representation of identity through material culture, a contextual approach must be taken which examines the differences in material culture in both space and time. A further point needs to be made concerning the nature of representation and identity; it is essential to realise that identities are overlapping and a single individual may embody a whole series of socialised identities simultaneously, or at different times through the life of the individual (Thomas 1996, 212). What is more, if we consider that such identities may be overlapping then the symbols involved in the expression of such identities may also overlap, and may be used to symbolise a whole series of different things simultaneously. Cohen (1985) makes a similar point in relation to the use of symbols by communities. He suggests that the very mode by which communities are held together socially is through the deployment of symbols which may be read in multiple ways by different members of that community. Thus symbols

are used as a representation of community, and need only be recognised as such by those who understand them as representing a particular community.

This allows us to see that while symbols may be used as a means of defining community, it is only through their active use within particular contexts that they are recognised as such. At other times they may be used across the boundaries of groups with different identities (cf. also Barth 1969, 1987). Since one of the major properties of material culture is its use in symbolising multiple meanings (Shanks and Tilley 1987), it therefore provides an important symbolic medium for the expression and representation of different kinds of identity. What is more, these identities may be represented in a number of ways, either actively or through habitual action. Thus it is the habitual structures of daily social action, and the production and use of material culture within these structures, which serves to define the identity of an individual, group or community, and it is the visible and observable habitual way of doing things which serves to define them for those outside the bounds of the group.

This approach has been adopted here, however there are a number of other points which it would be cogent to make in this regard. If we are to examine the way in which the identity expressed through material culture is expressed contextually, the biography of the object must be taken into account, since a biography encompasses the identity of both person and thing through time, in other words it is the history of identity. What is more, a detailed account of such a biography must encompass a view of the categorisation of material culture as contingent and fluid. Adopting such a view means that we are able to more adequately examine how material culture is used and categorised in practice, a process which encompasses the representation of identity, and is drawn on in reproducing material culture. In the following section I will examine the ways in which identity is inscribed in material culture, through the identification of the production and use of material culture with place, with memory and with particular forms of social organisation.

Ceramics and a biography of things

Traditionally, artefacts have been studied according to an archaeological programme which creates a sharp distinction between objects and the people who constructed and used them. This distinction is bound up in the process of objectification in which material form is given to cognitive processes of representation. This may be culturally determined, and the distinction between object and subject need not always be so rigid (Miller 1987, 109). A rigid distinction between these two states has largely dominated the practice of archaeology up until recently. Artefacts are of course decontextualised, separated temporally from those who originally made them, used them and gave them meaning. This is seen to be an apparent fact, a problematic of the nature of archaeological enquiry and the archaeological record itself.

Nevertheless ethnographic studies have drawn attention to the fact that objects are often treated as subjects and are therefore perceived as inseparable from their owners despite their circulation in high level exchanges (Thomas 1991, Weiner 1992). This much has been apparent since the pioneering work of both Mauss (1925) and Malinowski (1922). The nature of the cultural and cognitive link between subjects and objects may take a number of forms. As Douglas (1967) notes the human body is a principle axis around which the individual categorises the world; it is therefore natural that where objects are perceived as anthropomorphised, they should be categorised accordingly. This is particularly interesting in the case of ceramics since Barley (1995, 85) notes that pots, ethnographically and according to western parlance, are often categorised according to terms normally reserved for the human body.

While archaeologists rationalise and define the boundaries of material culture both spatially and temporally in a process of ordering, classifying and presumably understanding the material they study, it would appear that this bounded perspective

on material is very much a product of western thought processes (Kopytoff 1986, 61). In order to establish a greater understanding of how material is created, used, thought about, and ultimately deposited we need to reconceptualise our approaches to studying material culture.

The use of objects within different contexts enable the meaning attached to them to be transformed or changed (Hodder 1986, Shanks and Tilley 1987). An artefact may change its meaning a number of times throughout its life. How can this aspect of an artefacts existence be studied archaeologically, since by their very nature, archaeological deposits represent the end of an artefacts use-life? It remains, however that archaeological deposits, layers, spreads, pits etc. are material representations of the final spatial, physical and conceptual categories by which material was perceived and utilised. These deposits may give an indication of the generalised use-life of material. However this is not adequate, since objects undergo a considerable series of social and physical changes throughout their life, which may result in their recategorisation.

Other ways in which the varied use-life of an object might be determined would involve examinations of use wear and the mode by which they are curated. Such a process of repair and curation has been observed in relation to Neolithic ceramics (Cleal 1987) Furthermore a variety of chemical analytical techniques may reveal the nature of the objects use in life (see chapters 6 and 7). Such observations may enable an interpretation of the meanings associated with the object at particular points in its use-life enabling us to understand the genealogical of the object (Bradley 1990a, Skeates 1995). From a practical point of view it is possible to determine both episodes of use, reuse and the possible meanings associated with them, by a number of well established techniques.

However, having determined such processes, we are still at a remove from the way in which the object was socially perceived at various stages of its life. Recent

studies have shown that, ethnographically, objects are conceptualised as having lives. That is, their production and use can be seen as parallel in many ways to that of any living thing. Artefacts are created, they have a finite use-life, they become worn and are then discarded or deposited. This process is analogous to the process of birth, life and death of a human or animal species. As such we can perceive ways in which objects may become closely identified with both individuals and groups of people through production, use and consumption. A biographical perspective on artefact use, has noted the differing regimes of value which the artefact undergoes. Such a process is characterised by Kopytoff (1986) as singularisation and commoditisation; an artefact becomes, by turn 'priceless' or worthless. According to the value attached to the object, it may by turns be unexchangeable, or easily exchanged. This process may be seen as encompassing both the social value and meaning given to the object. Notably the process of valuation and revaluation will often involve the construction of elaborate metaphorical and metonymical systems as a means of referring to the artefact in its different states. This is an essential point to consider when examining the construction of biographies, indeed the specific nature of a biography may refer to a metaphorical process.

Such an approach to material culture has been favoured in a series of recent studies of the Neolithic. Both Edmonds (1995) and Thomas (1996) are concerned to stress the apparent overlap between object and subject. Edmonds has demonstrated the importance of considering the representational activities associated with the production of stone tools, based primarily on the *chaine operatoire* of Lemonnier (1991, 1992) whereby the 'shape' of technology is seen to be as much determined by the symbolic system of social groups, as by the extreme pragmatism of functional considerations. Edmonds, like Thomas, stresses the role of material culture in shaping the nature of identity. Identities are seen to be constructed through the juxtaposition and manipulation of sets of artefacts. This position, while useful, partly stems from the

nature of archaeological deposits, in which the structured deposit, either burial, hoard or refuse, is the primary point from which the past is reconstructed. Thus Thomas stresses the differing character of deposits containing a variety of 'prestige' objects as part of the process of constructing identities. Although Thomas notes that the biographies of artefacts are important in shaping the identities which are represented in deposition, he tends to reify deposition as being the crucial point at which those identities are expressed. Tilley's (1996) account of object use and deposition stresses the life of the object and the way it is perceived in relation to other objects, and other contexts. This account re-emphasises the thing as object of study, while also referring to its use in the construction of types of biography.

While all of these accounts discuss the functionality of objects to some degree, the wider changing biography of an object over its lifetime is less emphasised, beyond the role of objects within networks of exchange. The works of Mauss and Malinowski have traditionally determined the discussion surrounding the biography of objects, and studies have tended to focus on the wide scale exchange of prestige objects. However this emphasis on prestige objects has meant that little attention has focused on the biographies and circulation of everyday objects. Such a focus on the prestige nature of exchanges, typically undertaken by men, has been perceived as androcentric, and recent studies of the production and localised circulation of material culture has emphasised the role gender plays in structuring the relations of production and the socialised perception of objects (Strathern 1988, Mackenzie 1991). As Mackenzie demonstrates, it is essential to understand both the processes and relations of production in order to understand its social biography. Such an approach allows the possibility of understanding the transformation in meaning associated with material culture as objects move from production to circulation.

Thus, the archaeological accounts of the biography of things offered by Edmonds (1995), Thomas (1996) and Tilley (1996), in part suffer from this early

emphasis on prestige objects, and, furthermore, the life of an object may well be reduced to function and exchange. Edmonds stresses production, Tilley stresses use, while Thomas favours deposition. In order to write a more satisfying account of the use-life of artefacts, and the representation of socialised identities which their lives encompass, it is essential to combine these accounts. If we consider that identities are constructed and maintained through the habitual structures in which material culture mediates, then all aspects of an objects life must be examined.

The Construction of Material Culture: Place and Identity

It is essential to realise that the natural world is appropriated socially and culturally and that the perception of nature is an act of classification, in which natural forms are socially inscribed; thus geological, botanical, zoological and climatic occurrences are all socially classified. The initial appropriation of natural products used in the technological processes of production is itself an active part of the classification process. Nature is not homogeneous. As a part of the classified and lived human world it is heterogeneous, and various features of it will possess a multitude of different meanings. This approach to the way in which, as archaeologists, we understand the socialised classification of the landscape has been broadly termed phenomenological, and embraces an understanding of human experience as being intimately involved in the process of actively interpreting, and being in, the material world (Tilley 1993, Thomas 1996).

In order to examine the way in which the natural world is appropriated in the construction of material culture it is essential to look at the relationship between ideas of identity and particular places within the lived landscape. Places are part of the socially classified landscape. Through the alteration and inhabitation of specific places, people are implicated in the land (Gow 1995), and as such different places are

imbued with meaning. What is more, through the history of inhabitation, places also become identified with particular people (Weiner 1991). This understanding of place, which sees places bound up in the history and identity of people, also means that the inhabitation of place is characterised by particular memories. Casey (1987) notes the way in which memories are place specific, indeed activities within a particular place are an important part of the act of remembrance. This is particularly relevant to the way in which we view the procurement and use of materials for pottery production.

The procurement of materials has often been perceived as a constraint on ceramic production (Arnold 1985). Arnold, operating in a paradigm which views human experience of space as homogeneous, suggests that pottery production and distribution networks will be constrained by the necessary procurement of materials. Such a constraint is seen to have a direct effect on the organisation and scale of production. He has furthermore been concerned to examine the nature of the categories involved in the procurement and use of pottery temper from an 'emic' perspective (Arnold 1971). This 'ethnomineralogical' approach was concerned with defining and relating archaeologically observable data with native categories. Interestingly, while physical attributes such as colour and hardness were seen as important, one of the main means of categorising material was by source (ibid., 27). Both the material and the source were bound up in a single idea of place which defined how it was employed materially.

If we view the landscape as made up of different kinds of place, each associated with different memories and identities, then we see that the use and incorporation of materials from different places is an important means by which, through production, the identity of material culture may be fixed. Certain materials may be imbued with cultural and symbolic importance, and their inclusion need not then result solely from functionalist pragmatics, but may involve the articulation of wider cultural perceptions of the appropriate use of specific materials (Tacon 1991). Thus, it would appear that

while physically suitable materials are necessary for the construction of certain artefacts, physical properties need not be the only thing to structure the use of materials in cultural production. The production of material firstly involves a process of acquiring the physically and culturally appropriate materials for the task, which may in itself involve a process of exchange between social groups, possibly between boundaries defined by age, gender or kinship (Mackenzie 1991). Further, the incorporation of materials from a series of different places may be an important means of expressing, through production, particular types of identity (cf. Munn 1986, Battaglia 1991).

The Categorisation of the Material World

As noted above, the production of material culture requires a human engagement with the natural world. It is essential to note that the creation and recreation of objects takes place within a socialised setting, thus the production of any form of material culture is a process of social representation (Lemmonnier 1992). The creation of material forms involves a series of constraints, partially determined by the physical nature of the material used, although many of these constraints are social in nature. Indeed these socialised constraints may be a more powerful means of determining how a technology works (Pfaffenberger 1988).

The main constituent of pottery is obviously clay which is known for its malleable and plastic properties. Nevertheless, as Barrett (1991b) notes the moulding of clay into pots takes a series of culturally and temporally definable forms. This clearly illustrates the way in which social factors are a powerful means by which the production of material may be constrained through the process of material categorisation. The relationship between the technology of production and the functional use of objects is traditionally seen as unproblematic. The simplistic

correlation of attributes such as form and function were, and to some extent still are, seen as essential in explaining the variability in artefact assemblages and in attributing behavioural and adaptational validity within the positivist framework of processual archaeology (Binford 1973, Plog 1980, Braun 1983).

However as Miller (1985, 53) notes the simple correlation of certain vessel features with function is confounded by the use of the same vessel form for entirely different functions both within and between social groups. Millers study of pottery production in Central India involved the examination of a series of variables such as vessel colour and morphology and their association with structuring principles such as caste, gender and the structured consumption of food. This approach to the categorisation of material culture suggests that, rather than a simplistic correlation between form and function, material culture may be categorised according to a complex symbolic framework which involves the categorisation of material according to a series of different symbolic axes. Several axes will be drawn on in social action at culturally specific moments, thus the categorisation of vessels in use are context specific.

The relationship between form and function is not simply ordered according to universal rules of common sense, but is embedded within culturally specific symbolic structures which are articulated in practice through a complex series of categorisation procedures. Nowhere is this more apparent than in the production of pottery where a series of cultural choices must be articulated through the medium of clay (Lemonnier 1991). Both Boast (1990) and Barrett (1991b) suggest that such categories are created and sustained through social practice. This shifts the emphasis from categories as ideal types which are drawn on as part of a cultural template for action, to show rather the contingent nature of categorisation and emphasises the production of categories as a form of knowledgeable social action. Here Boast (1990, 181) considers the role of 'dimensions of variability' in the definition of categories. Here he notes that it is not

only the possession of specific characteristics of material culture which are important in their categorisation, but the variation of these characteristics along a scale. It is the variation of certain characteristics which may affect both the categorisation and recategorisation of objects. The variation of things along various 'dimensions of variability' is a useful way of thinking about the overlapping nature of social categories.

A similar approach to categorisation was developed by Kempton (1981) who employed the notion of prototype theory, already important in cognitive psychology (see Lakoff 1987), to understand the way in which material objects are categorised. Kempton notes that artefacts are categorised according to extremely contingent processes. Artefacts are categorised according to their relative relationship to a categorical whole, or prototype. Such an approach accounts for the 'fuzziness' by which material culture forms are in practice both produced and categorised in daily use. The variation of objects along 'dimensions of variability' are one means by which objects are, more or less, related to the prototype, and are more or less members of a category of objects. This fluidity of categorisation allows us to see that categories may vary depending on the particular 'dimensions of variability' used to categorise them, as such an interesting aspect of Kemptons' study is the point that variable aspects of categories are chosen in the process of categorisation across certain boundaries of gender, age and social outlook. This powerfully suggests that categories are thus reproduced both according to context and social identity.

While objects during production may be seen as morphologically similar, it is during their use that they will be categorised. Here we may see a range of vessels with quite different forms being categorised under one broad classificatory heading. It is necessary then to understand both the ways that categories are created in practice and the mode by which those categories are employed in use. It is therefore essential to understand both the mode by which objects are produced and the social relations of

production if we are to understand the full range of uses of an object. Here use should be seen to encompass the mode by which material categories are drawn on in social practice. Objects can be understood to be socialised in a similar way to human beings. This socialisation process embodies Bourdieu's notion of *habitus* (1977). Here while categories are culturally specific, they appear as naturalised through their everyday encounter, and it is by this process that objects become socially categorised. It is essential to understand then the way in which a pot is categorised in production and how this relates to categories employed in use. As Cleal (1992) indicates the categories involved in the material form of a pot may relate to their perceived use. However, this cannot be seen as a concrete and deterministic relationship, and pots may easily be recategorised in use. In certain circumstances the use of the pot may determine the way in which it is categorised, especially if it contains a substance which is considered polluting (c.f Braithwaite 1982). This study aims to examine the way in which such biographies are transformed from production, through use, and finally to deposition. Thus, the way in which categories of material are maintained and reproduced or reworked are related to processes of social change.

The social relations of production

In order to determine the way in which the categorisation of pottery is initiated, it is necessary to examine not only the material forms of pots created in production, but also the social relations involved in the production process. A number of interesting archaeological studies have been undertaken in order to examine the proposition that the patterning of material culture may relate to particular sets of social relations. In particular, the innovative work of Deetz (1968), Hill (1970) and Longacre (1981, 1985) stands out. These studies were concerned with the way in which the production of ceramics may be related to particular sections of a social group. Thus

specific characteristics of such ceramics could be mapped both spatially and temporally enabling a concomitant mapping of social groupings. Deetz (1968) was concerned to suggest that material culture quantified in such a way enabled particular kinship configurations to be mapped spatially, while the rules of descent associated with such kinship groups could also be determined through the study of the patterning of material culture characteristics through time.

This approach was realised in its most detailed form in Hill's study of Broken K Pueblo, Arizona (1970). Here, through the quantification of specific design features on pottery, Hill was able to assert that the organisation of pottery production and indeed the community itself was related to two moieties, with matrilineal descent rules, through the transmission of knowledge from mother to daughter. Such an approach perceives an unproblematic relationship between material culture patterning and the social organisation of the society who created the material. However, recent critiques of this reading of the archaeological record point out that no such unproblematic relationship exists (Patrik 1985), moreover the archaeological record is problematised by the social relations which created it, which may involve a series of differing and negotiable power relations rather than an uncontentious unitary social identity which may be simply read from material patterns. Although Arnold (1989) realises that there are problems with modelling descent and residence groups from material culture patterns, he sets out to demonstrate that a kinship model of learning can account for the transmission of ceramic style. While he successfully demonstrates that residence and kinship groups may be one means by which pottery styles may be transmitted, he suggests a dichotomy between the fabrication of pottery which involves the long term learning of particular motor habits, and the decoration of pottery which are derived from cognitive knowledge.

This conclusion is useful in indicating that the production of material culture may be transmitted through kin based learning networks, however this does not

explain why the transmission of knowledge associated with the production of material culture is the same from one generation to generation another. It is necessary to explain the maintenance of material forms as well as the change in material forms.

The production of ceramics involves a process of learning. The social relations involved in production as well as their physical and material forms are bound up in this learning process. It is by such a process of material and social embeddedness, that knowledge actually becomes embodied. Connerton (1989) notes that the embodied nature of knowledge is one means by which memory is recalled, thus the production and use of the pot may involve a process of recall. It is in this way that a biography is created, as the memory of the events and identities associated with the objects production are drawn on in use, and the memory of both of these are drawn on in deposition (Rowlands 1993). The physical materialisation of such socialised categories as technique, materials and decoration within the body of the object enable these aspects of the object to be later reproduced as an act of remembrance. Such an act may be drawing relations of affinity with objects associated with past kin or lineage members. This is one of the processes involved in the decision to reproduce or change a material category. The very presence and familiarity of both everyday and special ceramics means they may represent the most obvious template for the reproduction of fresh categories of material. It is the operation of this process which is archaeologically visible in the patterning of similar pot forms and decorations, as noted by Deetz (1968) rather than the simple transmission of style.

Rather than seeing the patterning of material culture as simple and uncontentious correlates of residence pattern and descent rules, the production of ceramics may be used to express a number of different possible relationships. Such relationships may be articulated in a number of ways, in particular I wish to examine the way in which these relationships are represented materially. The use of particular types of material, techniques and decorative motifs may be used in expressing relations of affinity or

difference. The use of these devices may be involved in the expression power relations, structured by kinship, gender or age, in short a series of overlapping social identities.

As Jones (1997, 123-4) notes, a number of material means may be used to express affinities with previous categories of material, produced by past generations, and it is such relations of affinity and difference which produce the material patterns which archaeologists observe, and which may involve the expression of identities. Social relations may actually be constructed through acts of production, and thus reproduced. This is particularly important if an object is considered as multi-authored, as there may be a tension in what is being socially expressed by each author (Mackenzie 1991). Material culture and its production is thus a powerful means for expressing specific social relations and as Munn (1986, 141) notes in relation to the construction of canoes on Gawa, the use of materials considered to be symbolically male and female may be perceived as materially cementing specific social relations.

Style, function and representation

The approach I wish to take here views both function and style as necessary and inseparable features of the same vessel. Style is thus an amorphous dimension embodied in a number of different elements of pottery manufacture. Style, may be inherent in the rim, base, through decorative motifs, or in the overall morphology of the vessel. Such an approach need not involve the collapsing of style into function, as Sackett (1977) suggests. Style is not simply another means of cultural adaptation.

Many studies have attempted to explore the way in which style 'functions', of particular note are the social interaction theories of Deetz (1968), Friedrich (1970) and Plog (1980) and the information exchange theory of Wobst (1977). In the first, the simplistic relationship between similarities in style and the proximity of individuals

effectively transmits the given style from one generation to the next, from one community to the next. Again this concept is framed within a positivist view of the archaeological record which assumes that such relationships are unconsciously mapped onto the material which is then simply read from the archaeological record. The second theory, formulated by Wobst (1977) suggests that the function of style is a means of differentiating within and between social groups, thus style functions as a medium of information exchange. Here the primary function of style is as a device involved in materially condensing information and in signalling difference. While this theory involves a more active approach to material culture, it nevertheless incorporates a pragmatic determinism in suggesting that the existence and function of style is solely in the domain of defining group differences.

Ceramic decoration is typically seen as an essential component of pottery style, while some studies have considered the reasons for the decoration of pots (David et al 1991). I would prefer to draw back from approaches which specify reasons for ceramic decoration, as it would appear uncontentious that many motifs on pottery surfaces are highly abstract, and their meaning will thus be highly ambiguous (Munn 1973, Morphy 1991). Decoration, like style, may function as cultural transmitter, communicator, ethnic identifier, boundary identifier etc. However these particular aspects are context specific, and all or none of these may operate at different times and places. The use of a particular decorative motif on a vessel of specific form may as much be associated with the efficacy of the vessel, as with the various functional and morphological properties of the pot. The decorative features of the vessel are inseparable from the functional. Indeed properties such as decoration and colour may be essential for the categorical definition of the vessel. For instance, Boast (1990, 117) notes that the category of 'Beaker' is determined firstly by shape, to distinguish it from other contemporary ceramic forms such as Grooved ware, and secondly by decoration to distinguish within a variety of Beaker types.

Formal analysis of ceramic decoration, derived from the work of Friedrich (1970), sought to explore the structuring principles by which pottery is decorated. Work concentrating on Neolithic material from both Sweden (Tilley 1984) and Holland (Hodder 1982a) has stressed the way in which decorative motifs and their structure and complexity on ceramics are related to the negotiation of a series of differing and often contrasting principles within society. Such studies, while stressing specific components of pottery decoration, tend to divorce the decoration of ceramics from their other morphological and functional attributes. If we consider the point that these aspects of the pot are inseparable, then the functional and morphological attributes of the pot are also important contexts for difference. Such an approach, in the notation and definition of pottery decoration, has been employed in British Neolithic contexts and especially in the study of Grooved ware (Richards and Thomas 1984, Richards 1993b). However, rather than an understanding of decorative complexity as indicating wider social complexities, the differences were seen to stress underlying divisions involved in the specific ritual use of the ceramic.

Again such an approach, while useful in determining a difference within the assemblage and their contextual associations, divorces the decoration from the morphological and functional aspects, as noted in chapter 1. While these approaches are interesting in stressing the way in which ceramic decoration is structured by underlying structuring principles, the relationship between these principles and overall decorative structure appears to be seen as unproblematic. Although Tilley (1984) stresses the ideological nature of decorative structure, the ambiguous nature of decoration is underplayed. While decorative structure may involve the material cementing of structuring principles, I suggest that these involve the representation of a series of ideas referring to the culturally appropriate categorisation of material.

Anthropologically, such ideas have been explored in a different medium. In the architectural sculpture of the Kwoma of Papua New Guinea (Bowden 1992) house

sculpture, within the male cult house, is seen to embody and represent the contrasting principles of male aggression and procreation. Such principles are also seen to be embedded in the cosmology of this particular society, as understood by men. Thus decoration can be seen as embedding cosmological principles of order, while also communicating to a specific body of people, with a specific social identity.
In this case the full symbolic comprehension of the meaning associated with such representations is structured by age, and the rituals of knowledge associated with progression through various life stages. So, while material representations may be visible, their full meaning may be filtered through relations of gender and age.

Similar principles may be applicable to pottery, while the relative visibility of different pots within the settlement may structure the way in which they are perceived and used by different members of society; this perception may well be structured by age and gender (Sterner 1989). Representation is both active, in that it is can be used to define differences between people of different identity, or it may be passive and its full meaning may not be understood beyond the confines of a group with a particular identity. The stylistic and morphological aspects of a pot may embody a whole series of cultural representations, expressing the cosmological relations involved in the use of material within the pot, the social relations involved in the pots production, the categorical relations involved in the material aspects of the pot, such as size, shape and volume, themselves structured by cosmology and the cosmological relations embodied in the appropriate use of different decorative elements on pots of different form.

Thus the duality constructed between function/form and style/decoration is a false one, and both should be seen to structure the other. The process by which the pot is decorated, as well as being part of the categorical definition of the pot, should also be seen as an act of representation. Rather than seeing decoration as simply being communicative or as defining boundaries, as a representation of social reality it should be seen as far more fluid, having quite different meanings to the people who made,

used and lived with the pot in different contexts. As noted above, social identities are embedded in just such habitual symbolic structures, and the identity involved in decorative representation may actively be drawn on at different times in mapping distinctions both within and between social groups.

The spatial categorisation of pottery

It has been noted previously that architectural constructions effectively embed culturally specific cosmologies through the act of construction and the ordering of space. The relationship between architecture and order has long been noted by social anthropologists as a means by which the cosmological classification of houses cement certain ideals through their construction. Probably, the most developed of these studies, is Bourdieu's analysis of the Berber house (1973). Bourdieu demonstrated, in this instance, the way in which the orientation of the house and objects within the house, reproduced the structural logic by which both the house is organised and the way the inhabitants move around and occupy the house. This process not only cemented a particular cosmology, but also naturalised a particular set of social relations.

Thus architecture may be considered as a template for social action, however action also draws on architecture and may transform or reorder the way space is perceived, for example, through the temporalised nature of specific activities. The spatialised and temporalised use of pottery may be a further means by which architectural divisions are defined. Further, the ordering of space may relate to notions of purity and cleanliness, thus the use of vessels in certain regions of space classified in this manner may be another means by which the social perceptions of pottery may be embedded. It is notable here that spatial categories are not inherent within the house, rather they are reproduced through action. This is an important point realised by

a number of authors (Bourdieu 1973, Moore 1986, Donley-Reid 1990), and is best expressed in the notion of the house as a 'structuring structure', where action draws on the symbolic classification of architecture, while also structuring the way in which architecture is experienced.

Therefore architecture and space serve as one means by which the categorisation of pottery forms are structured through social practice. Here different attributes of pottery categories, such as vessel size and decorative motif may be employed in the social definition of space. Furthermore the spatialised classification of pottery may be a further means of mapping the broader biography of a vessel from its place of production, to use and finally deposition.

Such an approach to the symbolic construction of space is especially relevant in the discussion of the use of pottery in the Orcadian Neolithic, where the placement of the hearth in a central location in Late Neolithic houses and the orientation of activities around the hearth enable a very clear understanding of how pottery categories may be articulated in practice (see chapters 7 and 9 for an interpretation of the spatial categorisation of Grooved ware).

Production, consumption and the social uses of pottery

The relationship between production and consumption is itself problematic, since the production of material culture involves socialised acts of representation. In many societies the acts of production and consumption are often spatially, temporally and socially separated, therefore objects may not always be consumed by the people who produced them. However, the relationship between production and consumption in small scale societies is clearer; while acts of representation will occur in the process of production, as noted above, things are produced for the consumption and use of individuals who either made them or are related through ties of kinship. However,

there may be some dislocation between producer and consumer. Indeed, both the processes of production and consumption may be surrounded by prescriptive rules involving the categorisation of people, for instance the exclusion of potters and smiths in certain African societies (Herbert 1993, Barley 1995). The production of objects by particular people may be one means by which an objects is socially categorised.

However, what I wish to explore in terms of the Grooved ware of Orkney is the way in which the production of specific pottery forms and sizes may relate to particular social relations. Pottery production is a social activity, and the morphology of pottery may partly reflect this. The production of vessels will tend to reflect the perceived necessary capacity of the vessel in use. Thus, the volumetric capacity and the relative frequency of different types of vessel may enable a closer understanding of the size of the social group using the vessels and also the mode by which the social group uses the pottery.

Surprisingly little attention has been paid to volumetric analyses of pottery. Volume was utilised by Barrett (1980) to determine the different sizes of classes of Bronze Age Deverel-Rimbury pottery. However the subsequent analysis of the particular classes of pottery paid little attention to the use of volume in determining and structuring pottery assemblages. However, a recent and innovative study of vessel volumes by Woodward (1996) suggests that vessel volumes may not only provide information concerning the function of vessels, but also allow an insight into the social identity involved in the use of different vessels. Following Miller (1985), Woodward's approach involves quantifying vessel volumes. She then employs the range of volumes within a given assemblage as an index of complexity. Assemblage complexity, for Woodward, provides an increased understanding of the social identities represented in the production and use of pottery in different contexts.

This approach is extremely useful and enables us to consider a pottery assemblage as a representation of a particular set of social practices. However, this

project is fraught with difficulties since, due to the fragmentary nature of the archaeological record, the determination of a complete or whole assemblage is problematic (De Boer and Lathrap 1979). The reconstruction of 'real' pottery assemblages at particular points in the life of a site is the underlying aim of most use-life studies. However this is further frustrated by complexities of dating and stratigraphy, as well as the possibility of re-use and re-categorisation. It would seem that ultimately the 'demography' of pottery at archaeological sites must be seen as relative, and indeed the ordering of pottery will ultimately depend on a culturally specific understanding of the way in which the material world operates.

Thus the assemblage from a site must be considered as given. However, the contextual association of pottery with specific features and structures can be taken into consideration in determining the structure of the assemblage and the way in which different types of pottery are socially utilised. These considerations aside, volumetric analysis can still be undertaken both as a means of drawing distinctions between pottery in a given assemblage and also in understanding the socialised use of pottery, both in the preparation of food and its consumption. By determining the use of certain vessels and the kind of socialised contexts they are used in, it may be possible to note the nature of social relations being expressed in particular instances.

Through a carefully considered study of particular categories of pottery, and their relative occurrence and spatial and contextual associations, a form of grammatical structure for the assemblage may be built up. This need not involve a rigid semiotic or textual approach to material culture in which the structure of the assemblage is seen as an embodiment of underlying structuring principles. Rather, as I have noted in the discussion above both categories and meaning may be fluid, and the structure of an assemblage can at best be described as relational.

The production of ceramics for a particular task is an act of cultural representation, in which a set of social relations are being objectified materially. It is

the contextual and practical use of various pottery forms which define vessel categories and the relation between the practical use of these forms is an essential area of this study. The complexity and combination of an assemblage of ceramics, specifically those employed in the social relations of serving and consuming food, will almost certainly reflect or represent a particular set of social relations. This is an especially important point as regards pottery and food consumption, production and storage, as the organisation of cuisine around the meal is an important way of expressing relationships between people, thus acts of sharing or the division of food will be reflected in the pottery containers produced for a particular task.

Food is itself a form of cultural expression, and the mode by which it is consumed and with whom, is a powerful means of expressing social relations (Douglas 1973). Meals may be seen as structured activities which express on a number of planes, notions of cosmology, identity and specific types of social relations (Deetz 1977, Johnson 1994, 1995, Orlove 1994). Thus the production of specific forms of pottery for the maintenance of such forms of cultural expression may enable a determination of the ordering and complexity of meals themselves and the social relations expressed in the use of pottery in specific acts of consumption. However, importantly, the use of pottery in the consumption of foods may also relate to wider cosmological notions of order, cleanliness and purity. Such principles relate to the classification of the natural world, and of particular note in this instance the classification of plants and animals in their appropriation as food.

Such an approach need not be confined to cooking and serving vessels but to the whole field of activities involving food and pottery. Pottery may be utilised for the storage, preparation and consumption of particular foodstuffs and these activities may be spatially, and ritually separated from the other foods. The use of particular pottery forms for specific foods may serve to reproduce and embed naturalised classifications. However, there may be other instances where the social use of pottery is related to

context, and pots may only retain their association with particular foodstuffs for a short duration. Both of these processes will structure the particular biography of the vessel, and may determine its use either rigidly or fluidly according to the particular social context.

Exchange, consumption and identity

The exchange of material culture is an important means by which relations between people are constructed. The nature of the form of such relations was an important component of the work of both Mauss (1925) and Malinowski (1922). Much has been made of the contrast between societies constructed by the circulation of gifts as opposed to commodities (Gregory 1982). However, as Appadurai (1986) notes such a contrast belies the complexities by which different objects circulate, many societies having prescribed gift and commodity based forms of exchanges. Such a contrast is often made between the circulation of rare and prestige 'gifts' and the more mundane circulation of everyday 'commodities' (Sahlins 1972). However, I would suggest that while it is important to examine the relationships involved in the transaction of prestige goods, the exchange of localised material also creates relations of mutuality, and need not involve a tacit assumption that certain objects only circulate as commodities which engender no real social ties (Gosden 1994).

Exchange is one means by which social relationships may be constructed (Appadurai 1986). Exchange relationships may be conceptualised either as the long distance transfer of objects between social groups, or the localised transfer of material from one individual to another. Whatever the scale of the transaction, the relations between exchange partners may be one means by which a persons social identity is constructed and maintained. This is particularly interesting in terms of what Gosden describes as relations of mutuality and materiality (1994, 82-83). Through a detailed

study of the localised procurement and production of objects involving relations of materiality, it may be possible to explore the way in which the object is used to create mutual social relations.

As well as relations of exchange being a means by which individuals can express themselves and their social position through the manipulation of exchange relationships, the consumption or use of material is another means by which people are able to define themselves socially. Both the type of objects used by people and how they use them may be a means of signifying identity (Friedman 1994). We can think of this on a number of levels in relation to the biography of Neolithic ceramics, and of particular note are the dimensions of social biography and social context. The age, history and associations of ceramics are essential components of the way in which ceramics will be used; at what life stage is a particular ceramic used in a particular context; was it produced for the occasion or does it have a long history. Interestingly, Boast (1996) notes that for beakers there is an extreme difference between both the finish and type of design on beakers utilised in domestic contexts and those placed with burials.

Interestingly, Gell (1992) considers the production of objects, particularly for exchange and display, to be part of the process he describes as the technology of enchantment. He suggests that it is precisely the transformation of mundane objects into technically superior and desirable objects which gives them their social value. Similar suggestions have been proposed by Munn (1986) in the context of long distance exchange in the Massim area of Melanesia, and by Morphy (1992) in the context of the production of Australian Aborigine art. In this second instance it is precisely the appearance and colour of objects which lends them power and social value.

These are important points to consider in discussing the use of different categories of object in processes of exchange and consumption. The precise category

of objects used in these social contexts and the variables of appearance, surface treatment, colour and decoration of these objects may be important in framing the way it is socially valued.

Another important point is the way in which the life history, or biography, of objects are drawn on in contexts of exchange. Again, Boast (1996, 77) suggests that beakers are special precisely because they are typically used in mundane contexts. A central tenet of Munn's thesis concerning exchange relationships is that both people and objects are imbued with fame and that this fame actually structures the nature of exchange relationships (1986, 105-121). Thus objects gain life histories as they are associated with particular people and these life histories are drawn on when objects are employed in exchange.

Here then it is important to think of the way in which material culture may be used to make metaphorical or metonymic statements. How is the object used, and does this refer to everyday or specialised use? Each of these modes of use are ways in which people can make statements about themselves, the community and the force and experience of particular actions. The contextual position of objects within society are important here, and it is essential in discussing this to note how the object is used in a variety of social contexts. Here the important relationship between production and consumption should be noted; what is the scale of production, how does this relate to consumption and has the meaning associated with the object changed between these stages.

We need, therefore, to think about the physical, social and conceptual movement between these stages, in particular from production to exchange and finally consumption. All of the modes by which social and communal identity may be created cannot be taken as a given and the way in which particular social groups actually operate in contexts of exchange should be seen as contingent. Here we should note that consumption should not be seen as the driving force for production and exchange but

is part of the process by which societies order their world. Thus the consumption of Grooved ware, in this case, will be ordered by particular cultural occasions, which are themselves structured by the way in the social and natural world is classified and seen to operate.

Acts of Discard

The observation of patterning in the 'archaeological record' is an essential part of the process of understanding the past. Observations may be interpreted according to a number of causative factors, and the depositional record which archaeology routinely works with is often patterned or structured in some way.

Indeed a number of authors have examined the formation of ceramic assemblages in the archaeological record (Arnold 1991, De Boer and Lathrap 1979, Nelson 1991). In the work of these authors the deposition of ceramics is simply a stage in the use-life of the ceramic (Nelson 1991). The plotting of ceramic deposition is seen to represent the formation of secondary refuse (Schiffer 1976, 30), typically the accidental breakage of pottery in specific activities. Such an approach denies the classification of the material world, and ceramics are plotted spatially in order to show the expected pattern of deposition (Arnold 1991, 120-137). Here, although the plotting of sherds is spatialised, the pattern is seen as centrifugal, away from the central living space (DeBoer and Lathrap 1979). Space here is seen as a homogeneous entity, and refuse is simply discarded away from the house (Arnold 1991). This approach simply sees deposition as a pragmatic and expedient activity, obviously related to unconsciously articulated and universal concepts of dirt and order.

However, none of these studies plot the deposition of *different categories* of vessel, typically ceramics are glossed simply as 'ceramics' and as such patterns are disguised by the submersion of difference by sherd weight or size (see Arnold 1991,

120-137 for example). Furthermore, the breakage of ceramics is seen as accidental rather than deliberate, thus any unusual pattern is marginalised as accident or coincidence rather than being seen as real or structured.

The only causal factor for deposition is accidental breakage, or the discard of a vessel which is unusable according to the approaches of Arnold, De Boer and Lathrap and Nelson. However, ceramics may of course be deliberately destroyed (Sterner 1989), although this is obviously difficult to determine archaeologically, except through the possible differential of abrasion in different contexts. The recognition that breakage may be deliberate has been noted for some time in the European archaeological record, especially in the deposits within the facade of passage graves, such as those commonly found in Scandinavia (Tilley 1984, Shanks and Tilley 1987, Tilley 1996) as well as in the ceramic ethnographies of Africa (Barley 1995, Sterner 1989). Here deliberate destruction may be understood according to a number of processes associated with the biography of the vessel. Firstly, the vessel may have spirit just as any animate life form and therefore its corporeal form is destroyed at the end of its use-life. Secondly, the destruction of commodities acquired through exchange may be one means of gaining social prestige, which may occur through a number of mechanisms, notably through the staging of feasts or as votive deposition. The destruction and deposition of objects may well also be related to the activities with which they are related, for instance mortuary rituals. Thus there are a series of socialised activities which may result in the destruction and deposition of material, rather than simply the result of accident or age (Bradley 1985, 1990b).

If we consider that deposits are the result of socialised and meaningful activities, then the depositional patterns are not simply the result of casual discard of material which may be regarded as the result of, for instance, the continuous occupation of a location. Rather, deposits are also structured by the perceptions and understandings of the world brought to bear in guiding the activity of deposition. The notion of

structured deposition implicitly regards certain aspects of the record as the result of intentional action; the nature of such action is perceived to be of a specific kind. Structured deposition was initially correlated with structured activity such as ritual (Richards and Thomas 1984), in part since many structured deposits appeared to be on sites of a non-functional or ritual nature. The approach to structured deposition by many authors appears to involve the simple recognition in ceramic or flint assemblages of differential patterning (Brown 1992, Cleal 1992, Pollard 1992, 1995), rather than an interpretation of what these patterns represent in terms of social practices.

A more developed view may be that in fact no deposits of an anthropogenic nature can be dismissed as simple casual discard, that all forms of depositional activity are in fact of a cultural nature and are therefore informed by culturally specific systems of logic. As we have seen above, according to a traditional view of the 'archaeological record', the archaeological deposits on a site were given. For instance, bone refuse could be easily read off to give an uncontentious picture of the site's economy. Dissatisfaction with this simplistic approach followed, by drawing on the anthropology of Douglas (1966), Leach (1964), Bulmer (1967) and Tambiah (1969). The work of these authors amply illustrates the way in which the animal world is ordered by culturally specific forms of classification. If this notion was taken on board then the simplistic correlation of bone refuse with economy could not be sustained, since the spatial location of animal remains on certain sites was the result of a specific cultural logic (Moore 1981).

Moore's study of the Marakwet of Kenya (1982, 1986) notes that spatial definition of depositional activities, in particular the deposition of chaff, ash and animal dung, may be quite explicitly related to the structuring principles that order society. These examples provide a clearer understanding of the way in which material culture may be ordered spatially, here it is important to note that depositional patterning need not be the result of simple expediency but may also be due to

culturally specific notions of spatial order and conceptions of dirt and cleanliness. In a similar vein, Thomas' (1991) survey of depositional activities throughout the Neolithic notes the structured nature of deposits along with the similarities and differences of depositional practice between sites. Again he relates the deposits to the maintenance of spatial and conceptual boundaries, especially those between culture and nature. Thomas is correct to stress the similarities between materials deposited in different contexts, although I would suggest that such contextual differences may relate to the contextualised classification of things in different states. Thus, the relationship between long barrow ditches and causewayed enclosure ditches may be with the states of decay and the death.

Interestingly, while spatial boundaries in deposition are well defined in many studies there has been little effort, apart from a recent study by Hill (1995), to consider the temporality of deposition. What was the physical, material state of the material when placed in the deposit, were deposits of a similar state placed together and how does this relate to the final deposit as seen archaeologically? Through detailed analysis Hill was able to distinguish the timing of activities conducted within hillforts of the Iron Age in Wessex. This enabled him to note the seasonality of depositional activities and thus gain a clearer understanding of both the depositional activities themselves and the symbolic structure in which they were conducted.

Deposits are then considered to be the result of intentional action and are bound up with a whole series of cultural perceptions including attitudes to dirt, the use of space and the nature of time. Given this, the patterning of different kinds of deposit can be revealing. However, while deposits represent the final moment of an objects use life we must be cautious in reading back from depositional categories into categories of use. While the categorisation of material in deposition may well relate to the final fixing of categorical distinctions made in use, there may be certain contexts of deposition such as the chambered tomb, passage grave or henge in which categories

are transformed through their use in these contexts, and these may be reflected in deposition.

In order to construct and understand a biography of ceramics, a more circumspect approach is necessary. The categories of use may be distinguished through wear patterns (Schiffer and Skibo 1989), sooting patterns (Skibo 1993), residue analysis and also spatial analysis within the houses. Thus the relationship and contrasts between categories of use and categories of deposition may be distinguished. An analysis of the relationships between different deposits may also be undertaken by tracing the provenance of vessels through the analysis of contextual differences in conjoining sherds (Lindauer 1992).

An analysis which takes into account both the relationships and differences between deposits, as well as the nature of the categories of material incorporated into different deposits, will allow a clearer view of the way in which these deposits relate to specific kinds of social practice, and since the use of material culture in culturally specific ways is related to the expression of cultural identity, this then allows a far greater understanding of the specific social identities represented in the deposition of material towards the end of its use-life.

Methodology and Definitions

Having surveyed the theoretical terrain of the study, I now wish to concentrate on how the theoretical questions brought to the material may be explored methodologically. Furthermore I wish to clarify at various points the precise sense of various terms used throughout the analysis of the Barnhouse Grooved ware assemblage.

The methodology and scientific analysis used in this study can be broken down into a number of discrete areas of enquiry. The primary analysis was the macroscopic

examination and characterisation of the Barnhouse Grooved ware assemblage, followed by the petrological thin-sectioning programme. A further element of the study was the provenancing project which enabled a more fine-grained and detailed characterisation of the petrology of the Barnhouse Grooved ware. Finally having determined the character of the assemblage, selected sherds were analysed for residue analysis.

Characterising the Barnhouse Grooved ware assemblage

The Grooved ware assemblage from Barnhouse is made up of over six thousand small find numbers, each constituting at least one sherd. Many aspects of the pottery assemblage, such as weight, length, condition, colour and presence/absence of decoration had been recorded previously by Colin Richards. However, in order to characterise variation within the assemblage it was necessary to record certain other attributes of the assemblage, such as fabric, burnish and decorative scheme.

Fabric Analysis

The primary aim was to begin to characterise differences within the assemblage, and in particular to examine the nature of the fabrics used at Barnhouse. A similar method of examination was employed by MacSween (1990) on the Pool, Sanday assemblage. Here MacSween conducted detailed characterisation studies on the pottery, she was concerned primarily to distinguish the nature of the temper used (shell, rock, untempered). Since MacSween was dealing with a multi-period site the main aim of MacSween's work was to stress the changing nature of fabric over the life-span of the settlement.MacSween's analytical methods were both coarse and fine grained. In terms of primary macroscopic characterisation she was simply concerned

with the presence and absence of different types of temper, she was less concerned with the subtleties of fabric. On the other hand she employed sophisticated analytical methods to characterise the fabrics, such as mineralogical point counting from petrological thin-sections. MacSweens methods were problematic since the results obtained from the fine-grained analysis were difficult to cross correlate with the coarse grained analysis, as a consequence of this they were both time-consuming and were difficult to apply as a simple means of characterising a large pottery assemblage.

As a result of this a slightly different approach was taken in examining the Barnhouse Grooved ware assemblage. Firstly sherds were examined macroscopically from all areas of the settlement, in order to characterise the basic observable differences in fabric. As a further means of clarifying the observed differences in the assemblage, around 300 sherds from across the site were also sectioned laterally with a diamond-edged band saw. This involved sectioning sherds along the length of the sherd in order to provide a clear section through both the internal and external surfaces and the interior of the sherd. This was undertaken in order to be able to gain a clear view of a fresh unweathered section of the fabric. The sections were then examined under a stereomicroscope (x 4 magnification). In each case the main objective was to determine the nature of temper used in different sherds, as well as the size, shape and frequency of temper. The size was simply measured using a micrometer, while shape and frequency were estimated using the comparison charts published by Matthew et.al. (1991).

Characterising Vessel Attributes

Fabric analysis was mainly concerned with gaining a broad picture of the presence or absence of sherds of different fabrics across the site. However a more sophisticated approach was necessary in order to characterise other attributes of the

Barnhouse Grooved ware assemblage. Since the main aim of this study is an examination of the relationship between social practices and social identity it was essential to begin to characterise not just variation in the attributes of sherds across the site, but to characterise the variations in the attributes of different vessels across the site. To this end all sherds from within the houses were examined, as well as specific areas such as the pottery dumps and the central area.

However, in order to build up a clearer picture of the way in which the Grooved ware was deposited both within and outside the houses, the sherds from each area were also plotted spatially using their recorded coordinates on the site grid. This was done on a bench top and allowed the relationships between sherds to be examined visually. This enabled two things to be done; firstly the precise spatial location of all sherds could be determined; secondly conjoining sherds, sherds of similar fabric, decoration and burnish pattern could be examined in relation to vessel groups and the minimum number of vessels for each house or deposit could be determined. This enabled clear differences in the demography of vessel categories in specific areas to be documented. All sherds within these vessel categories were also weighed which provided a means of determining mean sherd weight (MSW). Following Bradley and Fulford (1980), MSW was utilised as a means of determining relative abrasion of different categories of vessel in different deposits.

A documentation of the relationship between particular sherds and vessels was essential in carrying out both the petrological and residue analysis programs, since it allowed a study of the variation, not only between sherds, but also between vessels within certain contexts. This enabled thin-sectioned sherds to be linked to specific vessels from specific contexts. What is more, the documentation of number of sherds within each vessel group provided a clearer view of the fragmentation of vessels within each deposit.

In order to characterise vessel forms a series of measurements were made of sherd thicknesses, again using a micrometer. In order to build up a picture of the variation in size of different categories of Grooved ware, these vessel thicknesses were correlated against vessel volumes. Vessel volumes were calculated both from reconstructed vessels within the Barnhouse assemblage and from published excavation reports of other Orcadian Grooved ware.

Other attributes which varied between sherds of different categories were documented such as burnish and sooting, while these attributes of sherds could be assigned to individual vessel groups, it was more problematic assigning these attributes to specific regions of the vessel, thus in general simple presence or absence of these attributes on vessels was recorded. Furthermore, the presence and absence of decoration, decorative technique and overall decorative scheme were also recorded. The correlation of sherds with vessel groups enabled isolated decorated sherds to be linked as part of vessel groups, which allowed a clearer understanding of the overall decorative scheme employed on individual vessels.

Here it was essential to distinguish the way in which the decoration was recorded, since this has considerable bearing on the methodological and theoretical implications of the nature of decoration. While previous studies of Grooved ware decoration (Richards and Thomas 1984, Richards 1993b) have been influenced by the hierarchical approaches to decoration proposed by Friedrich (1970) and Plog (1980), the approach taken in this study is much simpler. The main aim of this study is to study the variation of vessels within different contexts both within the Barnhouse settlement and beyond, and the study is most concerned with the way in which these variations relate to social identities. Decoration is of obvious importance here, but unlike previous studies I am not simply dealing with secondary deposits but also with primary deposits representing use.

Thus, the primary aim of studying decoration was to compare the overall decorative scheme utilised on individual vessels within different contexts.

During this study the only attributes of decoration discussed will be decorative technique, decorative elements and decorative scheme. Decorative technique is defined as the method by which decoration is applied to the surface of the vessel, here either incised into the surface or applied as strips or blobs of clay. However, applied strips may occasionally be embellished and this is also distinguished. Decorative elements are distinguished as the various components which go to make up the decorative scheme. These may be as simple as incised lines or dot impressions or may be more complex motifs such as curvilinear incised motifs or impressed 'rosette' motifs. Finally, the decorative scheme is distinguished as the overall organisation of the decoration on the pots surface. This is distinguished from previous terms such as design structure, as used previously by Richards and Thomas (1984) and Richards (1993b). Design structure typically opposed the presence of two main structuring principles, boundedness/unboundedness and decoration/nondecoration. I feel that for this study this is too simple and does not fully encompass the variability of factors involved in the decoration of a vessel. Particularly the position of the decorative elements on the vessel and the possibility of a similar design structure with different decorative techniques or elements used to create the structure. All these factors are encompassed in the term decorative scheme and it shall be employed throughout the study. Each decorative scheme distinguished employs a series of decorative elements in a particular and characteristic way in order to achieve an overall decorative effect. Since this study is aimed at looking at the way different categories of vessels are produced, used and deposited, decorative scheme will be used throughout this study as a means of differentiating between the decoration of vessels in different contexts.

The Petrological programme

Although differences in tempering agent had been broadly observed, the nature of each inclusion type was problematic. By comparison with other published assemblages the platy voids within sherds were recognised as the decayed remains of crushed shell, a tempering medium which is prevalent at other Late Neolithic settlement sites in Orkney (such as Skara Brae, Rinyo and Pool). However it was impossible to visually determine the nature of the rock inclusions within the fabric A and B sherds from the macrosections.

In order to clarify in greater detail the geological character of the tempering agent used within the Barnhouse Grooved ware a number of sherds from across the site were prepared as petrological thin-sections at a thickness of 30 microns (the manufacture of the thin-sections is described in detail in appendix 1).

From the analysis of these thin-sections it became obvious that the tempering agent consisted of a number of different rock types, mainly igneous rocks, such as camptonite, bostonite and olivine-basalt, and sedimentary rocks such as sandstone, siltstone and mudstone. These types of igneous rock have been recognised by Williams (1982) as a distinctive type of tempering agent common to Orcadian pottery.

Having determined the type of geological inclusion used within the pottery, and having recognised that the tempering agent used in the Barnhouse Grooved ware was not geologically uniform, and could be geologically characterised, it became obvious that these differences could be used to examine differences in the organisation of production between different houses at Barnhouse.

Here it was considered, following Longacre (1985) and Hill (1970), as well as Arnold (1989), that, while variation in decoration may not reflect organisational differences and similarities in the production of pottery, variation in the initial stages of production, particularly in the procurement, and use of different materials for

pottery construction is overall a more precise means of observing and characterising organisational differences in the production of pottery. Following Arnold (1971) the variation in the use of tempering agent appeared to be an appropriate means of examining organisational differences in pottery production.

Thus a large petrological thin sectioning program was undertaken; 189 sherds were thin-sectioned from across the site as a whole, in most cases these were from individual vessels. Most of these were from houses 1, 2, 3, 5, 6, structure 8, 10, 11 and 12. There were too few rock tempered sherds from house 9 for the sample to be meaningful. In the case of houses 2, 3, 5 and structure 8 a large percentage of the total rock tempered assemblage were thin-sectioned (see appendix 1 for catalogue). With the large scale thin-sectioning of sherds from different vessels it was possible to see that there was variation in the use of different tempering agents within different houses (see chapter 5 for a discussion and presentation of results). Given this, sherds were also selected from a number of locations around Barnhouse, such as the pottery dumps, in order to see if they could be provenanced to particular houses.

Sherds were thin-sectioned from the house 2 dump, both house 3 dumps, the house 9 dump, the dump behind house 6, the dump next to structure 8, and the dump within trench K (see chapter 7 for a discussion and presentation of results). Thin-sections were examined under a plane and polarised light microscope at both x 8 and x 16 magnification.

The Barnhouse environs provenancing project

While the petrology of the inclusions within the Grooved ware from Barnhouse appeared to vary in their use within specific contexts within the settlement, it was obvious that a more detailed approach to the procurement of material for pottery production was necessary.

A number of Grooved ware vessels in contexts out with Barnhouse, such as Quanterness and the Stones of Stenness, were also tempered with igneous dyke material. While it was potentially possible to compare the petrological thin-sections from these sites with the Barnhouse Grooved ware, due to the mineralogical variation of geological sources, it was uncertain whether the igneous material observed within the Barnhouse Grooved ware was related to that used in Grooved ware at other sites.

Furthermore, a detailed provenancing project would allow a more detailed view of the way in which different sources of igneous dykes were used within the Barnhouse Grooved ware assemblage. The Geology of Orkney is singular in that while most of the bedrock of the islands is made up of sandstones and siltstones, at various points intrusive dykes from a plutonic source, protrude through the surface of the bedrock (Mykura 1976, 97). These dykes are generally only 1-2m wide and protrude through the bedrock for less than 10m, their distribution, then, is very precise.

The provenancing project was focused around two areas of Mainland Orkney, the Lochs of Harray and Stenness, and the Bay of Firth. The first area encompasses Barnhouse and the Stones of Stenness, the second area encompasses Quanterness. Detailed geological maps for both areas were obtained from the British Geological Survey (Edinburgh) who also held a catalogue of petrological thin-sections from both these areas. Despite these advantages, there were a number of dyke sources absent from their collections and it was decided that fieldwork was necessary, particularly in the area around the Lochs of Harray and Stenness.

A Proton Magnetometer was used as a means of locating dykes when in the field. Dykes were located around the Loch edges of both the Lochs of Harray and Stenness and the Bay of Firth, using the O.S geological survey map for the area at a scale of 1:25000. These maps allowed the general area to be located in the field, and the Proton Magnetometer was used as a locational device. A signal was obtained from the Proton Magnetometer at 0.5m intervals in the environs of the dykes in order to

precisely locate them. The dyke was then photographed and sampled at 0.5m intervals along its length where possible. As with the pottery thin sections, all dyke sources were thin sectioned to 30 microns, and examined under plane and polarised light sources under a microscope at both x 8 and x 16 magnification.

The Residue analysis programme

Pottery analysis and the application of petrological thin sectioning techniques revealed considerable information concerning the production, and organisation of production of Grooved ware at Barnhouse. However, despite documenting the qualitative and quantitative differences in the assemblage across the site as a whole, it was difficult to understand how different categories of vessel were being used and deposited in certain contexts.

In order to understand the use of Grooved ware at Barnhouse in more detail, it was decided to undertake residue analysis on selected sherds from specific vessels from within the houses, the pottery dumps, the central area and from the old land surface.

Sherds were selected which represented a range of categories of vessel size and fabric at Barnhouse. If successful, residue analysis will allow a precise indication of the contents of the vessel during its use-life. It was decided that the most profitable form of residue analysis was lipid analysis, since due to the molecular nature of lipids, they are hydrophobic. This means that they are not dissolved in water, and once they have migrated into the ceramic matrix of a vessel, they are retained. Although they may be subject to diagenesis, and small amounts of contaminant lipids may migrate into the ceramic matrix during the period of burial, overall we can be reasonably sure that the lipids extracted in residue analysis are the result of the use of the vessel (Heron et. al. 1991b).

The methodology of extraction and analysis was structured towards the extraction and analysis of lipids, particularly fatty acids. A full account of this process is given in appendix 2. Broadly a series of organic solvents were used to extract the lipids from sampled sherds. These extracts were then derivatised and analysed using both Gas Chromatography (GC) or Gas chromatography and Mass Spectrometry (GC/MS). In order to aid the analysis of the results a series of known food types were subjected to the same extraction procedure and analysis, and this enabled a comparative characterisation of the fatty acid signatures from specific sherds.

The results obtained from this program of analysis enabled a fuller discussion of the use of different categories of Grooved ware in different contexts (see chapter 7 for presentation and discussion of results), and enables a clearer understanding of patterns of consumption. While consumption in different contexts could be documented quantitatively, with a basic vessel count, the nature of consumption and the organisation of consumption practices could not be documented. However, the careful interpretation of residue analysis results allows both the nature and organisation of consumption practices to be understood (see chapters 6 and 7 for discussion). Given the theoretical emphasis on food, and the relationship between production, consumption and the construction of identities this aspect of the analytical work was seen as essential.

Chapter Three

An Orkney Tapestry: approaches to social organisation and identity in Late Neolithic Orkney

Introduction

The title of this chapter is derived from George Mackay Brown's essay on the history of the Orcadian people. Although his work is concerned with the intricate way in which the features peculiar to the Orcadian community are interwoven with their Norse forebearers, the metaphorical thrust of this particular chapter will be similar. I shall commence, as does Mackay Brown, with a brief account of the Orkneys and then continue, in similar vein to Mackay Brown, with a more in-depth exploration of the way in which previous studies of the Orcadian Late Neolithic have woven an account of notions of culture, social identity and social organisation.

Orkney: Landscape and environment

It is impossible in a study of this nature to capture the drama of the Orcadian landscape. However, here I will provide an impressionistic account before commencing with the more prosaic details. Although climatically the islands are frequently stormy, and in the winter months are quite inhospitable, during the summer the Orcadian landscape is rich with colour, the green of the land contrasting with the azure of the sea. Orcadian horizons are a series of contrasts between land and water, much of the horizon is dominated by water, whether of inland lochs or of the open sea (Figure 3.1 and 3.2).

Figure 3.1 Top: The cliffs of western Hoy rise up, pillars of flame (Mackay Brown 1973, 7)

Figure 3.2 Bottom: In a cluster of islands like Orkney sea and land-stark opposites, irreconcilable-are inextricably mingled (Mackay Brown 1981, 45)

These contrasts are not confined to the colours of the landscape, and the contrast between land and water, but a series of contrasts are also evident in the form of the land itself. The coast of Orkney may be dominated by steep cliffs and stacks of rock, but it may also dip gently down to the shore. The contrasting topography of the land provides a further contrast between the land and the sky, while the treeless nature of the landscape means that the sky itself is also an ever present feature of the Orcadian horizon. All these aspects go to make up a picture of a fertile but dramatic landscape which has coloured our vision of life during the Neolithic from the more poetic accounts of George Mackay Brown and Edwin Muir, to the more pragmatic accounts of Gordon Childe and Colin Renfrew.

On a more prosaic note, the Orkney Isles are situated some 10 miles from the northernmost point of the Scottish mainland, and are separated from the mainland by the Pentland Firth (Fig 3.3). The islands comprise around seventy isles, holms and skerries of variable size, of which fourteen are presently inhabited. The Orkney Isles are situated at latitude 59 degrees North, in the North Atlantic Ocean, and this northerly location provides them with contrasting light conditions over much of the year. In the summer months, the hours of daylight are numerous, with only around 2-4 hours of darkness, while in the winter months this is reversed and the hours of darkness are numerous, and only 2-4 hours of daylight are experienced. This situation is important for understanding a variety of aspects of Late Neolithic life (Richards 1990b).

The climate itself is a necessary consideration in any study of Orkney, and as Davidson and Jones (1990, 17) rightly point out the first thing to consider must be the wind. They present striking data to suggest that Gale force winds are over 35% likely at any point in the Orcadian year. Rain is the second major climatic factor to consider with a yearly average of between 800-1000 mm. The driest and lightest months are April to July.

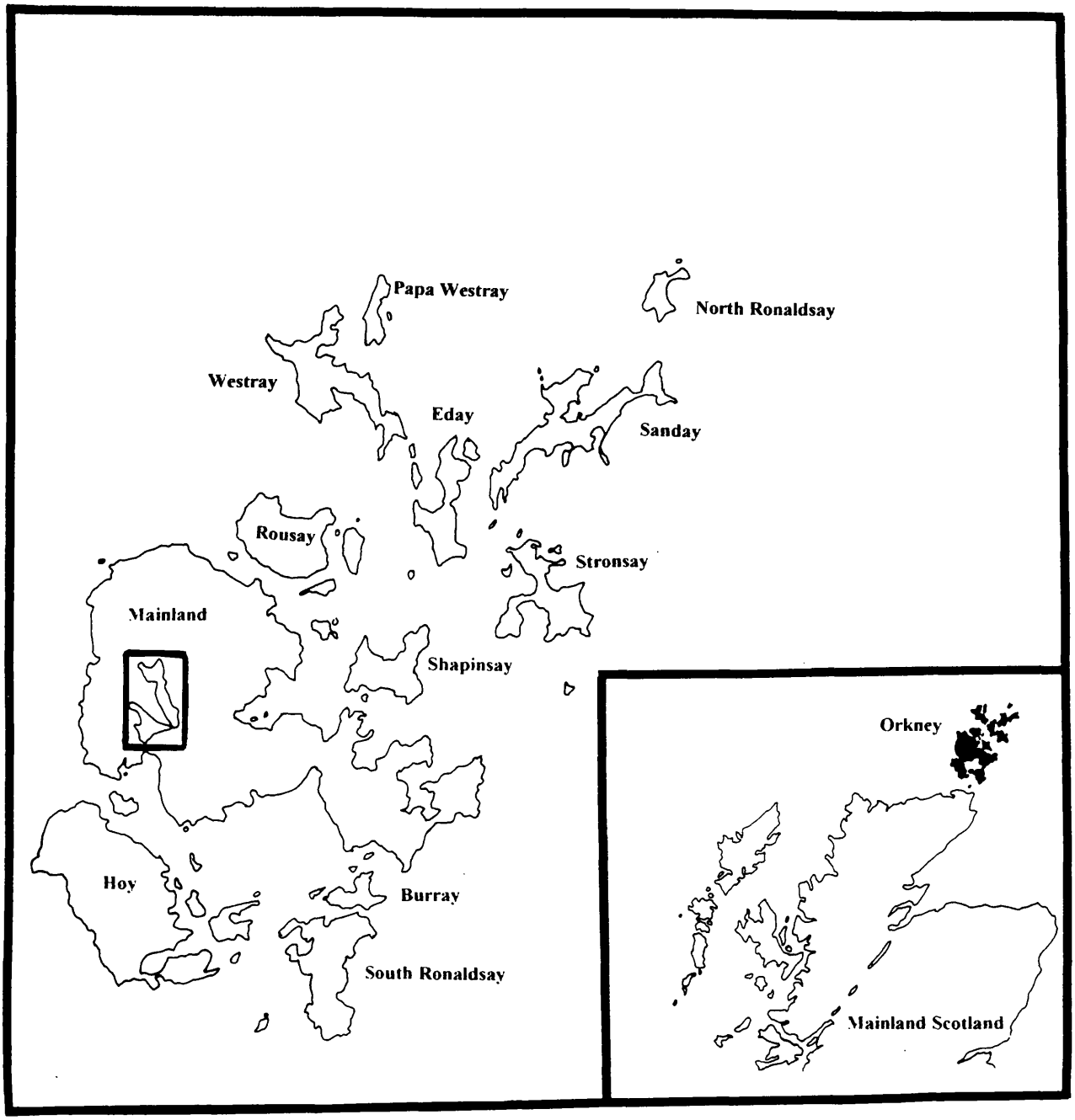


Figure 3.3: Position of Orkney in relation to Scotland. Note position of study area on Mainland Orkney.

Geologically the islands are comprised almost entirely of Middle and Upper Old Red Sandstone, however there are also lavas and tuffs of a similar period (Fig 3.4). This basement complex of rocks is situated in the West Mainland, around Stromness and at Yesnaby. The basement complex consists of metamorphic rocks of Moinian type and Caledonian granites (Mykura 1976, 9). The Middle Old Red Sandstone is of two major groups. The lower group can be classed as Stromness flags, and this sandstone type is found through much of western Mainland Orkney, while the variant Rousay flags, are found on Rousay, Westray, Papa Westray and North Ronaldsay and parts of South Ronaldsay as well as the eastern Mainland. Both lower groups are related to the similar Caithness flag typical of the northern Scottish mainland. The second, Upper group is known as the Eday beds, and its range is restricted to Eday and parts of Sanday, Stronsay and Shapinsay. Finally the Upper Old Red Sandstone itself is restricted to the island of Hoy. The drift geology of Orkney includes large areas of boulder clay over much of the western Mainland, while blown sand is prevalent on many islands such as Sanday (Davidson and Jones 1990).

However, probably the most important geological feature of the islands, in relation to this study, are the intrusive igneous dykes. These dykes are of late Carboniferous date and are of four main types: camptonites, bostonites, monchiquites and olivine-basalts. The distribution of these features is restricted through the islands, with a concentration in the western Mainland and Rousay (Mykura 1976, 97). More importantly, due to their small size and discrete location as outcrops these rocks can be precisely located within the Orcadian landscape (Fig 3.5). As we shall see, the use of these rocks within the Barnhouse Grooved ware is fortuitous since it allows the precise provenancing and characterisation of materials used in pottery production (see chapter 5 for further discussion).

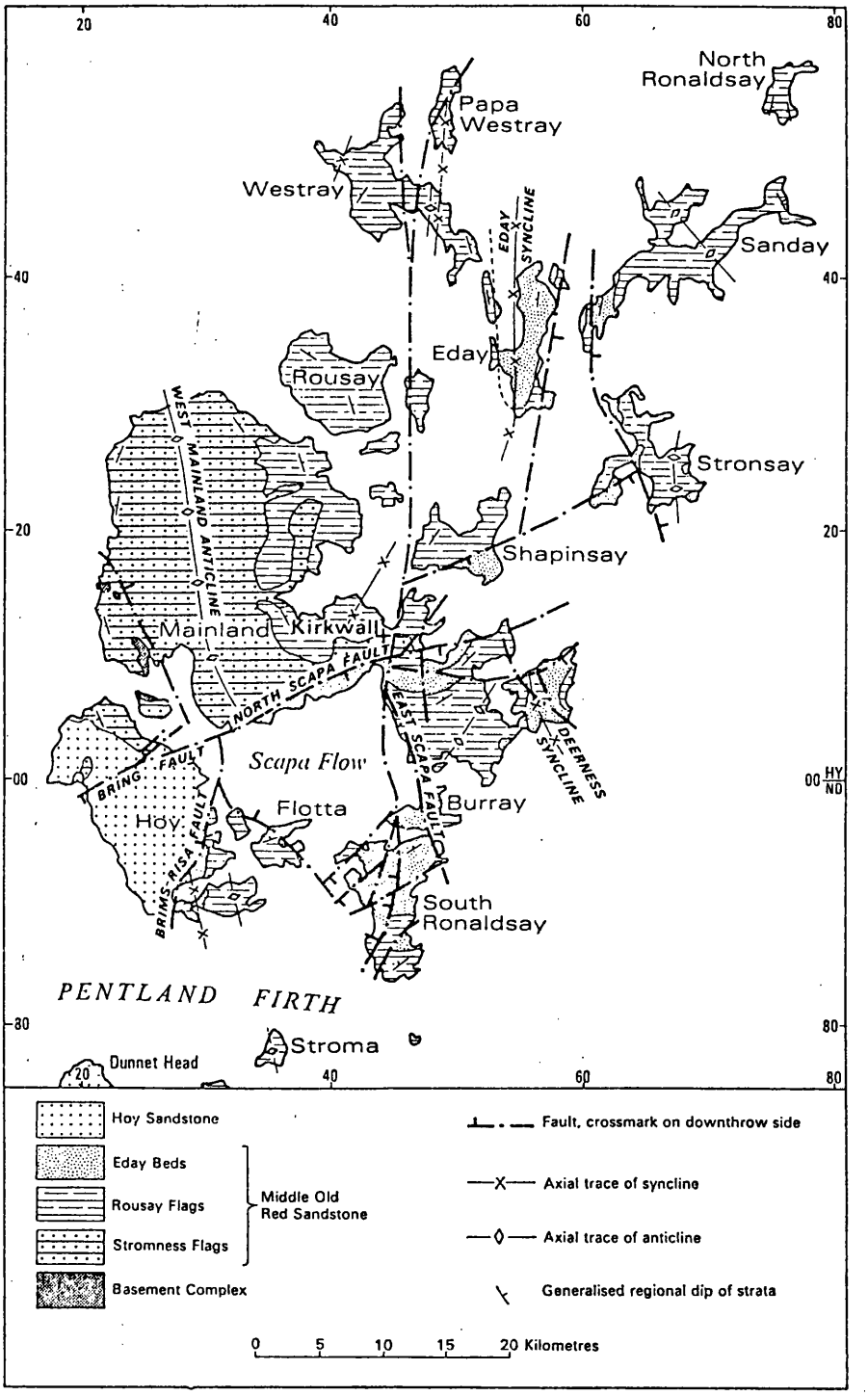


Figure 3.4: The Solid Geology of the Orkney Isles (from Mykura 1976, 10)

Pollen evidence indicates that the Late Neolithic landscape was largely treeless. Bunting (1993) has examined pollen cores from Crudale Meadow and Quoyloo Meadow both on the west Mainland, the former being in the catchment area of Barnhouse. She notes that the pre-Mesolithic woodland consisted of *Corylus* and *Betula*, while at Quoyloo Meadow *Alnus glutosa*, *Pinus sylvestris*, *Quercus* and *Salix* were present. However, the post-Mesolithic decline of arboreal pollen is accompanied by signs of human activity such as the presence of charcoal, cereal pollen and herbs of disturbance such as *Plantago lanceolata* and *Rumex* (ibid., 172). This is dated to between 5900 BP and 5100 BP depending on the location of the pollen core, indicating that this is probably Early Neolithic activity. Davidson and Jones (1990, 26) suggest, from the pollen cores from Lesliedale Moss and Wideford Hill on the eastern Mainland, that by the Late Neolithic an open landscape was prevalent. The pollen core from this area had very low numbers of tree and shrub pollens present, with large numbers of herbaceous pollens such as ribwort, sorrel and members of the rose family (*Rosaceae*) and *Calluna*. The pollen from the organic mud of the ditch from the Stones of Stenness (Caseldine and Whittington 1976), indicated a broadly open herbaceous environment. The low amount of arboreal pollen, mainly from *Betula* could indicate localised stands of trees (ibid., 37). Furthermore, the cereal components from this pollen sample suggests a low level of agriculture in the form of both barley and oats. The pollen samples from the ditch silts at Maes Howe (Jones 1979) also indicated an open herbaceous environment, with possible peat formation. The presence of cereals within this sample was stronger.

The faunal remains from chambered tombs, passage graves and settlements indicate a variety of animal species, with red deer being the most prominent wild mammal species. Birds are also an important component of both tomb, passage grave and settlement assemblages, with a variety of bird species present, for instance birds of prey such as the White tailed sea eagle, Buzzard and Goshawk, wildfowl such as ducks

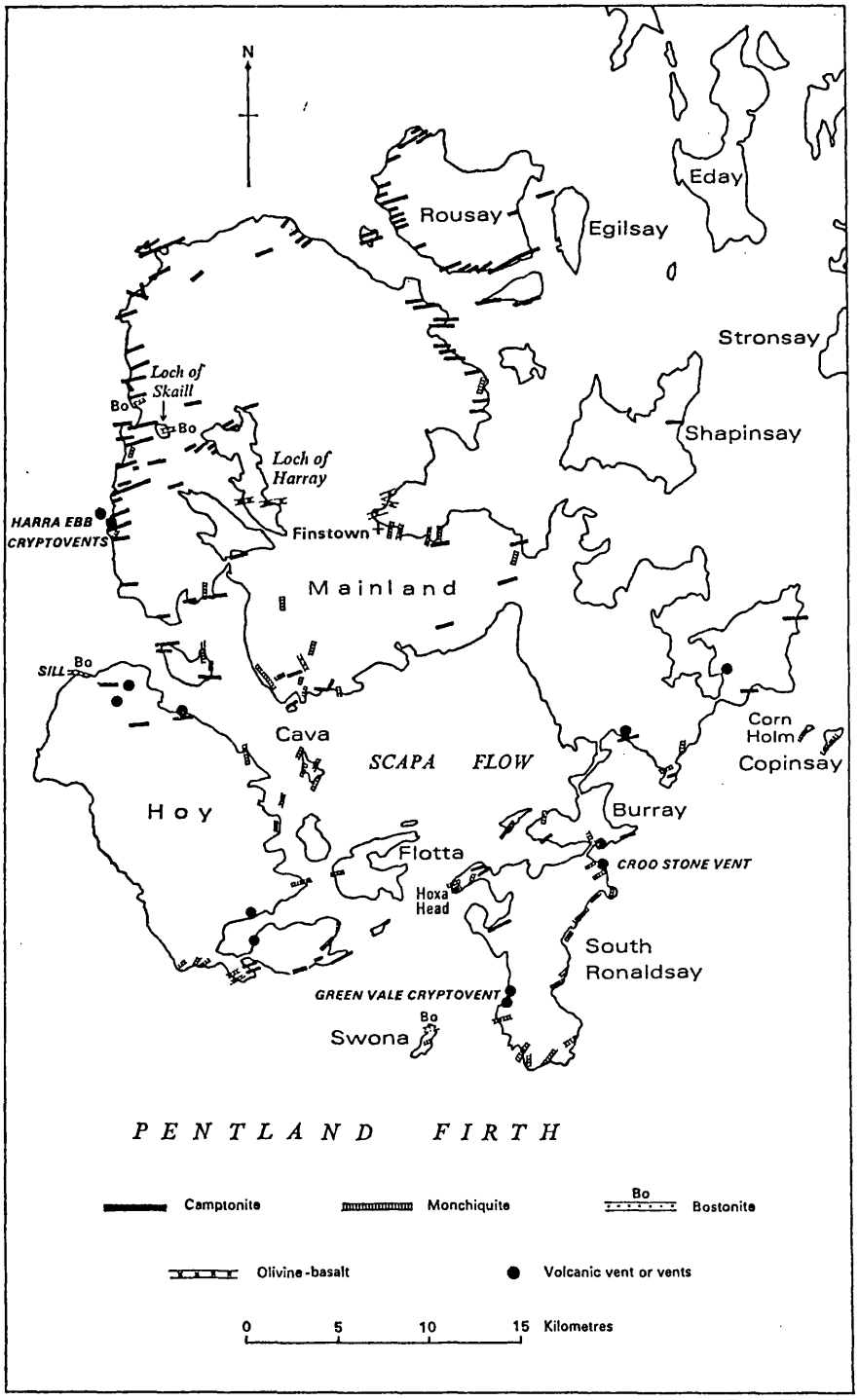


Figure 3.5: The distribution of igneous rock in the Orkney Isles (from Mykura 1976, 97)

and geese, waders such as curlew and oystercatcher, and cliff dwelling seabirds and gulls, such as auks, guillemots, and skuas (Bramwell 1979, 1983). Fish species such as Wrasse, Cod and Conger Eel are also present in a number of tomb assemblages. Various species of whale and dolphin are common off the Orcadian coast (Clark 1989, 98), and are present in a number of Late Neolithic faunal assemblages. The presence of animal and plant species will be discussed in more detail in chapter 9, in relation to their appropriation as food.

I have sketched a brief account of the topography, geology, climatology and fauna and flora of Orkney above. It is now time to focus on the major issue which concerns us, the Late Neolithic in Orkney and the nature of previous studies concerning culture, social identity and social organisation.

What makes Orkney particularly interesting during the Late Neolithic is the association between Grooved ware and a whole series of monuments, in particular henges and passage graves. However, unlike the Late Neolithic throughout much of the rest of Britain, the Orcadian Late Neolithic is characterised by the presence of stone built settlements, also associated with Grooved ware. Thus we potentially have evidence not only for the use and deposition of Grooved ware in certain contexts, but for the production of Grooved ware within settlements, and its use both within settlements and beyond the settlement. The use of Grooved ware pottery is inextricably associated with a coherent set of monument forms, and it is this close association between Grooved ware and these monuments which has both clarified and confounded previous accounts of the nature of Grooved ware, culture and social identity during the Late Neolithic.

Primitive communism, social types and structural homologies: monuments, material culture and society in the Orcadian Late Neolithic

All accounts of the Orcadian Neolithic must begin with an examination of the endeavours of one man, Vere Gordon Childe. Although there had been intensive excavation conducted within Orkney for decades, until Childe, no one had provided a comprehensive picture of the nature of Neolithic society in the islands. Childe's involvement with the Orkney Neolithic, as I have observed in chapter 1, was initially concerned with the excavation of the settlement sites of Skara Brae (1931a) and Rinyo (1938, 1947). It was primarily from these sites that Childe built up his ideas concerning Neolithic society. One of the major points that Childe noticed concerning the Orcadian Neolithic was its relationship with the environment. It has almost become a truism that due to Orkney's treeless environment so many monuments were constructed in fine Caithness flagstone, a simple translation into stone of what was elsewhere constructed in wood. However, for Childe, it was not only through the construction of monuments that the environment played its part, it also manifested itself in the economic realities of those who inhabited the stone built settlements of Skara Brae and Rinyo.

Childe pictured the inhabitants of Orkney during the Neolithic as ultimately dependant on a difficult and unforgiving environment. This notion was in part formulated from what Childe saw as the sparse material culture evidence from both Skara Brae and Rinyo. In particular the lack of flint found at Skara Brae compared with its abundance at Rinyo lead Childe to assume that each community was self-sufficient and had little or no interaction (1946, 31). Within the villages, Childe observed the similarity in size of each house and the lack of differentiation between houses in terms of material culture assemblages and suggested that there was little division of labour. Thus he considered social organisation to be composed of a form of

primitive communism, or equalitarianism (1946, 33). These views are of course developed from a Marxist base-superstructure model of society in which the economy is the prime motivating force in terms of the social structure.

It has already been noted that Childe viewed the evidence from chambered tombs and passage graves in a quite different manner, as culturally distinct in terms of the inhabitants of Skara Brae and Rinyo (Childe 1946, 25-41). As Richards (1993a, 19-25) has pointed out, due to this early assumption of cultural difference Childe never made the link between Late Neolithic settlements and passage graves. While Childe observed differences within the ceramic evidence for his 'Skara Brae culture' and his 'Megalithic culture' he was unable to reconcile this with the apparent similarity of chambered tombs and passage graves. Cultures for him were rigidly bounded and homogenous. It remains now to observe how Childe's notions concerning culture and society for the Orcadian Late Neolithic have been built on in subsequent studies.

As Richards (1993a, 22) observes, Renfrew's investigations into society in the Orcadian Neolithic drew heavily on Childe for their inspiration. The cornerstone of Renfrew's analysis rested on the monuments themselves, and here he was most concerned to trace the evolution of society from the Early to the Late Neolithic. Renfrew's theoretical prop was, like Childe's before him, social evolution. However, here he was less concerned with a base-superstructure model of society, and more concerned with the description of social types. This approach to culture has been criticised in chapter 1, and again it sees culture as bounded and homogenous. It was this approach that enabled Renfrew to formulate the notion of segmentary societies for the Early Neolithic. Drawing on an earlier analysis of chambered tomb distributions by Childe (1942), Renfrew posited from the distribution of earlier monuments on the island of Rousay that tombs could be considered as territorial markers over a given segmented unit of space (Renfrew 1979, 214-5). Here space is inhabited by modular and cellular segmentary social groups. Each group is

approximately the same size and of the same social structure. Renfrew considered this undifferentiated view of society to be egalitarian, in exactly the same way as Childe had described the social structure of his 'Skara Brae culture'.

It was a similarly bounded and homogenised view of social types which enabled Renfrew to suggest the notion of a centralising authority for the Late Neolithic. This notion was based on the presence of passage graves and large public monuments such as Maes Howe, the Stones of Stenness and the Ring of Brodgar within the central area of the Orkney Mainland. Through the judicious use of radiocarbon chronologies and man-hour estimations for the construction of these monuments, he was able to trace a gradual centralising tendency in society. I do not wish to criticise the use of the particular methodological tools he utilised for this task here, but rather his resultant conception of society. Probably the most notable point is Renfrew's almost total lack of use of two aspects of the evidence. Firstly, as Richards notes he ignored the settlement evidence, but what is also notable is the lack of use of material culture in this account. As indicated below Unstan ware and Grooved ware are simply used by Renfrew as nomenclature for two temporally distinct social groups. Although Williams (1979) thin-sectioned the Grooved ware from Quanterness and concluded that, based on the petrology, certain vessels were the result of inter-island contact between groups, this notion only played a small part in Renfrew's conception of society during the Late Neolithic. As with Childe, Renfrew's perception of Late Neolithic society is homogenous and bounded, and while there appears to be good evidence for complex links between social groups these are simply subsumed within the notion of a segmentary society evolving to a centralised society. The social identity of both communities and individuals is lost amongst the morass of the larger homogenous whole.

Renfrew's perception of Neolithic society, both as segmentary and centralising influenced a number of other researchers, who, like him, focused almost entirely on

the large public monuments to the detriment of both settlements and material culture. Fraser's (1983) conception of a totemic system fused the notion of segmentary societies with the variability in material culture evident in chambered tombs and passage graves. Although Fraser recognised the importance of kinship within small scale societies, kinship relations were not a means for expressing different kinds of social identity, they were simply perceived as a mechanism which served to reproduce segmentary groups. Each segmentary group was an individual unit demarcated from the others by the use of specific animal species. Similarly, Sharples (1985) account of the Orcadian Neolithic relied on Renfrew's overall theoretical framework, and made little attempt to exploit the settlement or material culture evidence.

While Hodder (1982b) drew on Renfrew's overall chronological framework, his approach to culture and society was fundamentally different. Of most importance was his realisation that all elements of the archaeological evidence were necessary for an adequate account of Late Neolithic society. Hodder's main task was concerned with defining the structural homologies which can be seen to occur between various aspects of the evidence. Furthermore, due to his ethnoarchaeological research, he was acutely aware of the relationship between material culture and social identity. As such he integrated certain aspects of the material culture evidence into an account of the nature of social practices within settlements, passage graves and henges. It is important to note that while Hodder again falls back on Renfrew's notion of a segmentary society, he does not view this as a bounded and homogenous social formation. In contrast he views the use of material culture in social display and competition to be an essential component of the power relations which constitute such a society.

Unfortunately Hodder's account of Late Neolithic society was brief, and many of the basic points he made required much further investigation. For this reason Richards' concern was to fill out the brief sketch provided by Hodder. Rather than an approach which sought to construct models of social organisation from mortuary monuments

and henges alone, Richards' main concern was with the house and the settlement. Again the focus was on the investigation of the regularities which were seen to exist between a whole series of monuments (Richards 1994). However, unlike Hodder, Richards was less concerned with the simple identification of these regularities, but through an approach which sought to understand the underlying rules of order, an attempt was made to investigate the social practices which linked various monuments together culturally and symbolically. Since the main focus of Richards' investigation was concerned with the nature of social practices, especially within the house and the settlement, the analysis moved away from ideas of cultural boundedness and homogeneity. Instead, links are stressed between settlements, and between Orkney and other areas of the British Isles, although the nature of the social identity expressed through these links remains undiscussed. However, while Richards is concerned to move away from rigid social formations (1993a, 312-328), his analysis of settlement structure relies heavily on the relationship between certain spatial schemes of order and social organisation. Here social groups are seen as essentially segmentary although, unlike Renfrew's vision of segmentary societies, they are not seen to be uniform or bounded. As witness to this view, unlike many previous authors Richards does focus on material culture, and in particular Grooved ware (1993a, 179-205). His major aim is to characterise the assemblage from a single settlement site, Barnhouse. However, since Richards' approach to social groups in the Orcadian Late Neolithic is of a series of similar, but related, segmentary societies then it is seen as sufficient to provide an account of Grooved ware use in the settlement as a whole, rather than examine the detailed contexts of inter and intra settlement use.

To reiterate then, we can trace a genealogy of approaches to the study of culture and society in the Late Neolithic from Childe onwards. Since Childe viewed cultures as bounded and homogenous and the environment of Orkney to be difficult and constraining, his perceptions of Late Neolithic societies were of a series of non-

interacting, bounded groups, with internally homogenous social structures. While Renfrew retained this view, his analysis was entirely conducted on the large public monuments of the Late Neolithic such as passage graves and henges. Kinship was proposed as a mechanism for the reproduction of bounded societies, rather than as an element for expressing aspects of social identity. Both Hodder and Richards have been concerned to address a series of imbalances in the study of Late Neolithic society. Both have stressed the necessary examination of all aspects of the material evidence, including settlements, however both retained broad views of segmentary societies. Their views of segmentary societies were more sophisticated than previous models, they both stressed an examination of internal power relations, and they both recognised the importance of kinship as a means of linking social groups through exchange.

Overall, most studies of the Orcadian Late Neolithic have explored society through studies of monuments, and very few have acknowledged the role material culture has to play in the construction of identity. As recent approaches to social and cultural identity have noted, identities are complex and overlapping and a more detailed approach is necessary if we are to understand the complexities of social identity during the Orcadian Late Neolithic. Moreover, as noted in chapter 2, the social uses of material culture, especially in consumption activities, are an important part of the process of constructing and expressing social identities. It is for this reason that it is essential to shift the balance from the study of the 'world of monuments' to the 'world of goods'.

Orcadian Late Neolithic houses and social identity

As indicated above our accounts of Late Neolithic Orkney have focused on monuments rather than artefacts. Problematically, both forms of evidence are inextricably related, and in discussing Grooved ware and social identity, it is essential

to commence with a brief overview of houses. It is only by understanding houses and settlements that we will gain a clearer insight into the nature of Grooved ware. As mentioned above, the Neolithic of Orkney is typified by well preserved houses and settlement complexes, particularly from the Late Neolithic period, and of these Skara Brae is obviously exemplary. The preservation of such structures, as noted above, is due to their construction in the easily laminated flagstone which forms the underlying bedrock of much of Orkney. These structures are all the more remarkable since the spatial arrangement of houses appears to generally follow the same plan, and it is the relationship between this plan and notions of social identity I wish to examine first.

Richards (1990b) has noted the consistency of arrangement of the internal furniture within the house according to a cruciform plan. The house is focused around a central hearth, with a 'dresser' or set of shelves towards the rear of the house, and 'box-beds' or stone boxes situated either side of the hearth, with the entrance itself completing the cross-shaped arrangement of space (Fig 3.6). For Richards, this overall organisation is related to specific cosmological principles of classification. He has noted that not only are hearths consistently arranged in order to face specific cardinal points, related to events of calendrical significance, especially the midwinter and midsummer sunrise and sunset, but that most of the houses at Barnhouse, Skara Brae and Rinyo lie on a north-west/south-east axis. Richards argues that this arrangement of space, as well as having an underlying symbolic logic related to ideas of centrality and circularity in the Late Neolithic, applies not only to the house, but extends to other monumental constructions such as henges and passage graves (Hodder 1982b, Richards 1994), as well as the landscape itself (Richards 1996b). It is notable then that a number of homologies exist between the construction of houses and of other monument forms. Despite this circular arrangement of space and the principles of classification underlying it, space within the houses is not uniform, and it is here that the use and experience of space becomes related to social identity. Richards has demonstrated the

way in which space within the house may have been experienced, noting that doorways into the house are often offset to the right, thereby orienting movement through the house in this direction. This is consistent with the observation made by Childe that the right hand box-bed is typically larger than the left. Given the importance of the spatial arrangement of the house in relation to changing calendrical events it seems likely that light was of significance. Offsetting the doorway to the right would tend to create an area of darkness towards the left, and emphasise the back of the house, especially the dresser.

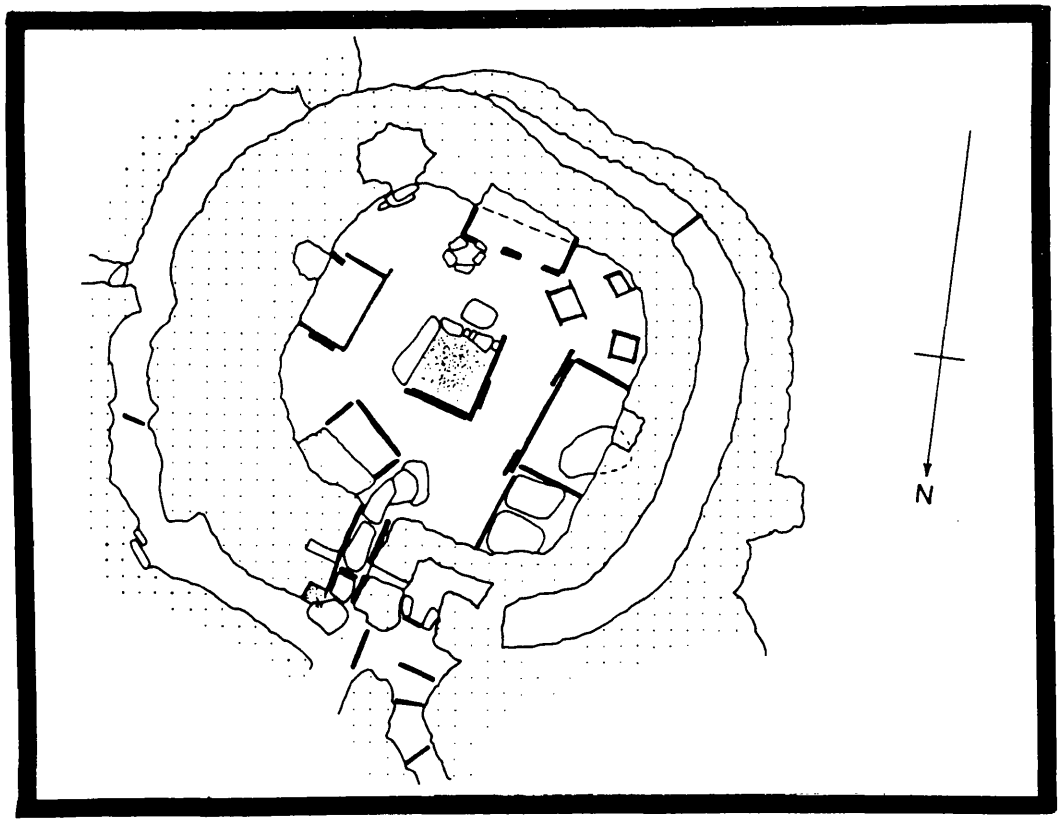


Figure 3.6: The spatial arrangement of the Late Neolithic house in Orkney

Indeed, Clarke and Sharples (1990, 71) note that the large seating slab behind the hearth in house 7, Skara Brae would tend to suggest that a position facing the incoming visitor was of social importance.

The structuring principles of left and right, darkness and light, small box-bed and large box-bed have been mapped onto particular aspects of social identity. It was Childe who first suggested that this apparent dichotomy in the use of space was related to gender. He drew on the Highland Blackhouse to note that the right hand box-bed is related to men and the left to women (1931a, 181, 1946, 30). Richards has sustained the analogy in relating right and left to men and women respectively, and relates the presence of ash raked out from the left of the central hearth as further evidence of the gendered use of space (1993a, 228). But there is an interpretative problem here; while the structured and differential use of space is certainly evident within Late Neolithic houses, it is not sufficient to relate this use of space to a set of simple structured oppositions (Bourdieu 1990, 30-42). I have suggested in chapter 2 that we need to examine the way in which social identities are constructed, by examining the relationships created by the use of various aspects of material culture, rather than by mapping identity directly onto material culture. This point still stands, and while a set of structured opposites are observable in Late Neolithic houses, the main task is to examine how these structures are employed in the practical action concerned with the expression of identity.

While this basic arrangement of space remains consistent throughout the Late Neolithic, the construction of houses does undergo a series of changes. Richards has noted the essential importance of the hearth in the constructional sequence (1990b). This element of a house's furniture is the first to be constructed, and the other elements of the house are orientated around it. The second elements to be constructed are the threshold slabs, which orientate movement into the house. However, within this scheme there is room for some variation, and we see that the earliest Late Neolithic

houses are constructed with the various elements of furniture built into the wall of the house, leaving a certain amount of space for activities in the centre of the house. By the later part of the Late Neolithic, the furniture is no longer built into the walls but extends outwards, jutting into the room. This is compensated for by the increased size of these houses, and is particularly notable at houses such as house D, Rinyo and houses 1 and 7, Skara Brae. These changes in the construction of the house echo other changes in the settlement more generally, and towards the end of the Late Neolithic we see a move towards monumentalising houses. This is exemplified by the massive structure 8 at Barnhouse, although a similar process may have occurred, albeit according to a different strategy, at Skara Brae, where the latest phases of settlement were characterised by walls joining and enclosing the complex of houses. If we assume that these changes are not simply the result of functional pragmatics then we need to consider the relationship between these constructional changes and the expression of social identity. This point will be followed up in chapter 10.

A further point to note is the nature of building and rebuilding on many of the Late Neolithic settlement sites. It is notable that at Barnhouse some houses, such as house 5, are built and rebuilt over four times. Rebuilding typically takes place at a slight offset to the earlier structures but in each case respects the siting of earlier structures. At both Skara Brae and Rinyo the history of the settlement can be traced back through a number of phases, with up to four phases defined by Childe (1931a) for Skara Brae. At Skara Brae houses 4 and 6 are rebuilt at least two times while, interestingly, houses 9 and 10, the clearest distinguishable early houses, are offset from the main area of later settlement and are only partially overlain by houses 4 and 5. An even more complex pattern exists at Rinyo, where most interestingly the settlement chronology appears to extend back to the Earlier Neolithic (Piggott 1954, 328). At Barnhouse, house 2 appears to have been built in the earliest phase of the settlement and continued in use throughout the life of the settlement, only having its internal

flooring reclayed in a secondary phase of settlement. The permanence of this building is echoed by house 7, Skara Brae. Here the building appears to have been built in the earliest phase of settlement, with only a remodelling of the external wall indicating any change to the structure (Clarke 1976a).

It would seem then that, for the most part, it is false to discuss any Late Neolithic settlement in terms of phases. Rather, as Richards (1990a, 311) notes, the house may have been destroyed and rebuilt according to cultural rules concerned with the life cycle of the house and its association with a particular family or kin group. In this case it is essential to examine the relationship between this aspect of house construction and identity, and in particular kinship and descent relations.

In order to understand the nature of social identity expressed in the construction and use of houses it is necessary to consider the relationship between house size and identity. Most houses within Late Neolithic settlements are of similar size in terms of groundplan, although certain houses such as house 1, 2 and 6, as well as structure 8 at Barnhouse differ considerably. Richards (1993a, 207-9) considers the difference in size to be hierarchical. However, the differential use of space may be associated with the expression of different aspects of social identity which need not necessarily relate to a hierarchical social structure. This will be explored further in chapters 7 and 10. As Richards (1990b) notes the groundplan of houses is no indication of family size, rather we may be dealing with a complex social and settlement structure, in which different family members dwell in closely located, but separate houses (Lane 1994), or we may be dealing with an entirely different conception of cultural space (Reid 1989). Both considerations are important for any consideration of social identity expressed in the inhabitation and use of these houses.

We have considered various aspect of the way in which social identity may be expressed through the construction and use of houses during the Late Neolithic. It is

time now to consider the ways in which social and cultural identity have been examined in relation to artefacts.

Cultural problems in the Orcadian Neolithic: Unstan ware and Grooved ware

Throughout Britain Grooved ware has been defined and constructed as a component of a unified cultural group by its relationship with other ceramics. However, in an Orcadian context the notion of a discrete cultural group defined by Grooved ware has been constructed in relation to a quite different ceramic form, Unstan ware. Unstan ware is a specialised form of decorated bowl, an integral, although possibly late development, within the wider ceramic repertoire of the Early Neolithic (Richards 1988, 43).

Culturally the presence of Grooved ware has been used as a broad indicator in defining a period of change around the mid 3rd millennium bc. Such a period of change is defined by the use of Unstan ware at one end of the continuum and Grooved ware at the other. Chronologically the earliest radiocarbon dates for Grooved ware come from three different sources; Barnhouse house 2 occupation deposits, Quanterness Passage grave central chamber deposits (Renfrew 1979, 1990) and the lower levels of the midden at Skara Brae (Clarke 1976b). These all suggest the inception of Grooved ware within Orkney to have occurred sometime around 2600-2500 b.c (3300-3000 cal B.C). Because of the relative clarity of the chronological position of Grooved ware, Unstan ware has been considered as a temporally and culturally distinct ceramic form.

Many of the problems related to Grooved ware in Orkney stem from the misconceived relationship between Unstan ware and Grooved ware. These in part derive from the chronology of the two ceramic forms but also from the differing nature of the settlement evidence associated with each ceramic. As we have seen the

settlement evidence for the Orcadian Late Neolithic is rich. By contrast our knowledge of settlement for the Early Neolithic period is far more partial. Up until recently the only known standing settlement structure was the Knap of Howar, on Papa Westray (Ritchie 1983). The location of this site on a small and fairly remote island served to reproduce notions of a dispersed Early Neolithic settlement pattern, contrasting with the tendency towards a more nucleated pattern of settlement in the Late Neolithic (Renfrew 1979, Sharples 1992). Thus, the Knap of Howar provided the model for earlier settlement within Orkney as a whole. However earlier excavations, notably by Childe at Rinyo on Rousay, had indicated that below the level of the earliest Late Neolithic houses were earlier occupational deposits. The sequence from Rinyo is realised in its clearest form by Piggott who divided up the sequence at Rinyo into three main phases:

Rinyo II. Pottery of Skara Brae 'A' class with fragments of a Beaker in the latest phase of the site.

Rinyo I. Pottery of Skara Brae 'B' and 'C' classes with a single sherd of comb-ornamented ware.

'Pre-Rinyo'. Plain sherd with textures and rim forms approximating to pottery from the Orcadian chambered cairns (1954, 327).

Childe's discovery of carinated rim sherds from these lower 'Pre-Rinyo' levels suggested to him that this pottery form was related to those discovered during earlier excavations, mostly by William Grant, of stalled chambered cairns, on the same island (Childe and Grant 1938). As we have already observed Childe perceived the users of Unstan ceramics and Grooved ware as culturally distinct (Childe 1946), however, if

the existence of Unstan sherds beneath a Grooved ware settlement were accepted, then a continuous settlement pattern from the Early to Late Neolithic could be postulated. Such an interpretation had important implications, since according to both a cultural-historical or evolutionary viewpoint, the chronological significance of Unstan ware in relation to Grooved ware, was of upmost importance. The position of both ceramics in a typological and chronological sequence had further implications in the understanding of the horizon of change around the mid-3rd millennium bc which was, in part, heralded by the use of Grooved ware.

The validity of a sequence which saw Unstan ware prior to Grooved ware was criticised some considerable years later by D.V Clarke, who sought to overturn both the phasing suggested by Piggott (1954, 327) and the chronological interpretation of an evolutionary change in material culture as suggested by Renfrew (1979, 205). On the basis of Childe's poor excavation technique and record, Clarke reclassified the sherds from Rinyo as fragments of a Grooved ware bowl, and therefore quite unconnected with the Early Neolithic (1983, 47, fig 8). However, despite Clarke's attempt at refuting the sequences of Childe, Piggott and Renfrew, recent excavations at settlement sites such as Pool, Sanday and Stonehall, Mainland have both clarified and reconfigured any discussion of the relationship between Earlier and Later Neolithic ceramics and settlement.

The excavations at Pool of a series of stratified occupation deposits, including midden and the remains of walling, produced an extremely clear sequence of settlement and stratified ceramic finds. The earliest levels being typified by round based Unstan ware while the later sees the use of flat based Grooved ware (MacSween and Hunter 1991). This sequence reinforces both Childe's observations and the suggestion of a chronological, if albeit evolutionary, interpretation by Renfrew, and allows us to observe considerable temporal depth of occupation. However, due to the nature of the excavation, few spatial relationships between structures could be

observed. Excavations at Stonehall, however, revealed a fairly densely spaced settlement pattern. Geophysical survey indicated the presence of a number of discrete structures dispersed around the lee of Cuween Hill, while excavation of two areas, sites A and C provided structural evidence of linear house constructions broadly similar to that of house 2, Knap of Howar associated with Early Neolithic bowl forms. Site B provided structural evidence of a large Late Neolithic settlement, associated with late Grooved ware. While not all structures appeared to have spatial contiguity as at later sites, it would appear that houses, associated with Early Neolithic bowls, were clustered together in a localised area, quite unlike the highly dispersed settlement pattern postulated from the location of the Knap of Howar. Furthermore the presence of Late Neolithic structures associated with late cordoned Grooved ware attests to similar patterns of settlement and continuity as at Pool.

It would appear then that the interpretation of the use and deposition of Grooved ware hinged on its perceived cultural and chronological relationship with Unstan ware, and the integral relationship between these pottery 'styles' and the construction and continuity of settlement. The simple material differences between Unstan ware and Grooved ware are enough to establish their cultural difference. The differences in the morphology of the material are simply read back onto the people who created the material. As Richards (1993a, 19-22) notes the distinctiveness of this relationship is partly an artefact of Childe's early formulation of the 'Megalithic culture' and the 'Skara Brae culture' (1946, 22-41), itself formed under the interpretative assumptions of culture-history.

The nature of this debate is entirely structured by the notion of two bounded cultural entities, either conceived as spatially overlapping but distinct, or as temporally overlapping but distinct. However, Richards (1993a, 328) has noted that there is no need to consider either ceramic forms as mutually exclusive, the apparent chronological distinction need not represent the replacement of one cultural group by

another. Indeed he has noted that, along with passage graves, Grooved ware is adopted at different times by separate island communities. This is an argument I wish to develop further. If we consider that Grooved ware was bound up with a particular way of doing things, and the use of the ceramic signified distinctive social practices rather than a distinctive cultural group, then the problem becomes an examination of the particular material and social relations under which Grooved ware was produced and used, rather than simply classifying it within one homogenised cultural group. In an Orcadian context, it would appear that while Grooved ware is almost certainly chronologically later than Unstan ware, rather than seeing the change in ceramic forms as the result of the influx of a quite separate cultural group, or developing according to an evolutionary process, the use of Grooved ware should be seen as the product of particular social practices.

To reiterate then, the relationship between Unstan ware and Grooved ware has traditionally been perceived as either cultural or chronological. Both positions perceive the change from the use of one ceramic form to another to be rigid and bounded. The presence of either ceramic form has been treated as signifying the presence of specific cultural groups, rather than of particular social practices. Since both ceramic forms are broadly associated with contrasting monument forms, it is the monuments rather than the ceramics which have traditionally been employed to inform accounts of social identity and social organisation. As such the ceramics have rarely been successfully integrated into an account of the nature of social identity and organisation during the Orcadian Neolithic.

The categorisation of Grooved ware in Orkney: form, fabric and decoration

In the previous sections I have stressed the relative lack of studies concerning the relationship between culture, society and artefacts during the Orcadian Late

Neolithic. Nevertheless, while most studies of society have been concerned to stress the importance of monuments, a number of studies have addressed the nature of Orcadian Grooved ware in relation to culture, although most of these have been concerned with defining the differences between a 'Grooved ware culture' and an Unstan ware culture'. What I wish to focus on here is the definition of difference within Grooved ware assemblages themselves, as a starting position to understand Grooved ware in relation to issues of culture.

The definition of Grooved ware categories has developed from the observation of change in the deeply stratified material from settlement sites, this definition is fairly refined but also fraught with problems. The categorisation of material change has drawn on two major aspects of Grooved ware; the changing nature of pottery fabric, and the changing decorative technique. MacSween (1990, 1992) notes that both tempering material and decoration change, in tandem, over the period of occupation of the settlement at Pool, Sanday. Broadly we see a shift in the use of shell temper to the use of rock temper (MacSween 1990, 43), along with this we see a change in incised decoration to applied decoration. MacSween (1992, 261-2) also notes that there are substantial differences in vessel morphology over time. The Grooved ware derives from phases 2 and 3 of the site (Hunter and MacSween 1991):

Phase 2.1/2.2 Incised ware (parallel lines), baggy vessels. Upto 67% shell tempered, 33% untempered.

Phase 2.3 Incised ware (chevrons), baggy vessels. Upto 67% shell tempered. 20% untempered, 13% rock tempered.

Phase 3.1/3.2 Applied decoration, scalloped rims, bucket shaped vessels. Upto 75% rock tempered, 10% untempered, 5% shell tempered.

Childe (1931a, 130-2) had earlier grouped the Skara Brae Grooved ware according to decoration and had noted the chronological integrity of the decorative changes:

Class A Relief/applied decoration; A1-simple applied cordons; A2 cordons applied with slip. A1 was found in all phases, A2 was found only in phase 2.

Class B Relief decoration augmented with incisions on grooves. Does not occur beyond phase 2.

Class C Grooved decoration incised into slipped surface. Found in phases 1 and 2.

Broadly then, we can see a change from pottery tempered with shell and decorated with incised and embellished cordons, to pots tempered with rock and decorated with simple applied cordons. These material changes allow us to broadly sub-divide the Orcadian Late Neolithic into an earlier and later phase. There are a number of problems with applying these chronological and material changes to all settlement sites within Orkney. These schemes appear to have some integrity at Skara Brae, Rinyo (Piggott 1954, 327) and Pool (Hunter and MacSween 1991), and as such they could be employed to broadly date the occupation of a site. However, in all phases of occupation at each settlement we see considerable overlap in the use of decorative techniques and temper. A similar state of affairs exists at Barnhouse, where this chronological integrity appears to have little validity, since both incised and applied decorative techniques and shell and rock tempered vessels can be demonstrated to be used contemporaneously.

Decorative motifs and their occurrence on Grooved Ware sites.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
Pool 2	•	•	•	•		•									
Barnhouse	•	•	•	•			•	•	•						
Stenness	•	•		•											
Quanterness	•	•	•						•	•	•				•
Pool 3	•								•	•	•	•	•		
Links of Noltland	•								•	•	•	•	•	•	
Rinyo	•	•							•	•	•		•	•	•
Skara Brae	•				•	•			•	•	•		•	•	•
Raigmore, Inverness	•	•	•			•		•			•			•	
Knappers Farm, Dunbartonshire	•	•							•	•			•		
Balfarg, Fife	•	•					•		•	•	•			•	
Balfarg Riding School	•	•				•	•	•	•	•				•	
Tentsmuir/Brackmont, Fife	•	•							•	•	•			•	
Beech Hill House, Perthshire	•	•					•	•	•	•					
Luce Sands, Wigtown	•	•								•	•				
Yorkshire	•	•				•	•		•	•	•		•		
S. England	•	•							•	•	•		•		•

1. Incised parallel lines.
2. Incised chevrons.
3. Impressed dots.
4. Incised wavy lines.
5. Incised spirals.
6. Impressed finger-tip.
7. Linked cordons.
8. Wavy cordons.
9. Branching cordons.
10. Incised cordons.
11. Plain cordons.
12. Fish scale/trellis decoration.
13. Vertical panelling.
14. Chain-link cordons.
15. Bosses.

Figure 3.7: MacSweens Table of decorative elements. Note that for incised decoration decorative elements are recombined in different ways, while for applied decoration decorative elements are recombined in the same way. Note the similarity in the method of categorising material traits with the approach of Wainwright and Longworth depicted in Fig 1.1 (from MacSween 1992, 264).

However, MacSween has classified this material further, and using this generalised scheme she draws parallels across Orkney (1992). In doing this she initially employs both decorative technique and decorative elements as a means of comparison, thereby drawing similarities between material from a number of sites

within Orkney (Fig 3.7). Essentially this scheme, while useful, draws on a number of assumptions; firstly that cultural traits can be observed across a unified area, namely that we are dealing with a single unified Grooved ware culture; secondly that by breaking down the decorative scheme on vessels into their smallest components MacSween assumes that these cultural traits can be used to map uniformity and difference across Orkney. This project is fundamentally flawed since single decorative elements may be used to signify a whole different set of meanings, and by themselves are divorced from the grammatical structure of both the vessel and the assemblage as a whole.

The notion of art as a grammatical system has been put forward by both Munn (1973) and Morphy (1991). Morphy's study of Yolungu aborigine art notes that single decorative elements have numerous meanings, only when they are used grammatically as part of a holistic decorative scheme do they signify precise meanings. A similar approach to the decoration of Grooved ware vessels is adopted in this study. Although MacSween later acknowledges the inadequacies of this notion (1996, 42), she continues to employ decorative scheme along with vessel morphology in order to map assemblage differences across Scotland. Problematically, MacSween deals with these aspects of Grooved ware on a very broad scale, and attempts to map uniformity through very specific aspects of material culture.

While Bradley (1982) has noted the widespread nature of Grooved ware across Britain, and suggested the concomitant widespread nature of decorative schemes, I feel there is little value in simply comparing disassociated decorative elements or indeed categories of vessel across such a wide geographical frame. Rather, my belief is that it is essential to examine the details of the inter-relationships between sites in a localised geographical area if we are to understand the way in which material culture changes through social interaction and by changing social practices, and in particular to

understand the way in which Grooved ware is categorised and employed in different social strategies.

If we view the production of Grooved ware as the result of a series of culturally specific categorisation procedures rather than simply as the result of technological and stylistic evolutionary change (Renfrew 1979, 211, MacSween 1992, 263) then the complexity of this sequence becomes clearer as we explore in detail the manufacture and use of specific Grooved ware forms. If we look at the decoration of vessels not as a series of disassociated decorative elements, but rather look at the decorative scheme as a whole, then a rather different picture emerges. While the decoration of vessels appears to involve similar elements, the way in which they are combined in overall decorative schemes are different. We observe a stark difference between the decorative schemes used in different settlement sites in the earlier phases of the Late Neolithic, and a similarity in decorative schemes used in different settlements during the later phases of the Late Neolithic (Fig 3.8). What is more, while there are different decorative schemes used in different settlements we also observe a predominance of specific decorative schemes in each settlement.

Of most note is the difference between the decoration of Grooved ware in the earliest phases of Skara Brae and the decoration of Grooved ware in contemporary phases at Barnhouse, both sites are only about 8 miles apart, yet the decorative schemes employed on Grooved ware from the two settlements are quite different. At the former site the decorative scheme employs lozenge and spiral motifs, linear stab motifs, and alternate horizontal and diagonal incisions in class C pottery, and dot impressions and cross cutting incisions into cordons in class B pottery, while the material from Barnhouse employs wavy curvilinear incisions, and serpentine motifs on cordons respectively. Both sites appear to be contemporary with radiocarbon dates between 2600-2400 bc. As Richards (1993a, 191) notes only a single sherd of wavy curvilinear decoration was found at Skara Brae.

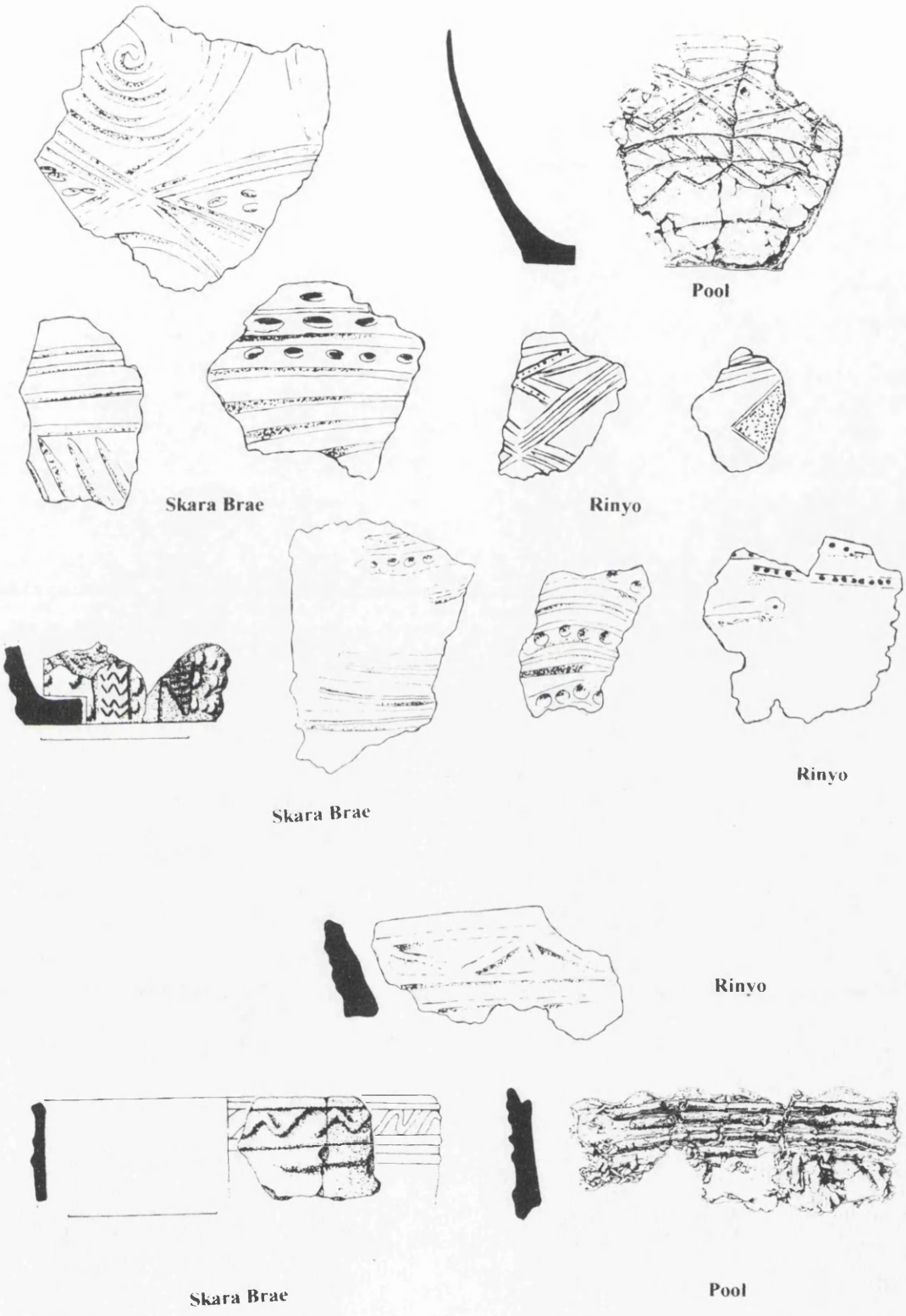


Figure 3.8: Top Earlier Incised Grooved ware. Note differences in Decorative scheme.

Middle: Earlier embellished cordoned Grooved ware. Note difference in Decorative scheme

Bottom: Later cordoned Grooved ware. Note similarity in Decorative scheme

(Illustrations from Piggott 1954, pl. XII, MacSween 1992 and Gibson and Woods 1989, 179)

Illustrations not to scale

As a further point of comparison, the class C pottery from Rinyo employed lozenges with fine dotted infill, while in the class B pottery simple linear cordons were employed which were embellished with the fine point impressions. The class C pottery from Pool employed lozenges, curvilinear incisions and cross-hatched infill.

While the decorative elements employed on vessels from each settlement are similar, it is the manner in which they are combined which makes them distinctive and recognisable as being provenanced from a specific settlement. Here it is cogent to reiterate Bradley's remark that: 'if elements of the Grooved ware assemblage were being shared...the decorative patterns on the ceramics may have been more effective expressions of identity than the pots themselves' (1982, 36). Given this, the observed changes in decorative scheme during the Orcadian Late Neolithic undoubtedly relate to quite specific social practices and must relate to the expression of ideas of difference and affinity. These observations are essential to an understanding of the relationship between Grooved ware and social identities in the Orcadian Late Neolithic.

Similar problems in the scale of analysis occur in the analysis of petrological data. The main body of research in this area has been conducted by David Williams. Williams has analysed a number of Grooved ware assemblages, in particular those from the Stones of Steness (Williams 1976), Quanterness (Williams 1979) and Skara Brae and Rinyo (Williams 1982). He concluded that the angular nature of dyke material within Orcadian Grooved ware suggests the selected use of this material in the above assemblages. His analysis was undertaken on an Orkney wide scale comparing Rinyo, Skara Brae, Quanterness and Stenness. However, it is precisely the use of very specific and highly discrete dyke sources which should allow a more detailed picture to be constructed of Orcadian Grooved ware production. Williams falls back on a traditional broad based framework of ceramic provenancing and while a definite tradition is isolated, the fine grained connections within the tradition are masked by the coarse grained scale of analysis. Despite these reservations, Williams

has made some astute observations concerning the relationship between the petrology of both the Grooved ware from Quanterness and Stenness and the decorative schemes employed on certain vessels (Williams 1976, 1979). Quite rightly, he considered the correlation between the specificity of temper and decoration to be an important factor in considering cultural interaction in Late Neolithic Orkney, and his approach has been developed further in this study.

To reiterate then, we can only broadly apply the chronological and material schemes outlined by Childe (1931a) and MacSween (1990, 1992, 1996), and we must be careful in observing the differences as well as the similarities between sites, expressed through fabric, petrology or decoration, if we are to adequately understand the nature of the categories employed in producing Grooved ware vessels and their individual roles in the expression of aspects of social and cultural identity.

Barnhouse, Grooved ware and social organisation

Now that we have examined a series of problems concerning the relationship between cultural and social identity and social organisation, and various aspects of the evidence from the Orcadian Late Neolithic, we are now in a position to examine the case study itself, the settlement site at Barnhouse, Stenness, Mainland. While this site was the subject of a previous study (Richards 1993a), the study of the Grooved ware assemblage was of a more general nature. In the present study I wish to employ a more detailed contextual approach. Given the differing nature of the structures at Barnhouse it is essential to consider the way in which, through the use of Grooved ware, various aspects of social identity may be differently expressed.

The Barnhouse settlement itself is situated in the centre of Mainland Orkney, this area is topographically low lying, indeed it forms part of a natural bowl. Despite its inland location this area is dominated by the contrasts between land and water, with

the Ness of Brodgar and Stenness peninsula creating a natural division between the Loch of Harray to the east and the Loch of Stenness to the west (Fig. 3.9).

Figure 3.9: The central bowl of Mainland Orkney showing the Brodgar and Stenness promontories

What is most remarkable is the concentration of Neolithic monuments in this area (Fig 3.10), indeed it is this area which formed the focus of Renfrew's centralising society. On the Ness of Brodgar lies the immense henge and stone circle, the Ring of Brodgar, and some distance north of this is the large Ring of Bookan, a probable passage grave, as well as the chambered tomb of Bookan. Interestingly on the farm of Bookan situated just to the Northeast of Brodgar, there is also a possible Late Neolithic settlement represented by an artefact scatter (Callander 1931).

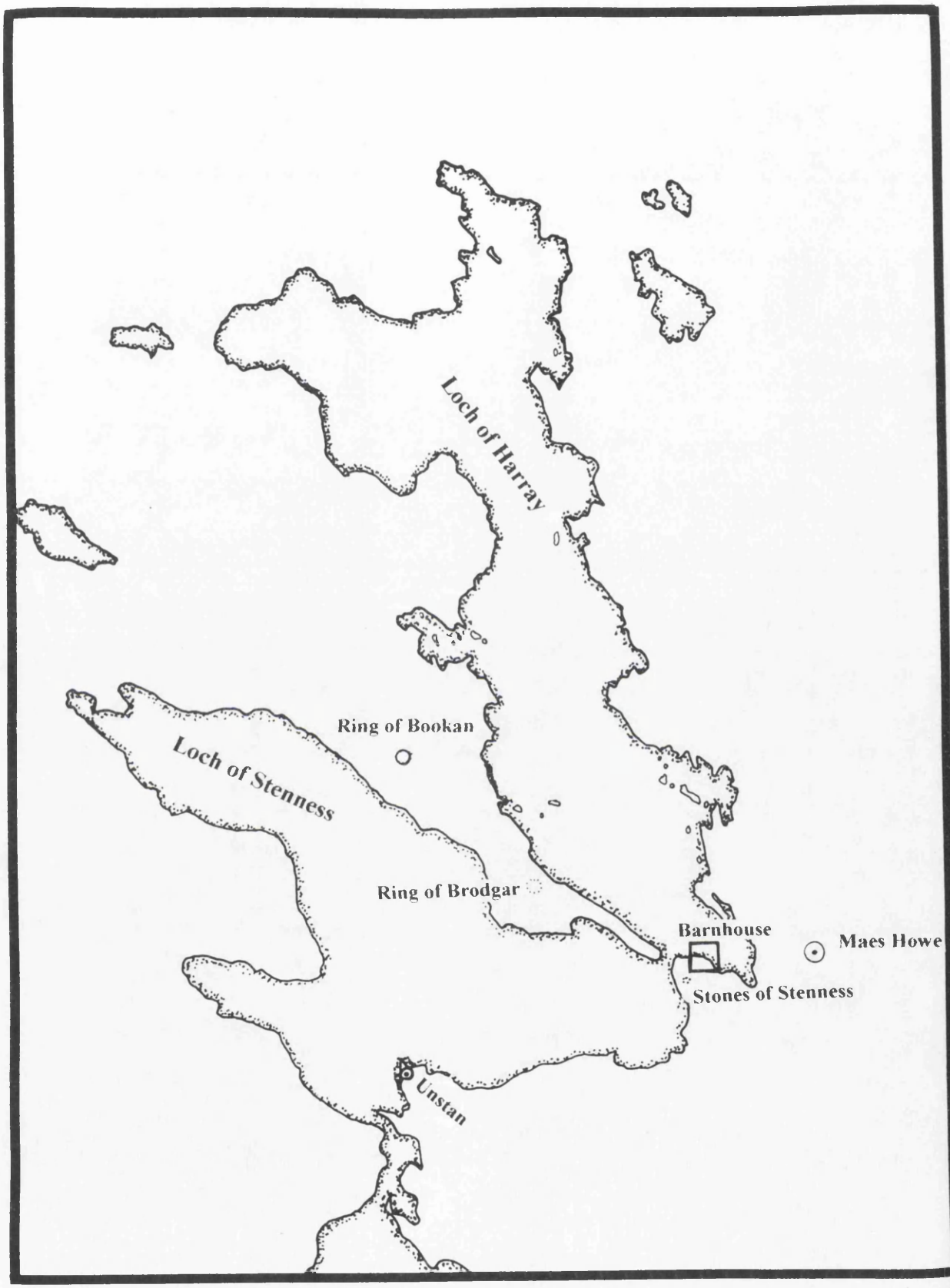


Figure 3.10: Location of monuments in the central bowl of Orkney

If we now turn to the Stennness promontory we see a complimentary group of monuments, with the smaller henge and stone circle of the Stones of Stenness and some distance to the east the immense passage grave of Maes Howe. Also visible from both the Stenness and Brodgar promontories is the chambered tomb of Unstan, situated on the banks of the Loch of Stenness at the Ness of Onston to the west. Of most interest, in the centre of this cluster of monuments, is the location of the Late Neolithic settlement at Barnhouse on the banks of the Loch Of Harray about 150m north of the Stones of Stenness. The complex within the central bowl is part of a larger whole with a series of paired standing stones situated both around the hills which describe the natural bowl, and within the centre of the complex, linking activities both between and within these monuments (Richards 1996b). The location of the Barnhouse settlement is unusual then, both within Orkney and more generally. It is obvious that this region of the Orcadian landscape was perceived as symbolically significant, and the construction of a series of monuments in this area reflects this. Although the location of at least one settlement within a cluster of apparently ritual monuments serves to both dispel the notion of an exclusively ritual or ceremonial landscape and to problematise our understanding of the symbolic status of settlements during the Late Neolithic.

Barnhouse was discovered as part of a fieldwalking exercise (Richards 1993a, 26-51), and was manifested at this stage as a scatter of artefacts including retouched flint, polished stone axes and large sherds of Grooved ware. Given the obvious richness of the site, it was promptly excavated by Colin Richards between 1985-1990. Although it is difficult to consider phases for the site, since the construction of houses on Late Neolithic settlements is of such a fluid nature, we can at least isolate various stages of construction at Barnhouse. The initial stage of construction involved laying the complex system of drains. Despite the apparently mundane nature of this activity, it would seem that this activity both initiated and solidified the broad spatial structure

of the settlement through much of its life. Two discrete systems of drainage are apparent, they are arranged as two arcs positioned in a concentric arrangement. The inner arc of drains connects house 6 as well as later houses 1, 11 and 12 in the centre of the settlement. The second arc of drains connects houses 2, 3, 5 and 9. It is essential then to see that from the initial stages of construction the spatial arrangement of the settlement was cemented. The spatial arrangement involved the placement two concentric arcs of houses surrounding a central area or space. This central area is important for our considerations of the organisation of space and its relationship to social identity. Most important is the fact that throughout the life of the settlement the central area would appear to provide a focus for productive activities of all kinds, including flint knapping, bone, wood and hide working and pottery production.

As to the construction of the houses themselves, it appears that in the earliest phase of settlement around seven houses were built, including houses 2, 3, 5, 6, 7, 9 and 10 (Fig 3.11). Each house would appear to have been, at some time, demolished and then built over, in approximately the same position and orientation. This is particularly clear in the case of structures such as house 5. However, we also see at some time during the later phase of settlement the construction of house 1 in proximity to house 6 and house 11 overlaying house 6. What is most notable is that both houses 2 and 3 appear to continue to be used through much of the life of the settlement. House 9 went out of use by the final phase of occupation since structure 8 was partially built over the site, and its status through the main phases of settlement is uncertain. It would appear then that the earliest phases of settlement are both complex and fluid.

The architecture of these houses conforms with those excavated from the earliest levels of Rinyo and Skara Brae. The houses are rounded with a series of stone furnishings recessed into the walls, the furniture is arranged in a cruciform manner around a central stone built hearth.

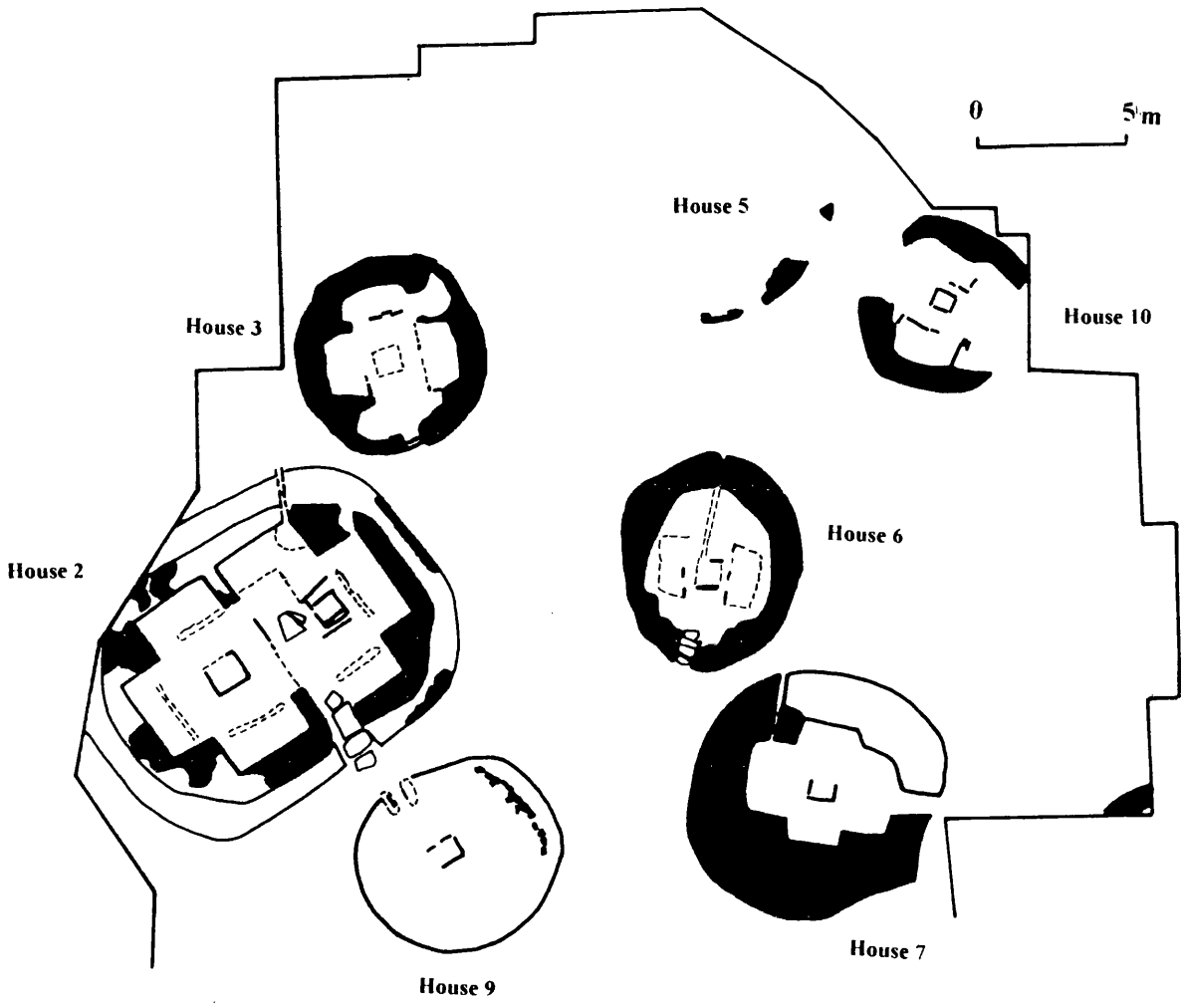


Figure 3.11: The spatial organisation of the settlement during the earliest phases at Barnhouse

What is most important in the analysis of social identity in this context, as discussed above, is the differential nature of house size and the arrangement of houses at this early stage of settlement at Barnhouse.

This difference is exemplified by the construction of the unusual house 2 to the west of the settlement. Not only does the actual construction of house 2 involve far finer quality walling than the other houses, but the ground plan is twice the size of the other houses. The complex architecture of house 2 draws on an arrangement of space similar to the typical Late Neolithic house, however the house has a double cruciform arrangement with a total of six recesses, with three recessed alcoves found in both rooms. The south-eastern entrance to the house is dominated by a large slab-lined hearth, and in close proximity to this feature is a large stone covering a pit or cist. On excavation this pit was found to contain fragments of bone, postulated as human (Richards 1990a, 323). The hearth in this area is also larger than the typical hearth within the other houses and it is furnished with a number of additional features; either side of the hearth, and running parallel to it, are large slabs and within the hearth itself is a shelf-like feature. Three alcoves adjoin this room, two divided off from the centre of the room by stone uprights. The north-eastern alcove contained a large scooped feature leading into a drain which ran off to the Northeast, the south-eastern alcove contained a small pit. Movement within this eastern room is restricted by a series of posts, and movement through it involves passing over the cist cover and turning to the left. This provides access to a western room furnished with a smaller hearth. To the left of this hearth an intense patch of burning may indicate the position of a rounded oven. Again three alcoves adjoin the room and are divided off from it by large stone uprights. The western alcove and the south-western alcoves both contain pits. House 2 has two distinctive phases of use which involves the sealing of the eastern features under clay flooring, and the continued use of the central stone hearth in the western

room. In every possible way then house 2 stands out from the rest of the settlement and as we shall see, the activities conducted within it serve to mark it out as unusual.

The final use of the Barnhouse settlement involves the construction of a monumental building, structure 8. This building was constructed south of the main area of settlement and consisted of an external clay platform onto which a large square building was constructed (Fig 3.12). This building also draws on the spatial arrangement of the Late Neolithic house, having a large central hearth and dresser. The clay platform contains a series of stone fireboxes and hearths to the Southeast, and is surrounded by a stone wall. The central building is entered through an elaborated entranceway or porch, situated between the stone slots of this porch is a large hearth. To the east of structure 8 is a large stone cut trench into which the drain at the Southeast of structure 8 is oriented. This stone cut trench, trench K, may surround and delimit the whole settlement, although this cannot be assessed without further excavation. It may be contemporary with all phases of settlement, although it is only certainly stratigraphically related to the use of structure 8.

The occupation of the site spans a four hundred year period as estimated by calibrated radiocarbon dates. The earliest uncalibrated radiocarbon dates of 2640 +/- 75 bc and 2620 +/- 75 bc are provenanced from charred barley within the house 2 hearth, while the latest dates of 2410 +/- 60 bc, 2450 +/- 65 bc and 2525 +/- 70 bc are provenanced from birch charcoal in occupation deposits within the interior of structure 8. Activity at various stages of the sites history are also dated such as the middle phase of construction at house 5 (2450 +/- 70 bc). Most importantly the latest activity in the central area is dated to 2550 +/- 60 bc. Calibrated, the earliest dates for the settlement are 3600-3110 BC and 3500-3100 BC, while the latest dates are 3270-2920 BC and 3090-2910 BC.

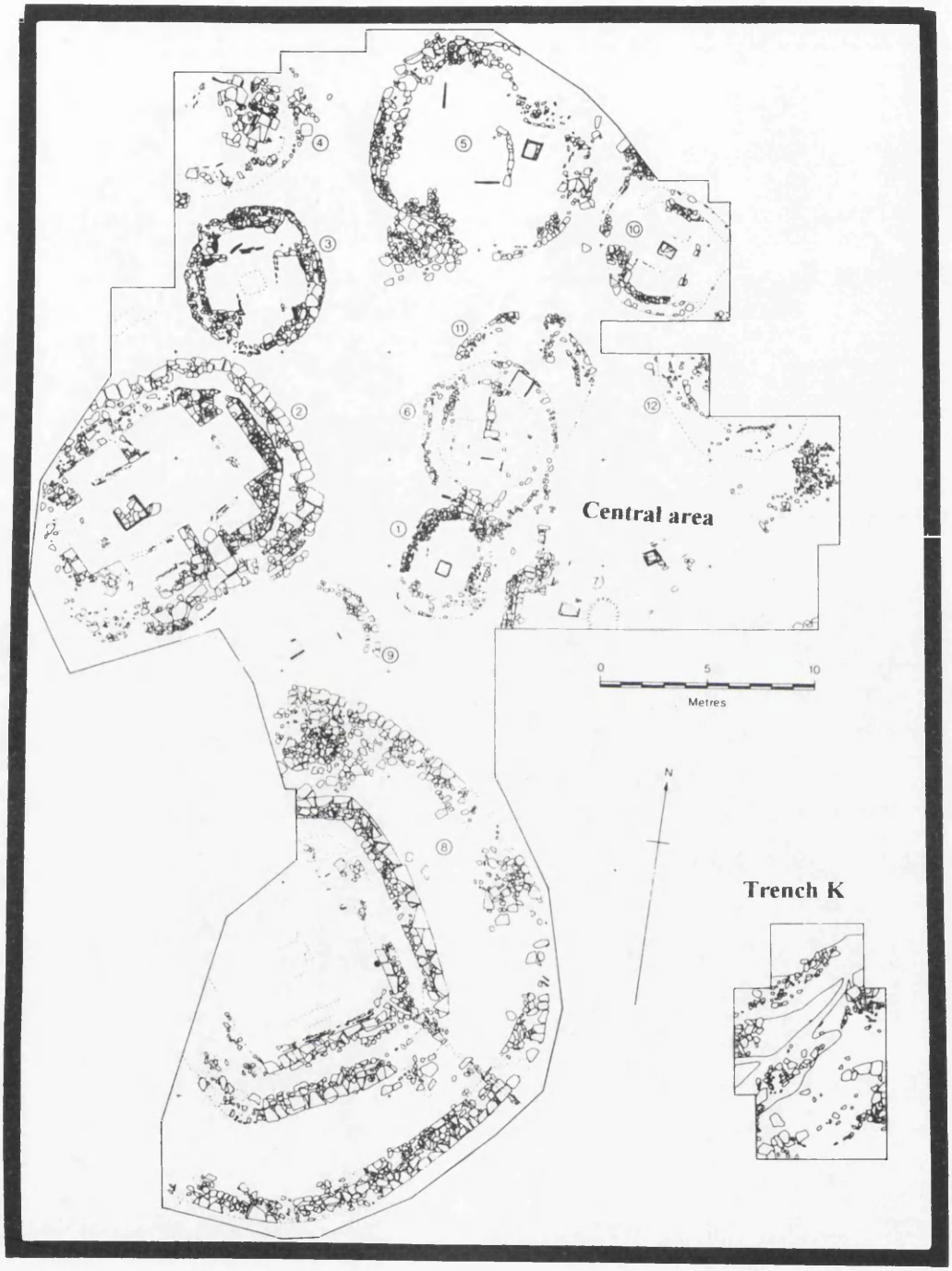


Figure 3.12: The Barnhouse settlement showng the position of structure 8 (from Richards 1990a, 309)

Of course the phasing of the site is problematic and it appears that there were considerable episodes of demolition and rebuilding on the site, and as noted above these particular activities are characteristic of the Orcadian Late Neolithic as a whole. Nevertheless, with this detailed chronology it is possible to examine the changing production and use of Grooved ware in relation to different houses and at different stages during the life of the settlement. While the first two phases of building associated with the settlement are fairly fluid, the construction of Structure 8 marks the final phase of occupation, and it is possible to contrast the Grooved ware associated with this later building with the earlier houses.

Summing Up

We need to draw together a series of themes discussed in this chapter with a broader discussion of Barnhouse in order to set the scene for the more detailed examination of the Grooved ware assemblage. One of the major points to note concerning Barnhouse is the settlement pattern itself. In the earliest phase we observe two groups of houses arranged in concentric rings around a central area. This spatial pattern is set out at a very early stage, as we have seen from the system of drains. While this pattern relates to cosmological notions of circularity and concentricity echoed in the use of space in the houses themselves, it is worth considering here how much the pattern also relates to specific notions of social identity. This is a theme which will be explored further throughout this study. A further point concerns the nature of activity within the central area. Not only is this important in our considerations of Grooved ware production, but given the overall pattern of settlement it may have deeper social and symbolic resonance.

What is more, Barnhouse is one of the few Orcadian settlements where houses can be seen to be differentiated by size and groundplan. It is essential to further

examine this point in terms of social structure and social identity. In a similar vein, the large monumental building, structure 8, is a unique construction, and it too provides a means of examining the changing nature of social identity and social structure in relation to the earlier houses.

In terms of Grooved ware, Barnhouse is important since, unlike other deeply stratified sites such as Pool, Sanday (Hunter and MacSween 1991) it is possible to examine both the production and use of Grooved ware spatially, and observe the contrast in material in different areas of the site as well as within different houses. On a another level, it is essential to explore the notion of settlements employing specific decorative schemes. Through a detailed contextual examination it should be possible to examine how these schemes are used in social practices at Barnhouse, and what this means in terms of the expression of social and cultural identity.

Chapter Four

Characterising and Categorising the Barnhouse Grooved ware assemblage

Introduction

Before commencing a detailed discussion of the biographies of various categories of Grooved ware at Barnhouse it is essential to characterise these categories. As Boast (1990, 181-2) indicates, categories are created through the manipulation of various 'dimensions of variability'. Such 'dimensions of variability' may include fabric, wall thickness, decorative elements, decorative scheme etc. It is the variation in these 'dimensions of variability' which distinguish one category of vessel from another. The aim here is to distinguish the various dimensions along which Grooved ware vessels vary, and thereby characterise the differences which go to make up various categories of Grooved ware at Barnhouse.

Characterising the Barnhouse Grooved ware: fabric

The first factor which distinguishes vessels of different categories is the manner in which they are tempered. As indicated in chapter 2, a detailed examination of the Barnhouse assemblage enabled the fabrics to be broadly grouped into the following categories:

Fabric A; Rock tempered with a frequency between 10-30%

Fabric B; Rock tempered with a frequency of 50% or more.

Fabric B1; Rock tempered with a frequency of 50% or more, also tempered with approximately 10% shell (observed as voids).

Fabric C; Shell tempered with a frequency of 10-30% (these are observed as voids since the shell has decayed in acidic soil conditions).

Fabric D; Untempered, only non-plastics include naturally rounded quartz inclusions.

Fabric E; Untempered.

There appears to be a degree of variability then in the way in which vessels are tempered at Barnhouse. The primary variation depends on the type of temper used; shell or rock although some vessels contain no temper. However, there appears to be further variation according to the frequency of the tempering agent. For example, vessels tempered with rock vary according to the frequency of temper, for fabric A 10-30%, for fabric B and B1 50%. Again, although fabrics D and E are essentially untempered they are also distinguished by the relative presence or absence of natural non-plastics within the clay. Furthermore the process by which shell tempered vessels are distinguished again operates according to this variable; while fabric C vessels are entirely distinguished by the high frequency of shell inclusions, fabric B1, is tempered with a lower frequency of shell along with a high frequency of rock.

While variation in temper frequency is apparent, the reasons for this variation are initially difficult to understand, however, if we compare temper frequency, in terms of fabric, against wall thickness then the variation in temper frequency becomes comprehensible (Fig 4.1). While fabrics A and B include vessels tempered with rock inclusions, vessels of fabric A tend to be from 10-15 mm in wall thickness, while vessels of fabric B are typically over 20 mm in wall thickness. Shell tempered vessels of fabric C are 7-15 mm in wall thickness, while those of fabric B1 are typically at the extreme end of the scale being over 25 mm in wall thickness.

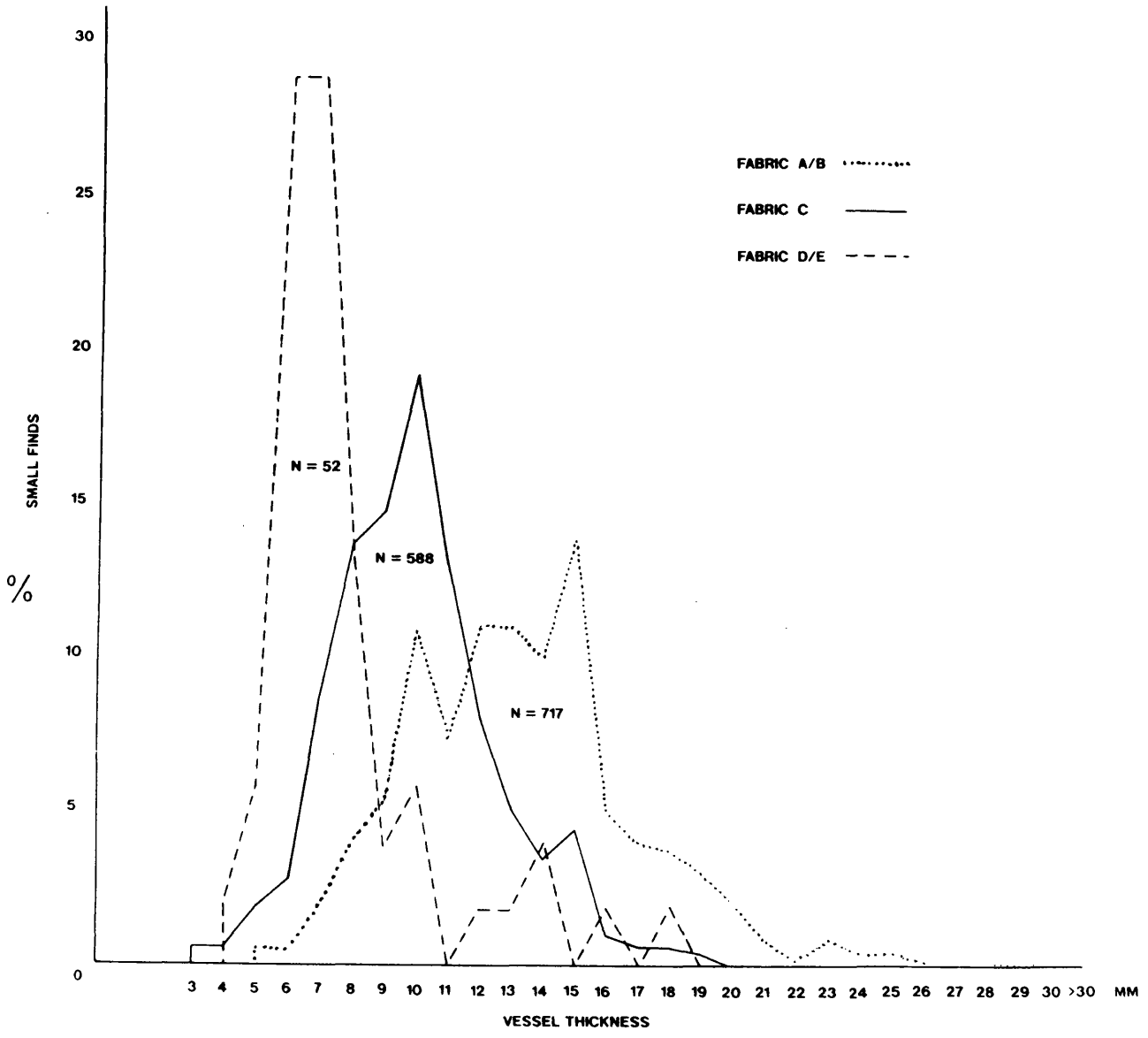


Figure 4.1: The relationship between fabric and wall thickness in the Barnhouse Grooved ware assemblage (from Richards 1993a, 183)

Fabrics D and E are essentially part of a continuum ranging from 5-9 mm thickness, with Fabric D occupying the upper end of the scale, fabric E the lower.

It would appear that fabric may be an initial stage in the categorisation process, and may serve to create broad distinctions between different categories of pottery. However, vessels of different broad fabric categories vary along a scale, in both the frequency of inclusions used within the fabric of the vessel and the wall thickness. Thus it is possible to distinguish a primary process of categorisation according to fabric and wall thickness, two separate variables that appear to correlate closely, each one, possibly, determining the other.

Characterising the Barnhouse Grooved ware: volume and rim diameter

We now need to move on from a simple correlation between fabric and wall thickness to understand the way in which these variables are manipulated in order to create three-dimensional vessels. One of the means by which we can do this is to correlate one of these variables, wall thickness, against vessel volume. It is notable, with slight shape differences, that Grooved ware vessels essentially fall into a single categorical form, being either bucket or cylinder shaped. The Barnhouse Grooved ware was essentially bucket shaped, where profiles could be reconstructed. This conformity of shape has both advantages and disadvantages; the lack of variation in shape means it is easy to correlate volumes from different assemblages, however the cylindrical nature of Grooved ware means it is difficult to reconstruct the entire volume of a vessel. As a consequence vessels' volumes were calculated from a number of vessels from Barnhouse and a number of other assemblages, including Stenness, Quanterness, Skara Brae, Rinyo and the Links of Noltland.

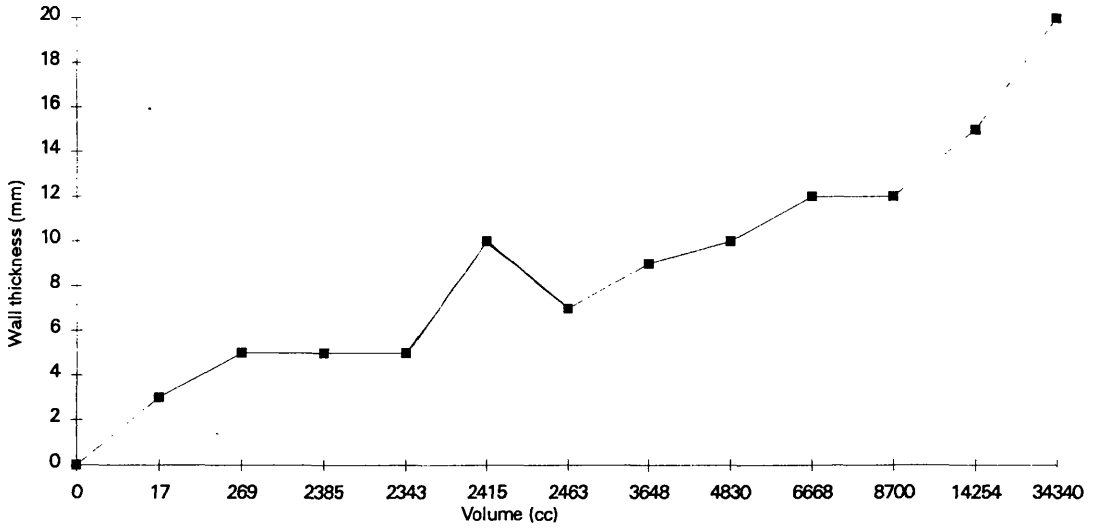


Figure 4.2: Wall thickness: volume ratio in reconstructed Grooved ware vessels from Orkney

The above graph provides a broad measurement of different size categories of vessel, and indicates that the relationship between the two is broadly exponential. The advantage of correlating vessel volume with wall thickness is that we can extrapolate from this graph, and through the simple measurement of wall thickness we can build up a picture of the variation of vessel volumes within a given assemblage. At Barnhouse it would seem that although vessels are basically bucket-shaped, there is considerable complexity within the assemblage. Broadly, Grooved ware at Barnhouse falls into three main categories of size and volume:

1. Large Vessels (Fabric A, B and B1): Vessels with a wall thickness of 16-30 mm and a volume of 10-35 000 cc.

2. Medium Vessels (Fabric A and C): Vessels with a wall thickness of 9-15 mm and a volume of 2-8000 cc.

3. Small Vessels (Fabric C, D and E): Vessels with a wall thickness of 3-7 mm and a volume of 2000-3000 cc.

From this it is obvious that we have three main vessel volumes which have regular wall thicknesses but are constructed with quite different fabrics. Therefore, it is in part through the thickness of the walls, height and diameter that the vessel is categorised. Since the Barnhouse Grooved ware vessels are bucket-shaped, the basal diameters of vessels are very broadly similar and we see little variation in vessels of different volume or fabric. However, since bucket -shaped vessels tend to splay towards the rim, rim diameter provides a clearer picture of the similarities and differences in vessels of different fabric:

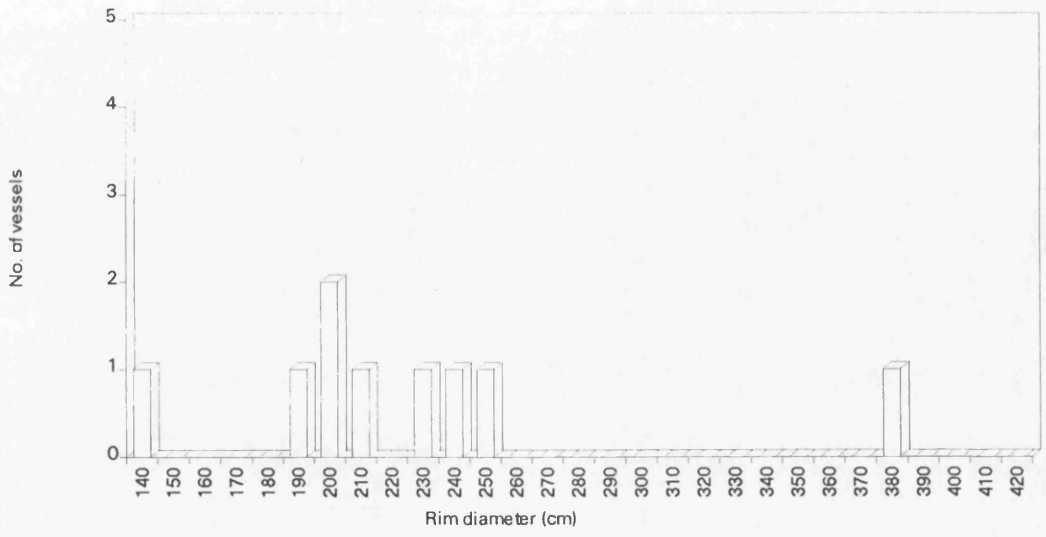


Figure 4.3: Rim Diameters of Fabric A vessels (N=9)

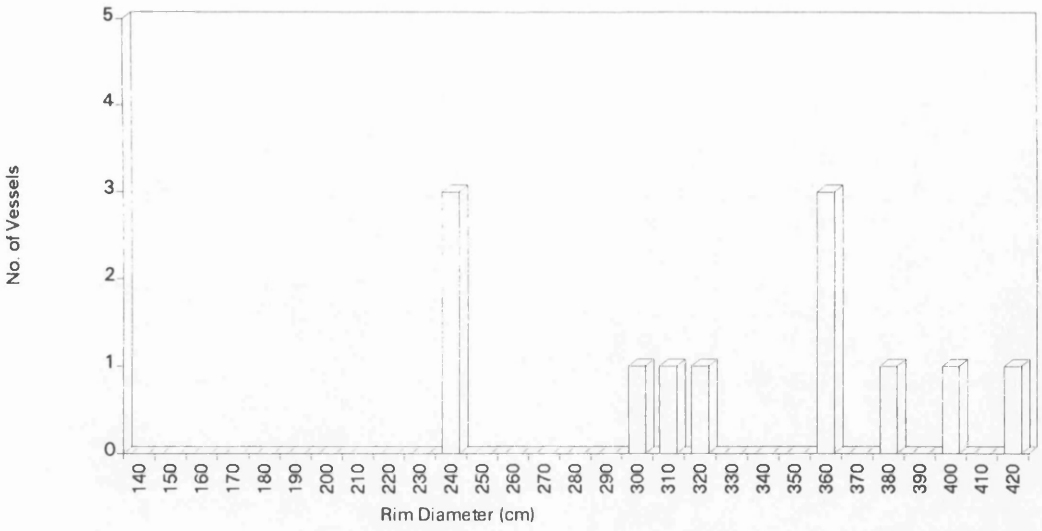


Figure 4.4: Rim Diameters of Fabric B/B1 vessels (N=12)

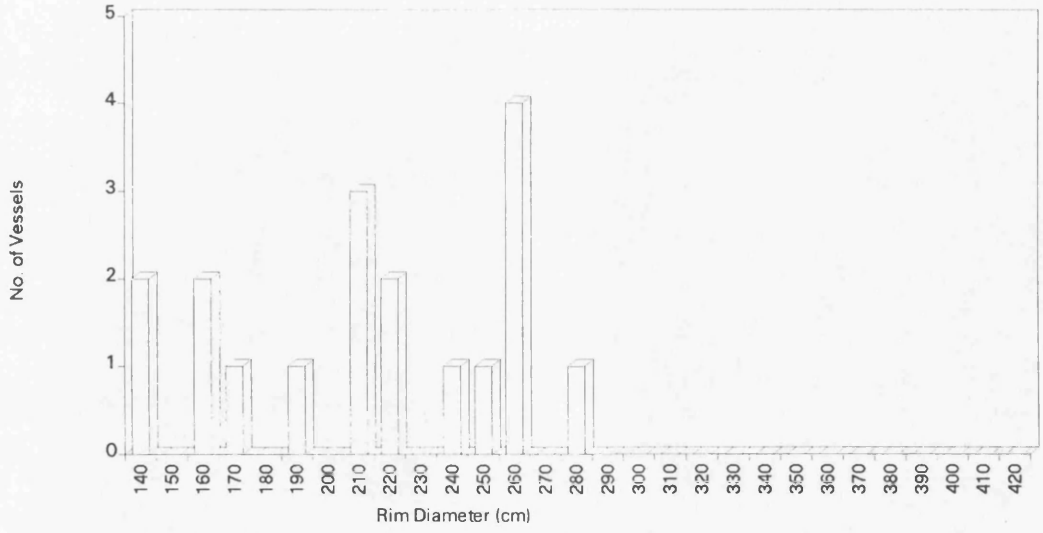


Figure 4.5: Rim Diameters of Fabric C vessels (N=18)

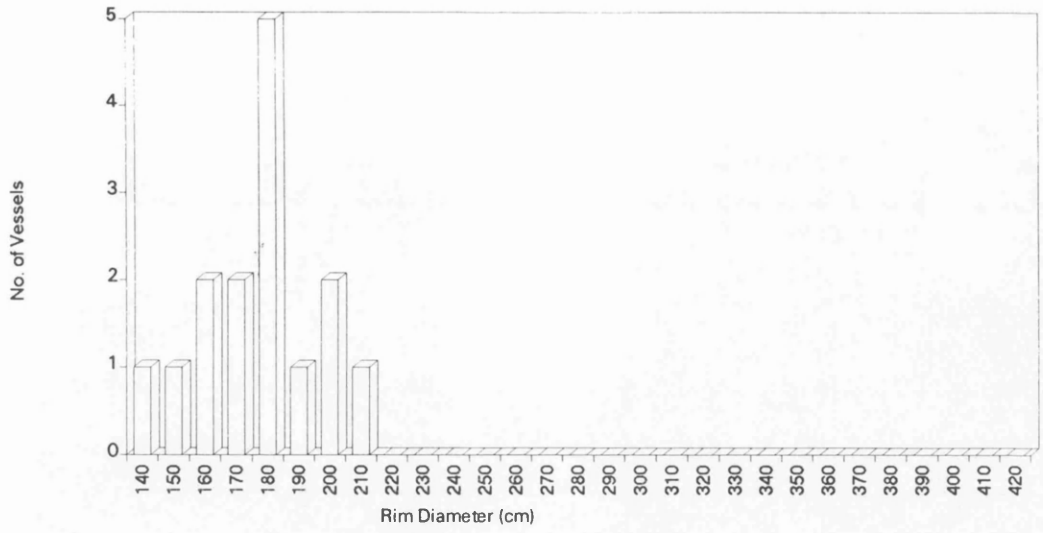


Figure 4.6: Rim Diameters of Fabric D/E vessels (N=15)

Again, the number of rim sherds which could be utilised in reconstructing vessel diameters was low and as a result the differences in diameters should be treated as the result of a broad pattern. Nevertheless, we can see that while there is considerable overlap between the rim diameters of fabric A and fabrics B and B1, and fabric A and fabric C. What is more, the rim diameters of fabrics C and fabrics D and E also appear to overlap. The greatest distinction is obviously between the rim diameters of fabrics B and B1 and those of D and E. Broadly this pattern confirms the correlation observed between vessel volume, wall thickness and fabric. Different fabrics are being employed to create vessels of different size and volume. Fabric A is used to create vessels of both large and medium volume. Fabric C is being used to create vessels of both medium and small size. Only fabrics B and B1 and D and E are being used to create single vessel sizes, large and small respectively.

Characterising the Barnhouse Grooved ware: rim morphology

Volume and rim diameter are not the only means of distinguishing between different categories of vessel. Vessel rims can provide us with further means of distinguishing and characterising vessel categories. Rims are fairly complex, and rims are one means of differentiating vessels of different fabrics (see Fig 4.7).

Rim Forms												
Fabric A (medium)			1				2		1			
Fabric A/B/B1 (large)				2				1				9
Fabric C (medium)	9	1		2	1			5	2	1		1
Fabric C/D/E (small)			17			2			1			

Rim Forms										
Fabric A (medium)	4									1
Fabric A/B/B1 (large)			4			1	3			1
Fabric C (medium)		3		2		1		1	1	3
Fabric C/D/E (small)	8				3					

Figure 4.7: Rim morphology of vessels of different fabric within the Barnhouse assemblage

The rims of medium sized fabric A vessels may be of a similar form to that of fabric A, B and B1, with a pronounced internal bevel or simply flat. Rims may also be pointed, may have an internal lip or step, or may be incised on their topmost surface, in which case they are found on medium size vessels. The range of rims for fabric A vessels is limited, with only seven variants. The rims of fabric C vessels are both complex and diverse. Rims are pointed, bevelled and lipped, flat, internally stepped or cordoned. Internal decoration is common with either one or two incisions close to the rim, while incised decoration on the upper surface of the rim is also common. The most complex rim forms are found on the small vessels and correlate with rim forms found on vessels of fabrics D and E. Simple pointed, flat and bevelled rims are found on medium sized vessels. Vessels of Fabric C have fourteen various rim forms.

Characterising the Barnhouse Grooved ware: decoration

How do vessels of different fabric, volume, rim diameter and rim form correlate to other variables such as decorative technique and decoration? An examination of decorative technique, fabric and sherd thickness (Fig 4.8) reveals that incised decoration is mostly found amongst fabrics A, C, D and E, on vessels of wall thickness between 5-15 mm. Thin cordoned decoration is found amongst vessels of fabric A and C between 10-15 mm thickness, while large applied cordons are confined to vessels of fabrics B and B1, of wall thickness between 20-30 mm.

While we can observe obvious differences in decorative technique and the use of simple decorative elements, as discussed in chapters 2 and 3 this is not an adequate means of defining and differentiating decoration. Rather we need to note the decorative scheme on vessels of different categories if we are to gain a clear picture of the way in which decoration is used to characterise different categories. What we need to examine now is how decorative schemes correlate with other attributes of vessels, particularly fabric and volume. It has already been noted that certain fabrics are used to construct vessels of certain size and volume capacity, and it would also seem that certain decorative schemes are restricted to these categories of vessel.

The decoration of a Grooved ware vessel takes place at a specific stage in the process of manufacturing a vessel. Again a choice must be made, whether to decorate or not. The percentage of decorated sherds is fairly low, suggesting that the act of decoration was itself symbolically powerful (see Fig 4.16). We have seen that different decorative techniques and different decorative elements are employed on vessels of different fabric and concomitantly of different volume. Having noted the differences in these aspects of decoration, what I wish to do now is describe the different decorative schemes utilised on the Barnhouse Grooved ware.

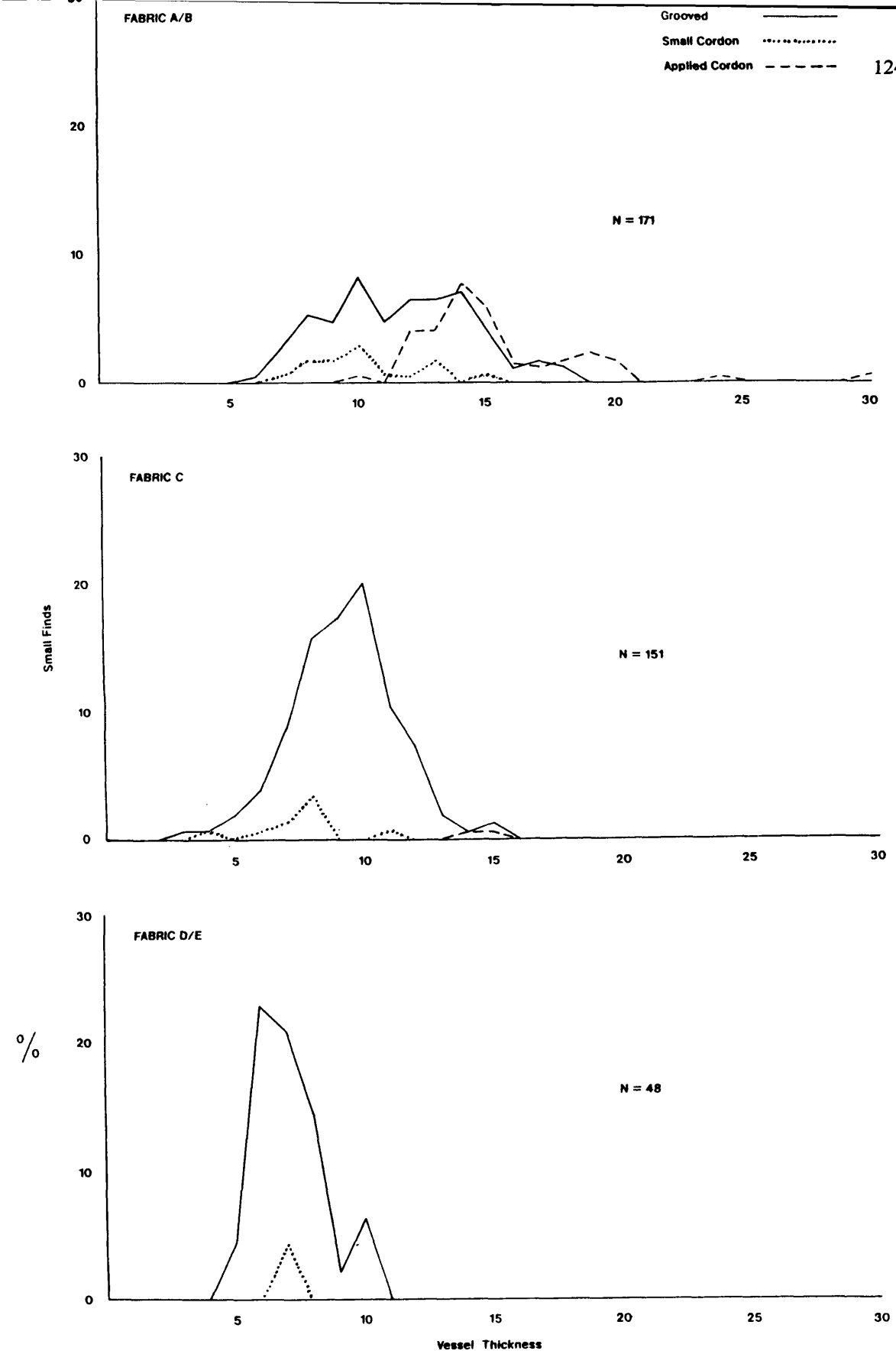


Figure 4.8: Comparison of fabric, vessel thickness and decorative technique (from Richards 1993a, 199)

In each case I will describe the series of choices open to the potter in creating the decorative scheme, since this has considerable bearing on the way in which the vessel categories are demarcated. Finally I will describe how different decorative scheme are more or less appropriate on different categories of vessel.

Decoration amongst the Barnhouse Grooved ware assemblage appears to involve a multiple stage process in which a number of decisions are made regarding the final appearance of the vessel. The first stage involves deciding on the overall organisation of the decorative scheme. Firstly, the undecorated surface will be broken up by the use of either horizontal incisions or cordoning. Such incisions or cordons are employed between 1-3 times. This initial decision will dictate the number of incisions or cordons repeated in other areas of the pots decoration. If a single incision or cordon is employed then it will typically be placed close to the rim of the vessel, as in decorative schemes 1 and 14 (see Fig 4.9). If multiple incisions or cordons are employed, they will be used to create zones which will be repeated a maximum of two times in order to break up the pot into either two or three zones. In this case the decoration will cover the main central body of the vessel. The second stage of decoration involves the augmentation of these zones, this may take a number of different forms:

1. Incisions running in a curvilinear fashion.

2. Cordons running diagonally in a curvilinear fashion.

3. Cordons running diagonally in a curvilinear fashion with further embellishments.

4. Incisions used to create zones with infill incisions running in a diagonal direction.

5. Incisions used to create zones with dot impressions as an infill motif.

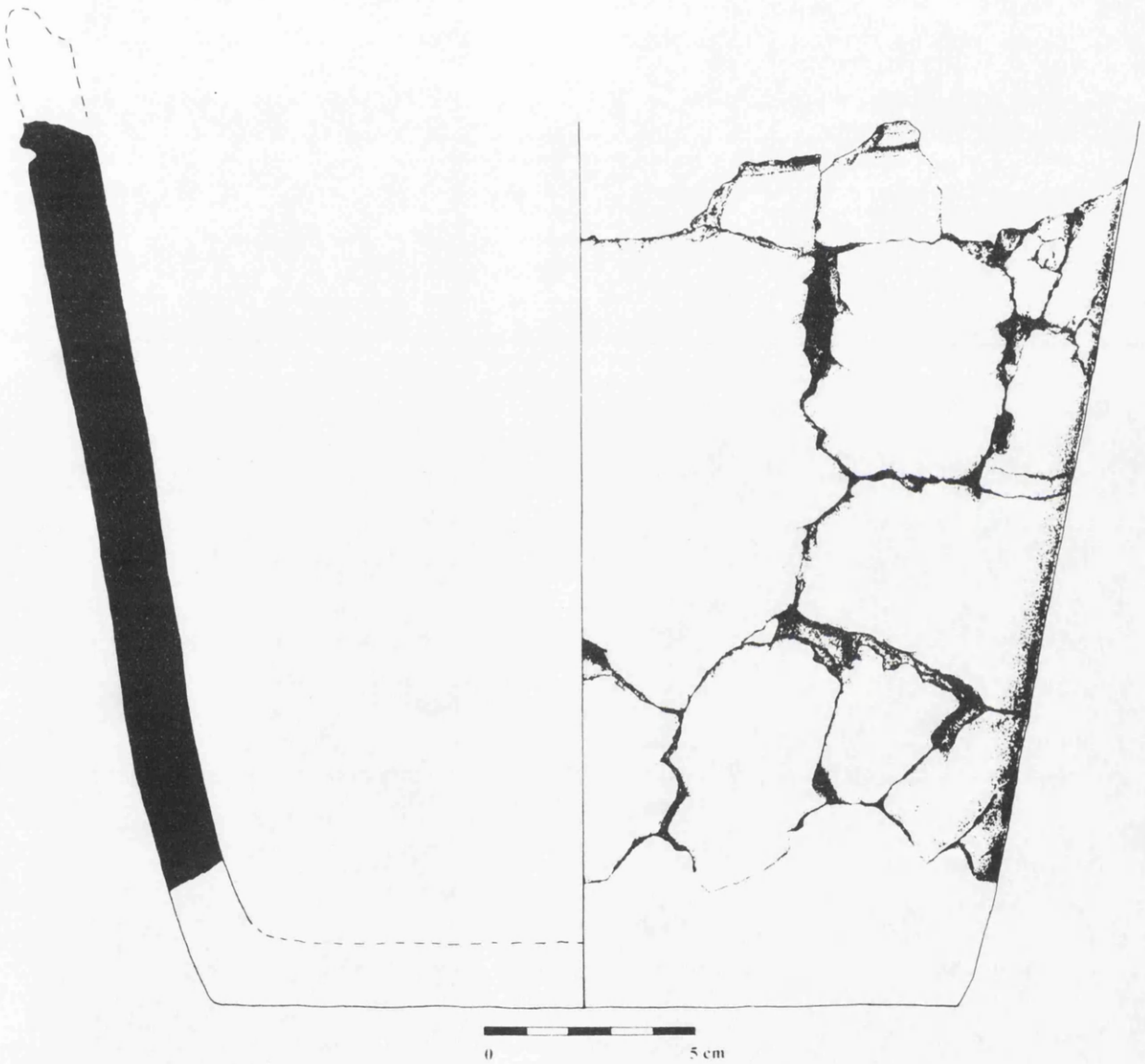


Figure 4.9: Decorative scheme 1 on large Grooved ware vessel (Reconstructed vessel from structure 8)

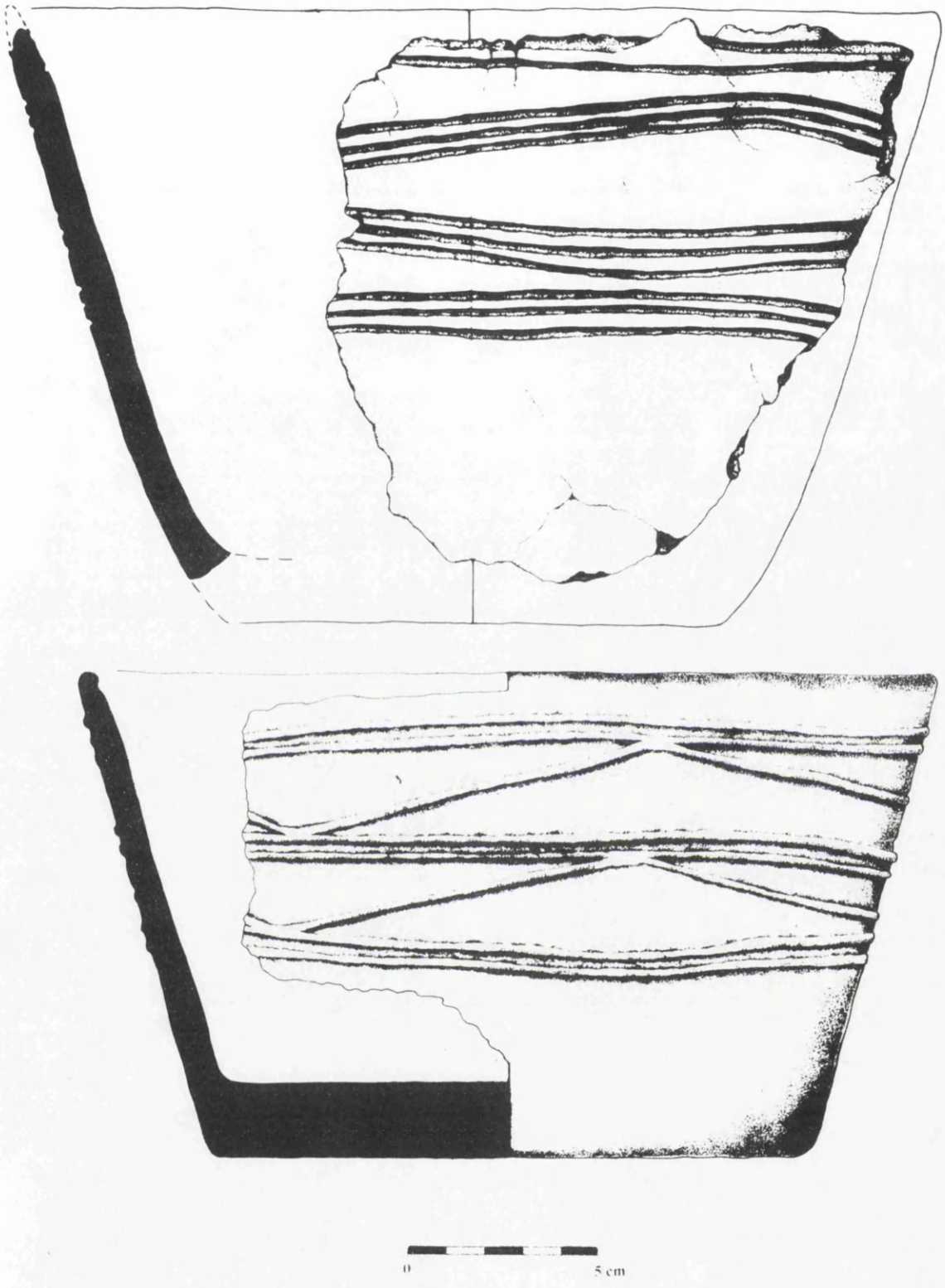


Figure 4.10: Top Decorative scheme 8 (SF 3001, house 3 ash dump), Bottom Decorative scheme 24 (SF 3720, platform over house 6)

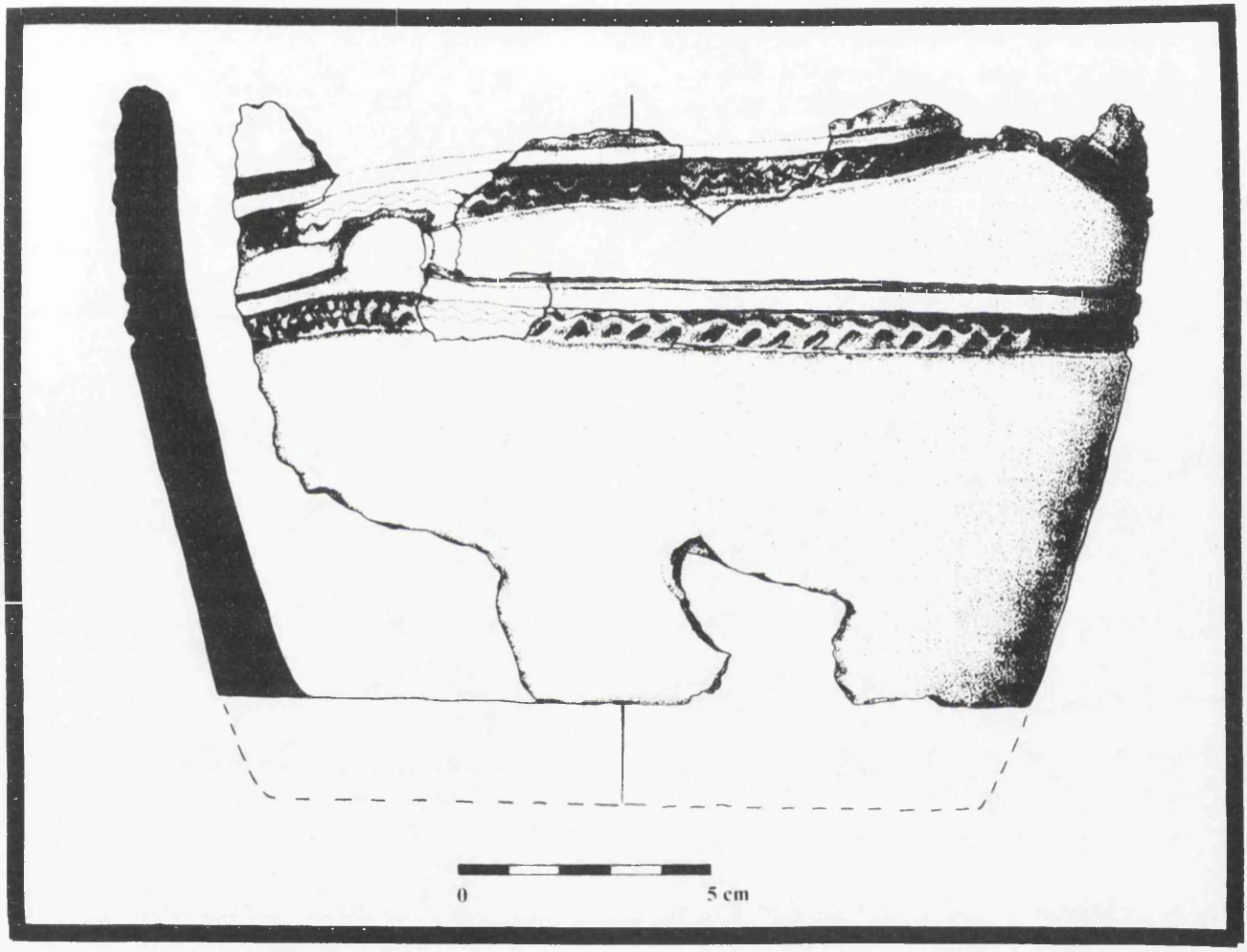


Figure 4.11: Decorative scheme 13 (SF 1905, house 3)

The most frequent form of decoration involves the use of either two or three incised lines to create three different horizontal zones on the vessel. The central zone is then infilled by one or two curvilinear waves of two or three incisions, as in decorative schemes 8, or a similar decorative scheme, 24, may be affected using thin cordons (see Fig 4.10). The second most frequent form of decoration involves the use of an incision, then a small cordon to define the zone. This may be repeated, with the space below infilled by a further cordon. These are then embellished by alternate stabs within the cordons to create a serpentine effect. Such embellishment allows for a considerable variance of overall effect with either alternate or both cordons decorated in this manner. Thus the typical design involves embellishment of both the zoning cordon and the infill cordon, as in decorative schemes 13 (see Fig 4.11) or the embellishment of only the infill cordon. Furthermore, where branching occurs within infill cordons it is possible to achieve alternating presence and absence of embellishment.

Very occasionally both of the above designs of incision and serpentine cordon may be combined, with zones of serpentine and incisions alternating, as in decorative scheme 12. Again a series of choices would be available to the potter. It would appear that in general there were a series of decorative choices open to the potter:

1. The use of zones and infill with the addition of novel decorative elements as infill between zones, rather than curvilinear grooves or cordons. Typically dot impressions used either systematically or unsystematically, as in decorative scheme 12 (Fig 4.12).
2. The use of dot impressions as a form of zoning.
3. The use of cross-hatched incisions as infill, as in decorative scheme 2 (Fig 4.13).

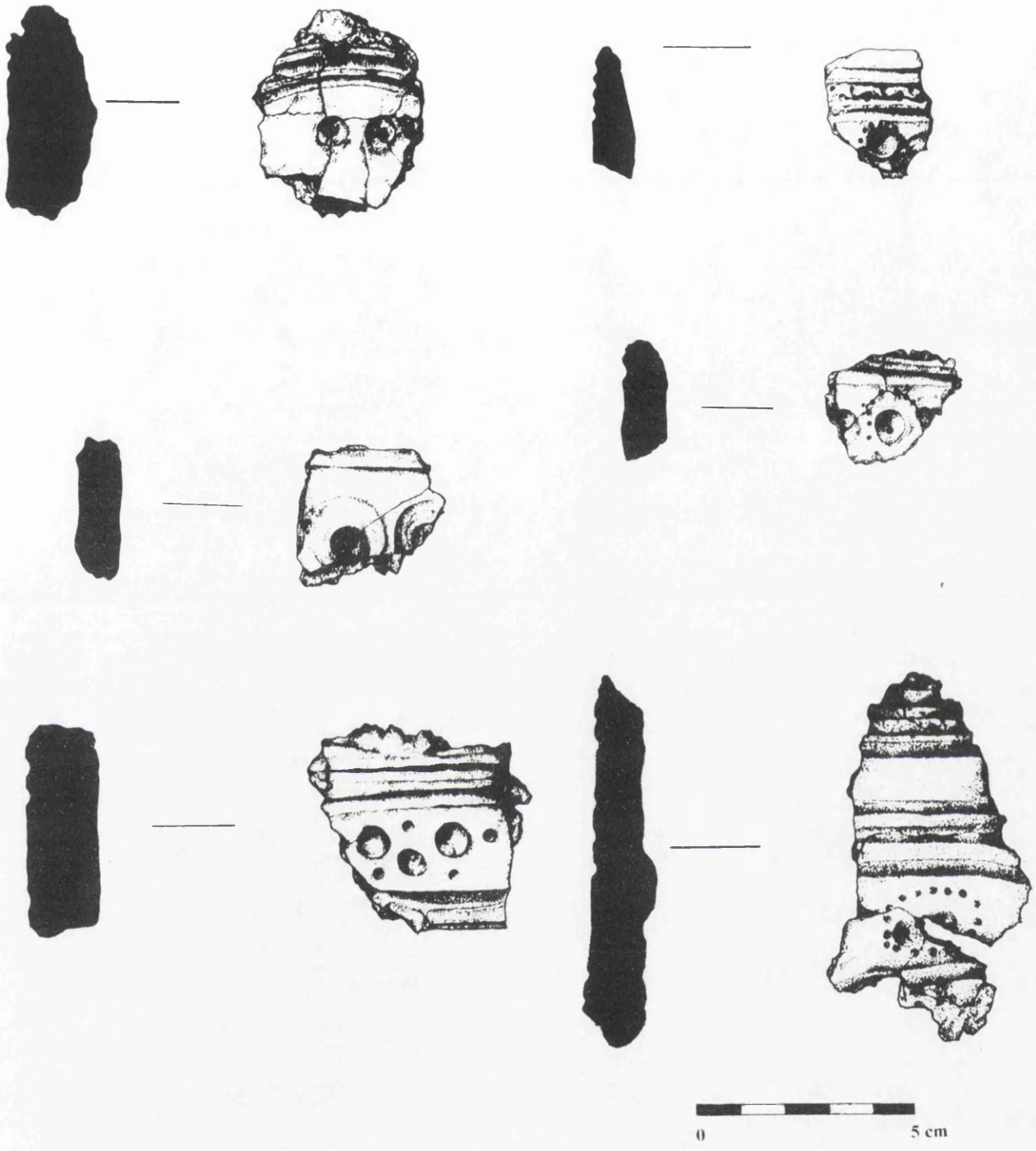


Figure 4.12: Examples of Decorative scheme 12

(Top Left: SF 5940, Top Right: SF 1370, Middle Left: SF 5010, Middle Right: SF 3934, Bottom Left: SF 4273, Bottom Right: SF 5116)

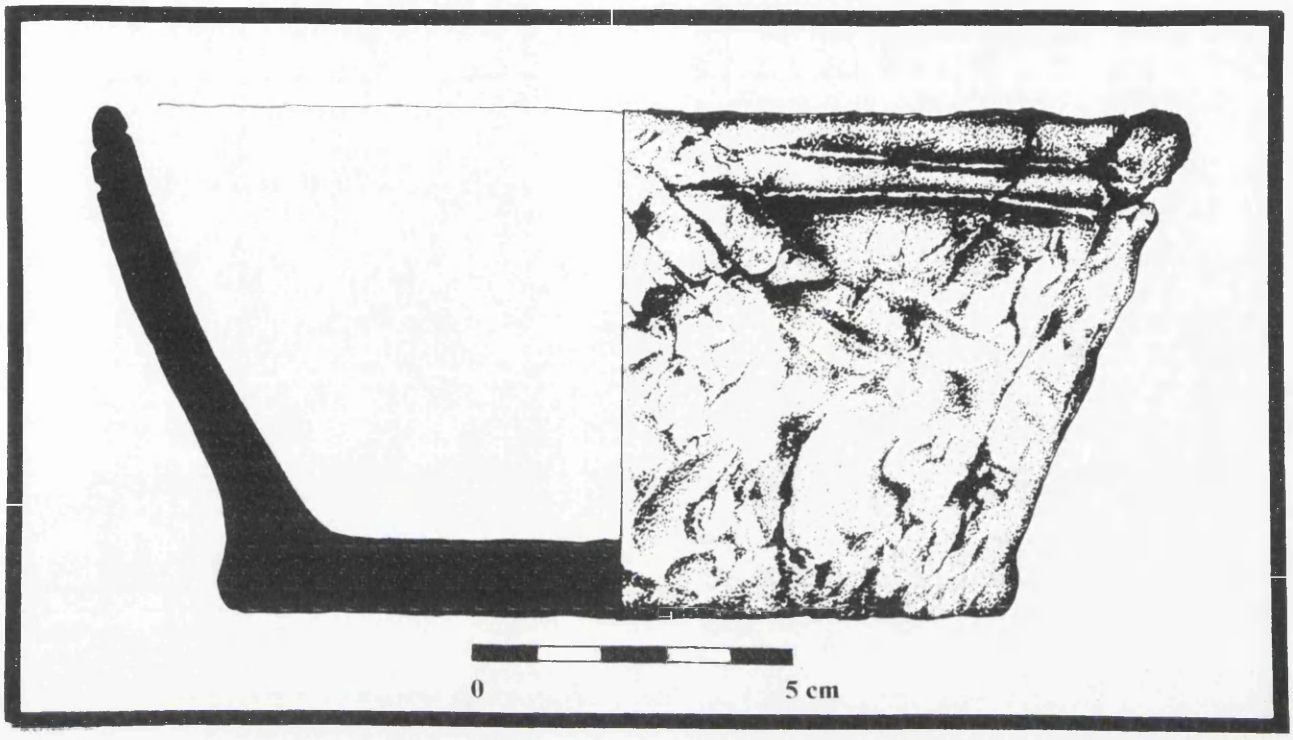


Figure 4.13: Decorative scheme 2 (SF 1890, house 3)

Thus curvilinear grooves and serpentine cordoning appear to be the most predominate decorative elements amongst the Barnhouse assemblage. All main decorative schemes are curvilinear, and in each case the decorative elements employed to make up the schemes are homologies of each other. How do these decorative schemes correlate with vessels of different fabric and volume? The decoration of large vessels of fabric A, B and B1 is the simplest, and most often involves the use of a single incision or cordon placed near the rim (see Fig 4.9). Only in the later phases of settlement associated with structure 8 do we see more complex decorative schemes being employed, again these use cordons, but they are used to create zones with a series of cordons diagonal infilling this area, as in decorative scheme 33. Medium size

vessels of fabric A and C have more complex decorative schemes. Decoration is focused around the main body of the vessel and takes the form of incisions or cordons creating zones with curvilinear infill of incisions or cordons, as in decorative schemes 8 and 24 (see Fig 4.10). The use of more complex decorative elements on these vessels take the form of embellished cordons, as in decorative scheme 13 (see Fig 4.11).

In the later phases of settlement, associated with structure 8, we see a simpler decorative scheme employed, which appears to involve the repetition of incisions previously used to create zones. The incisions are used either deeply or lightly on the surface of the vessel and are situated over the whole surface of the vessel to give an all-over incised appearance, such as decorative schemes 23, 26 and 39.

The decoration of small vessels of fabrics C, D and E involves the use of a few specific decorative schemes such as the complex design 12. The decoration of vessels with decorative scheme 12 employs decorative elements that are employed in both decorative scheme 8 and decorative scheme 13, with zones of alternate small cordons of serpentine and zones of three incised grooves. However, between these zones the infill typically involves an arrangement of dot impressions that are found only within megalithic art, such as the 'rosette'. It would appear then, that for the greater part the decoration of smaller vessels of this type draws heavily on the decorative elements and schemes used within the medium sized vessels of fabrics A and C.

Characterising the Barnhouse Grooved ware: burnishing

We have seen how decorative schemes vary between vessels of different fabric and volume categories, however there is a further dimension which characterises different vessel categories, burnishing. Burnishing may be considered as part of the process of *decorating* a vessel (Barley 1995, 132) and may be an essential part of the way the vessel is categorised. Burnishing is here defined as the process of rubbing the

surface of the vessel, in order to create a lustrous quality, and may include both the interior and exterior of the vessel. Burnished vessels were easily observed due to the faint surface striations which are an effect of the process. The process may confer the vessel with functional advantages, however it also provides the vessel with a glossy surface. The description of burnishing on vessels is problematic since we are most often dealing with isolated sherds rather than whole vessels. However, we are able to determine from this, and from the incidence of burnishing on reconstructed vessels, the position of areas of burnishing on the vessel surface. Here we are concerned with how burnishing varies on different categories of vessel:

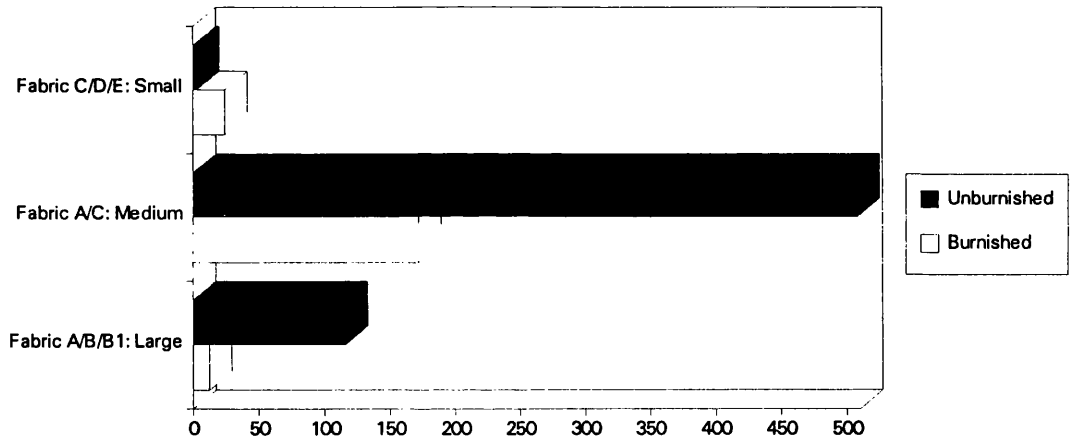


Figure 4.14: Comparison of burnished: unburnished vessels in house and house dump assemblages

Burnishing would appear to vary considerably on vessels of different size and fabric. If we express the above graph as a series of percentages then we find that 89% of the smallest vessels, of fabric C, D and E are burnished, 25% of the medium vessels of fabrics A and C are burnished, while only 9% of the largest vessels of fabric A, B and B1 are burnished. When expressed in this way it appears that certain categories of

vessels are more appropriately burnished than others. What is more interesting is how the presence of burnishing correlates with the presence or absence of decoration:

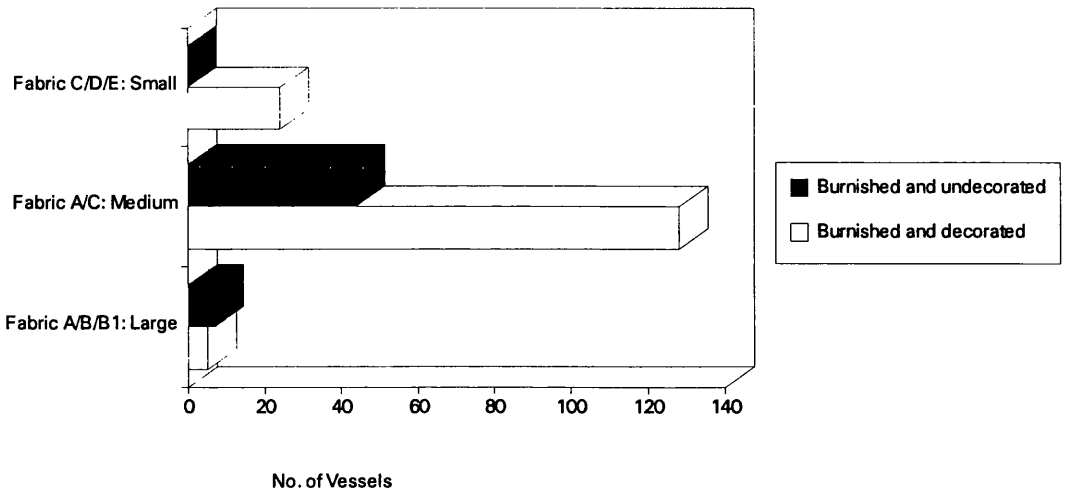


Figure 4.15: Correlation of burnishing with decoration amongst vessels from houses and house dumps

As we can see the correlation between burnishing and decoration is high; 100% of the small vessels of fabric C, D and E that are burnished are also decorated, while amongst the medium size vessels of fabric A and C, 74% of burnished vessels are also decorated. Amongst the large vessels of fabric A, B and B1, 42% of those vessels that were burnished were also decorated. Interestingly, this pattern echoes the pattern of presence and absence of decoration, illustrated in Figure 4.16 below. Here we observe that the overall proportion of decorated sherds of fabric D and E is high, while the overall proportion of fabric A and C and finally fabric B sherds is proportionally progressively lower.

Summing up: The characteristics of the Barnhouse Grooved ware

We have seen that certain 'dimensions of variability' are employed to create vessels of different categories, demarcated by fabric, volume, rim diameter, rim morphology, decorative scheme and burnish. Through the step by step analysis undertaken above of the various stages and decisions made in defining categories of Grooved ware at Barnhouse, I believe that Grooved ware vessels are formed through the manipulation of a fairly restricted range of 'dimensions of variability':

1. Temper composition (shell, rock, no temper).
2. Temper frequency.
3. Wall thickness.
4. Vessel volume.
5. Decorative scheme.
6. Decorative element.
7. Burnishing.

Furthermore, the decisions involved in the manipulation of these 'dimensions of variability' are hierarchical (Friedrich 1970, Plog 1980, 40). In each case a decision to vary a particular dimension predicates a decision to vary the next dimension. Since these decisions are hierarchical then the decision to vary one dimension will effect other decisions and will overall effect the nature of the vessel to be constructed. For example, if rock temper is used then a certain frequency of temper will be chosen, this will affect the wall thickness and subsequently the volume, the overall size of the vessel will then affect the nature of the decorative scheme and the elements employed to make up that scheme. Finally the presence of decoration appears to determine whether the vessel should also be burnished. Interestingly it is the manipulation of the

decorative scheme which creates an entirely distinct set of vessel categories within the later phases of settlement associated with structure 8. In both the large and medium size vessels the decorative scheme is changed while the decorative elements remain the same. As we shall see in chapter 6, we may consider this change in decorative scheme to mirror the changing use of large vessels on the structure 8 platform. Each dimension is manipulated in particular ways to create different categories of vessel, each with distinctive characteristics demarcated initially by fabric and volume and finally by rim form, decoration and burnish. Throughout the life of the settlement these vessels form three major categories distinguished by volume:

Large vessels (10 000-35 000 cc). These vessels are of fabric A, B, B1, 9% of vessels have surface burnish. No vessels of fabric B1 are burnished. Decoration is simple with either a single incised line around the rim or with a simple cordon around the rim or a series of cordons around the upper body of the vessel. Only in the later phase do these vessels have a more complex decorative scheme, with infill cordons. Morphologically, these vessels have rims which are fairly simple being either flat or thickened with an internal bevel. Overall these vessels are bucket shaped.

Medium size vessels (2000-8000 cc). These vessels are of fabrics A and C, 25% have surface burnish. Decoration is both simple and complex. Decoration involves the use of both incisions and thin cordons, typically in a curvilinear decorative scheme. In the later phase incisions are used in a repetitive decorative scheme. Morphologically, the rims on vessels of fabric A are simple and are flat, bevelled, pointed. A few are internally stepped. The rims on vessels of fabric C are more complex, they are pointed, bevelled and lipped, however they are also both internally stepped and cordoned. Overall these vessels have walls which rise from the base at 90 degrees giving a straight sided vessel.

Small vessels (2000-3000 cc). These vessels are of fabrics C, D and E, 89% have surface burnish. Decoration is usually complex and is always incised. Decoration appears to be reasonably standardised and may be drawn from passage grave art. Rim forms are fairly complex with most rims being incised on their upper surface. Some are internally stepped or lipped or internally decorated with one or two incised lines. The overall shape is generally straight sided with a slight out turn toward the rim.

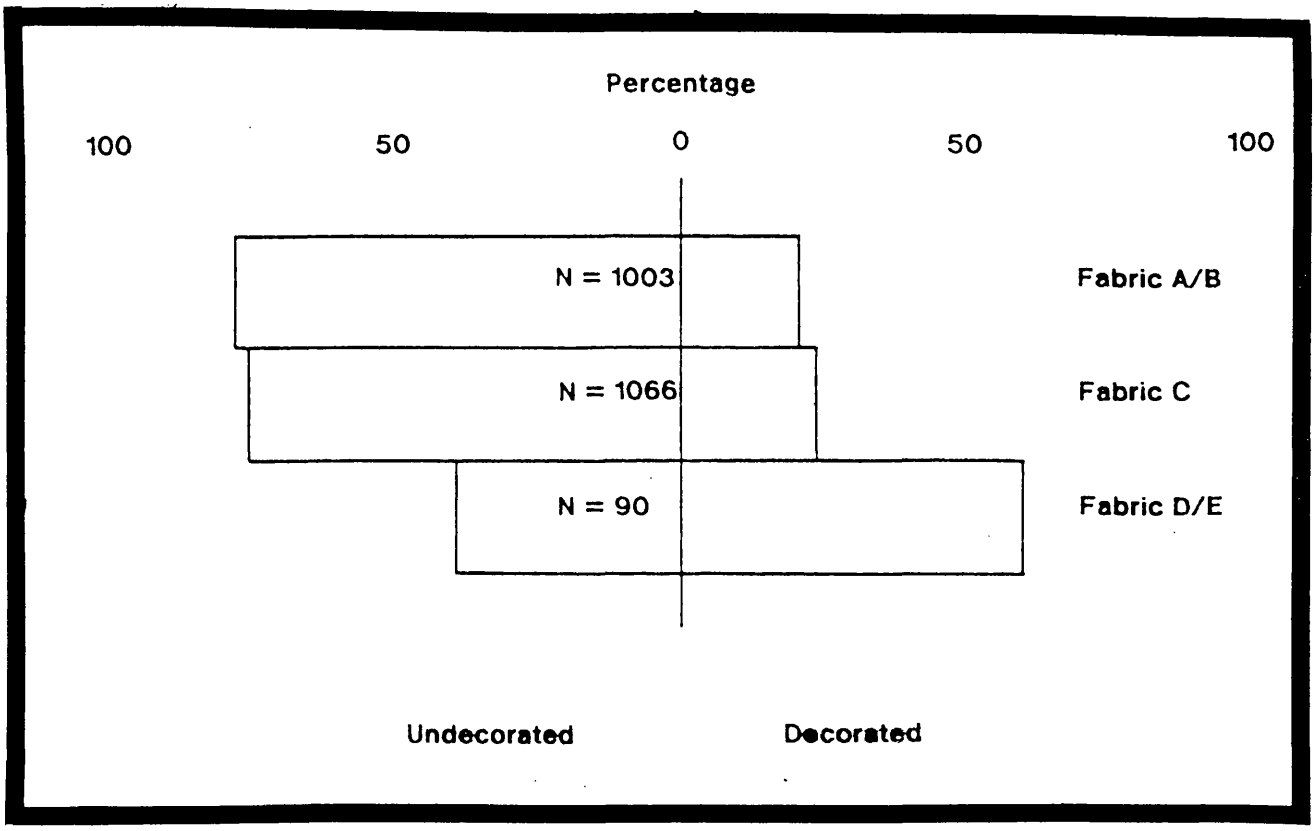


Figure 4.16: Percentage of decorated and undecorated sherds of different fabric (from Richards 1993a, 198)

Categorising the Barnhouse Grooved ware: vessel demography

Having determined the defining characteristics of the Barnhouse Grooved ware assemblage, it remains to examine how the various categories of vessels are categorised in use, contextually. In order to fully discuss the differing contexts of use of Grooved ware at Barnhouse, it is essential to broadly characterise the assemblage. Herein lie a number of problems. Many authors have attempted to quantify pottery assemblages, in an attempt to use vessel counts as indications of household size and as a means of differentiating between members of a community (Foster 1960, 606). However, many of these studies proceed from a normative understanding of the production and consumption of pottery (David 1972). The two major factors that are typically quantified are 'frequency', the number of vessels in a functioning assemblage, and 'use-life', the length of time or lifespan of a given category of vessel. A vessel quantified in this way remains fixed functionally and contextually.

Very little account is taken in these studies of the complexity of use of vessels. Although Nelson (1991, 162) notes that this is of primary importance in understanding the differences in size or frequency of an assemblage. Use-life is seen as the lifespan of the vessel from production to discard, thus the use-life is thought to be determined entirely by primary use (Longacre 1985). In this case the overall 'shape' of the assemblage is determined by examining the frequency of breakage of individual types of vessel. Although there are a number of obvious physical and functional factors which can be seen to determine the longevity of certain types of vessel; storage vessels are generally immobile and therefore have a lesser tendency to break, while cooking vessels are both more mobile and are subject to the stresses of heating and reheating in cooking and are more likely to break (Arnold 1985, 153, Nelson 1991, 174). While studies of this nature are useful in determining the factors which effect the lifespan of vessels and the frequency of vessels found in an assemblage, use is

typically thought to be fixed and there is little attempt to examine the complex recategorisation of pots in use, those re-used are instead thought of as 'dead storage' (Nelson 1991, 171).

The primary objective of use-life studies is the reconstruction of the 'real' assemblage. Here the attempt is to freeze the assemblage in time in order to read off a series of absolutes. There are a number of obvious objections to this approach. As Rice (1987, 293) notes the variables between vessel frequency and household size are large and cannot be used to construct cross-cultural laws, furthermore Nelson notes that any given assemblage is constantly changing with a continuing process of production and discard. While he sees this as a point of some pessimism this need not be so. Rather than attempting to construct a series of absolutes, it is necessary to embrace the fluid nature of the production and discard of pottery. In doing this we should be examining the relative 'shape' of the assemblage. Furthermore, given the complex and contingent nature of categorisation, other dimensions such as decoration and burnishing should be taken into account in characterising assemblages. If we consider that function is not simply determined by the properties of fabric, but also by other attributes, then these other attributes will be equally important in determining the shape of an assemblage.

If we embrace a more relative approach to the structure of pottery assemblages then, rather than seeking to reconstruct a series of static moments in the life of the assemblage, it is more fruitful to consider the assemblage as having a grammatical structure. According to such an approach the structure of the assemblage depends very much on the way in which the pottery itself is used. Here it is useful to consider Millers notion of a grid of meaning (1985, 170). Individual pots are situated in the grid, by a series of interconnecting structuring principles, each individual aspect of the pot will have meaning which goes beyond the pot itself and will reference other concepts in the wider world.

One aspect of the structure of the assemblage will be its use in the storage, preparation and consumption of foodstuffs. The way in which the complexity of use structures the complexity of the assemblage is clearly noted by Woodward (1996). She suggests that vessels of varying size and volume will be produced according to their use in consumption practices. Although the complexity of food use may structure the volume and number of vessels utilised, this cannot simply be thought of as a determinate factor in the way pots are used. The structure of the assemblage may, for instance, depend both on the complexity of food use and the way in which the meal is eaten. If the meal consists of a single episode with a homogenous form then we may expect to see a few very sizeable vessels of large volume, if the meal is more complex and consists of a number of differentiated dishes, then we may see a series of smaller vessels for the individual consumption of foods (Johnston 1994, 1995). Of course, there are a number of variations of the above, nevertheless the relative complexity of the social practices surrounding the consumption of foods may be at least partly represented in the structure of the assemblage. The use of food in pottery is a necessary way of understanding how the plant and animal worlds are drawn on in consumption practices, nevertheless this does privilege food as a determinate structuring principle in vessel use. By examining other factors along with food use, the range and complexity of pottery use at Barnhouse will be clarified.

If we consider pottery assemblages to be composed grammatically then the aim becomes not only to map the overall shape of the assemblage, but also to examine the structured set of differences inherent within the assemblage, both within deposits and between deposits. By taking this approach we gain a fuller understanding of the contextual nature, not only of a given assemblage in use, but also of the processes of discard and production. Rather than simply characterising the assemblage by any one factor it is essential to realise that a series of factors are responsible for the overall categorisation of vessels. In the following sections I will examine the way in which the

Barnhouse Grooved ware assemblage is structured by form and fabric and also by decoration and burnish. The categorisation of vessel is not determined by a single attribute. Rather, due to the overlapping sizes of vessels a series of factors are responsible for the categorisation and use of an individual vessel. The aim here is to examine the series of possibilities of use for various categories of material. By examining how various 'dimensions of variability' structure use we should gain a greater understanding of how the various categories are contextualised.

Categorising the Barnhouse Grooved ware: Form and Fabric

In discussing the contextual association between Grooved ware categories and specific houses it is essential to note taphonomy; the deposits within houses are generally treated here as primary refuse (Schiffer 1976, 30), and relate to the use of the house. Of particular note is the relative abrasion of sherds and the nature of the deposits in which they are included. An understanding of these depositional factors will clarify the contextual integrity of specific vessels within each house.

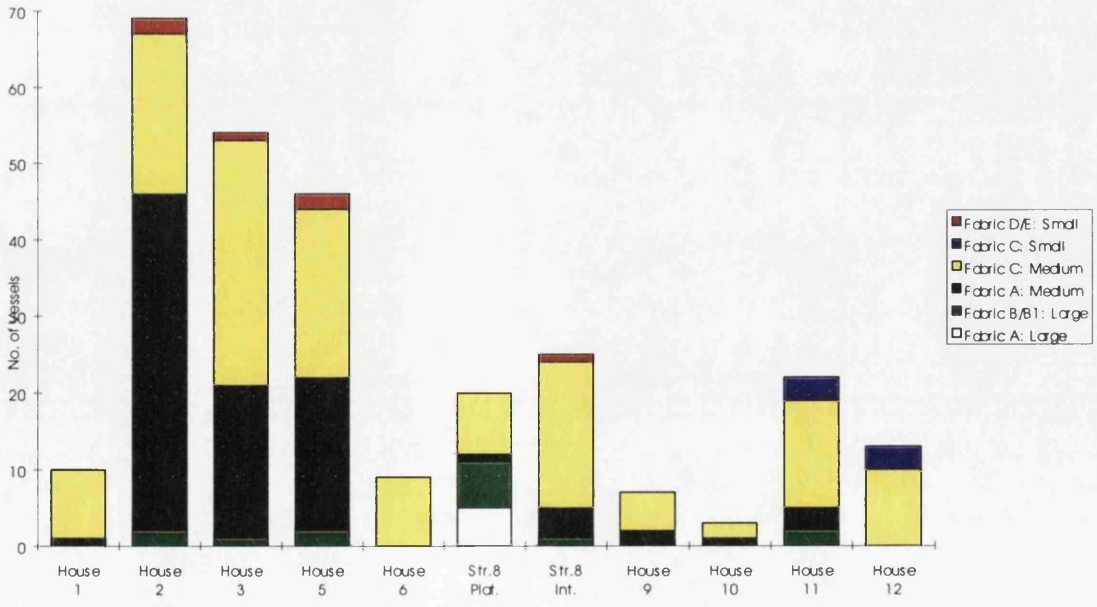


Figure 4.17: Demography of vessels within houses

There are a number of points which must be drawn out from the above figure, of prime importance are the differences apparent in the assemblages from each house. The first point is that Figure 4.17 indicates that each house has a distinct assemblage of vessels, however within each house the overall the 'shape' of the assemblage would appear to consist of:

1) One large vessel of fabric A, B or B1.
2) A large number of medium size vessels of fabrics A and C.
3) A small number of smaller vessels of fabric C, D or E.

The second point which should be noted is the distinction between houses close to the central area, and those on the periphery of the settlement. As indicated in chapter 3, there is a very marked concentric settlement structure apparent in the earlier phases at Barnhouse, and this seems to be reflected by the difference in Grooved ware assemblages in each set of houses. Houses 1, 6, 11 and 12 are all clustered around the central area, and an examination of the structure of the assemblages in these houses reveals that proportionally there are far more medium size vessels of fabric C, tempered with shell than medium size vessels of fabric A, tempered with rock. Indeed in houses 6 and 12 the assemblage entirely consists of shell tempered vessels. What is more all the small vessels within these houses were of fabric C, rather than fabric D or E. In stark contrast to this, the other houses, house 2, 3, 5, 9 and 10 which surround the inner ring of houses have quite different assemblages, here there are proportionally more medium size vessels of fabric A than those of fabric C. This is particularly clear in house 2. What is more, the small vessels in these houses are of fabric D and E, rather than C. Both sets of houses appear to contain a large vessel of fabric B or B1.

There is an important contrast in the way in which the Grooved ware assemblage at Barnhouse is structured, and this contrast requires further examination. It is precisely this contrast which will be the focus of chapter 5.

A further distinction to note is that between the structure of the assemblages of the earlier phase houses, and the structure of the assemblage in the later phase, characterised by structure 8. Here we see that while in the earlier houses large vessels are evident infrequently, on the structure 8 platform large vessels predominate. Again this contrast constitutes a considerable change in social practices and will be investigated further in chapter 7.

Another major point to consider is the taphonomy of the deposits within each house, and here we can again observe a similar set of contrasts between the houses circling the central area and those on the periphery. Notably the number of vessels within houses 2, 3 and 5 is high compared with, for example houses 1 and 6. The prime factor in this difference is the general level of preservation of different house structures. Since houses 2 and 3 are two of the best preserved structures on the site, the deposits within their interiors are also well preserved. The large number of vessels within house 5 is compounded by the fact that the house 5 site was rebuilt four times, and the figure is essentially an amalgam of deposits from all of these constructions. On the other hand, houses 6 and 7 were levelled, and in the case of house 6, the preservation of deposits within its interior is due to the construction of house 11 over part of the site, which effectively sealed deposits. Similarly house 9 was levelled, and a section of structure 8 was built over the site. Again very few deposits were preserved within the interior of this house. Houses 11 and 12 have remarkably large numbers of vessels, this again is the result of the preservation of these structures, particularly since they are stratigraphically later. Similarly the number of vessels within structure 8 is high, reflecting the preservation of this building.

However this explanation for the variable number of vessels within each house is prosaic. The general preservation of vessels within the houses is determined by the level of preservation of the house. But this does not explain why vessels remain within houses. There are a number of taphonomic factors which may cause material to be retained within structures, and of these the most obvious explanation is loss (Schiffer 1976, 32-33). Material may be fragmented and swept into hidden corners within the houses. We can examine this by looking at the level of abrasion on sherds as an index of the length of time which they have remained within the houses, similarly we can examine the contexts in which they are found as an index of loss or discard. If we examine the mean sherd weight (MSW) of different categories of vessel within houses this will enable us to determine the amount of abrasion (see Bradley and Fulford 1980). This data is compiled from all sherds within house structures:

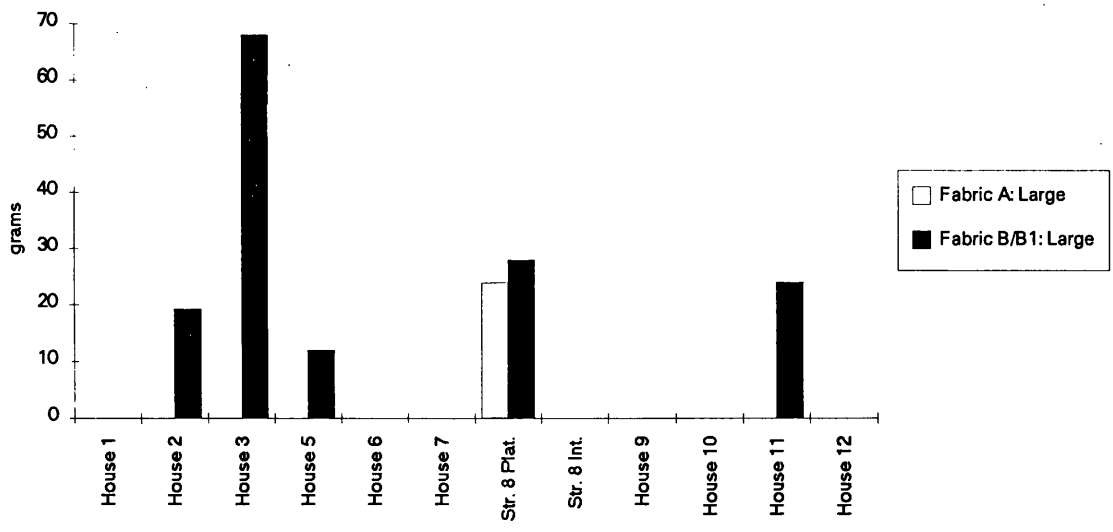


Figure 4.18: Mean sherd weight (MSW) of sherds from large vessels within houses

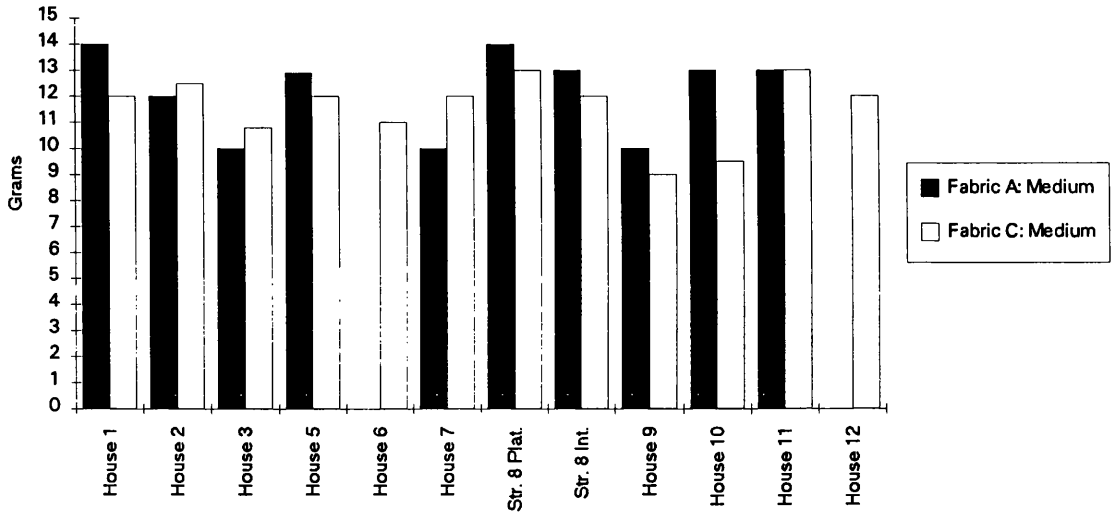


Figure 4.19: Mean sherd weight (MSW) of sherds from medium size vessels in houses

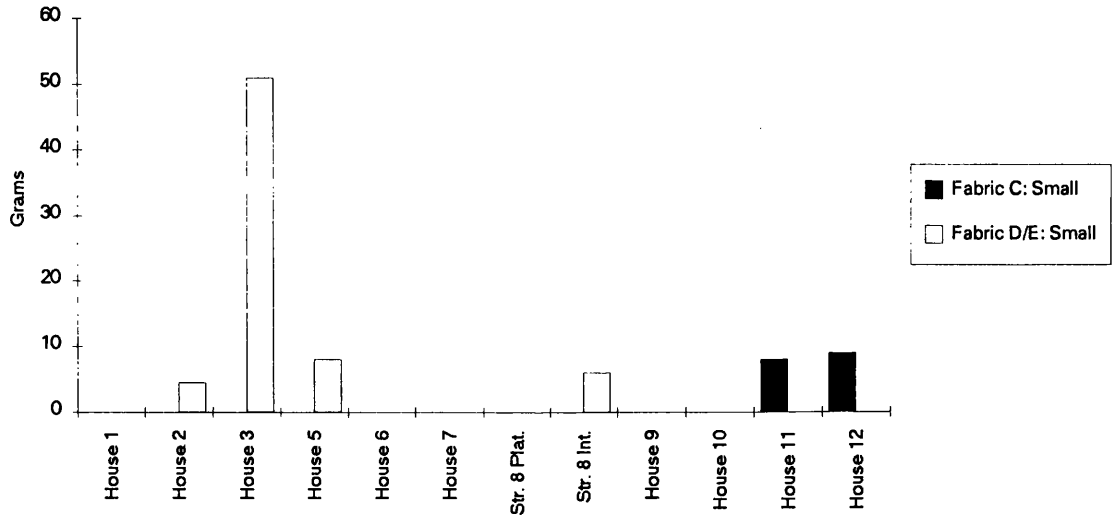


Figure 4.20: Mean sherd weight (MSW) of sherds from small vessels in houses

If we examine the results from Figures 4.18-4.20 we observe a number of interesting patterns. Notably the mean sherd weight for large vessels is high, particularly amongst the structure 8 platform deposits. Similarly, given their overall small size, small vessels, are remarkably unabraded, especially the example in house 3 which is almost intact. The most abraded categories of vessel are those of medium

size, both of fabric A and C, and they appear to have abraded at similar rates. If we follow this up with a brief examination of the contexts in which these vessels are found then it is observed that house 2 has a high number of pits which contain deposits of pottery, a feature which is uncommon in all houses except house 3. In other houses such as house 3, 11 and structure 8 sherds from vessels are found within hearths, dressers and box-beds. It would appear then that in some cases sherds are being preserved in specific features. Given the high level of preservation of specific categories of vessel and the contexts in which they are found it is unlikely that the preservation of sherds within houses is entirely the result of accident or loss. A more detailed contextual study of these deposits will be the subject of chapter 7.

In order to understand the processes by which Grooved ware of various categories was preserved within the houses it is necessary to draw back from the pottery itself and examine the nature of house preservation itself. It was suggested in chapter 3 that one of the major factors which led to the remarkable accumulation of deposits on Orcadian Late Neolithic settlements was the process of building and rebuilding over the same house site. This process is highly visible at Barnhouse where house 5 is built and rebuilt at least four times. Richards (1990a, 329) has suggested that this process of abandonment and rebuilding is related to the polluting aspects of the house on the death of an individual within the house, while on the other hand rebuilding on the same site may relate to kinship associations. It is possible then that what we are observing at Barnhouse are the final deposits utilised within the houses, which, due to their association with the house, and its inhabitants, have remained within the confines of the house after its abandonment. There is supporting evidence for this argument from both Barnhouse and Skara Brae.

I have already noted from Barnhouse that the later structures have far higher vessel counts than those structures such as house 6 and house 9 which have been demolished and built over. Of the well preserved structures house 2 is the most

remarkable since it retains its use throughout the life of the settlement and is associated with a massive assemblage of Grooved ware, further the deposition of Grooved ware in pits within the house supports the notion that the pottery is intimately associated with the house, and is therefore deposited within the house. As we shall see in chapter 7 this is an essential point for understanding the activities occurring within this structure. If we widen our view of this phenomenon and examine the nature of deposits at Skara Brae then a number of interesting observations can be made. We need not evoke Childe's dramatic disaster scenario for the abandonment of Skara Brae (Childe 1931a, 61), but rather view the preservation of the houses as a process of abandonment determined by specific social practices rather than the environment. In this light, if we view the deposits within the best preserved structures at Skara Brae, houses 1, 7 and 8 it is notable that the Grooved ware within these houses was remarkably well preserved. At this point I do not wish to comment on the spatial position of these deposits, since I shall return to this in chapters 8 and 9. Here it is sufficient to note that in houses 1, 7 and 8 large and medium size Grooved ware vessels were located in the box-beds, in subsidiary alcoves and around the back walls and close to the hearth (Childe 1929, 255). What is most interesting is that from Childe's description of the fifteen pots found in-situ at Skara Brae, eleven of these vessels were large, the rest medium size. It would appear then that we have differential preservation of certain categories of vessel at Skara Brae, and what is more these vessels are preferentially associated with the house on its abandonment.

To reiterate then we are not seeing the entirely accidental preservation of Grooved ware vessels within houses, but rather the association between Grooved ware vessels and the house, after the houses abandonment, is quite deliberate. This association may be related to the polluting aspects of the house and the objects within it after the death of an individual. If we assume this position with regard to Grooved ware and the houses at Barnhouse then this effectively suggests that the Grooved ware

that remains within the house is a broadly representative example of the assemblage used within the house during its habitation, and is not the result of secondary refuse. What is more interesting is that given this, the preservation of certain categories of Grooved ware within the house may be differential, and we may be seeing certain categories of vessel more appropriately associated with the house than others.

We have now observed the way in which the demography of the Barnhouse Grooved ware assemblage varies in terms of categories of fabric and volume. Furthermore we have established that there is a compositional difference between the assemblages close to the central area, and those on the periphery. Finally I have argued that the association between Grooved ware and houses is not simply the result of taphonomic processes, but is also determined by culturally specific social practices associated with the use and subsequent abandonment of the house during the Orcadian Late Neolithic. Now that we have established that these deposits are not the result of secondary refuse, but are primarily associated with the house, we need to examine the way in which other aspects of the Grooved ware from Barnhouse vary according to context.

Categorising the Barnhouse Grooved ware: decoration and burnish

As suggested in chapter 3, decoration is one way in which the surface of a Grooved ware vessel is demarcated and embellished. Furthermore it may provide the means of categorising the Grooved ware. Here I wish to examine the variation in decoration between contexts and then finally look at the congruence of various attributes on vessels from each context. The incidence of decorated vessels across the site will allow us to highlight the structured differences in the use of decorated vessels:

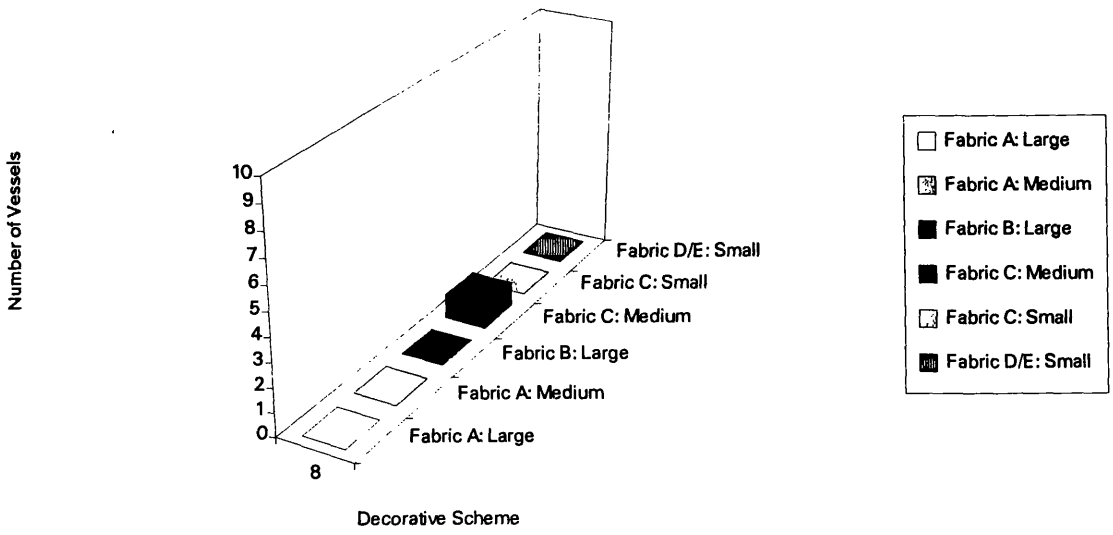


Figure 4.21: Presence of decorated vessels in house 1

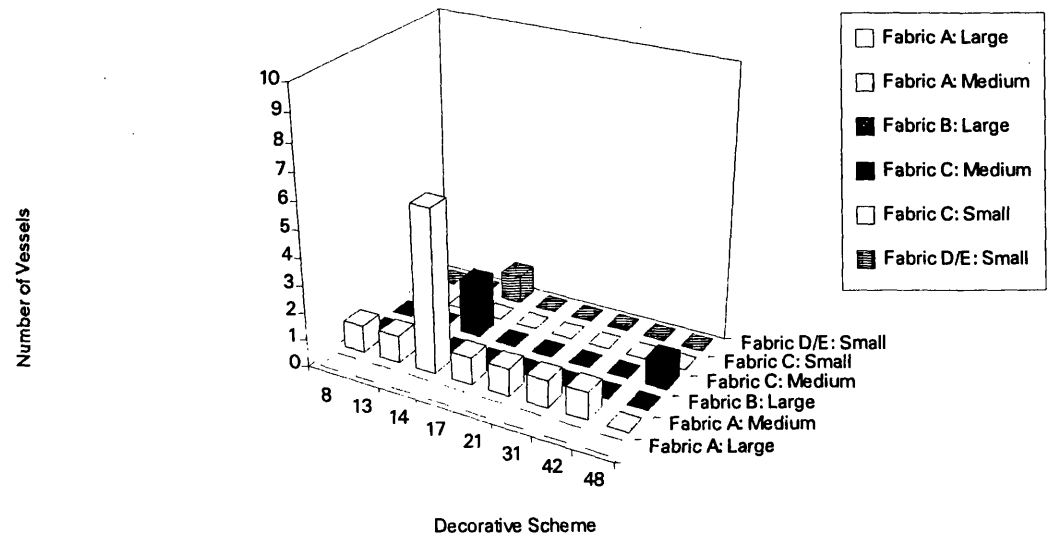


Figure 4.22: Presence of decorated vessels in house 2

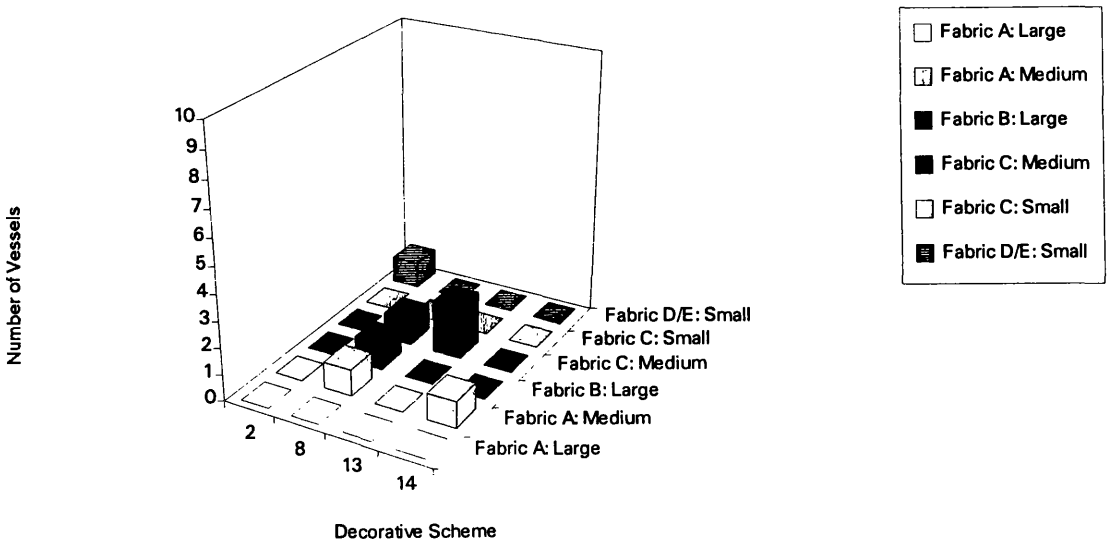


Figure 4.23: Presence of decorated vessels in house 3

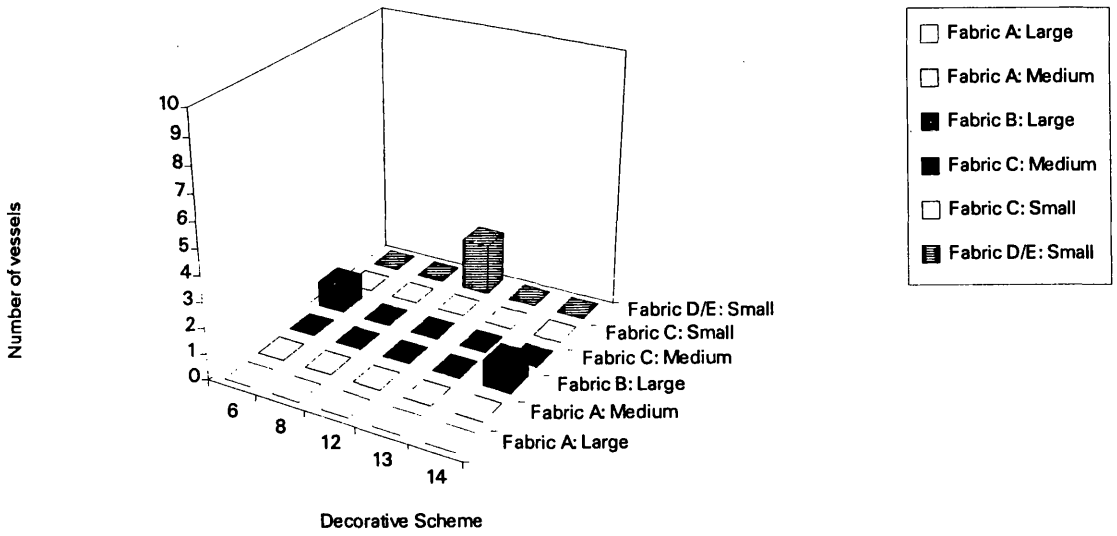


Figure 4.24: Presence of decorated vessels in house 5

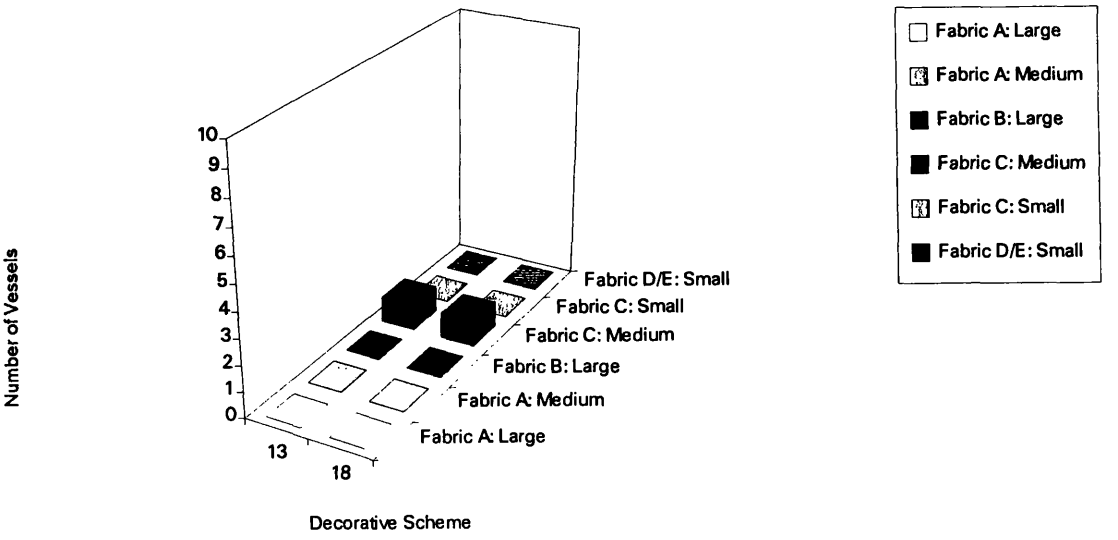


Figure 4.25: Presence of decorated vessels in house 6

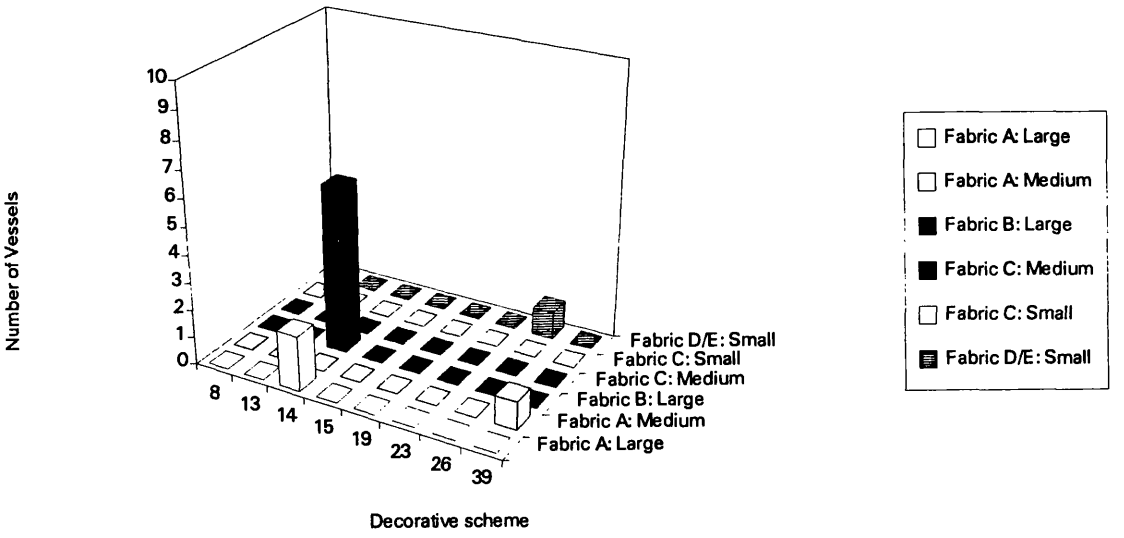


Figure 4.26: Presence of decorated vessels on structure 8 platform

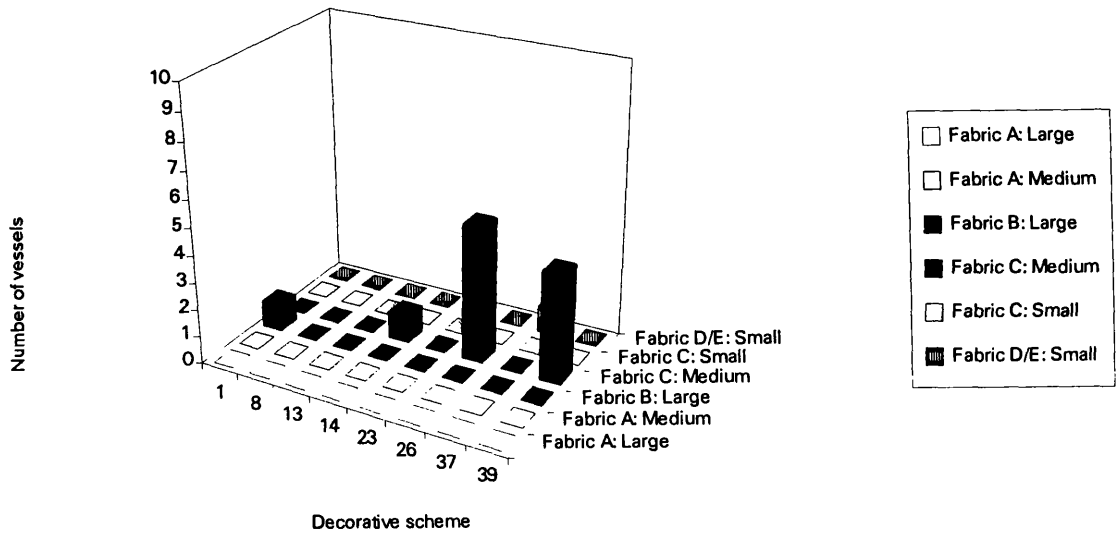


Figure 4.27: Presence of decorated vessels in structure 8 interior

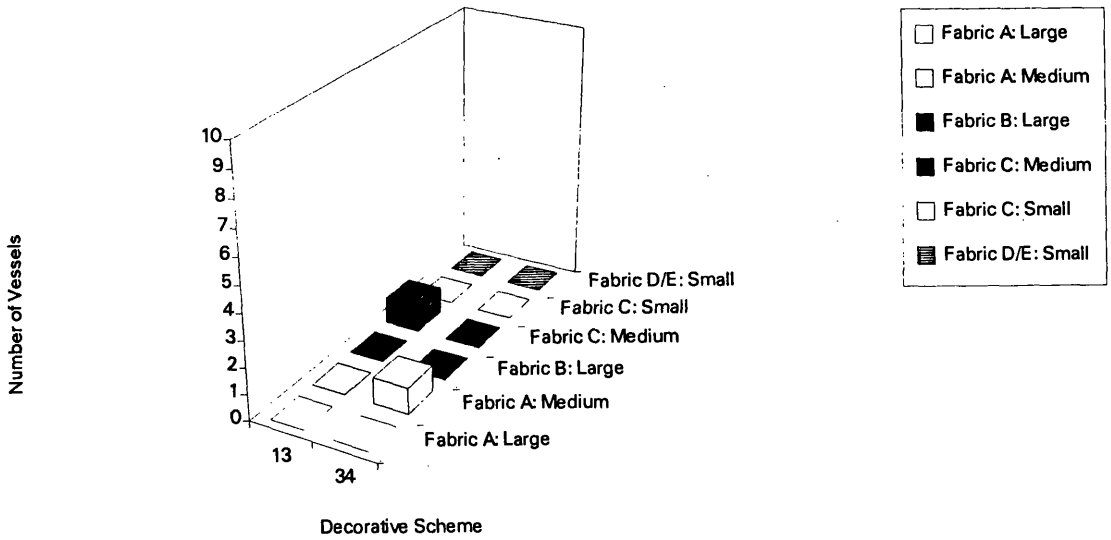


Figure 4.28: Presence of decorated vessels in house 9

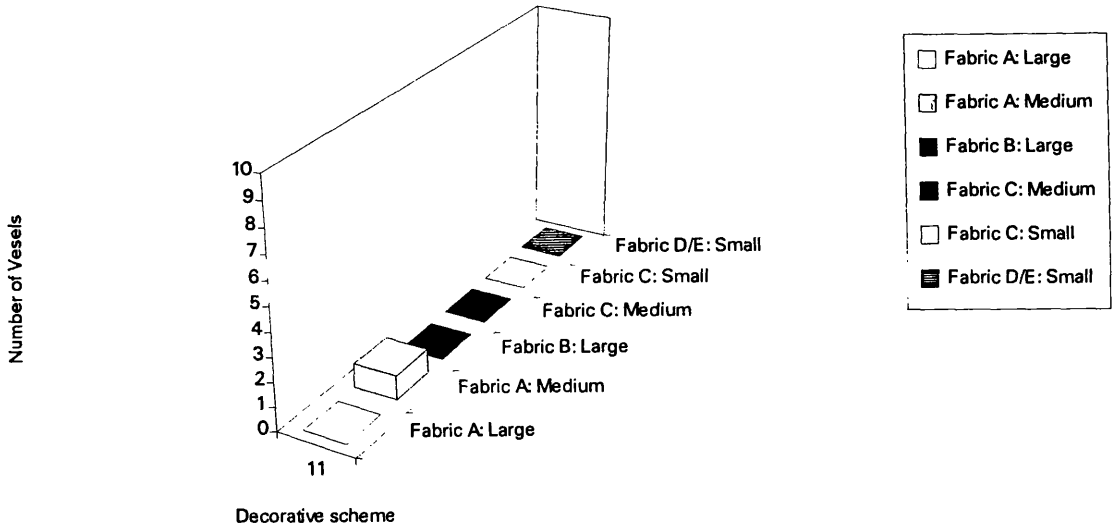


Figure 4.29: Presence of decorated vessels in house 10

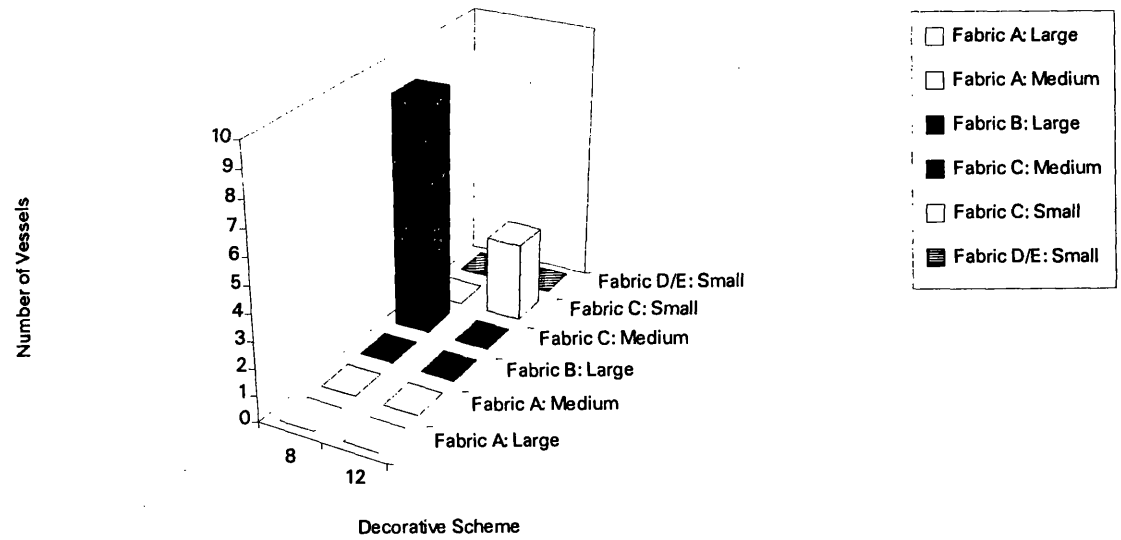


Figure 4.30: Presence of decorated vessels in house 11

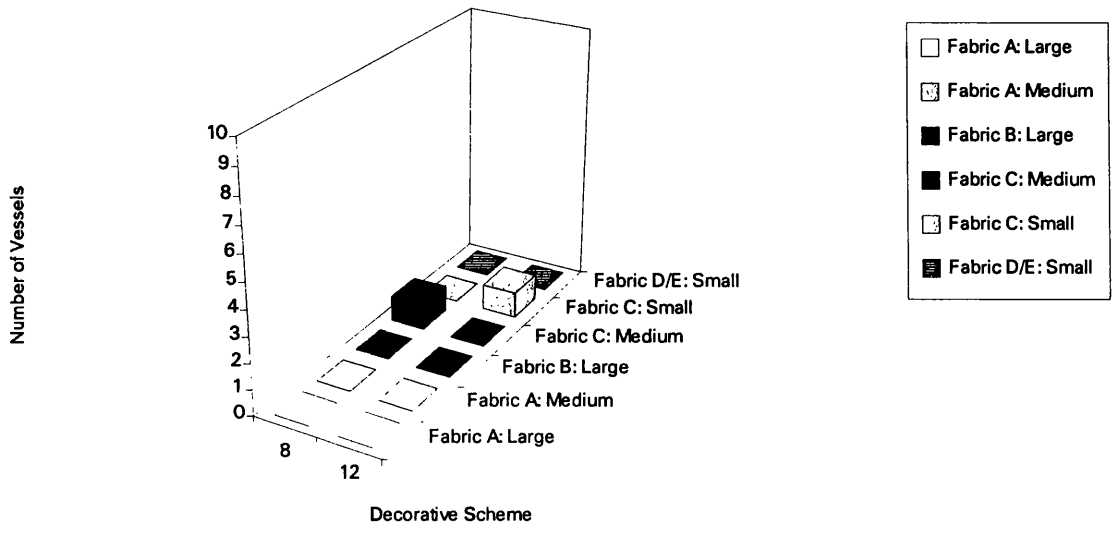


Figure 4.31: Presence of decorated vessels in house 12

There are a number of points to be drawn from Figures 4.21-4.31. Probably the most striking thing is the presence of vessels decorated with decorative scheme 8, employing incised zones and curvilinear incisions, in houses 1, 2, 3, 5, 11 and 12, as well as both the platform and interior of structure 8. Similarly vessels decorated with decorative scheme 13, employing a curvilinear embellished cordon, were found in houses 2, 3, 5, 6 and 9, as well as the interior and platform of structure 8. Small vessels decorated with decorative scheme 12, are also found in a number of houses, 5, 11 and 12. Both medium and large vessels decorated with a simple cordon, decorative scheme 14, are found in houses 2, 3 and 5, and the interior and platform of structure 8. Interestingly decorative schemes 8 and 13 are found on medium size vessels of both fabric A and C, and appear to cross-cut the spatial distinctions which emerged from the distribution of fabric across the site. Similarly decorative scheme 12 is found on small vessels of both fabric C and fabric D and E. While the houses close to the central area are predominately employing vessels of fabric C, and those on the periphery are predominantly employing vessels of fabric A, D and E, both are employing vessels decorated in the same way. What is more the use of decorative schemes 8, 13 and 14

on Grooved ware from both the earlier and later phases of settlement indicates a degree of continuity in decorative tradition.

There are a number of other points to be noted, firstly house 2 has a high concentration of decorated vessels, and these are decorated using decorative schemes which are quite different to those in the other houses. A number of other houses are also employing vessels of unusual decorative scheme, particularly houses 9 and 10. The use of decorative scheme 34, employing a dot infill decorative element, in house 9 serves to demarcate this house from the others in the settlement, and it is notable here that the entrance to house 9 faces house 2, thus linking the two houses together. It may be that the occupants, and the activities undertaken in house 9 were special. House 10 employs a vessel of decorative scheme 11, this decorative scheme is superficially related to 13, and uses both incisions and a serpentine cordon. Most striking are the decorative schemes employed on medium size vessels within structure 8, as noted above these are quite different to the other decorative schemes employed on the medium size vessels from Barnhouse and this may be due to the changing nature of decoration over the life of the settlement.

By examining the distribution of these decorative schemes across the site we have been able to establish the formal similarities and differences between the use of decorated vessels at Barnhouse. It was noted in chapter 3 that Late Neolithic settlements across Orkney utilised Grooved ware vessels with similar decorative elements, but which were employed to create quite different decorative schemes, distinctive to individual settlements. Here we have been able to establish distributionally that the most common decorative schemes are 8, 13 and 12. A further point to note is that those decorative schemes which predominate in the first two phases at Barnhouse consist of a series of homologies in which certain elements are increasingly elaborated (Richards 1993a, 202). However we also see the use of decorative schemes such as 14 which employs a simple cordon around the rim of the

vessel. In the final phase of settlement the commonly used decorative schemes 8 and 13 are transformed and the simplest elements are emphasised in the use of novel decorative schemes such as 23 and 39, which use the same decorative elements used in a repetitive overall decorative scheme.

Decoration appears to be one means by which distinctions within the settlement are emphasised, while certain decorative schemes are common to the settlement and are used in most houses, other houses stand out through the use of highly distinctive decorative schemes. However decoration need not be the only means by which the activities within certain houses are distinguished. We have seen above that burnishing is another element which characterises certain categories of Grooved ware at Barnhouse. In order to determine how burnished vessels were categorised in practice, vessels from each house were examined in order to determine the relative frequency of burnishing:

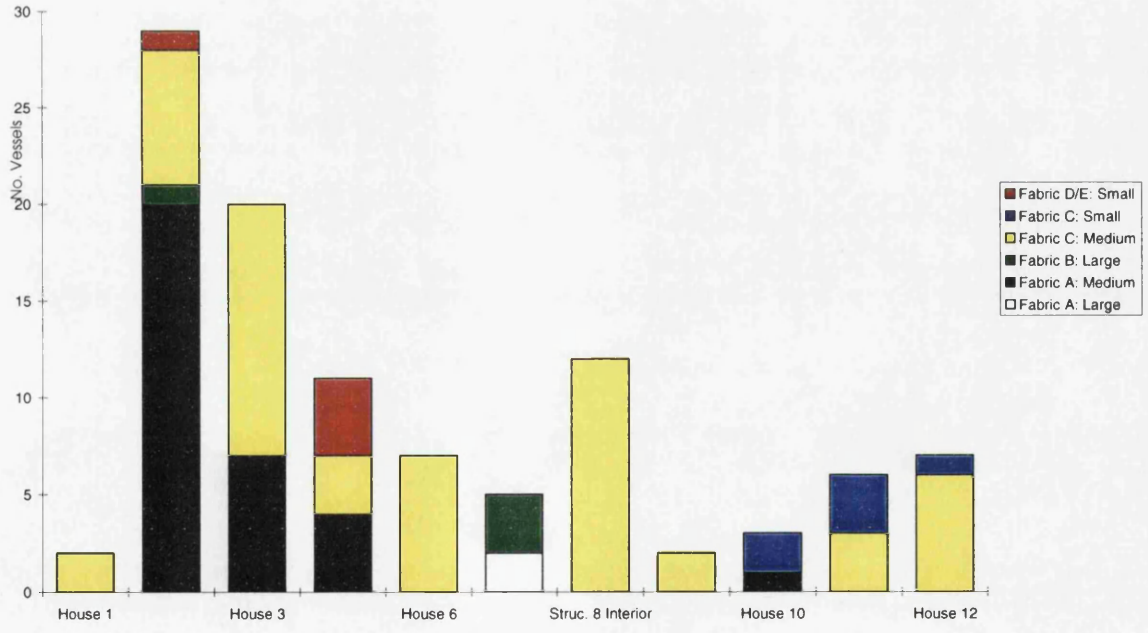


Figure 4.32: Burnished vessels within houses

There are relatively few vessels which retain burnish within structures, this is partly due to surface abrasion, since many of the sherds from these vessels are located in occupation material and may have therefore been subject to continuous attrition. Nevertheless, it appears that overall both rock and shell tempered fabrics are burnished. Again burnishing appears to conform to the pattern noted already in regard to the distribution of vessels of different fabric within the settlement. In those houses close to the central area, houses 1, 6, 11 and 12 there is a high proportion of medium size vessels of fabric C which are burnished, while in those houses around the periphery, such as houses 2, 3 and 5 there are proportionally more medium size vessels of fabric A which are burnished. The main concentration of burnished vessels appears to be within house 2. Overall, across the site as a whole burnishing is more prevalent in medium size vessels of fabric C. Notably, a very few large vessels of fabric A, B and B1 are burnished, however this is partly due to the relatively low numbers of these vessels generally, most houses only contained a single large vessel. However, large vessels which are burnished concentrate in the area of the structure 8 platform. Small vessels of fabrics C, D and E appear to have a high incidence of burnishing within houses, this reflects the overall high level of burnish on these vessels across the site.

Summing Up: Characterising and Categorising the Barnhouse Grooved ware

This chapter has set out to establish the character of the Grooved ware from Barnhouse, and we have seen that the pottery is characterised by the manipulation of a series of 'dimensions of variability' each of which are used to create vessels of slightly different categories. Broadly we have seen a primary distinction in the fabric and volume with at least six different fabrics used to create three different vessels sizes, large, medium and small. These vessels are more or less appropriately furnished with

particular rim forms and decorated according to certain decorative schemes, and finally burnished.

More importantly we have also observed the way in which these categories of Grooved ware are distributed around the settlement. While each house appears to conform to a similar demography of vessels, there is a distinction in the distribution of small and medium size vessels of different fabric between the houses surrounding the central area and those around the periphery of the settlement. This distribution contrasts strongly with that observed from decorative schemes, where there is a similarity of decorative schemes linking these two groups of houses, finally the distribution of burnished vessels again seems to reflect the overall dichotomy between the use of houses around the central area and those around the periphery. Probably of most importance for this study we have also seen that the presence of vessels within the houses is most likely not to result from simple accidental loss, but rather is the result of specific social practices linking Grooved ware with houses.

While characterising and categorising the Barnhouse assemblage, this chapter has in some ways raised many questions and supplied few answers. In particular, in subsequent chapters it is essential to establish the link between pottery and houses. On a specific level it is essential to determine the reason for the use of different fabrics in the construction of similar categories of vessel, and especially further examine the nature of the distribution of vessels of different fabric around the settlement. Of considerable importance for this study is the examination of decorative schemes around the settlement, and the apparently contrasting manner of distribution of vessels employing these schemes in relation to vessels of different fabric.

Chapter Five

The Barnhouse Grooved ware: from Procurement to Production

Introduction

This chapter sets out to examine a problem raised by the analysis presented in the previous chapter. In chapter 4 we noted that three different sizes of Grooved ware were produced at Barnhouse. In each case at least two different fabrics were used in the construction of these vessels. What is more, we noted that the distribution of vessels employing these fabrics in their construction was distinctive, with those houses focused around the central area utilising shell tempered fabrics, and those houses using a greater proportion of rock tempered and untempered fabrics focused towards the periphery of the settlement. This observation is important on a number of levels. Firstly it appears to conform to the pattern already established spatially in the organisation of the settlement, and as noted in chapter 3, this has considerable bearing on our perceptions of social organisation at Barnhouse. However, we must also consider the major objective of this study; the examination of the relationship between material culture and social identity, between pots and people. In this regard, something as apparently mundane as pottery fabric is of the utmost importance in any consideration of this relationship.

In chapter 2, I paid a great deal of attention to the relationship between production and identity, and noted that it was through the production of objects by people that identity was primarily established. Further, it was noted that it is through the social organisation of production that the differentiation in identities are created. While a number of authors, such as Deetz (1968), Hill (1970) and Longacre (1981,

1985) had attempted studies of social organisation through an analysis of material culture patterning, I stressed caution in simply reading off aspects of social organisation from this evidence, and suggested that rather than establishing precise kinship affiliations, broad affinities and differences may be expressed. It remains then that the identities of objects may be expressed through the differential organisation of production. While there are problems with examining this archaeologically, following Arnold (1989), I noted that the differences inherent in the habitual components of production may be a fruitful point of comparison. As such, the fabrics of pottery may be a useful point of departure. Since we have already established a broad distributional dichotomy in the use of vessels of different fabric, this chapter will focus on the initial question of fabric and its relationship to the organisation of Grooved ware production at Barnhouse.

Prehistoric Pottery studies: Production and Petrology

How are we to begin an examination of the organisation of Grooved ware production at Barnhouse, since it is so notable that many examinations of ceramic use, exchange and deposition are confounded by the severe lack of evidence for the production of ceramics in prehistory? Wardle's (1992) survey of Earlier Prehistoric pottery production sites lists a patchwork of sites with extremely variable evidence for production. In order to define sites of production he lists a series of indicative attributes such as the presence of wasters, artefacts used in production, raw materials, structural evidence for the curing/mining of clay and the presence of distinctive manufacturing assemblages (ibid., 63). While all the above obviously serve as reasonable indicators of production sites, it would appear that it is not simply the location of production sites that is the fundamental issue here. Rather, it is the interpretative framework in which most studies of pottery production are conducted.

While numerous attempts have been made to examine the use and exchange of ceramics in early prehistory (Peacock 1969, Sheridan 1985, 1991) these have been limited through an inability to locate the production source of much of the ceramic material. While petrologically pottery could be assigned to broad geological regions, the broad scale of analysis prohibited against detailed discussion of the organisation of ceramic production. Howard has noted that the singular emphasis on exchange is in part due to the paucity of substantial evidence and the problems of geological indeterminacy (1981, 4). Since Peacock's (1969) study of the circulation of Hembury ware the emphasis on petrological and archaeological analyses of pottery production has been on the 'supralocal' (Sheridan 1991, 306). While the value of Peacock's contribution is not in question, I would suggest that before understanding the wide scale nature of production and exchange it is necessary to understand the nature and organisation of pottery production in localised intra-site terms. It is only by understanding the nature of the categorisation of pottery in production that we can understand the social and symbolic framework drawn on in the long distant exchange and circulation of ceramics.

Landscape and Society in Late Neolithic Orkney: the issue of procurement and identity

When V.G Childe excavated at Skara Brae he noted that the inhabitants of the village had scoured the geological sources of Orkney, and had procured rare examples of haematite, 'tessellated sandstone' and 'horse-tooth rock'. The latter two geological formations outcropped on the coast-line at Hoy and Yesnaby respectively, some miles distant from Skara Brae (Mykura 1976, 81). Childe considered this detailed exploitation of the environment to be due to the deficiencies of the Orcadian landscape (Childe 1931a, 155). However, he drew on these examples again some years later in a

broader discussion of social organisation at Skara Brae (1946, 30-31). Here he was concerned to stress the self-sufficient and overall egalitarian nature of the village at Skara Brae.

I wish to use these examples of detailed geological exploitation to illustrate a series of points. Firstly, as Childe observed, there was a detailed knowledge of the surrounding environment during the Late Neolithic, and we need to preserve this notion in our discussion of our understanding of landscape and resource procurement. Secondly, Childe perceived a connection between resource exploitation and social organisation and social identity, again this notion should be preserved and critically examined.

If we consider the first of these points, it will be noted that many studies of ceramic production centre on the issue of ceramic ecology. Here the physical nature of the surrounding environment is seen as a constraining factor on pottery production and the social organisation of production (Arnold 1985). The causal relationships between these factors are seen as unproblematic. However, as discussed in chapter 2, the relationship between form and function cannot be seen as simple and determinate. Neither can the material utilised in the creation of ceramics be seen to be determinate on form.

Howard's (1981) study of the Windmill Hill assemblage realises the potential of a localised analysis of pottery production. However, this analysis was undertaken within the evolutionary and functionalist framework of ceramic ecology (Matson 1966). Here she employs the broad tripartite classification of D.L Clarke (1976) to examine the demography of the assemblage. Embodied within both Clarke's categorisation and the approach of ceramic ecology are a series of implicit assumptions concerning the social organisation of production and the functional nature of pottery categories. Categories are seen as related entirely to the deterministic factors of function and resource environment, and it is to this problematic relationship we

must now turn. The core objections to this approach centre around the related problems of categorisation and the cultural perceptions of the landscape. If we advance the point that the creation of ceramic forms are dependant on culturally specific categorisation systems then the causal relationship between resource and final product becomes problematic. Both the landscape and the resources within it, according to ceramic ecologists, are unitary and homogeneous.

However, as current approaches to the issue of landscape have pointed out, the landscape is itself part of the process of categorisation. Landscape is perceived according to culturally specific symbolic systems (Tilley 1994), therefore landscapes are instead heterogeneous, as are the resources within them. Thus the procurement and use of specific resources require explanation. There are no simple causal relationships between resource availability and their use in the production of ceramics. The resources selected for the creation of a ceramic vessel need not relate to issues of pragmatism and resource economics but rather are selected by people operating within a culturally specific symbolic framework. Resources are thus meaningfully selected within this framework of understanding.

Following on from this, we can now begin to examine the second notion drawn out by Childe, the relationship between resources and society. If we consider that resources are meaningfully selected from the landscape then what is even more interesting is that the selection of these resources may provide us with considerable information on the social inhabitation of the landscape. If we can establish the likely locations from which resources are provenanced we can begin to reconstruct certain aspects of this social landscape. This is particularly interesting since, as I noted in chapter 2, there is a strong relationship between place and identity. If we can begin to reconstruct the places which were of social importance for procuring certain resources used in ceramic production then we are on a far firmer ground in determining the relationship between material culture and identity.

We are faced then with two related tasks. Firstly, the examination of pottery production at Barnhouse via the study of the nature and distribution of the fabrics used in pottery production in more detail. Secondly, the examination of the relationship between the resources used in pottery production and particular places in the surrounding landscape. These tasks are linked in both cases by focusing on a single aspect of social relations, identity. What I wish to examine here is the nature of the patterning of the Barnhouse Grooved ware in relation to the use of tempering materials, through the selective thin-sectioning of sherds of pottery from a number of different contexts within the Barnhouse settlement, particularly individual houses (see chapter 2 for methodology). The production of Grooved ware may be undertaken on a communal or household basis and it is this that the examination of patterning of tempering material within the Barnhouse assemblage sets out to distinguish.

The material construction of a Grooved ware vessel

Prior to commencing the task of examining the nature of the social relations involved in pottery production, I feel it is essential to understand the processes involved in the production of Grooved ware vessels. As we have observed in chapter 4, the construction of Grooved ware vessels involves the manipulation of a series of 'dimensions of variability', each of which will determine how the vessel will be categorised in use.

Grooved ware vessels were formed in a number of stages. Firstly the materials used in their construction had to be obtained from certain locations within the cultural environs of Barnhouse. Clays may have been derived from the lochside or from localised stream beds further inland. Temper came from a variety of sources, either igneous rocks from the lochside, sandstone, siltstone or mudstone from rock outcrops or shell from freshwater or marine sources. Once the raw materials had been procured,

it was then necessary to prepare the materials for working. The clay, depending on its source, would need to be soaked or levigated for a period prior to working. This would allow the clay to bind water and increase its working properties (Rye 1981). The preparation of temper simply required crushing the material into small fragments, here the use of hammerstones and grinders is probable. The material preparation process will have varied depending particularly on the working properties of the clay but will not have extended beyond a week. The initial stage will have involved making the clay malleable and reaching an acceptable level of workability. The correct level of water retention in the clay, coupled and regulated by the use of temper, would have required a fair degree of knowledge regarding the individual properties of different clay sources (Gibson and Woods 1989, 35).

During production it would have been necessary to place the vessel on a platform to provide mobility from production site to hearth or bonfire. Either a slab of sandstone or a small low basket would have provided the most suitable platform. A basket impression was found on the base of the almost complete vessel, SF 1890, from the secondary occupational deposits within house 3 (Fig 5.1). The use of such a basket would enable the vessel to be turned while it was being formed.

The primary stage of the construction process involved forming a shallow pinch pot from a flat lump of clay, thus the clay was placed flat onto the solid platform, the sides were then pinched up and rounded over to provide a stable edge from which to work. A number of bases which appear snapped along such edges were found in house 2 (e.g. SF 1613) within the secondary occupational deposits and in the ash tip deposits associated with house 3 (e.g. SF 1850). Once the flat base and low wall had been formed a series of clay coils were rolled out and successively placed on top of the initial rounded wall in a mortice and tenon fashion, each successive coil being placed over the next and smoothed down each side so as to allow a fairly smooth finish. Each

successive coil would have been slightly larger than the next, enabling the potter to build the vessel up into shape.

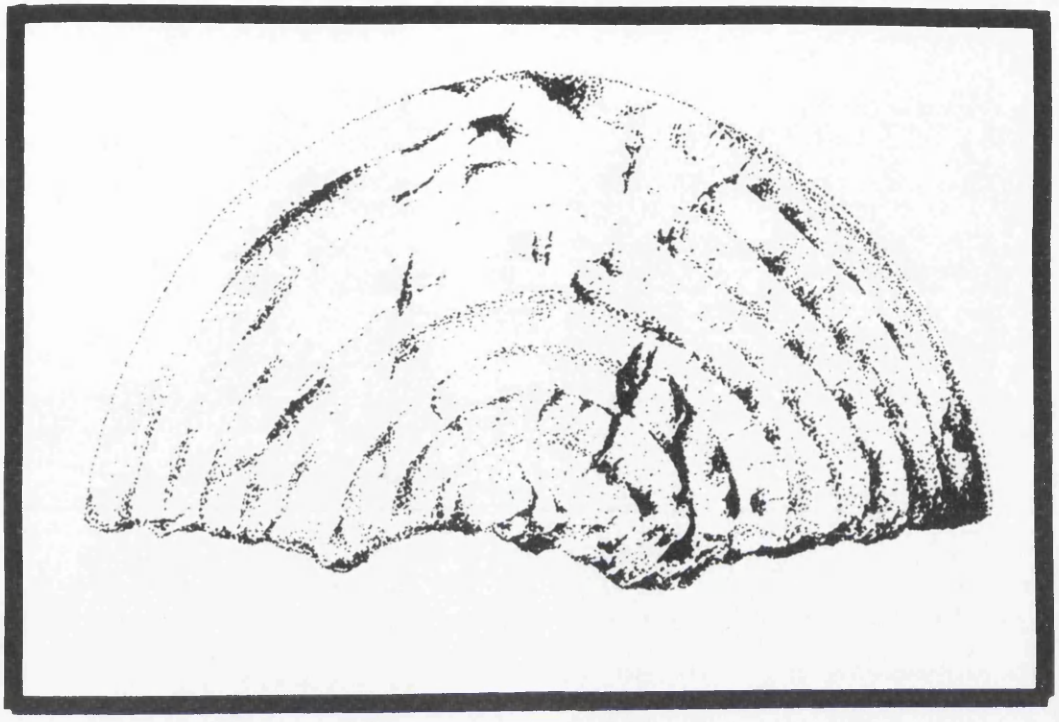


Figure 5.1: Basket impression on the base of SF 1890, house 3

Mortise and tenon coils have been observed in the Grooved ware from Quanterness (Henshall 1979, 76) and Skara Brae (Childe 1931a, 130). Once the vessel had reached its required height and volume, the rim would have been formed, again from a single coil of clay.

Once the vessel was formed, it was necessary to allow it to dry to a leather hard state. The drying process may have taken up to a week. Due to the necessity for gradual drying to avoid rapid water loss and cracking (Gibson and Woods 1989, Rice 1987), a natural drying process is usually preferred. For this reason it is suggested that Grooved ware was produced during the mid summer months, the driest in Orkney.

Once leather hard, the vessel was then slipped. A slip gives the vessel a finer finish over the roughened and often heavily tempered vessel core. The slip then requires a short period of drying. It is at this stage that a series of modifications are made which will substantially change the use and biography of the vessel. Once leather hard, the slipped vessel may be decorated. The addition of a cordon may require the use of slip to fix the cordon to the vessel, with the possible addition of further slip over the cordon. Incised decoration, on the other hand, simply involves incising the decorative elements into the slipped vessel, most likely with a bone point typical of the type AC1 found at Skara Brae (Childe 1931a, 131). It is interesting that it is precisely this form of bone implement which is often decorated with linear incisions (ibid., pl. XLII), suggesting a metonymic link between the implements used for decoration and the act of decoration itself. After decorating the vessel may be burnished, probably with a rounded pebble.

Once the vessel was dry it would then have been stacked, in an upright position, as indicated by the differential oxidation pattern found on most vessels. This firing position would have improved the chances of oxidation, although the low and unsustained firing temperature and the thickness of some vessel walls meant the core of the vessel was often reduced. Initially it is likely that burning embers may have been placed in the centre of the vessel to gently dry and heat the vessel before the considerable temperature of the bonfire (Rye 1981). After this stage heather and possibly dried seaweed would have provided kindling for the fire, while other wood sources would have been placed over the top of the vessels to provide high temperature heat sources (Cartwright 1995). As noted above, the firing of shell tempered vessels would have taken place on a stone platform in the centre of the settlement, while rock tempered vessels were either fired in the same location or directly within the hearth.

Pottery Production at Barnhouse

In the preceding introduction I noted the difficulty in examining pottery production, and in particular the interpretation of pottery production sites. However, at Barnhouse, in the centre of the settlement, a series of deposits and archaeological features appear to bear all the hallmarks of a pottery production site. The central area represents a complex series of deposits which have been produced over most of the life of the settlement (Fig 5.2). These deposits consist principally of large quantities of pottery. In order to understand the nature of these deposits it is necessary to examine them in more detail. Here I am considering not only the nature of the pottery, but the condition of the pottery as a means of determining the kinds of activities which were undertaken in this area. Of particular importance is a determination of the mean sherd weight (MSW). As discussed in chapter 2, this provides us a broad index of the amount of abrasion on the pottery, and enables a clearer definition of the character of the deposit, whether the deposit constitutes primary or secondary refuse etc. A further level of analysis has been conducted on this material, through a comparison of number of vessels and number of sherds as a broad index of attrition and fragmentation.

The earliest phases of use in this area clusters towards the Southeast of the central area (contexts 396, 532, 533, 534 and 928) and comprises a single mixed deposit of at least 73 separate vessels deposited amongst layers of ash. 85% (62 vessels) of this material is from medium size shell tempered vessels, 5% is untempered (4 vessels), and 10% (7 vessels) is from medium size rock tempered vessels.

These vessels appear to comprise material of two different kinds, resulting from two different kinds of activity, this material is intermixed within a single deposit in this area. The first set of material is characterised by distorted profiles and abraded surfaces with no sign of use on the vessels surface.

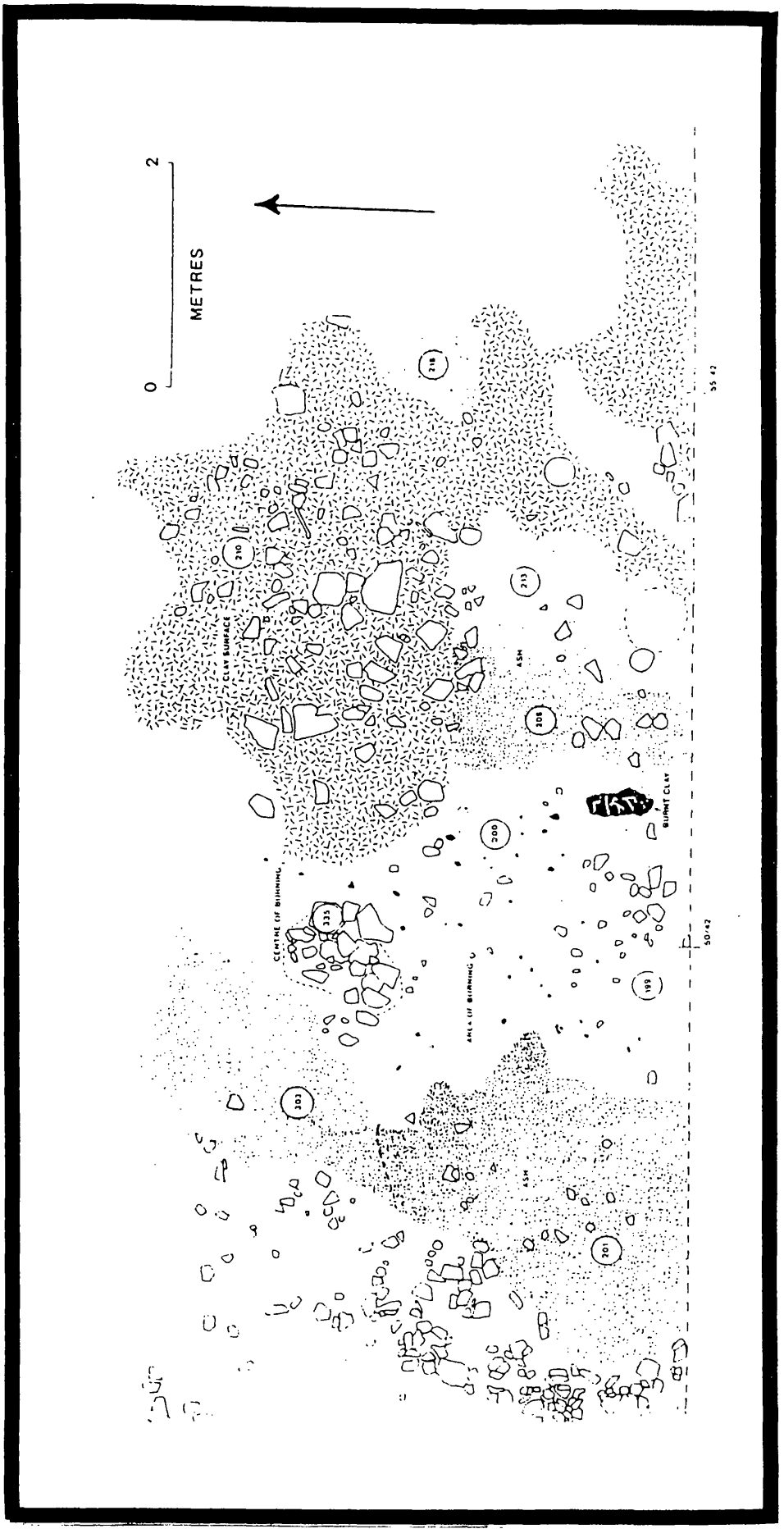


Figure 5.2: Plan of the central firing area at Barnhouse (from Richards 1993a, 224)

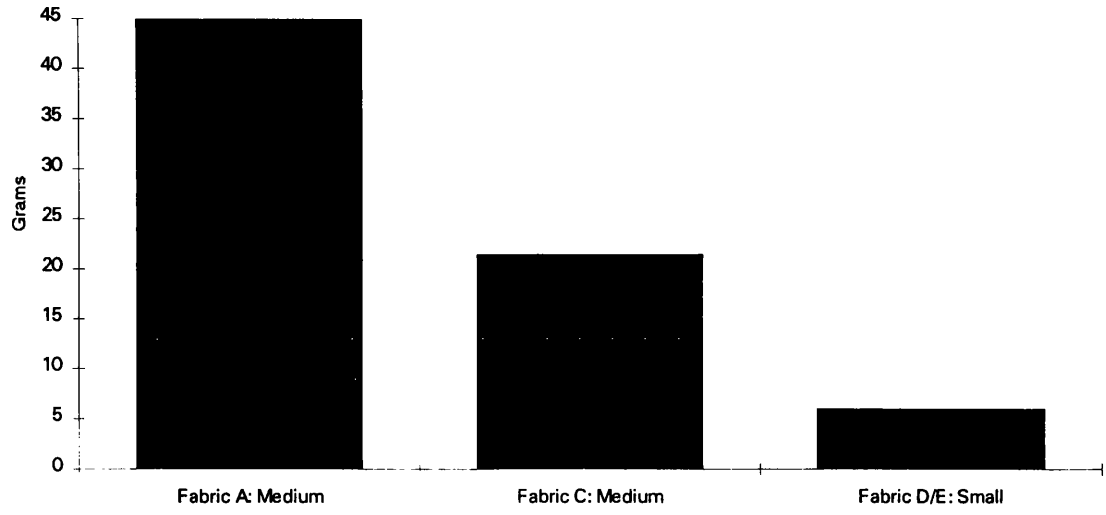


Figure 5.3: Mean sherd weight (MSW) of fabric categories in primary deposits (532, 533, 534 and 928) central area

Material of this kind comprises 71 % of this assemblage (52 vessels). Interestingly the size of sherds of this kind were small and abrasion appears to have been very extreme, with the almost total removal of sherd surfaces. Because of this it is difficult to determine the decorative schemes employed on these vessels. More importantly, all of this material comprised medium size shell tempered vessels. This material can be interpreted as the result of the deposition of wasters from firing for two reasons. Firstly due to the large amounts of distorted and abraded sherds, and in some cases whole distorted vessels discarded within these deposits. Secondly due to the lack of signs of use on these sherds.

The second set of material is, however, quite different and here signs of use were observable, with both exterior sooting and interior residues visible. Again the sherds from these vessels were highly abraded, although none of the sherds appeared to be distorted in any way. Material of this kind comprises 29 % of this assemblage (21 vessels). Sherds from these vessels were larger and better preserved with less overall

abrasion. As a consequence of this decoration is observable on these vessels and appears to consist of parallel incisions, probably fragments of decorative scheme 8.

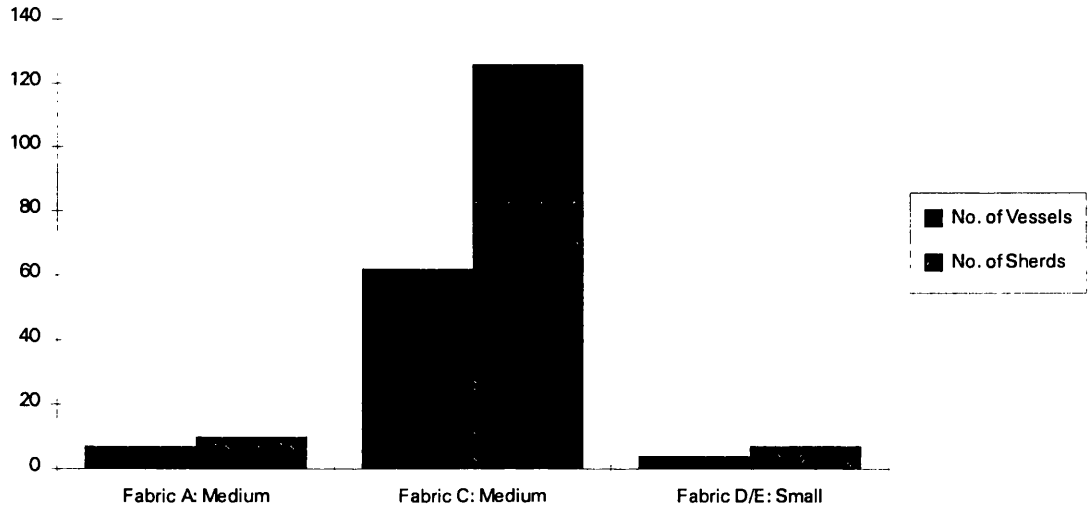


Figure 5.4: Vessel: sherd relationship in primary deposits (532, 533, 534 and 928) in central area

What we appear to be seeing is the discard of waster material which has been distorted in the firing process, however we also appear to see material which has possibly been removed from the area and redeposited at a later date, and is therefore subject to less abrasive activity. Notably both categories of material appear to have been subject to *in-situ* burning, with large patches of burnt material adhering to *all surfaces* of the material.

These patterns suggest a number of possibilities. The material which is distorted and abraded may relate to the discard of material broken during firing in this area. Both the fragmentation and abrasion patterns are revealing since we can observe from them the severe fragmentation and attrition of sherds in this area. The general appearance of the material suggests, due to the distorted and abraded profiles of sherds, that some of this material may relate to wasters which were discarded in this area after firing. However, this material is intermixed with other sherds from less

abraded vessels which appear to have been used and redeposited in this area. By themselves, these deposits simply show a concentration of possible wasters and some severely abraded pottery, suggesting continuous trampling in this area. In order to understand these deposits more clearly we must turn to the archaeological features which overlay them.

The later activity in the central area is characterised by large ash and burnt bone spreads. A large concentration of burnt bone also runs in a northerly direction across this area. Other notable features are found in this area such as pits containing lenses of ash, burnt bone and abraded burnt clay. Another unusual feature is the deep pit filled with clay which was dug through the lower and middle deposits of spits 5, 4 and 3 and appeared initially in spit 1. In close proximity to this pit was a large flat stone platform (335). Magnetic susceptibility readings over this area gave extremely high values, indicating repeated episodes of burning (Richards 1993a, 223). Around this platform to both the east and west were three large dumps of ash (201, 208, 213). The pottery from the later phases of activity in this area is found scattered amongst these dumps, an examination of this material reveals a series of interesting points in relation to the earlier deposits (see Figures 5.5 and 5.6).

There are less vessels within these later deposits, only 66 are present, however the range of fabrics and vessel categories has widened. Again medium size shell tempered vessels would appear to predominate, they comprise 75% (50 vessels) of the assemblage, 9% (6 vessels) are medium size rock tempered, 9% (6 vessels) are large rock and shell tempered, 1.5% (1 vessel) is a large rock tempered and 4.5 % (3 vessels) are small shell tempered. Interestingly this deposit is one of the few at Barnhouse to contain vessels of fabric B1 tempered with both rock and shell.

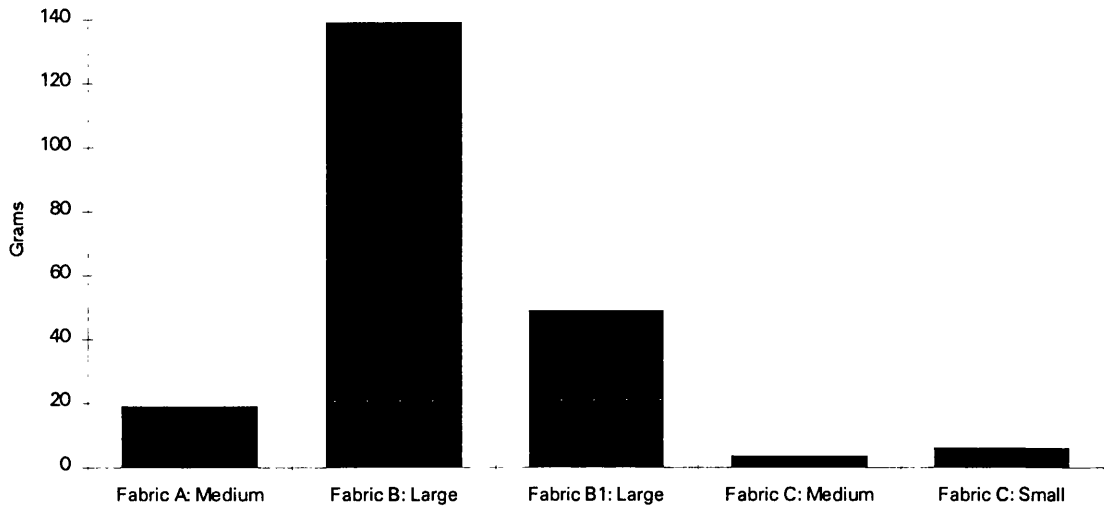


Figure 5.5: Mean sherd weight (MSW) of fabric categories in later deposits (200, 201, 208, 213) in central area

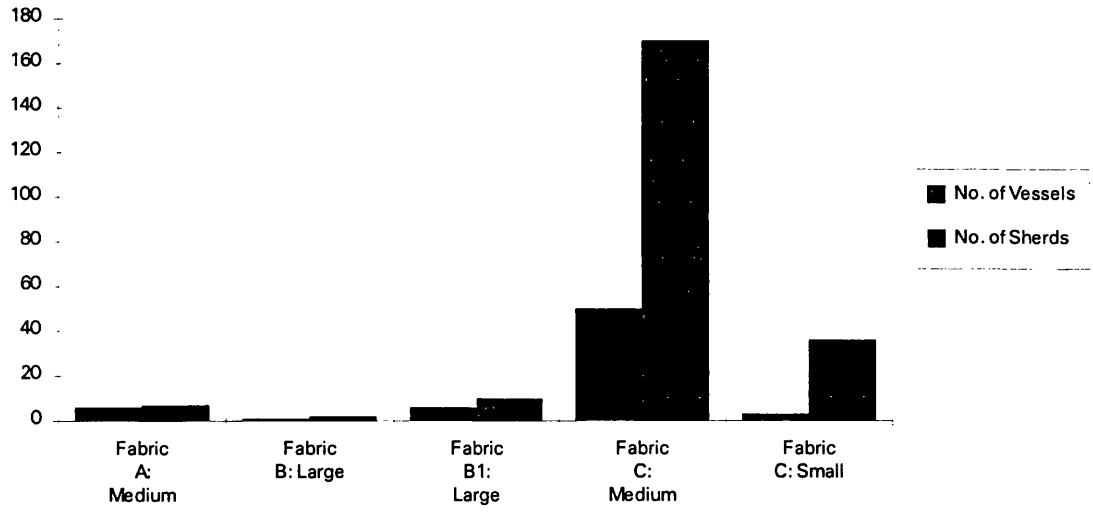


Figure 5.6: Vessel: sherd relationship in later deposits (200, 201, 208, 213) in central area

Decorative schemes on vessels from these deposits include decorative schemes 8 and 14, both of these were from medium size shell tempered vessels. The three small shell tempered vessels were all decorated with decorative scheme 12.

Notably all the sherds within these deposits appear to be deposited fairly rapidly since they are remarkably unabraded, although a notable exception are sherds from medium size rock tempered vessels which are very abraded. These deposits comprise less vessels with distorted profiles than the earlier deposits and they constitute only 34% of the assemblage (22 vessels). Remarkably, very few of the other vessels show any indications of use, such as sooting, and in contrast to the earlier deposits we see less evidence of *in-situ* burning. We need to stand back from these deposits and critically examine the evidence from the central area features and deposits.

It is obvious from the account given above that the central area witnessed burning of some kind, as the lower deposits of pottery were burnt and the Magnetic Susceptibility readings for the area were high. Was there any other evidence for burning or fire in this area? An examination of wood charcoals from a number of contexts at Barnhouse (Cartwright 1995) indicates that the highest concentrations of material from the site as a whole is from the westerly ash dump (201) and the easterly dumps (208, 213). Species include *Corylus*, *Betula* and *Maloideae* sp. The use of such woods would enable high firing temperatures (650-900 degrees Celsius) to be reached, but probably for a limited period (Woods 1989). The presence of large amounts of *Calluna* sp. amongst this material may be due to the burning of heather (Cartwright 1995, 3) which allows a high temperature to be sustained for longer periods of time. Further indications of high temperature firing are the large quantities of cramp concentrated in the central area. Although the precise nature of cramp is uncertain, it is suggested to be the by-product of burning seaweed (Fleet 1976). It only forms due to high temperature burning. From this evidence I would suggest that the central area was used for repeated bonfire firing concentrated in the area of the stone platform, and the residue of this was deposited in dumps surrounding this area.

We have already seen that this area has evidence of large quantities of pottery wasters scattered in both the earlier and later deposits, but is there any other evidence

for pottery production in this area? Notably a high concentration of small polished pebbles of flint were found between houses 7 and 12(Richardspers.comm.), and they may have been employed as burnishing tools. Similarly a high concentration of cobble tools were found in the same area. Clarke (1991) suggests that these were hammerstones, and as such they may have been used for the crushing of temper for pottery production.

One of the predominant features of this area was the number of pits filled with ash. The use of pits to contain or prop large or fragile pottery while being fired is well attested (Rye 1981, 63; Gibson and Woods 1989, 49), and these pits may also represent the residue of specific firing episodes. What is most notable is the high concentration of burnt clay in this area (Fig 5.7).

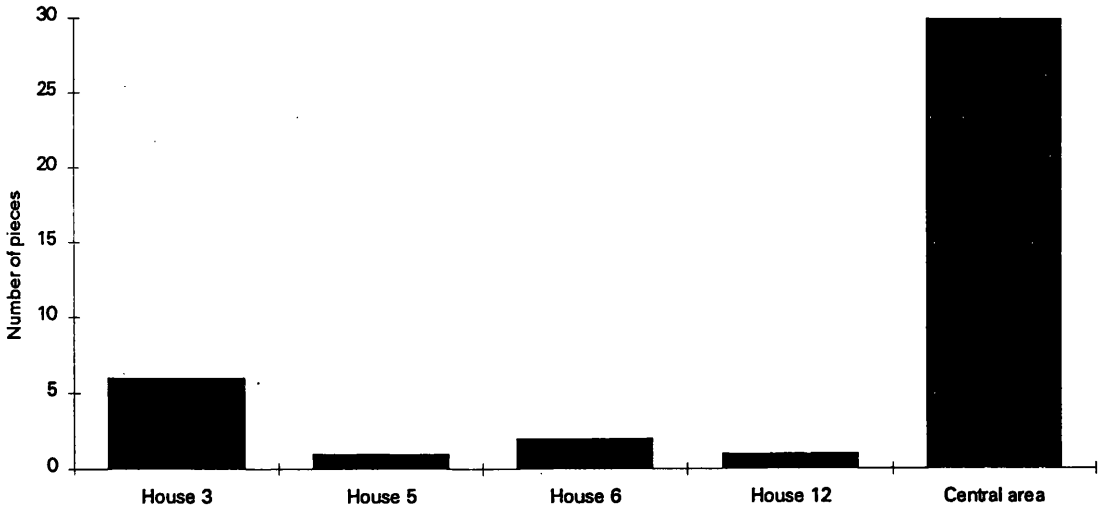


Figure 5.7: Presence and quantity of burnt clay from Barnhouse

Many of the attributes of the central area appear to neatly fit Wardle's (1992, 63-4) criteria for the recognition of a pottery production site. I have argued that the high concentration of abraded sherds from this area are evidence of wasters from manufacturing pottery, and that a series of tools were used in the production of pottery

in this area. We also have evidence of a pit filled with clay from this area. Most importantly we have clear evidence of high temperature firing occurring in specific places within the central area, and we see a high concentration of firing residue in the form of charcoal, cramp and burnt clay.

We can now begin to reconstruct the episodes of activity occurring in this area. The earlier deposits consist of wasters, and they are heavily abraded probably due to trampling, what is more they are subject to *in-situ* burning. The firing of pottery appears to have occurred at an early stage in this area, however the waste material from this activity was deposited around the firing area and probably provided a focus for further firing activity in the area. The dumps of pottery from the later phase of activity are subject to less burning, and here the dumps of material are deposited away from the centre of burning. Again some of this material can be characterised as wasters, however we also appear to see the deposition of other material in this area. The deposits in the central area are extremely complex, and will be discussed further in chapter 7.

The production of pottery involves more than simply firing, pots need to be formed, dried, decorated and burnished prior to firing. Given the inclemency of the Orcadian climate, it seems possible that the primary formation and drying of Grooved ware vessels occurs within individual houses. This suggestion is supported by the evidence for burnt clay found in individual houses, which may be the residue of primary forming of vessels. Outside the central area deposits the concentration of burnt clay is greatest in two locations, house 3 and house 6. I will now turn to the second of these two houses to examine other aspects of the pottery production process.

The organisation of pottery production: the status of houses 1 and 6

House 6 (Fig 5.8) lies to the west of the central area, it is one of the earliest buildings on the site and is unusual for a number of reasons. While it preserves the basic spatial layout of the Orcadian Late Neolithic house, certain aspects of the internal furniture are absent, such as the 'dresser'. The house is oriented away from the central area, to the South-west, an unusual orientation compared with the other houses at Barnhouse. Internally it is notable that while the east and west box-beds are an important part of the furniture, unlike other houses there is no divisional slot dividing these areas off from activities around the central hearth. The hearth itself is interesting since it is directly connected with a drain which runs in from the North-east, the drain is covered with a series of slabs but the slab closest to the hearth has a small hole chipped in it to allow drainage off from the hearth area. At a later phase the whole internal area of house 6 is remodelled and a single undifferentiated open space is created.

The activities undertaken within house 6 are of interest on a number of levels. The presence of pumice within the hearth deposits suggests bone or wood working. Further, there is also a large amount of flint debitage within the house (Middleton 1994). Much of this evidence would seem to suggest that this building was utilised for production activities, and in the case of Grooved ware this is supported by the finds of burnt clay within the house, particularly within the hearth itself. The Grooved ware within this area was all derived from medium size shell tempered vessels, two examples of which were decorated with decorative schemes 13 and the more unusual 18, which employs incisions and dot impressions.

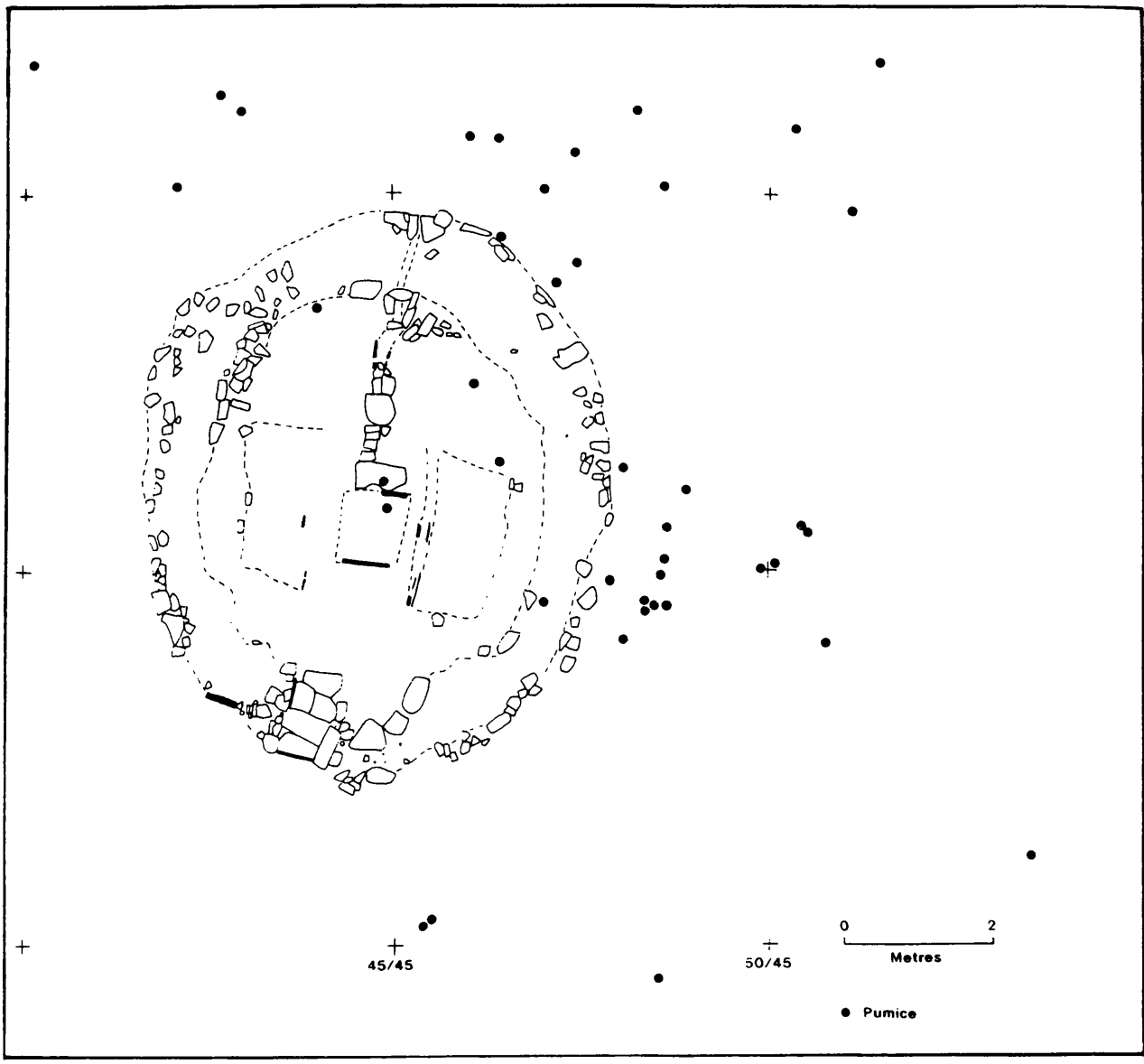


Figure 5.8: Plan of house 6 showing the distribution of pumice in and around the structure

(from Richards 1993a, 225)

By a later phase, and after the demolition of house 6, another building, house 1, is built close to the entrance of house 6. This house is extremely small in size, and in its construction it seems to utilise the entrance of the former house 6. At this stage house 6 is levelled and appears to form a flat area in front of house 1. Both house 1 and this flat area again have considerable evidence for the undertaking of production activities. Within house 1 itself a flint borer and flint scrapers would seem to suggest the working of bone and possibly hide. Considerable evidence for bone, wood and hide working is derived from the high concentration of pumice found on the flat area in front of house 1 overlying house 6 (see Fig 5.8). But what of Grooved ware? Again a number of sherds of medium size shell tempered Grooved ware were recovered from the clay floor within house 1.

It is important to clarify the precise status of these buildings utilised for the production of objects especially, in this case, Grooved ware. For further supporting evidence concerning their status we need to turn to the excavations at Skara Brae. Probably the most remarkable thing about house 6 is its apparent similarity to house 8 at Skara Brae (Fig 5.9). House 8 was free-standing and was situated outside the main settlement complex at Skara Brae. Internally the house had a similar spatial arrangement to the other houses on the site, however there was the notable absence of a 'dresser', and the left and right box-beds had no divisional slab. Childe (1931a, 52) noted a large amount of flint debris from this building and also found six bone tools he considered to be fabricators. Probably the most interesting structure in the house was the rectangular enclosure which was placed in the position normally taken by the 'dresser' in other houses. Childe (1931a, 51) interprets this structure as a kiln, partly due to the presence of numerous fire cracked volcanic stones within the structure. Indeed these may have been raw material employed in tempering pots.

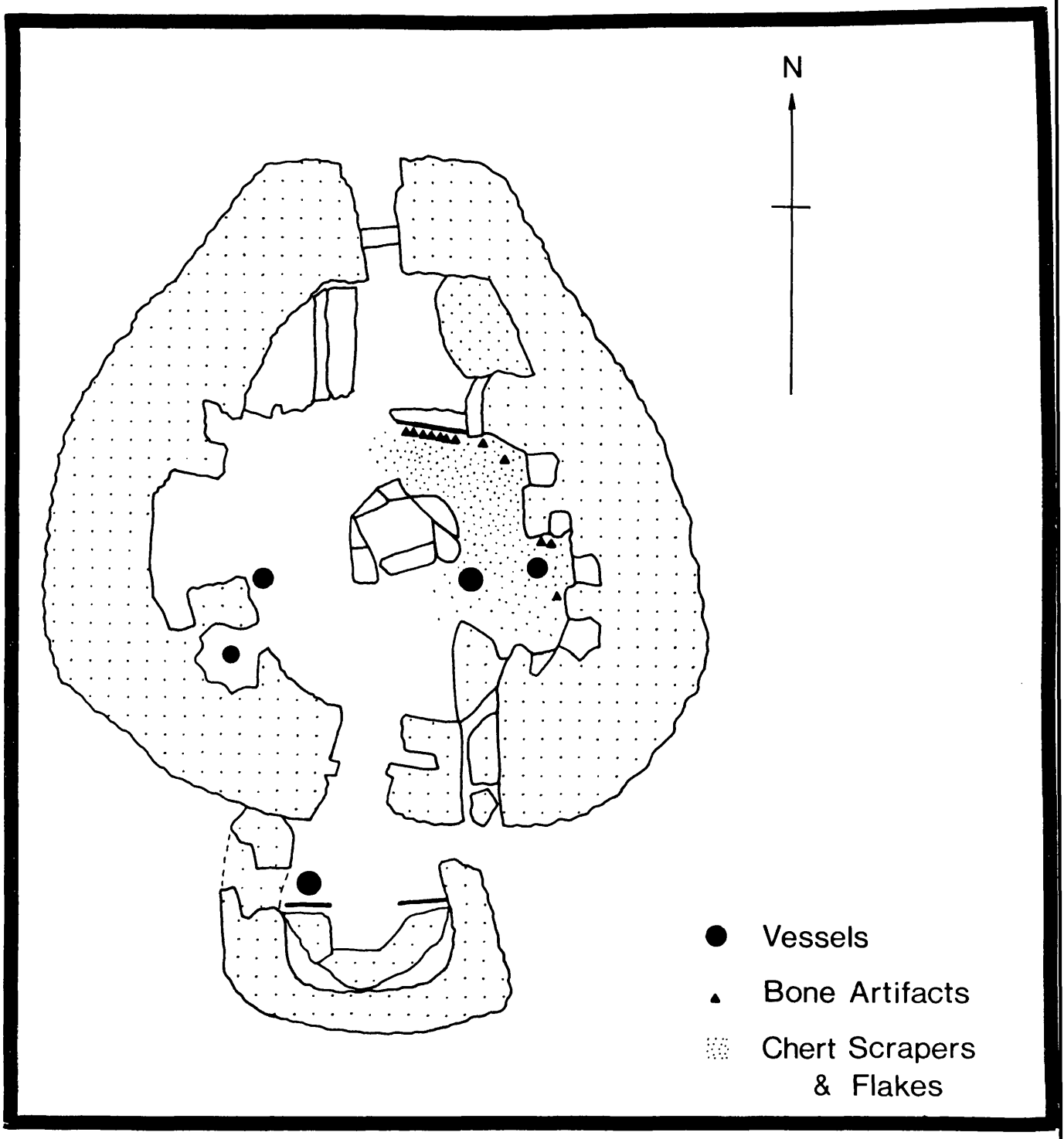


Figure 5.9: Plan of house 8 at Skara Brae (from Richards 1991, 39)

This account has drawn out the similarities between the two structures, but there is a more important point to be made concerning both structures, and this is their relationship to production activities, and the identity of those producing the material. In a later account of Skara Brae, Childe took great care in defining the nature and use of house 8 (1946, 32-33). Since he so strongly equated the organisation of the Skara Brae village with a communal social structure, it was essential to define how production was organised. Much of his account of the site centred on the self-sufficient nature of the inhabitants. As noted in chapter 3, he equated this self-sufficiency with an equalitarian social structure, and saw production activities occurring in house 8 on a communal basis, rather than the building being a dwelling for a craft specialist.

Given this interpretation we need to examine the nature of houses 1 and 6 at Barnhouse. Here there are a number of points which should be made. Firstly, the range of activities conducted within the house would appear to be diverse, and it seems unlikely that these could be the result of a single craft specialist. On the face of it, I believe that house 6 is best considered as a communal production area, indeed the open nature of the internal space would appear to broadly suggest communal production activities centred around the hearth. Similarly house 1 does not appear to be utilised as a dwelling, due to its small size. Furthermore, it actually opens onto the central area, and is associated with a flat open area evidently used for production activities.

Having considered both of these structures and their status in relation to production, we need to reconsider how this relates to the central area activities. The evidence from the central area strongly suggests that large scale firing activities were occurring on a periodic basis. We now also have evidence for the production of objects within buildings which, at various stages of the life of the settlement, were adjoining the central area. The evidence of burnt clay from the hearth suggests that we are observing the primary formation of Grooved ware vessels, and the possible

preliminary drying of vessels within house 6. We can envisage then a two stage process with the formation and drying of vessels within houses 1 or 6, and their eventual firing in the central area. It would appear then that we are observing communal production associated both with these houses and in the central area.

Probably the most striking observation arising from the review of the activity in the central area is that the highest proportion of Grooved ware of large, medium and small sizes is shell tempered. If we express the presence of shell tempered vessels as a percentage of all the vessels from the central area, then shell tempered vessels comprise 87% of the assemblage. What is more, the only Grooved ware vessels recovered from houses 1 and 6 were medium size shell tempered vessels. It would appear then that the dichotomy in the distribution of vessels observed in chapter 4, is reflected in the concentration of shell tempered within the central area. A concomitant of this is that if we view the evidence from houses 1, 6 and the central area as reasonable evidence for a pottery production site, then the central area is largely used for the production of shell tempered pottery.

The organisation of pottery production: evidence from petrology

It would appear then that spatially we have good evidence for the production and firing of Grooved ware occurring in houses 1 and 6 and the central area, but the weight of this evidence is for the production of shell tempered vessels. A further point to note here is that an examination of thin-sections from houses around the central area and those on the periphery reveal that vessels tempered with shell are not tempered with any other tempering agent, apart from naturally occurring rounded sandstone, while those rock tempered vessels from houses on the periphery of the settlement are only tempered with angular igneous rock or sedimentary rock. Thus there is a distinction in the use of shell or rock as a tempering agent. It is only within those vessels of fabric

B1 that we see both tempering agents being employed. Therefore, the use of these tempering agents is distinctive of the two areas of the settlement. Thus the production of shell tempered pottery would appear to occur exclusively in and around the central area. But where is the rock tempered Grooved ware being produced at Barnhouse? In order to understand the mode by which the production of rock tempered vessels was organised we need to examine both the technology of production and the composition of individual forms of Grooved ware at Barnhouse. We have seen that Grooved ware vessels tempered with shell are produced and fired on a communal basis, but is this also the case for rock tempered Grooved ware? I have already observed that Grooved ware is produced from certain igneous rocks (cf. Williams 1982), if this is the case at Barnhouse we may be able to use the petrological differences or similarities of vessels to indicate how the production of rock tempered vessels is organised.

Grooved ware is formed primarily of clay and a series of non-plastic components; marine shell and a series of rock types. In this case, it is the latter that will enable us to gain the clearest picture of the organisation of production. As indicated in chapter 3, Orkney is comprised largely of a bedrock of Old Red Sandstone with intrusive dykes of lamprophyric igneous rocks such as camptonite, bostonite and olivine-basalt (Mykura 1976, 97). The selection and use of these different rocks will enable a clearer examination of the social relations involved in the production of individual Grooved ware vessels. The utilisation of specific sources of igneous rock would appear to be of prime importance in understanding this process. The use of igneous rocks is of obvious importance during the Late Neolithic since similar rock sources were used in the production of maceheads (Simpson and Ransom 1992) and stone axes and carved stone balls both at Barnhouse (Clarke 1991) and Skara Brae (Childe 1931a, 98-113).

In order to examine the details of the organisation of Grooved ware production in those houses utilising rock tempered vessels, a programme of thin-section analysis

was undertaken. The selection of sherds from secure contexts within the houses at Barnhouse enabled either differences or similarities in the use of rock sources between individual houses to be determined. Ceramics from houses 2, 3 and 5 were examined as well as structure 8 in order to establish the general character of production. The samples of rock tempered vessels from houses 9, 10 and 11 were considered too small to be significant. Thin-sections were taken from individual vessels determined by examining the assemblages from each house. Through simple petrological characterisation it was possible to classify and differentiate different sources of igneous rock and map their use within the pottery from different houses. In each case the number of occurrences of a rock source is recorded as a simple measurement of the petrological composition of vessels from each house:

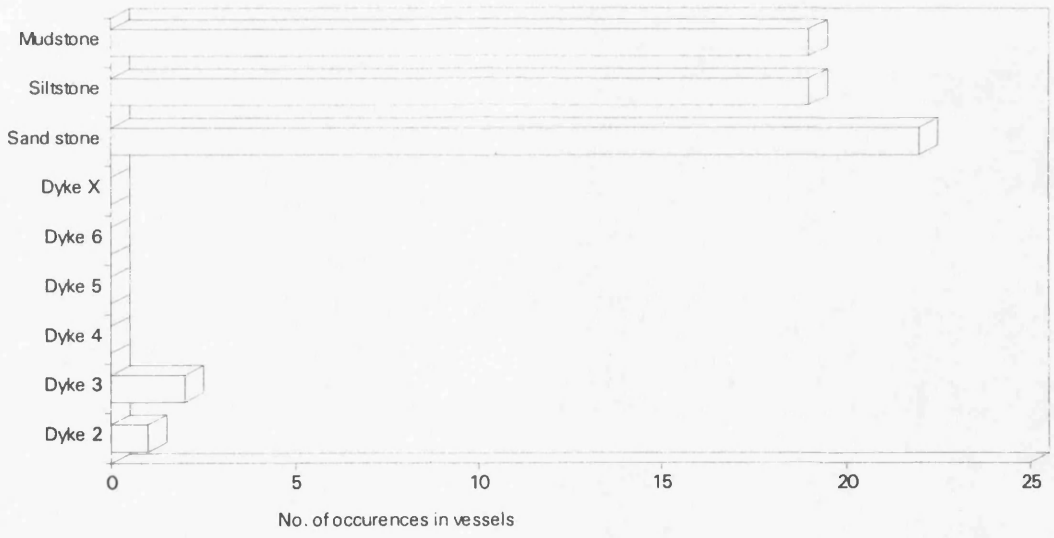


Figure 5.10: Presence of tempering agents in House 2 assemblage

A total of 22 thin-sections were analysed from house 2 rock tempered vessels, 21 from medium size vessels, and 1 from a large vessel. This constitutes 48% of the medium size rock tempered vessels, and 50% of the large rock tempered vessel assemblages.

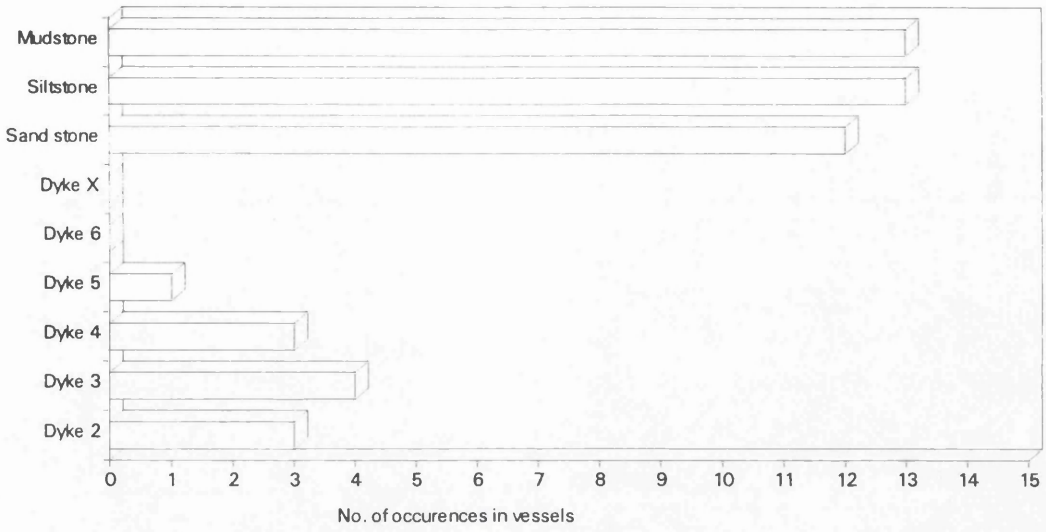


Figure 5.11: Presence of tempering agents in House 3 assemblage

19 thin-sections were analysed from house 3 rock tempered vessels, 18 from medium size vessels, and 1 from a large vessel. This constitutes 90% of the medium size, and 100% of the large size assemblages.

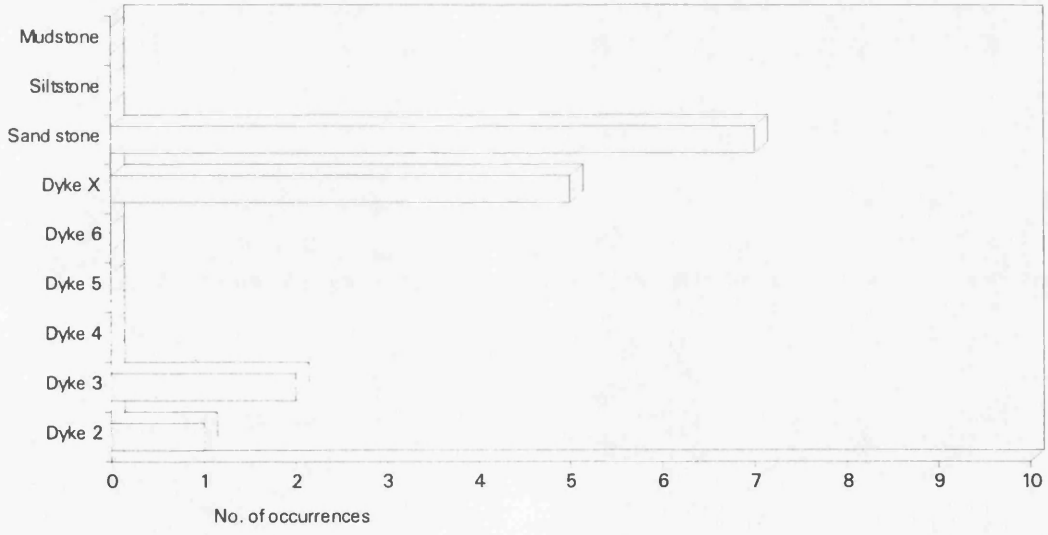


Figure 5.12: Presence of tempering agents in House 5 assemblage

9 thin-sections were analysed from house 5 rock tempered vessels, all 9 were from medium size vessels in houses 5a and 5b. This constitutes 45% of the assemblage from both houses.

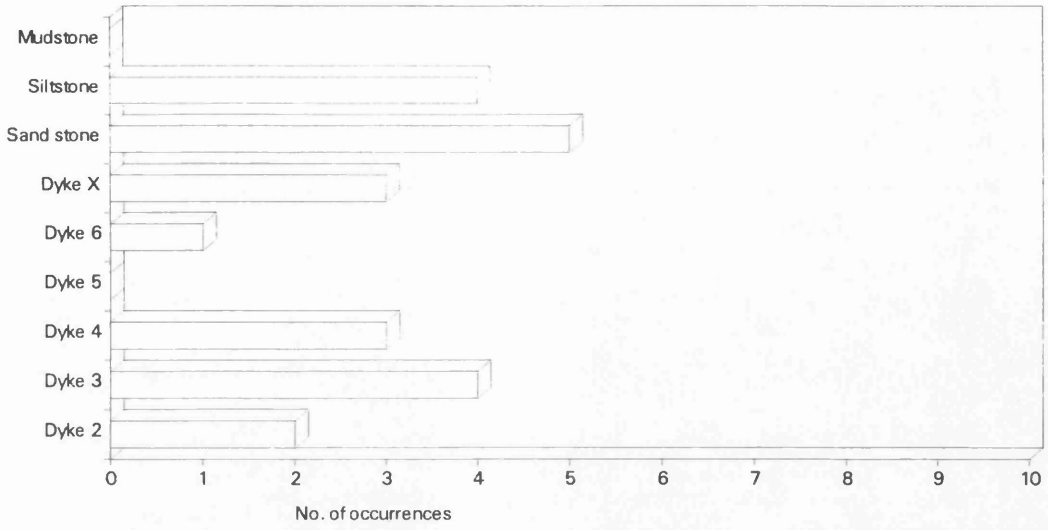


Figure 5.13: Presence of tempering agents in assemblage from Structure 8 platform

7 thin-sections were analysed from the structure 8 platform rock tempered vessels, 4 from large vessels of fabric B, and 2 from large vessels of fabric A, 1 was from a medium size vessel of fabric A. This constitutes 66% of the large fabric B vessels, 40% of the large fabric A vessels and 100% of the medium size fabric A vessels.

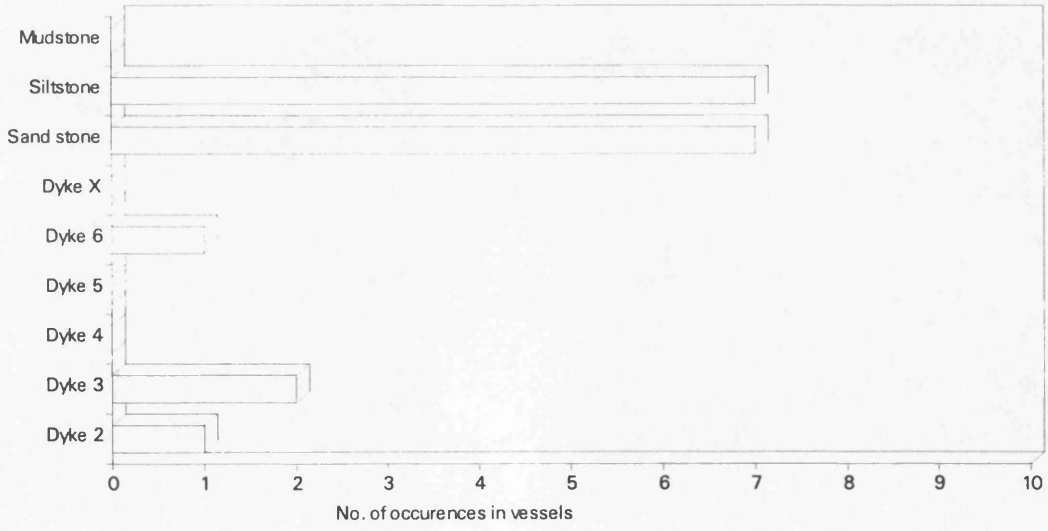


Figure 5.14: Presence of tempering agents in assemblage from Structure 8 interior

8 thin-sections were analysed from the structure 8 interior, all were from medium size vessels. This constitutes 100% of the medium size vessels from this area.

In each case a variable percentage of the total rock tempered assemblage has been analysed, in some cases this constitutes a total sample, in other cases it may be as little as 40%. The variance in sampling depended very much on the variable suitability of vessels for thin-sectioning. There are a number of points I wish to draw out concerning the use of temper within houses. If we look at the use of dyke sources in the three contemporary houses using rock tempered vessels then some striking patterns emerge.

The first thing to note is that house 2 is almost exclusively using sedimentary rocks, such as sandstone, siltstone and mudstone, with only three vessels containing dyke rock, from dykes 2 and 3. If we now turn to examine houses 3 and 5 we note that they are both using dyke rock, however the sources they are using are contrasting. While the house 3 assemblage contains examples of dyke 2, 4 and 5, house 5 contains examples of dyke X. Both houses are using examples of dyke 3 as is house 2. The major point to note at this stage is not only that different sources of rock are being used, but that they are used together *in different combinations* within each house, for instance in house 3, SF 2510 contains examples of both dyke 3 and dyke 4, while in house 5, SF 1002, 1936, 3114 and 3625 all contain examples of both dyke 3 and dyke X.

This need not be seen as problematic, rather we should note that individual houses are employing distinctive 'recipes' of temper in the creation of vessels of fabrics A and B. The importance of this activity will become clearer as we proceed. It would seem then that not only are specific dyke sources being used by different households within the settlement, but they are being used in different combinations. The most distinctive differences being the pottery of house 3 which contained two distinctive

forms of rock olivine-basalt, dyke 4, and camptonite, dyke 5, while house 5 also contained a distinctive form of camptonite, dyke X. It is also notable that other sources, such as those of dykes 2 and 3, were distributed between houses and used in combination with other distinctive sources. Interestingly, we can also detect temporal patterning in material since when we compare differences in temper from house 5a and 5b; the 5a assemblage is dominated by dyke 3, while the 5b assemblage is dominated by dyke X.

We observe a remarkable combination of dyke sources in the structure 8 assemblage. In the case of SF 5045 and SF 5575 dykes 2, 3, 4 and X are combined in the same vessel, while in SF 6012 dykes 2, 3, 4, 6 and X are combined in the same vessel. In the earlier phases of settlement some of these dyke sources, such as dyke 4 and dyke X, are used by distinct households. However, in the production of Grooved ware vessels in structure 8 we see the combination of all of these sources together, along with the use of both sandstone and siltstone in combination.

We have seen then that the three houses with the main concentrations of rock tempered Grooved ware at Barnhouse were each producing pottery according to different 'recipes'. It would appear then that we are seeing a distinctly different manner of production to that suggested for the central area. But what relationship is there between these vessels and the use of the central area for firing, were rock tempered vessels produced within individual houses and then fired within the central area? In order to answer this question we need to focus again on the burnt clay evidence and examine it more critically. As indicated in figure 5.7, quantities of burnt clay were found in some houses surrounding the central area, such as houses 6 and 12, as well as some away from this area, such as houses 3 and 5. The presence of burnt clay in these contexts suggests that some element of the production process was occurring in these discrete locations. But what does this evidence indicate? Does the burnt clay represent excess from the production of pottery, or does it represent in-situ evidence of firing? It

was noted that burnt clay was found in the hearth in house 6, indicating here that whatever aspect of the process the clay was involved in, it occurred around the hearth.

If we examine petrological thin-sections of the burnt clay itself, then we observe differentials in the material. Within house 3 the clay is untempered, while that from the central area is tempered with well-crushed shell. How are we to interpret this?

It was noted in chapter 4, that the primary 'dimension of variability' to be manipulated was temper. In this case we would expect to see temper within the burnt clay from all areas of the settlement. If tempering is the primary stage of vessel formation, then the evidence from houses 3 and 5 would tend to suggest that it was untempered vessels which were being produced in each household. This would concur with the evidence of sparse shell temper from the central area, since this may represent the formation of small shell tempered vessels. Production of different categories of Grooved ware at Barnhouse would appear then to take place in a number of locations.

It is not impossible that in certain cases pottery firing occurred within the central hearth of individual houses rather than the central area. We need to compare the temperatures which may be achieved within the central hearth with the firing temperatures of Grooved ware. This is a difficult task to achieve without a controlled experimental programme. However, recent research concerned with the calculation of firing temperatures determined by luminescence studies has been conducted on the Grooved ware from Pool, Sanday (Spencer 1996, 119). Here the firing temperatures calculated for a number of samples of this pottery range from 539 +/- 21 degrees Celsius to 488 +/- 4 degrees Celsius. Both of these temperatures are only just sufficient to drive off the water of plasticity which occurs at 550 degrees Celsius (Gibson and Woods 1989, 156). However, Rice (1987, 156) suggests that this need not be an absolute figure, and the temperatures calculated for the Pool samples seem to support this. The average temperatures achieved in bonfire firings are well in excess of this usually centring between 600-850 degrees Celsius (Rice 1987, 157). Given the

temperature achieved in firing the Pool samples it would appear that lower firing temperatures are the norm during the Late Neolithic, which does not rule out firing within the hearth.

There is a further aspect of the evidence we need to draw on here, which concerns the Grooved ware itself. If we examine the firing profiles of Grooved ware vessels from across the site it is notable that 75% of this material has an oxidised exterior and interior layer, with a dark reduced internal layer. This suggests that the vessels were fired upright in an open fire, and tends to suggest an open bonfire firing. There is no difference in firing profile between vessels from the houses circling the central area and those on the periphery.

Although the propensity of vessels fired in the central area were shell tempered, 10% of the total assemblage proved to be rock tempered and these were thin-sectioned in order to compare against the petrology of the vessels form houses 2, 3 and 5. A total of 11 vessels were thin-sectioned from this area. Of these most contained both mudstone and siltstone, while two contained combinations of dyke 2 and dyke 3, while a third contained an example of dyke 3. It would seem then that limited firing of rock tempered sherds is occurring within the central area. However, there is a notable absence of the dyke sources such as 4, 5 and X which were part of the 'recipes' of houses 3 and 5.

We are faced then with only partially answering the original question. It would seem that the rock tempered vessels produced in houses 2, 3 and 5 may have been fired within the central area. However, the complexity of the 'recipes' observed in houses 3 and 5 are not observed in the central area material. This problem gave rise to new questions; what are the sources of the igneous rocks characterised as dykes 2, 3, 4, 5, 6 and X and do they constitute examples of resources which are the result of long distance exchange or even vessels which have been produced in other settlements. In order to answer this question a small scale provenancing project was conducted in the

Barnhouse area, including the Lochs of Harray and Stenness, to see if any of these rock sources were of local origin.

Provenancing the Barnhouse Grooved ware

While some limited mapping of the geology of the Lochs of Harray and Stenness was undertaken on behalf of the British Geological Survey during the 1920s, many sources remained unsampled (Beddoes-Stephens pers. comm.). Thus a programme of fieldwork was undertaken in order to locate and sample dykes in the environs of Barnhouse. The dyke sources were located by O.S map and the use of a Proton Magnetometer. Multiple samples were removed from the parent rock and thin-sectioned in order to compare them against thin-sections of the Barnhouse Grooved ware (see chapter 2 for more detailed methodology and appendix 1 for complete petrological catalogue).

A total collection policy of all dyke sources around the Lochs of Harray and Stenness proved fruitful since the sources of a number of dykes were distinguished which correlated with those in the Barnhouse Grooved ware. Note that dyke numbers follow the nomenclature used in the field:

Dyke 2: Olivine-Basalt with large phenocrysts, this dyke outcropped to the west of Onston Ness.

Dyke 3: Bostonite, this dyke outcropped to the east of Onston Ness.

Dyke 4: Olivine-Basalt with fine groundmass and few phenocrysts, this dyke outcropped on the east side of Brodgar Ness close to Sand Holm.

Dyke 5: Camptonite, outcrops at Bookan.

Dyke 6: Bostonite, outcrops at Scarataing, Sandwick.

Dyke X, a camptonite, remained unsourced. However, a lump of this material was recovered from the excavations at Barnhouse from an area of the old land surface between house 5, 6 and 10. This was also thin-sectioned.
Dyke material was obviously not the only rock type used to temper the Barnhouse Grooved ware, however the other rock types, sandstone, siltstone and mudstone cannot be sourced since they comprise the bedrock of much of Orkney.

In order to understand the differential selection of dyke material in greater detail we must examine the cultural landscape in which the dyke sources are situated (Fig 5.15). The first thing to note is that the two dyke sources most frequently used within the Barnhouse pottery, dykes 2 and 3, are located on the shore of the Loch of Stenness either side of the Onstan Ness. The second major locale is that of dykes 4 and 5, which are both situated on the shore of the Loch of Harray close to the farm of Bookan. Barnhouse itself is visible from the source of both dyke 3 and dyke 4. Notably dykes 2 and 3 are the nearest sources to Barnhouse and it is these sources which are used most commonly within the Barnhouse Grooved ware. It is these sources which are used in houses 2, 3 and 5. In houses 3 and 5 they are used in combination with other dyke sources. It would seem then that all but dyke X could be sourced to the immediate environs of Barnhouse. If, due to their proximity to the site, dyke sources 2 and 3 were used by house 2, 3 and 5, then what is the status of the other dyke sources and what does their use represent in terms of the organisation of production, and the association of rock tempered vessels with specific kinds of social identity?

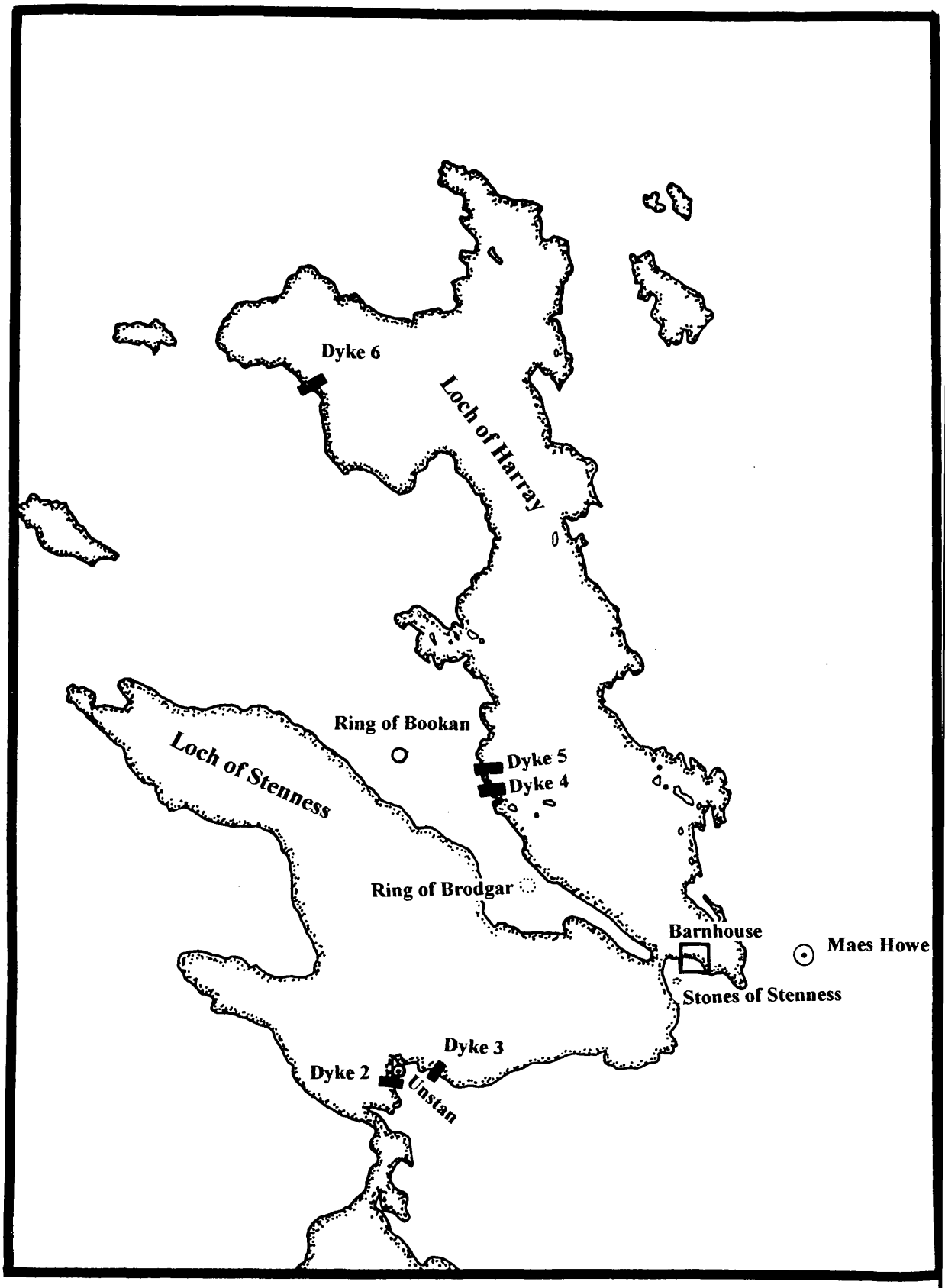


Figure 5.15: Location of dykes in the Barnhouse environs

Procurement, Production and Place

In order to further examine the social and symbolic status of the differential procurement and production strategies associated with the rock tempered Barnhouse Grooved ware we need to reconsider the relationship between people and place. I have already considered, in chapter 2, the relationship between place and identity. I suggested, following Peter Gow (1995), that through action in the world, people are implicated in places. What is more, once these places have been altered through physical action by particular people, with a particular social identity, then these places become associated with specific identities and the memories attached to them. Places will then accrue memory through the continual action within them. This point is crucial to consider if we are to fully comprehend the differential procurement of these igneous rock resources.

I have now defined the spatial position of these dyke sources in relation to Barnhouse, but as noted above, the landscape is not a simple two-dimensional homogeneous space, but instead consists of a series of places with associated memories and identities. There are two main places in the environs of Barnhouse from which we are able to provenance dyke sources. The first, associated with dyke 2 and 3, is the Onston Ness upon which the chambered tomb of Unstan (Clouston 1885) is located. This place, therefore, has ancestral significance and a history which extends well beyond the foundation of the Barnhouse settlement, indeed it is likely that the Unstan ware pottery within the tomb was also produced from these sources (Scott and Phemister 1942). The second major location, associated with dykes 4 and 5, is to the east of Brodgar Ness on the farm of Bookan. This place also has significance since it is here that an extensive artefact scatter was discovered. The presence of six polished stone axes and six maceheads amongst the scatter suggests it was a site of some

importance (Callander 1931). The presence of the maceheads would suggest a broadly contemporary settlement site of Late Neolithic date.

If, as noted above, we perceive both natural materials and the places at which these materials are located within the landscape to be associated with particular memories and identities, then the placement of settlements in such close proximity to material resources takes on both pragmatic and symbolic concerns. The history of individual and familial experience within that place will engender concepts of ownership and belonging. Thus the use of material resources is inextricably associated with a place, may well be restricted to those with a history associated to that place.

Dykes 2 and 3 are spatially related to the tomb of Unstan and are therefore tied both physically and symbolically with a particular kind of memory, associated with the ancestral community placed within the tomb. The procurement of these resources may be restricted to those who are able to identify with this community, possibly through ties of kinship and genealogy. On the other hand, the location of dykes 4 and 5 in close proximity to a possible large Late Neolithic settlement site at Bookan may also relate them physically and symbolically with this community.

Given this we need to consider again how these dyke sources are employed in the Barnhouse pottery. It was noted above that dykes 2 and 3 were the most commonly used in the Barnhouse Grooved ware, and it was suggested that this was due to the proximity of these dykes to the settlement. However, the relationship may have deeper significance than this and may relate more to notions of rights of access, structured by the significance of the place in which the dykes are found. On the other hand the restricted use of dykes 4 and 5 within the Barnhouse Grooved ware suggests that the use of these dykes may be related to quite specific social relations. We may be seeing rights of access to these dyke sources related to kinship obligations between two proximal and contemporaneous settlements, possibly according to marital links between the two settlements. It is notable that house 3 is one of the earliest houses at

Barnhouse and may therefore constitute a primary settlement shift between the two settlements. This interpretation may also hold for house 5b, where dyke X is the most distinctive constituent of the assemblage. Although the source of this dyke cannot be precisely located an analogous movement between settlements may be suggested.

Is this the case, or are we simply seeing the movement of Grooved ware vessels between settlements? It is possible to examine the relationship between the use of these dyke resources and the finished Grooved ware vessel through three different means. The first is the combination of dyke sources within the Grooved from houses 3 and 5. In both cases we see the use of dyke sources which, I have argued, are closely related to Barnhouse being combined together within individual vessels. However, this argument is in danger of being self fulfilling. The second piece of evidence is the sample of raw material, from dyke X, found at Barnhouse itself, which would tend to suggest that the primary production of vessels containing this dyke occurred at Barnhouse. Finally we can examine the correlation between the presence of dyke sources in the Barnhouse Grooved ware and decorative schemes. Due to the detailed analysis of sherds within the houses all of the sherds selected for petrological analysis can be demonstrated to be related to decorated vessels, although few decorated sherds were themselves thin-sectioned. If we accept the argument that certain decorative schemes are specific to settlements then the presence of these decorative schemes on vessels which are also tempered with specific dyke sources suggests that rather than individual vessels being exchanged, specific raw material sources were appropriated from the surrounding landscape and used in the construction of Grooved ware. In this case it was the rights of access to specific resources which was of importance.

Given the importance of the dyke sources and their relationship with certain places in the environs of Barnhouse, and their use in certain house-specific tempering strategies during the earlier phases of settlement at Barnhouse, it is all the more striking that the use of these dyke sources within the structure 8 Grooved ware

assemblage cross-cuts these distinctions. In certain vessels within the structure 8 platform deposits, dykes 2, 3, 4 and X are used in combination within a single vessel. There is no obvious functional explanation for this. I have argued above that the use of dyke sources in combination signified relations of affinity, the combination of all these dyke sources together very powerfully signals relations of affinity. Here these relations of affinity are more likely to be related to a more holistic notion of community than in the earlier phase of the settlement. I will develop this argument in subsequent chapters, however here suffice it to say that the construction of structure 8 and the use of particular categories of Grooved ware within its confines strongly suggests a new conception of the idea of community.

Production and social identity

We need to take a step back from this material and review it with respect to the overall theme of this chapter, the relationship between production and social identity. The first point to note is that the use of tempering material within pottery need not be viewed as entirely functional, rather the materials which constitute the natural landscape are not only simply categorised according to their physical properties, but are also categorised by place. Place embodies a whole series of important notions and may be one means of fixing the identities of particular people within the landscape, this need not be perceived as territorial but may concern instead rights of access and obligation.

I have suggested that with regard to certain types of igneous rock, which are discretely located in the landscape, rights of access to resources may have been structured by kinship relations as well as through the continued inhabitation and association of people with a particular place. The use of raw materials is complex. Since dyke sources are found in combination within vessels it would appear that

relations of affinity are being cemented through the combination of dyke material from distinct and highly symbolic sources. One source being associated with Barnhouse, the other a source utilised by an individual associated with another settlement. However, if we consider that certain places and the substances associated with those places were of importance, then we need to consider that not only certain igneous rocks but also other forms of raw material were imbued with ideas concerning place. This is important since most of the raw material used to temper the Barnhouse Grooved ware is in fact sandstone, siltstone, mudstone or shell. Unlike the igneous rocks these resources are associated with numerous places in the landscape rather than a single place. Access to these resources is likely to be on a more communal basis, and less likely to be structured by restrictive rights of access. It is for this reason that shell, a substance easily acquired from the coast or from freshwater lochs, is utilised as a tempering agent in vessels fired within the communal central area. Similarly the most striking use of material is within house 2. Here, of a total of 22 thin-sections from 22 vessels, only three contained dyke material. The material most often used was siltstone or sandstone, suggesting a neutral material less imbued with significance in terms of ideas of place and certainly unassociated with specific households. As I have argued above, the dyke material used within the house 2 Grooved ware was common to the settlement as a whole.

What do these tempering strategies mean in terms of social identity? It would seem that we are able to observe Grooved ware production operating on a number of levels. While the production of shell tempered pottery is associated *to* a specific place, the central area, the production of rock tempered pottery is associated with temper *from* a specific place, in the surrounding cultural landscape. Shell tempered vessels are produced in a central, communal location and their production would have been highly visible. This relates very strongly to the easy accessibility of shell sources and the fact that these resources are unrelated to specific places. The undifferentiated nature of the

resource used in their production relates directly to the communal way in which they are produced in the settlement. A similar argument may be advanced for the vessels found within house 2 which are tempered mostly with sandstone, siltstone and mudstone. Again the undifferentiated and easily accessible nature of the resources used in the production of this particular assemblage of pottery would appear to directly reflect their use within a structure most likely of a communal nature.

In the case of large and medium size rock tempered vessels, the resources used in production are related to specific places in the cultural landscape. These places are related to specific people or social groups. The procurement of these resources is related to certain rights of access over the places. These may be structured either by kinship relations or simply by the fact that certain resources are related to specific settlements. Rock tempered vessels are produced within specific houses, but they may either be fired within the hearth of individual houses or within the central area. So far little has been said concerning the production of the small vessels, both tempered with shell and untempered. Defining the manner and place of production for these categories of vessel is problematic, although I suggested that the evidence from burnt clay may suggest their primary production either within the central area or within individual houses. As we saw in chapter 4, distributionally we find shell tempered vessels being used in the houses which border the central area, and untempered vessels being used in the houses located on the periphery of the settlement. Although it is impossible to determine it seems likely that these vessels are produced according to the same organisational regimes as other vessels, either communally or within individual houses.

Given the differential significance of certain raw materials, and their association with different rights of access, we need to consider what the patterned use of these resources represents. I have already noted the differential distribution of shell tempered and rock tempered vessels with respect to the spatial organisation of the Barnhouse

settlement itself. It would seem that the concentration of production activity is focused towards the central area, and is associated with the production of shell tempered vessels used in houses 1, 6,11 and 12 bordering the central area. However, we have also seen that in the houses towards the periphery of the settlement, especially houses 2, 3 and 5, rock tempered vessels are produced according to 'recipes' which are specific to each house. On the face of it, we would appear to be observing communal production towards the centre of the settlement, and individual household production towards the periphery.

However the picture is more complex than this. There are two further points which must be taken into consideration. Firstly, all houses except house 2 actually have greater numbers of medium size shell tempered vessels than rock tempered ones. Secondly, both categories of vessel are decorated with the same decorative scheme. It is precisely these decorative schemes which are common to the settlement, as we observed in chapter 4.

However, there is a further important point to consider here. The distinctions evident in temper procurement and their use in producing distinctive fabrics for pottery production will only be evident during a fairly transitory period of production, for once vessels tempered either with rock or shell are slipped and decorated or burnished their appearance becomes identical. If we consider that the production of distinctive rock tempered vessels within these houses is the result of specific kinship links, then it is possible that the production and use of these vessels within these houses marks them out as signifying specific kin based, traditional production practices. Rather than the assemblage of a single house being produced either communally or individually there is further complexity, and houses 3 and 5 are furnished with vessels which are produced according to two different organisational regimes. It would seem that, while the distinctions evident in production are of significance, the identity of vessels in use was of equal importance. As such it is interesting that those houses which utilise rock

tempered vessels are spatially separated from those who solely utilise shell tempered vessels.

What we have then is a complex picture of affinities and differences. It seems likely that the differences observed in tempering practices relate to differing, kin-based tempering practices. However, while these differences are apparent from the petrological evidence, it would appear that decoratively the production of vessels signified relations of affinity between households within the settlement.

Summing Up

In this chapter we have seen that through the procurement of specific types of temper and through primary production very specific types of social identity may be represented. These are either related to specific kinship relations or to a more general affinity between members of the Barnhouse community. By the final phase at Barnhouse, these fine-grained distinctions are no longer of such importance and we see all previous tempering agents used to create Grooved ware vessels. Importantly the distinctions evident in primary production are not evident once the vessel has been slipped and burnished or decorated. Here an affinity between all members of the community is represented.

Chapter Six

How Grooved ware functions at Barnhouse

Introduction

We have seen that the Grooved ware from Barnhouse is categorised in a number of ways. I suggested in chapter 4 that a hierarchical series of 'dimensions of variability' are manipulated in order to define and demarcate a series of different categories. The primary 'dimensions of variability' to be manipulated are the categories of temper type and temper frequency. As we have seen in chapter 5, the precise nature of the temper used in the Barnhouse Grooved ware is related to ideas of place, tradition and kinship, and we see vessels tempered with shell being distributed around the central area, with vessels tempered with rock used in a number of houses around the periphery of the settlement. Does the use of particular types of temper relate solely to notions of place and kinship, or are there more pragmatic and functional reasons for the use of certain substances as a tempering agent? The major objective of this chapter will be an examination of this question.

The use of specific frequencies of temper, appeared to correlate with different wall thicknesses and concomitantly different vessel sizes. Vessels of different size are distributed around the settlement with a certain amount of regularity, each house having one large vessel, numerous medium size vessels, and a single small vessel. Do different size vessels relate to specific functions or is their use and distribution determined by other social factors? It is essential to note that this question relates to the previous question concerning temper type. We have already seen that the distribution of vessels around the Barnhouse settlement seems to correlate with the

temper employed in their construction. In order to clarify the relationship between temper, vessel size and use, a detailed examination of the differences in use of vessels of different size and of different temper type will be an important component of this chapter.

Elements such as fabric, morphology, decoration and surface treatment all structure the way the pot is socially perceived, and will determine how it is used in specific social contexts (Boast 1996). Rather than viewing the physical properties of vessels as being determinate on use, use is as much structured by the social nature of production and categorisation. Problematically many studies of vessel function fail to realise this point, and individual features are studied separately as *intended* function and *actual* function (Skibo 1993, 35). Here intended function is seen to be related to the physical properties of a vessel. This is determined by such variables as fabric, wall thickness, surface treatment and morphology. Meanwhile actual function is seen as the use-alteration of the vessel, either in the form of absorbed food residues, surface attrition or sooting. Skibo sees an unproblematic relationship between these two properties of vessel function, however the series of actual functions result in the recategorisation of the vessel during its use-life. It is important to see that intended function is not entirely determinate on actual function, the actual function is not a secondary attribute grafted onto the vessel, but is an essential part of the way the vessel is socially perceived and categorised.

It is this point I wish to develop, it must be remembered that while the use of the vessel may be articulated by a number of abstract variables, the vessel also has a physicality which is determined by a number of things such as morphology, volume and the physical properties of fabrics. So, although the socialised use of a vessel will involve the constant recontextualisation of the vessel, this process is not entirely fluid but flows *in certain directions*, the physical nature of the vessel limiting the extremes of use. It is here that the notion of biography is useful. While the fabric, morphology

and volume will restrict actual uses, these properties of the vessel will determine, in part, the possible pathways a vessel may take biographically.

Grooved ware: Fabric and Function

As noted in chapter 5, the use of specific fabrics is not an entirely functional and deterministic choice in the production of different vessel categories. Rather, it was argued, the use of specific types of igneous and sedimentary rock as well as shell was the result of meaningful cultural choices. I suggested that the use of these materials embodied ideas of place, kinship and tradition. Furthermore, I argued that the specificity of rock used in the construction of a vessel also conveyed a statement concerning the contexts in which the vessel was made and used. This is not to say that temper, either in the form of igneous rocks, sedimentary rocks or shell, afforded no functional benefit. Rather it would appear that the choice of temper type was not entirely guided by its functional benefits. In support of this it is worth noting that in a number of instances in houses 3 and 5 as well as structure 8, similar forms of igneous rock were combined together as tempering agents. If functional benefits were the only consideration in the choice of temper then a single source of rock would have sufficed. Nevertheless, temper does afford the finished vessel with a series of different properties, and it is these different properties I now wish to review.

Woods (1985) has suggested that in the context of British prehistoric pottery, temper is not deliberately selected in order to alleviate the problems of thermal expansion. Rather, in the case of cooking vessels, she suggests that the prime function of inclusions are in lessening the problem of shrinkage during firing and in increasing porosity (ibid., 169). However, this need not be the only function of tempering agents and we must also consider that the use of inclusions within the clay body are an obvious aid in strengthening the walls of the vessel during manufacture. Given the

apparent selectivity of temper discussed in detail above, it would seem that we cannot entirely dismiss the notion of deliberate selection. Nevertheless as Woods notes, deliberate selection need not relate to the problems of thermal expansion, and this is a point which is worth considering further.

The major differences in the fabric of the Barnhouse Grooved ware are those between rock tempered and shell tempered fabrics, nowhere is the dichotomy more distinct than amongst the tempering agents used for medium size vessels of fabric A and fabric C at Barnhouse. In order to consider this problem in more detail we need to examine the physical and functional properties which both forms of temper afford the finished vessel. The use of igneous rock in pottery would appear to be highly desirable since it has the same coefficient of thermal expansion as clay, this is due to the similarity in chemical composition between clay and igneous rock. This similarity in chemical composition and coefficient of thermal expansion allows both clay and rock to expand at the same rate, thereby preventing cracking on firing and reheating (Rye 1976, Rice 1987, 105). Given the benefits of igneous rock in this regard, it is all the more surprising that, at Barnhouse, sandstone, siltstone and mudstone was often used as an alternative. The coefficient of thermal expansion for these sedimentary rocks would be different to that of clay and may have caused spalling at the firing phase and cracking in use. It is notable in this respect that quartz, the main constituent of sandstone and siltstone is highly detrimental, expanding at an irregular rate when heated (Rice 1987, 95-6). However it is shell tempered fabrics which predominate at Barnhouse, this is particularly interesting since shell is a difficult substance to work with in terms of tempering pottery.

The major problem with shell tempered fabrics is that, at firing temperatures of 500 degrees Celsius or over, the calcium carbonate within the shell decomposes during firing. As Rye (1976, 120-136) notes this can be counteracted by the use of seawater or salt in wetting the clay prior to firing. In the context of Orkney, it would seem less of a

problem, many of the shells used within the Grooved ware must have originated from a marine source. Another method of counteracting this problem is to calcine the shell prior to its use within the clay. This is also a possibility, however it is difficult to determine, especially since the shell is only visible within the Barnhouse Grooved ware as voids. However, the use of finely crushed shell within pottery actually increases porosity and opens the clay body, this is especially useful in cooking vessels where hot air is able to pass easily between the pores in the clay body. On the other hand, it would appear that porosity in water or liquid storage vessels is undesirable in cold climates such as Orkney (Rye 1976, 113). Furthermore, shell has a low coefficient of expansion thus making it an especially good conductor of heat. It would seem then that, overall, fabric C vessels, which contain shell, are probably most usefully used in cooking vessels. Notably shell is also utilised in the production of vessels of small size and elaborate decoration, suggesting that in this case the functional advantages of shell temper are not drawn on in use. The production of vessels with little or no apparent temper within the clay body, such as fabrics D and E, appears to confer no special advantages or disadvantages on the finished vessel. It seems less likely that vessels consisting of this fabric need have a specific function and certainly need not be repeatedly fired and refired as would be the norm for a cooking vessel.

So far we have considered the use of temper in manipulating the properties of thermal expansion and porosity, however we also need to consider the way in which temper affects vessel strength. As I have suggested above, the frequency of inclusions correlates with the wall thickness of the vessel. As such, one variable determines the other. It is possible then that the prime importance of the variability of temper frequency is in providing strength to the wall of the vessel. Interestingly, there do not appear to be any differences in the type of inclusion found in Fabric A and Fabric B vessels, which would suggest that, in this case, the prime importance of a differential frequency of inclusions was to provide strength to the clay body. Medium size vessels

of fabric A and C both have the same wall thickness, the main variable which distinguishes them is temper type. In this instance, it seems unlikely that differences temper affect the strength of the vessel.

One further aspect we have not considered so far in terms of function is the surface treatment of vessels. Surface treatment of a vessel will also provide the finished vessel with certain physical properties, thereby enabling its use for certain functions rather than others. Burnishing the exterior surface of a vessel has two possible functions, the actual act of burnishing seals the pores thereby decreasing porosity and preventing liquid loss (Schiffer 1988), while the burnished surface may also enable increased rapidity of heating, although this also depends on the colour of the pottery surface (Schiffer 1990). If we reconsider the incidence of burnish on vessels of different categories then this may enable us to more clearly determine their possible uses. We have already observed the incidence of burnish on vessels across the site, however here it is important to reiterate that a high proportion of burnished vessels were medium size vessels of fabric C, however these were concentrated within the houses which border the central area, houses 1, 6, 11 and 12. As expected the highest proportion of burnished vessels in the houses around the periphery of the settlement, houses 2, 3 and 5 were of fabric A. The highest concentration of burnished vessels at Barnhouse came from house 2, and here burnishing was predominant on medium size vessels of fabric A. Interestingly very few large vessels were burnished suggesting that porosity was not a problem in the use of these vessels. The only incidence of burnish on these vessels was on the vessels on the structure 8 platform, however as we shall see below this serves to further distinguish the activities occurring in this building. However, it may be misleading to consider burnishing as an entirely functional property of the vessel since, as noted in chapter 4, we find that the highest proportion of burnish is on small vessels of fabric C, D and E. As further point, in

support of the non-functional properties of burnishing it is essential to note the high correlation between decoration and burnish on the Grooved ware from Barnhouse.

To reiterate then, we have briefly considered the possible properties of vessels with different fabrics. Here the most problematic is the use of two different temper types, rock and shell, within medium size vessels. Both may afford the finished vessel with properties which enable them to be used as cooking vessels. While igneous rock provides vessels with a similar coefficient of thermal expansion to clay which would enable heat to pass evenly through the clay body, the use of igneous rock may also provide strength to the wall of the vessel during construction. The use of other forms of rock, particularly sedimentary rocks, within the Barnhouse assemblage suggest that the use of rock as a tempering agent need not necessarily relate to the thermal properties afforded by rock sources. On the other hand, we have noted that shell tempered fabrics provide vessels with increased porosity. This is an advantage in cooking vessels and a disadvantage in vessels which contain liquids in a cool climate such as Orkney. This would seem to suggest that porous, shell tempered fabrics are most likely to be used as cooking vessels. However, porosity is reduced by burnishing and we have seen that medium size vessels of both rock and shell temper are burnished, suggesting that porosity need not be the most important factor in the construction of cooking vessels. Turning now to large vessels, we have observed that the high frequency of rock temper in these vessels is likely to relate to the necessary wall strength of these vessels. Only fabric B1 vessels are tempered with shell, which would tend to suggest that porosity is not a problem in the use of these vessels. Indeed very few of these vessels are burnished which would seem to support this. Only those large vessels used on the structure 8 platform are burnished. The smallest vessels are both untempered or tempered with shell, the use of temper is unlikely to afford them with any benefits here. Curiously, these vessels have a high incidence of burnishing,

and given their small size it is unlikely these vessels are used for liquid storage or cooking. This observation suggests that burnishing may be non-practical in this case.

In order to develop these observations and clarify our view of the functional aspects of the assemblage we need to consider two other components of the evidence derived from the study of use-wear. The first, sooting, is easily observed on the vessel surface, the second, residue analysis, involves a more complex approach but ultimately may provide us with the clearest information. The aim in both cases is not simply to distinguish the differences in use but to examine the possibilities of determining a grammar of use. We have seen in chapter 4 that the demography of the assemblage in each house has a very specific grammatical structure, the aim then is to investigate the way in which this grammatical structure relates to use.

Grooved ware and Use-wear: sooting

Soot is the by-product of the combustion of wood and occurs on pottery surfaces which have been proximal to wood burning fires. The analysis of sooting on vessel surfaces is benefited by an understanding of the nature of the assemblage to be studied, and as such it is useful means of determining functional differences within a given pottery assemblage. In order to provide maximum potential in terms of the interpretation of function it is beneficial not only to understand something of the structure of the pottery assemblage but also to have a well preserved assemblage. The position of soot on well preserved vessels may provide us with an idea of the position of the vessel in the fire and an increased understanding of precisely how the vessel was used in the cooking process. In terms of this analysis the major study of sooting has been conducted by Hally (1983), here he was concerned with mapping the presence or absence of soot deposits, as well as their position on the vessel, on various component of two pottery assemblages.

In a similar vein, the aim of this analysis of soot deposits is to determine the presence or absence of sooting in relation to different categories of vessel. Here the simple presence or absence of soot on each category of vessel within the houses at Barnhouse was recorded. By looking at sooting differences between vessels of different size and fabric we should be able to distinguish whether use is contingent on the morphology of the vessel, or the fabric, or both. This will allow considerable subtlety in distinguishing the grammatical differences in the use of the assemblage as a whole. However sooting may provide additional information concerning the position of the vessel in fire, and where possible sooting was recorded on various parts of the rim, body and base of different categories of Grooved ware.

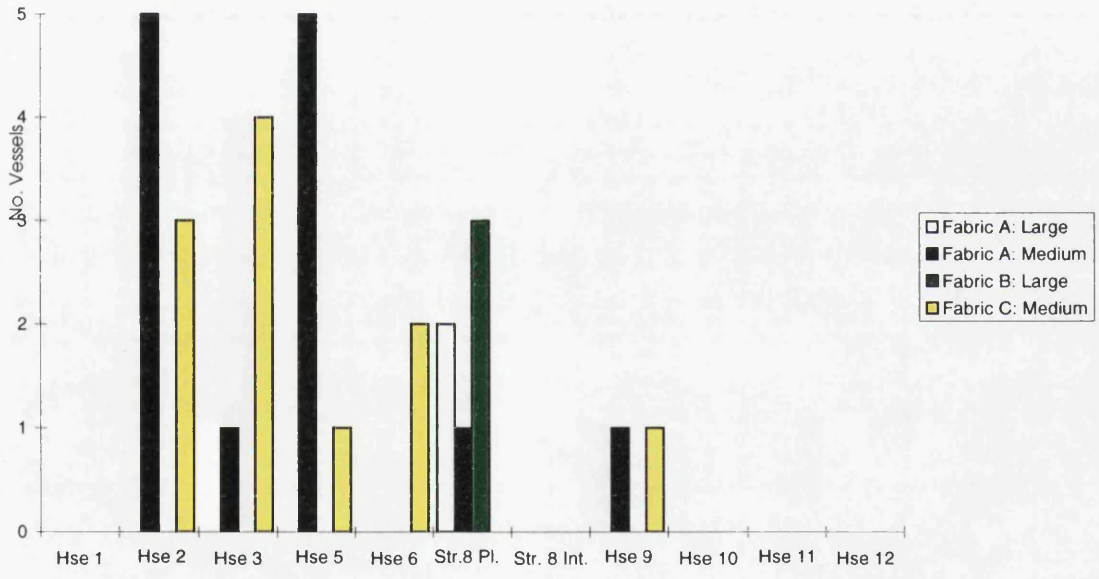


Figure 6.1: Sooting on vessels in houses

Figure 6.1 shows quite clearly that sooting is concentrated on medium size vessels of fabrics A and C, and appears to occur almost equally on vessels of either fabric. This contrasts with the pattern for the site as a whole (Fig 6.2) where it appears that sooting predominates on sherds of fabric C.

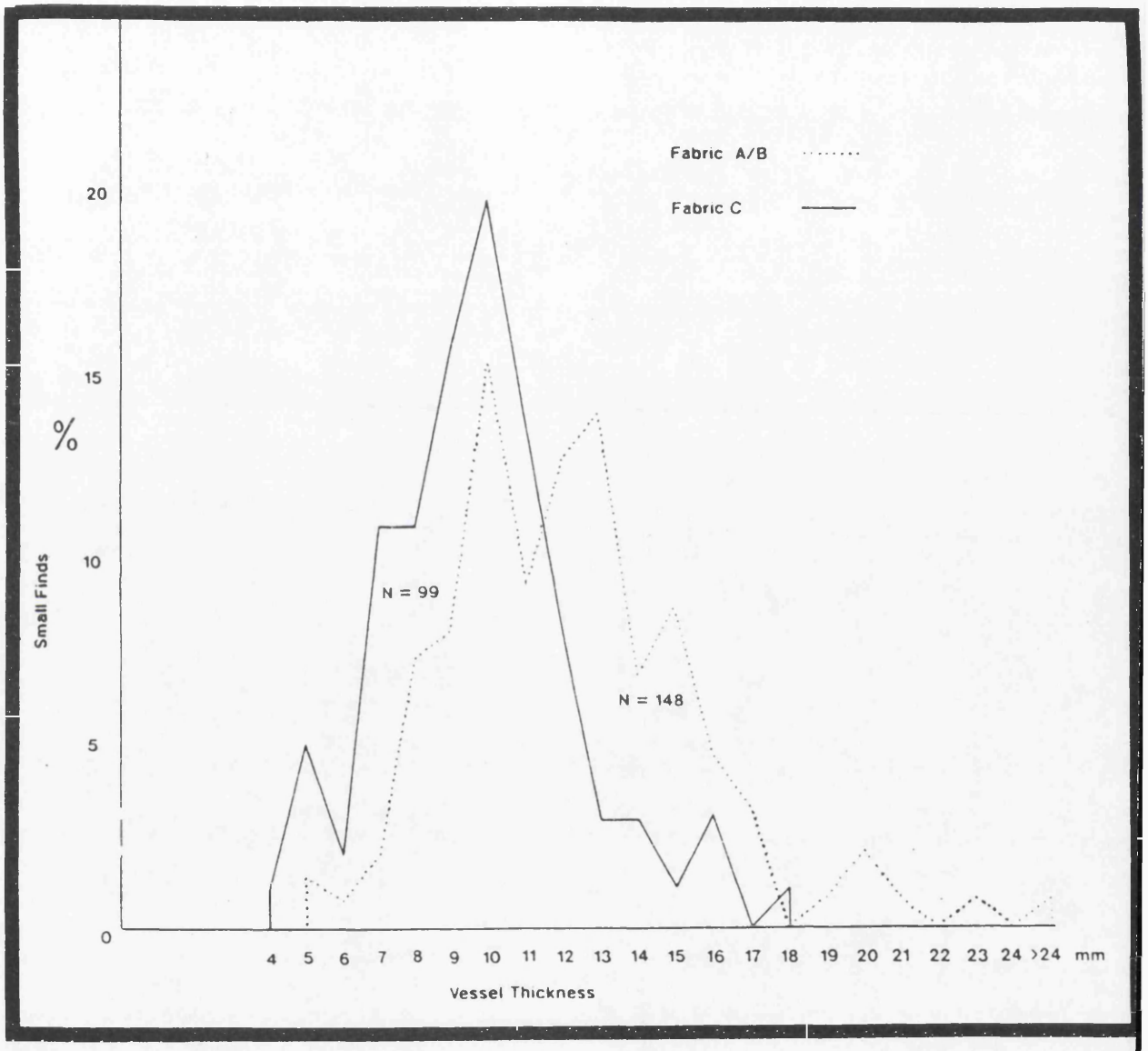


Figure 6.2: Presence of sooting on sherds of different fabric within the Barnhouse assemblage as a whole (from Richards 1993a, 180)

There are a number of further points to be drawn out from this observation, again it would appear that, although overall the pattern generally tends towards vessels of fabric C being sooted, on a more detailed contextual basis it would appear that vessels of fabric A are utilised preferentially within certain houses, particularly houses 2 and 5. The presence of large numbers of sooted medium size vessels of fabric A is unsurprising in the context of house 2 considering that the propensity of vessels in this house are of this category. Again house 2 is marked out from the other houses at Barnhouse due to the unusual nature of its Grooved ware assemblage.

Of most interest is the almost total lack of soot on large vessels of fabric A and B through the early phases of settlement at Barnhouse, and the concentration of soot on large vessels of fabric A and B in the structure 8 platform, this constitutes a considerable shift in social practices, it is notable that while the grammar of the assemblage remains the same within structure 8, with the production of large, medium and small vessels, the vocabulary of use has changed and large vessels are now used for cooking activities. Another interesting point is the lack of soot on small vessels of fabric C, D and E suggesting that they are not involved in cooking activities.

How do these patterns of use relate to decoration and burnish? In the case of house 2, sooting was present on two decorated but unburnished sherds, the first on a vessel with a curvilinear decorative element which was a component of decorative scheme 8. The second sooted vessel was decorated with the more complex decorative scheme 48, with a series of cross-hatched infilled incisions. Sooting was present on a medium size vessel of fabric C, the highly decorated and burnished SF 1905, within house 3. This vessel is decorated by decorative scheme 13. Those larger sooted vessels within structure 8 were also burnished and decorated with thick cordons, decorative schemes 14 and 33.

Notably some of the sooted vessels from both houses 2 and 3 are represented by both base and rim sherds, which would appear to indicate that the vessel was utilised a

small distance above the fire (Hally 1983, 10), two of the base sherds from house 2 had indications of soot on the base itself. The larger vessels from structure 8, appear to have been used differently since the bases of these vessels are fire scorched around the edges, probably indicating that these vessels sat within the hearth.

This brief view of sooting enables a clearer definition of the structured use of Grooved ware at Barnhouse. It seems that none of the smaller vessels were employed in the cooking process itself, while for the earlier phases of the settlement the larger vessels were not used in food preparation. While the sample size is very small, the incidence of sooting on vessels indicates that, except in a few cases, cooking was confined to unburnished and undecorated vessels of medium size. Within certain houses the use of rock tempered vessels, rather than shell tempered vessels appears to have been preferred. Again this suggests that fabric itself is not determinate on function, rather fabric appears to be determined by context.

Grooved ware and Use-wear: residue analysis

While the analysis of soot deposits can enable us to gain a clearer view of the use of certain categories of vessel in the Barnhouse Grooved ware assemblage. It can only provide us with evidence for one type of activity, cooking, and cannot provide us with a more precise indication of the use of either sooted or unsooted vessels. In order to provide a more detailed understanding of the nature of the contents of each category of vessel, absorbed food residues were examined from each category of vessel.

Residue analysis is particularly pertinent to the study of Grooved ware function. As outlined in chapter 1, Grooved ware has been consistently treated as an exotic ceramic, as a concomitant of this Grooved ware has also been considered to be related, through use, to ideas of the exotic. The decorative associations with passage grave art, and the apparent relationship between these decorative motifs and psychoactive or

'entoptic' phenomenon served to solidify the notion (Bradley 1989, Thomas 1991). Notably, Sherratt (1991) appears to consider these lines of evidence along with the contextual association of Grooved ware with ritual or ceremonial sites such as henges as certain proof of the ceramics use in the imbibing of psychoactive substances. Indeed one of the few analyses of plant macrofossil residue on sherds P63 and P64 from the Balfarg Riding School enclosure indicated high levels of Black Henbane (*Hyosycamus niger*), a member of the *Solanaceae* family, which contains a psychoactive alkaloid (Moffatt 1993). This single case is seen to be proof positive of the specific and singular association of Grooved ware with psychoactive substances (Dronfield 1996, 4). However a mashed mixture of barley and oats is also attested to from the same vessels along with traces of beeswax and resin, meadowsweet, cultivated flax, fat hen and mustard or cabbage seeds. It would seem then that the association of Grooved ware with other edible foods is a little more complex. Of particular note in the Balfarg case is the presence of the vessel in an overtly 'ritual' complex. It is possible that in this instance the relationship between Grooved ware and psychoactive substances is contextual. Although the distinction between 'ritual' and domestic sites is a false dichotomy, it seems likely that in the case of Balfarg the vessel may have been recategorised through use in a specific context. An analysis of residues on Grooved ware from a settlement site may be expected to be quite different, and this appears to be the case at Barnhouse.

The residue analysis programme was conducted in two stages, as discussed more fully in Appendix 2. The first stage was concerned to examine the nature of food residues on sherds known to have been used for cooking, thus many of the sherds chosen were from medium size vessels of fabric A and C with sooted exterior deposits or interior residual food remains. However, a considerable number of sherds analysed were derived from large vessels of fabric A and B. These sherds were chosen in order to examine possible uses for a category of fabric with no visible residue. The sherds

were chosen from across the site, some from within houses, some from ash dumps, some from the old land surface. Thus the results are not as well contextualised as the preceding discussion of various vessel attributes. This imbalance was addressed in the second stage of the program, in which sherds were chosen due to their contextual association with specific houses, and came exclusively from houses 2 and 3 as well as structure 8. A further imbalance was addressed in the second stage, and this concerned the analysis of sherds from small vessels of fabric C, D and E. In this case a single vessel from houses 2, 3 and structure 8 was chosen for analysis.

A total of 45 sherds were examined, and most of them showed positive evidence of use. Here I wish to simply outline the evidence and its interpretation, leaving the various problems associated with this technique to a more thorough discussion in Appendix 2. Residue analysis relies on the identification of specific biochemical compounds, and in the case of the Barnhouse assemblage, the lipid or fat group was considered to be the most amenable to preservation. Due to the hydrophobic properties of lipids, once lipids migrate into the ceramic matrix of a vessel they are retained (Evershed et al. 1992, Jones 1986). The identified residues are generally in the form of fatty acids, the basic 'building block' by which more complex lipids are made up. The diagenesis of complex fats to fatty acids occurs both as the result of cooking and natural decay over time (Evershed et al. 1992, 203). The identification of specific fatty acids is feasible and they may provide a signature, or 'taxonomic marker' indicating the species origin of the food. The results are presented below, in each case a simple list of the food type found in each sherd is presented:

Evidence from Large Vessels

SF 1554 (B) House 3, ash dump: Milk

SF 1564 (B) House 3, ash dump against wall: Wheat/barley

SF 1586 (B) House 3, ash dump against wall: Unidentified plant material.

SF 1589 (B) House 3, ash dump against wall: Bark resins, milk

SF 1685 (B) House 2, NW alcove: water (negative evidence for fatty acids)

SF 1812 (B) House 3, ash dump: Milk

SF 1827 (A) House 3, ash dump: Wheat/barley

SF 2000 (B) House 3, below dresser: Barley only

SF 4227 (B) Structure 8, exterior ditch: Wheat/barley, milk.

SF 4246 (B) Structure 8, exterior ditch: Unidentified plant material

SF 5053 (B) Hearth on structure 8 platform: Unknown

SF 5299 (A) Structure 8, platform: milk

SF 5618 (B) Structure 8, ditch: milk

SF 5662 (B1) Dump near central area: milk

SF 6218 (B1) Dump near central area: milk. Also contained unidentified sugar.

Vessel set into floor of structure 8 interior (B): Barley only

The presence of two specific branched hydroxy acids in 1589, 16-hydroxyhexadecanoic acid and 22-hydroxydocosanoic acid, both of which are specific to tree resins, suggest some form of pitch may have been applied to the exterior of the vessel in order to decrease porosity (Evershed et al 1992, 208, Skibo 1993, 62).
A number of sherds also contained evidence of higher alcohols, especially octacosanol and triacontanol. Both are only present in plants, and specifically wheat or barley waxes (Hilditch and Williams 1964, 282). It would seem that these vessels were used to store dry plant foods as well as milk. In the case of SF 6218, the milk appeared to have been sweetened with sugar.

The presence of a number of double bonded fatty acids, particularly docosenoic acid is an important biochemical indicator of plant material, particularly seed oils. Along with this the correlation of the suite of fatty acids from the barley standard, with

remarkable, suggesting the presence of barley within these vessels. It seems unlikely that each food was coexistent in the vessel, rather it would seem that each vessel saw a palimpsest of uses and reuses, with some such as 4227 containing a number of foods over time.

Evidence from Medium vessels

SF 10 (A) Ash dump house 2: Cattle stomach.

SF 165 (C) Old land surface: Unidentified plant.

SF 1080 (A) Old land surface: Milk

SF 1577 (C) Old land surface: Unidentified plant.

SF 1650 (C) Pit in W recess house 2: Unknown

SF 1655 (A) Ash around E hearth house 2: Cattle meat

SF 1665 (A) Hearth fill W hearth house 2: Cattle meat, milk

SF 1829 (A) Ash dump house 3: milk, unidentified plant.

SF 2032 (C) Old land surface: milk, unidentified plant.

SF 2522/1905 (C) Primary occupation deposits house 3: Unknown

SF 2547/3477 (A) Secondary occupation deposits house 3: milk

SF 2578 (C) Primary occupation deposits house 3: Unknown

SF 3727 (C) Secondary occupation deposits house 6: Unknown

SF 5511 (A) Primary occupation structure 8 platform: Unidentified plant.

SF 5587 (C) Primary occupation structure 8 platform: Unidentified plant.

SF 5607 (A) Secondary occupation structure 8 platform: Unknown.

SF 5697 (C) Ash spread central area: Milk, wheat/barley.

SF 5855 (A) Primary occupation structure 8 interior: Unknown

Perceptively, Childe (1946, 26) considered the vessels from Skara Brae and Rinyo as possible milk pails, and it would appear from residue analysis that his suggestion has been borne out correctly, since a large number of sherds from medium size vessels had high amounts of 2-methylhexadecanoic acid a taxonomic marker indicating the presence of cattle milk. Despite the presence of this taxonomic marker, the nature of the contents of the vessels containing this fatty acid is equivocal, since 2-methylhexadecanoic acid is also present in a range of dairy products and may not necessarily indicate milk.

Furthermore, in a single sherd SF 10 the presence of cholan-24-oic acid, a bile acid, indicates that the stomach region of a cow was present in the vessel. The nature of the cattle stomach is again equivocal: the bile acid may simply be the result of cooking this particular part of the animal, or the stomach wall could be used to line the wall of the vessel creating a watertight container. It may also be due to the presence of cattle blood drained from a specific region of the animal. Beef residue appears in a number of vessels, particularly SF 1655 and 1665, it would appear that some element of cattle meat was being cooked in certain vessels, in certain contexts. Notably all vessels with cattle meat residues are in vessels of fabric A.

Interestingly, the levels of fatty acids within these vessels are lower than in the larger vessels. This may be due to continual cooking and recooking, which may have two effects, one in speeding up the process of fatty acid diagenesis and the second in simply removing fatty acids from the inner surface of the sherd. Another point to note is that these vessels appear to have less evidence of a palimpsest of uses, indeed the focus of use seems to be on cattle products, either meat or milk. Vessels of fabric C appear to have less certain uses, although some are associated with milk, others with plant material, possibly barley.

The identification of cattle milk within medium size Grooved ware vessels is of interest since milk is typically seen to be a problematic animal product. Sherratt (1981)

considers the utilisation of 'secondary products' to be a late feature of the Neolithic of continental Europe, and the use of milk is especially problematic since the digestion of milk requires a tolerance to lactose. Entwistle and Grant (1989) also note the problem in their discussion of Neolithic herd demographies. While many authors have suggested that the high numbers of neonates, immatures and females amongst Neolithic cattle assemblages are the result of a dairy economy (ibid., 206), these patterns in the context of the Orkney Neolithic are almost certainly both symbolic and seasonal, and in the light of this and as rightly suggested by Entwistle and Grant the use of cattle is best seen as manifold. There is no need to see cattle as being primarily used for dairy products, rather dairy products may be simply one aspect of the wider social and symbolic use of cattle during the Neolithic.

Evidence from Small vessels

SF 1667 (E) Fill of cut in W recess deposits house 2: Possibly barley.
SF 1890 (D) Secondary occupation house 3: Barley.
SF 4263 (C) Dump of material in ditch near structure 8: Barley.

A number of points must be made about this material prior to further discussion. Firstly it should be noted that very few samples from small vessels were analysed, however this should be countered by the observation that these vessels represent a small proportion of the assemblage at Barnhouse. Each house only contains a single vessel of this size, the exceptions being two vessels from house 2 and structure 8. Secondly, it should be noted that the vessels sampled are derived from three different contexts at Barnhouse, which makes the consistency of the results all the more remarkable.

Given these points, these vessels seem to have had a very singular use, in vessels SF 1890 and 4263, the evidence for barley is extremely strong. The first vessel SF 1890 has evidence for a triene acid; 9, 12, 15-Octadecatrienoic acid, a component of seed fats, and a certain component of barley germs (Hilditch and Williams 1964, 280), furthermore it also contained evidence of hexadec-9-enoic acid which is another seed fat component. The second vessel, SF 4263 contained Docosenoic acid, a seed oil component. Both these vessels provide a number of correlations with the barley standard, and it therefore seems likely that they contained barley. Notably this was the only apparent indication of a specific residue from these vessels, and it therefore seems that these vessels were of a single function. In view of this, and given the small size of these vessels it seems likely that they may have been used for the consumption of barley previously cooked in other vessels.

Overall then the use of Grooved ware at Barnhouse is both complex and structured. Notably large vessels are made up of a mixture of fabrics A, B and B1, however they appear to form a coherent group of vessels, and the major food found within them is dry food such as barley, although they also appear to be used for the temporary storage of milk. The use of medium size vessels is more problematic. Many vessels seem to contain milk, and these are vessels of both fabric A and C, however it would also seem that cattle meat is consumed within vessels of this size. Plant material is also obviously utilised in these vessels, however its origins are difficult to determine. It should be noted that cattle meat is confined to vessels of fabric A, what is more these particular vessels are exclusively related to house 2. Given the fact that the small vessels were sampled from three quite different contexts, these vessels would appear to be clearly and singularly associated with barley.

The Categorisation and Use of the Barnhouse Grooved ware

Throughout this chapter we have seen that the function of vessels is dependent on context. In other words, the functional nature of vessel categories are not given and do not inhere in the physical attributes of the vessel. It remains however to reconcile this evidence with the contrasting nature of production demonstrated in chapter 5, it is essential in this respect to consider the way in which production, in part, shapes the nature of material categories. Although contextually there is a degree of fluidity in the way in which material is categorised, this chapter has also emphasised the regularities of use. In order to understand some of the differences in the use of these vessels I wish to reintroduce the notion of vessel demographies. In chapter 4 we observed that each household contained one large vessel, numerous medium size vessels and a single small vessel. If we consider that different categories of vessel are associated with different foods, and are used for different activities, then we may be in a better position to discuss each vessel in terms of their social uses. In chapter 4, I suggested that given an understanding of the overall function of different categories of vessel, we may be able to consider the 'shape' of the demography as a broad model of the social practices surrounding consumption, cooking and storage.

Large vessels of fabrics A, B and B1 are typically undecorated and unburnished. Notably the rocks used to temper these vessels both strengthens the body of the vessel and allows heat to flow easily through the ceramic. In the earliest phases of settlement they are not used for cooking, rather they are used for the storage of wet (milk, water) and dry (barley) substances, hence their large volumetric capacity. It is only on the structure 8 platform that large vessels are used for cooking milk products. Here the social and functional nature of these vessels has been extended. It is important to note that this change is concurrent with a change in the organisation of production, with large vessels being produced by individual households in the earlier phases of

settlement and communally in the later phases. The important point to note here is that from the point of view of prototype theory (Boast 1990, Kempton 1981), since these vessels are now used for a different kind of social activity, they have become a different category of vessel. Although materially the vessels appear to have outward similarities, through their use in a specific set of social practices, they are quite different to the large vessels in the earlier phases. From the point of view of function, the changing nature of these vessels has little to do with changing physical properties and more to do with social practices. If we consider the use of these vessels in terms of social practices then in the earlier phases, the presence of a single vessel within each house suggests that these vessels were shared by the household. In the later phases of the settlement these vessels are used for two different activities. While they may be used for storage, they are also used for large scale cooking activities, here the scale of the activity may suggest that their use represents communal activity.

The most problematic vessels are those of medium size, since they are produced using two different fabrics. They are the same size and are decorated and burnished in the same way. In order to understand how they function both socially and practically it is important to emphasise that one form, vessels of fabric A, are produced in individual households, while the other form, vessels of fabric C, are produced communally.

As indicated in chapter 4, most houses contain both shell and rock tempered vessels. Although there are some overlaps in use there do appear to be some differences in the way these vessels are used, shell tempered vessels stand out as being the most frequent and have the highest incidence of sooting, as such they are best considered as cooking vessels. Rock tempered vessels are best considered as serving vessels, since they are less often sooted. We can perhaps consider the use of these vessels to be structured by the way in which they were produced, shell tempered vessels being produced communally are utilised by all households in the routine act of

cooking. Rock tempered are produced individually and are employed in consumption activities, possibly being used to reheat or warm substances within the confines of house 2. However certain houses surrounding the central area only contain shell tempered vessels, and in this instance shell tempered vessel will be used for both cooking and consumption. As we shall see in chapter 7, the difference in use between vessels allows us to understand a considerable amount concerning the nature of social identities represented in the use of each category of vessel. Notably both vessels can potentially be utilised as cooking vessels, however it is the nature of their social categorisation, structured and cemented by the mode of production, which determines the way in which they are actually used. Cooking vessels are an important component of each household's pottery assemblage and as such cooking vessels are produced communally and are decorated in a similar fashion. Rock tempered vessels are used for the consumption of food, and the use of these vessels in such activities reflects the importance of consumption as a context for expressing a particular form of social identity, and it worth noting here that decoration is most variable on vessels of this category.

There is a considerable overlap in the contents of these vessels, both contain milk, and this is best considered as the result of the transference of substances from one vessel to another. Notably the association between rock tempered vessels and cattle meat only occurs in house 2 and should not be seen as typical, but rather as a component of specialised consumption activities. We should consider these vessels as part of a structured set of cooking apparatus, decorated in a similar manner, employed in similar contexts, but used in ultimately different ways. Given this we should note that these vessels are the most numerous within the assemblage of each household. As such we should consider the possibility that, in terms of consumption, these vessels are used as individual serving vessels.

The smallest vessels of fabrics C, D and E are also fairly problematic, they appear to be a specific category of vessel produced by individual houses, although this is difficult to demonstrate petrologically. They consistently appear to be highly burnished and usually decorated with the most complex decorative schemes, they are not used in cooking since they remain unsooted, however residue analysis indicates they contain barley. These vessels are best considered as small serving vessels, again the presence of barley within medium size shell tempered vessels suggests that food may have been transferred from medium to small vessels for consumption. Nevertheless the low frequency of these vessels within houses suggests that the consumption of barley was either restricted or that vessels were shared between people.

Summing Up

The picture emerges then of a complex storage, cooking and serving assemblage with different types of food stored in certain vessels. Foods are cooked in vessels of a specific size and with a specific production history, and food is served and consumed in two types of vessel, medium size rock tempered vessels appear to be most appropriate for the consumption of cattle products, while smaller vessels are more appropriate for the consumption of barley. The nature of consumption and the identities expressed in this activity will be the subject of chapter 7. However the uses of certain categories of vessel are not determined solely by the physical properties of the ceramic but are most importantly structured by the nature of the social identities expressed in their construction.

Chapter Seven

The Life and Death of the Barnhouse Grooved ware

Introduction

To summarise, we have seen that a number of different categories of Grooved ware vessel are produced at Barnhouse. Although these cluster in three broad size ranges of large, medium and small, each vessel category is further demarcated by a number of other attributes. Firstly, the production history is important in structuring how the vessel is used both socially and practically; medium size vessels are produced in two contrasting ways, those vessels tempered with shell are produced communally in the centre of the settlement and appear to be used primarily for cooking purposes, although they may also be used for consumption in certain houses. Those vessels tempered with rock are produced either by individual households or communally in the centre of the settlement, these vessels are used for the consumption of foods. The large vessels are again produced either in the central area or for individual households, these vessels are most likely to be used for the storage of foodstuffs. The small vessels are likely to be produced by individual households, they are best seen as small serving vessels.

In the previous chapters we have paid particular attention to the way in which the physical aspects of the vessel may demarcate different categories of vessel, however in keeping with the theoretical thrust of chapter 2, it is essential to also consider decoration as another means of categorising vessels functionally. We have seen, in chapter 4, that decoration is used as a means of characterising vessels. Broadly we see the simplest decorative schemes on the large vessels and progressively more

complex decorative schemes used on medium and small vessels. However, there are a number of points concerning decoration which it is cogent to note with regard to the nature of categorisation. Firstly, there are a number of predominant decorative schemes, such as 8 and 13, which are used to decorate medium size vessels. These schemes appear to represent the idea of community since they are used on vessels tempered with both rock and shell, and as indicated in chapters 3 and 4, they are unique to Barnhouse. A further decorative scheme, 12, which is also unique to Barnhouse is used on the smallest vessels and again represents the idea of community since it is used on both untempered vessels and those tempered with shell.

In previous chapters we have examined various attributes of the Barnhouse Grooved ware in detail. In chapter 4, this involved an overview of the assemblage and the differences in the distribution of various categories of vessel across the site. In chapter 5 the focus was on Grooved ware fabric and its relationship to different modes of production. In chapter 6 the focus was on the functional aspects of the assemblage and how this determined the way in which the vessels were categorised in use. In this chapter the aim is to draw together the different and diverse strands of the study. This includes the evidence observed in the study of different Grooved ware fabrics and the evidence concerning the function of different vessel categories derived from residue analysis.

What is more, particular attention will be paid to the use of different decorative schemes in various contexts. In this chapter we will be dealing with what Schiffer (1976, 30) describes as primary and secondary refuse. Material that remains *in-situ* after the abandonment of a structure, and material which has been deposited away from living structures.

I will focus initially on the spatilisation and use of different categories of Grooved ware in contexts within the houses at Barnhouse. The second aim of the chapter is to examine the nature of different categories of Grooved ware deposited at

various locations around Barnhouse. In both instances the main objective is to examine not only how Grooved ware is categorised in the social practices of use and deposition, but how this relates to the expression of different kinds of social identity.

The Life of Grooved ware: vessel use and spatial categories in the house

In chapter 4 I noted the broad distributional differences amongst the Barnhouse Grooved ware assemblage, but in such an account it was impossible to describe in detail the way in which different categories of Grooved ware are categorised spatially. I also suggested that the association between Grooved ware and houses is related to specific cultural rules concerning ideas of pollution. In this chapter these ideas will be drawn out and examined more critically, indeed they are central to understanding the nature of use and deposition at Barnhouse. While many of the vessels which remain within the houses may be *in-situ*, a number may be represented by discarded sherds which may have remained in the house through accident or loss. As suggested in chapter 4 these sherds are in the minority and in order to distinguish between these kinds of deposits and *in-situ* vessels it is essential to consider the contexts in which material is found.

House 3 is the best preserved house structure at Barnhouse, and the discussion will mainly draw on the well contextualised material from this house (see Fig 7.1). As noted in chapter 4, large vessels, of fabric A, B and B1, are fairly infrequent within houses, there is only a single large vessel, SF 2000, in house 3, which has broken *in-situ* within the dresser area at the back of the house. What is most unusual about this vessel is that it is highly decorated, with the curvilinear decorative scheme 8. Residue analysis indicates that this vessel contained barley. This vessel would have been highly visible on entrance into the house. The spatial position this vessel takes, opposite the entrance, demarcates both the vessel and its contents as special. This vessel was

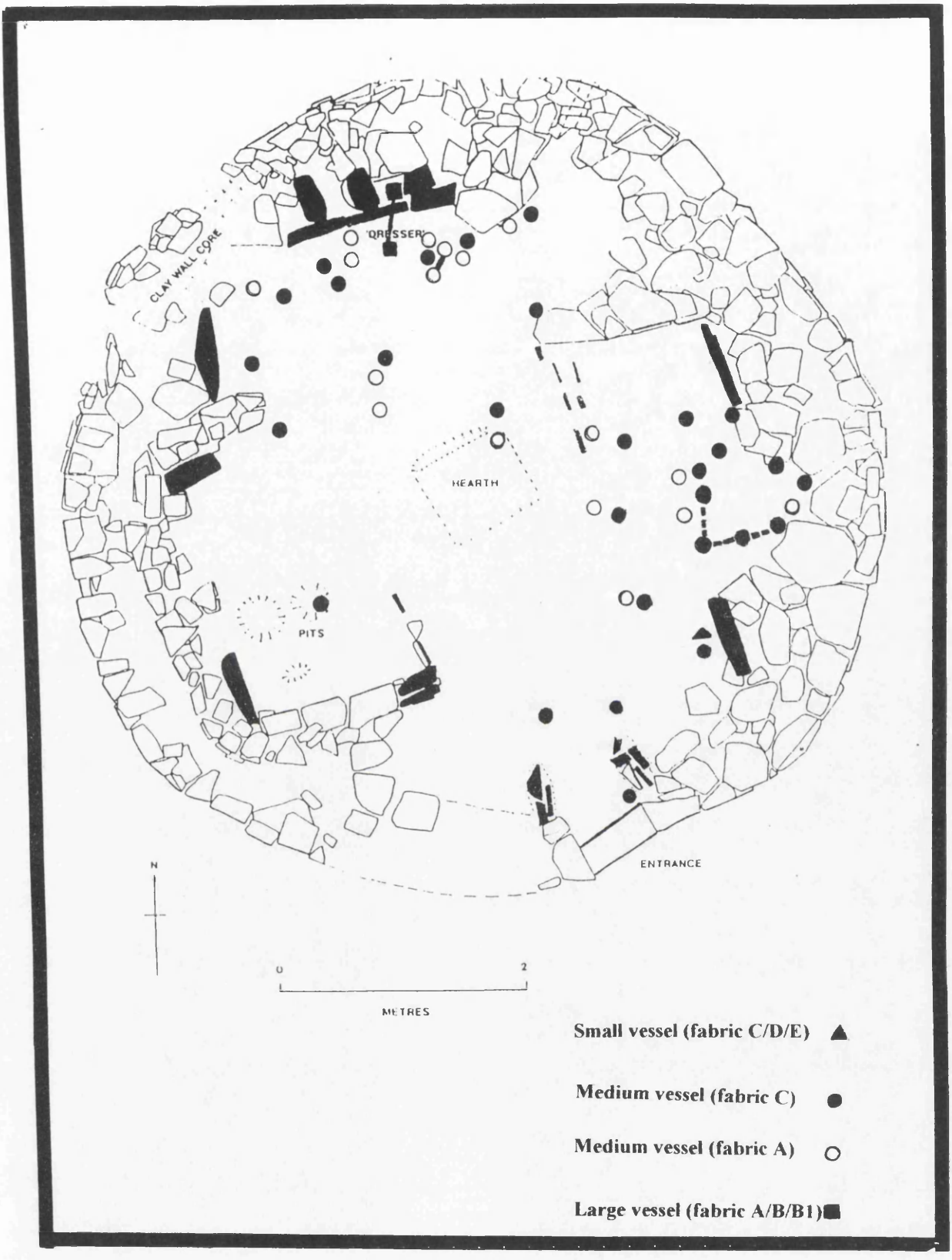


Figure 7.1: Plan of house 3 with position of vessels noted. Dotted lines indicate conjoining sherds.

(after Richards 1993a, 214)

certainly a component of the final occupation of the house since the vessel is represented by around 70 sherds and has evidently broken *in-situ*. As such it may have been used throughout the life of the house. Along with this vessel, a second fairly well preserved, medium vessel of fabric C, SF 1001, was placed against the back wall. There was also a concentration of eight vessels around the front of the dresser area, of medium vessels two of fabrics A and six of fabric C, these vessels were represented by a total of eight sherds, all undecorated and unabraded. A number of medium vessels, of fabric A and C, are clustered around the hearth. One medium size vessel of fabric A, SF 1859, was *in-situ* within the hearth itself, interestingly this vessel was decorated with decorative scheme 8. Another undecorated medium size vessel of fabric C, SF 2509, was found just to the north of the hearth.

The area to the left of the hearth appears to have a concentration of material, with a pit containing a sherd from an undecorated burnished medium size vessel of fabric C, SF 2532. On the edge of the pit a spread of ash evidently swept out from the hearth, contained a number of abraded sherds from medium size vessels of fabric C, one of these, SF 2517, was a rim sherd of decorative scheme 8.

The box-bed areas also contained a number of vessels. The better preserved of the box- beds was the right hand (eastern) structure, this structure was retained throughout the life of the house. Most of the material within this structure is well preserved, only medium vessels, of fabrics A and C, were found in this area, the majority of sherds represented a single well preserved vessel of fabric C, SF 1905, which was decorated with decorative scheme 13. This vessel was both burnished and sooted, and was almost certainly used for cooking. Although a large fragment of the vessel was found intact there appeared to be considerable scattering of sherds within the area of the box-bed. The left hand (western) box-bed was represented by a single upright, and it is likely that the structure was dismantled during the life of the house,

only a single sherd of fabric C was found deposited next to the upright and is unlikely to represent *in-situ* material since it is highly abraded.

The entrance area of house 3 also has a number of interesting deposits, of most note is a small recess to the right of the entrance which contains two vessels, one undecorated medium size vessels of fabric C, SF 1891, and an exceptionally well preserved vessel of fabric D, SF 1890, this latter vessel contained barley residue, and it is likely that its use was fairly restricted since it was hidden in this recess. To the left of the entrance a undecorated medium size vessel of fabric C was deposited, this sherd was abraded and probably does not represent *in-situ* use.

We can draw a number of conclusions about the nature of social practices within house 3 based on this material. The first thing to note is that the distribution of material is weighted towards the right and rear of the house (see fig 7.1), this may be due in part to the level of preservation of the left hand box bed, since this area was open during most of the life of house 3. We see this mirrored in the pottery itself with better preserved material which probably represent *in-situ* use towards the right of the house, and more abraded sherds which probably represent lost and discarded material towards the left.

This pattern may be due to preservational factors since the material on the right is within a stone built box bed, while the material on the left is both from ash scraped out from the hearth and from the more open area on the left. The right hand of the building seems to be marked out more generally for the storage of pots, with well preserved material being placed both in the box bed and the small alcove near the entrance. In view of the left/right distinctions in the use of space within the Orcadian Late Neolithic house, it seems that this distribution is likely to be real, broadly we can see a series of different places within the house being emphasised by the use of specific kinds of Grooved ware vessels. Notably, the dresser and back wall area appears to contain two vessels *in-situ*, these vessels would be emphasised on entrance

into the house, and it is significant that the large vessel is highly decorated. It seems that the dresser was a focus for both large and medium size vessels. The pit towards the left either represents the discard of material used within the hearth or may have held a vessel. Around the hearth the vessels are all medium size, and two are decorated with decorative scheme 8, one of the most predominant designs at Barnhouse.

Generally we seem to see the flow of material moving from right to left, with vessels which are utilised in cooking activities being stored within the right hand box bed, then being removed and utilised in the hearth, and then finally, when broken, being deposited with the ash from the hearth on the left. While the back of the house and the right hand recess near the entrance are evidently used for the storage of vessels, the vessels directly in front of the dresser were also likely to have been drawn into use in cooking and consumption activities, indeed one of the vessels found in front of the dresser area, represented by sherd SF 2547, contained milk. The vessels placed in the right hand box bed were almost certainly used at specific intervals, probably in cooking activities. On this basis I suggest we are seeing the temporary storage of cooking vessels within the box bed, the movement of vessels to the back of the house for immediate use around the hearth, and then their use at the hearth, with the final stage encompassing broken sherds mixed with ash from the hearth.

It remains to be seen whether this spatial pattern is also found within other houses, unfortunately the level of preservation within many other houses is nowhere near as high as in house 3, of particular note here is the level of fragmentation and abrasion of sherds within these houses as an index of the relative completeness of the distribution pattern. Although many assemblages appear to have undergone considerable disturbance, we do appear to see some similar patterns (see Fig 7.2). Probably the most complete distribution of vessels is within house 11, where a number of sherds relating to two large fabric B vessels are located towards the rear of the house. Most remarkable is the hearth deposit, where at least two small vessels finely

decorated with decorative scheme 12 were located in a very tight cluster. This location is mirrored in house 12 where a single vessel of decorative scheme 12 was again located next to the hearth. House 9 has a very small assemblage with only a few sherds representing up to four vessels. These sherds were all clustered in the hearth area and were all of medium vessels, in some cases decorated, with decorative schemes 13 and 34 (see Fig 7.3). House 10 has four sherds representing three medium vessels, two of fabric C and one of fabric A, decorated with decorative scheme 11, similar to decorative scheme 13. These sherds are tightly clustered together in the centre of the structure, although their relationship with the hearth cannot be demonstrated. The deposits within house 5, while from a sizeable assemblage, appear to be highly fragmented and abraded. Again the shallow scoop representing an early hearth is associated with two sherds of medium vessels, although the degree of fragmentation associated with this material is too great to assert any real form of spatial patterning.

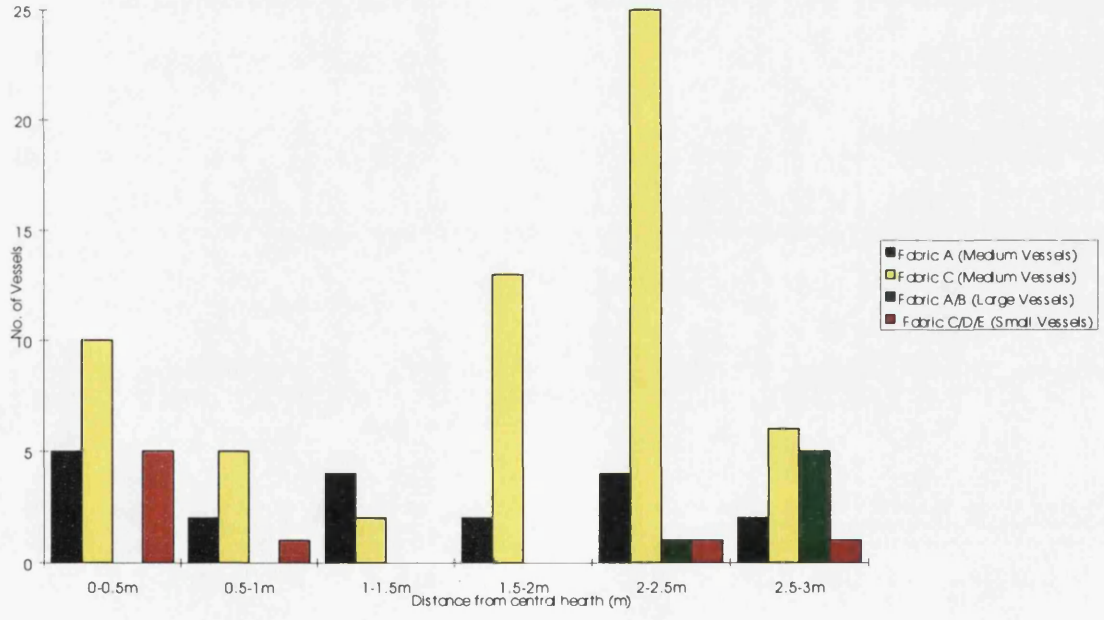


Figure 7.2: Location of categories of Grooved ware in relation to central hearth (compiled from houses 3, 9, 10, 11 and 12)

What we need to draw from this is a picture of the overall use of space within houses, and the use of space in positioning Grooved ware of different categories. Categories of Grooved ware are demarcated by their use spatially, with large vessels being placed at the periphery of the house and small vessels being found both at the periphery and around the central hearth. Medium size vessels are found most frequently around the hearth, although they are also stored in the right hand box-bed. Thus we have, in general, the most highly decorated vessels concentrated around the central hearth, and those vessels that carry the simplest decoration placed at the periphery. Only in the isolated case of the large vessels placed beneath the dresser in house 3 is decoration more complex, and here the vessel is prominently visible.

Of most interest is the way in which the spatialised use of Grooved ware in the Late Neolithic house ties certain categories of vessel into wider cosmological schemes of order. This is noted most clearly in house 3, where, spatially, vessels are articulated around a number of axes. The first axis being between the back and front of the house, with large vessels being placed in a prominent position towards the back of the house, and the second axis being between the left and the right of the house, with the right of the house being used as a temporary storage and preparation area for medium size vessels used in cooking, while the left seems to be associated with the debris of cooking.

The flow of activities would seem to be from storage to preparation, to use, to deposition. This movement is from right to left, and from the back to front in an east to west direction. The movement of certain categories of Grooved ware, such as small and medium size vessels, within the house draws on broader classificatory schemes, with a movement from the well lit right hand and rear of the house to use within the central hearth, and finally the deposition of broken vessels on the darker left hand of the house. It is possible that this movement describes the life cycle of Grooved ware. In support of this, the movement of material from east to west would appear to

embody the daily cycle of the sun, a cycle that was of obvious importance to Neolithic Orcadians (Richards 1990b).

It is important to note that this movement also describes an ontological change in vessels, with a change from stasis to active use, and from whole vessels to broken sherds. Most important, though, is the contrast between centrality and circularity. Cooking and consumption take place at the centre of the house, and are associated with medium and small size vessels, while storage takes place around the edge of the house, with the placement of vessels in and around the dresser, right hand box-bed and small recesses.

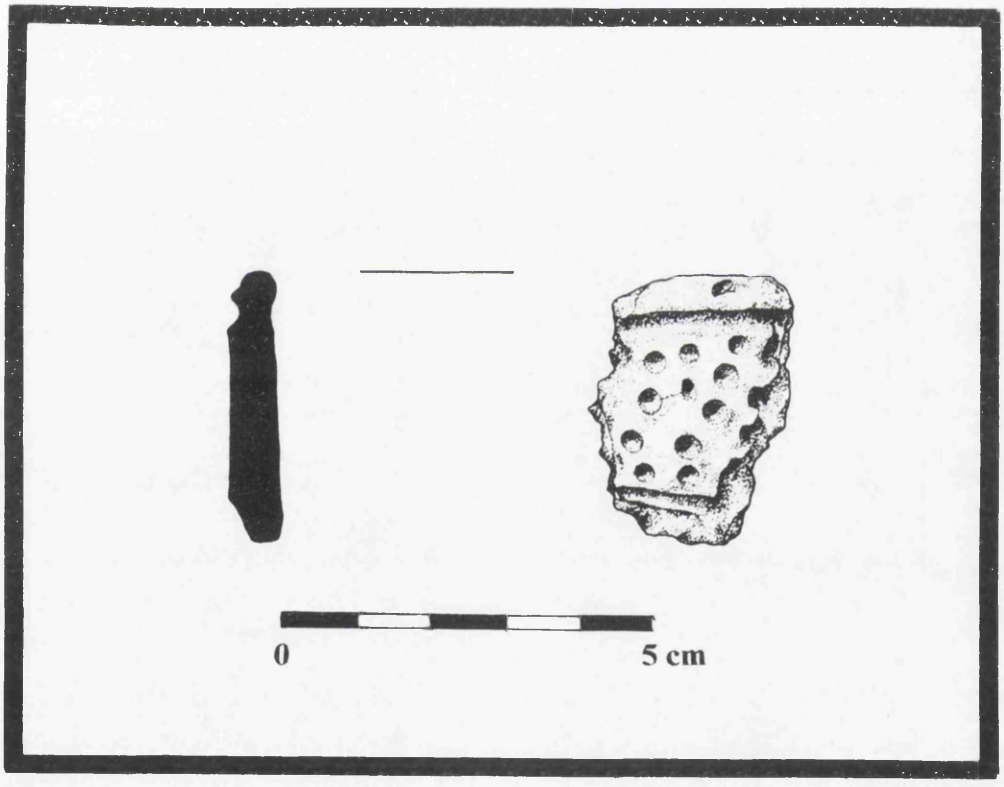


Figure 7.3: Example of decorative scheme 34, from house 9. Scale 1:1.

This focus towards the hearth has important implications for the way in which Grooved ware is utilised in acts of consumption. It is notable that the arrangement of space within Late Neolithic houses is oriented around the hearth, suggesting that social

activities were also focused in this direction. As noted in chapter 4, we appear to see broadly similar decorative schemes used on medium and small size vessels from most houses, houses 3, 5, 10, 11 and 12 all appear to have medium vessels decorated by decorative schemes 8 and 13, as well as decorative scheme 14, utilising a simple cordon. In the case of houses 5, 11 and 12 the predominance of small vessels are decorated with the complex design 12. All decorated ceramics appear to cluster around the area of the hearth and, as noted previously, appear to be utilised in cooking and consumption practices. Only a few houses contain ceramics decorated in a different manner. House 10 contains sherds which are probably ultimately related to decorative scheme 8 and 13. House 9, however, contains ceramics with quite different decorative schemes (see Fig 7.3).

Grooved ware and spatial categories in house 2

House 2, as noted in chapter 3, is a rather different construction to the other houses at Barnhouse. The house has both an eastern and western room each with three alcoves separated from the central space of the room by orthostats. The use of Grooved ware within house 2 is more complex than many of the other houses at Barnhouse. As noted in chapter 4, the range of decoration on vessels within this structure is much greater than within the smaller houses (see Fig 7.4). Furthermore as indicated in chapter 5, the construction of this pottery is almost entirely dominated by the use of sandstone, in contrast to the specific temper sources used in other houses. Everything would seem to mark out activities within house 2 as different.

Spatially the location of different categories of pottery are similar to those within individual houses (Fig 7.5). We will begin by examining the use of Grooved ware in the eastern side of the house. The north-eastern alcove contained a large pit connected to a drain, suggesting the presence of some form of liquid, probably water.

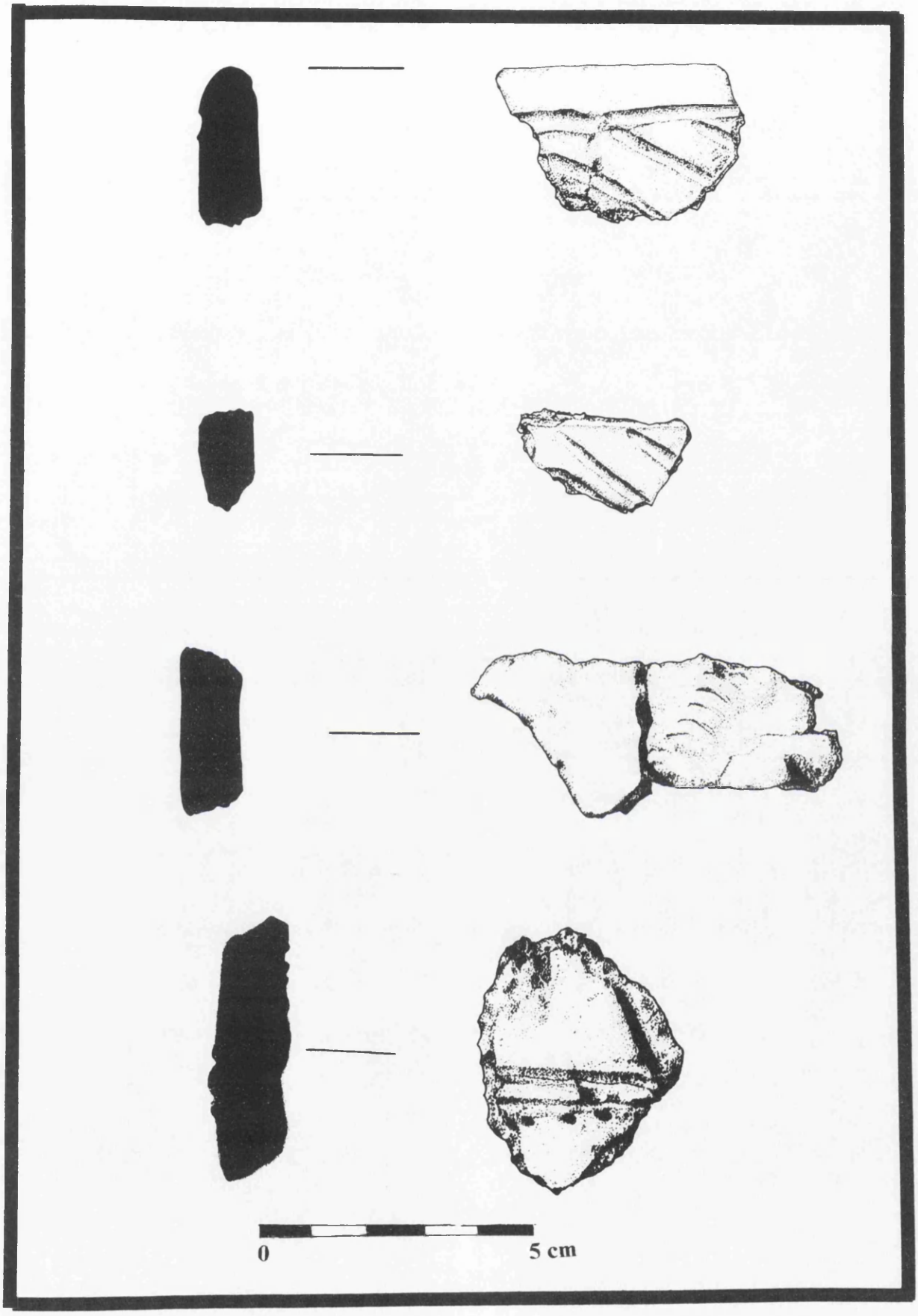


Figure 7.4: Examples of decorative schemes on the house 2 Grooved ware. Top two: SF 1604, Middle: SF 4827, Bottom SF 1653. Scale 1:1

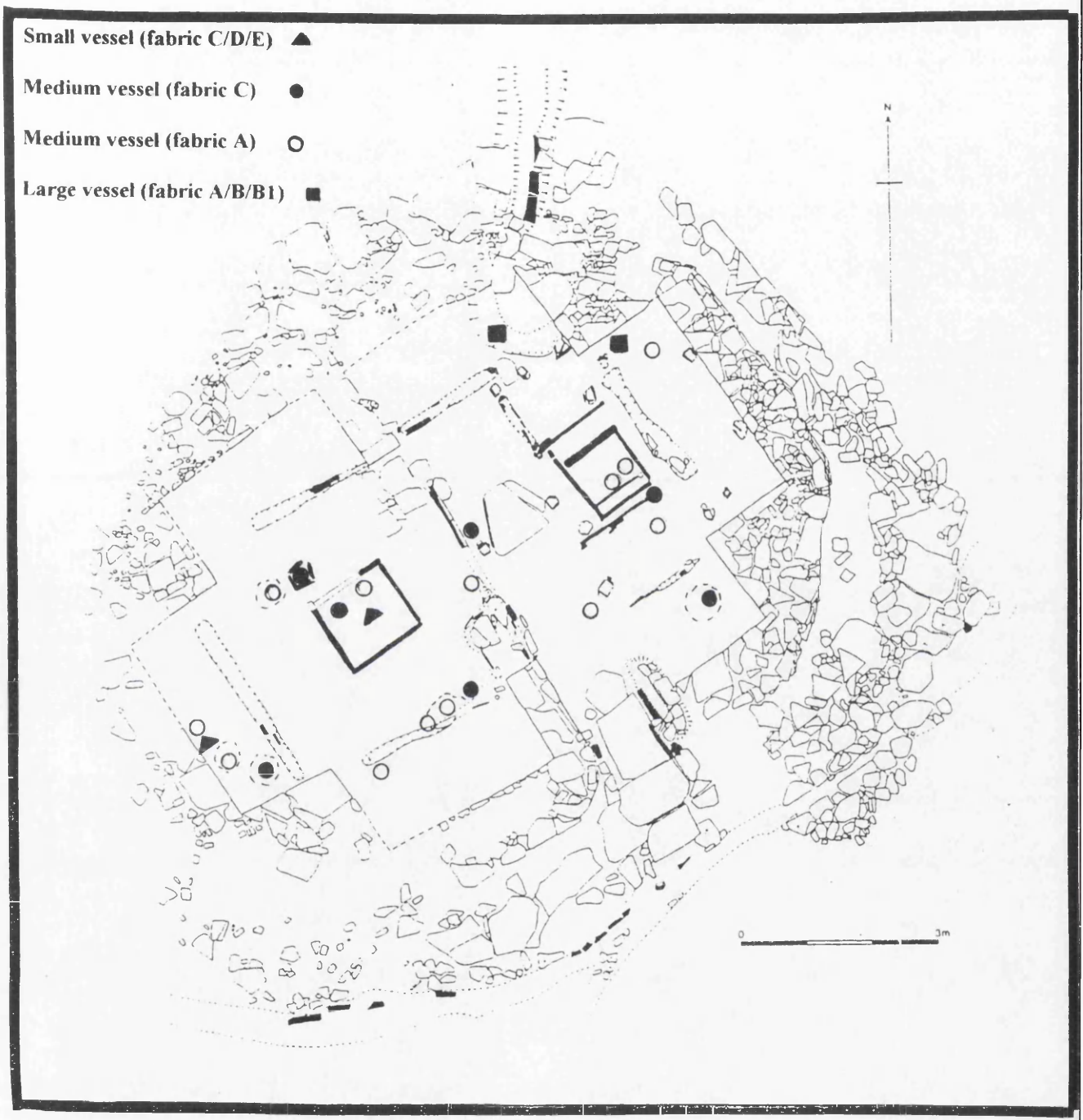


Figure 7.5: Plan of house 2 with position of vessels in secure contexts (after Richards 1993a, 212)

A large base sherd, SF 1685, deposited within this pit was probably used for containing water, since the residue analysis of this sherd revealed little trace of organics. A further sherd from a large rock tempered vessel SF 1618 is situated in the eastern alcove. Both of these vessels would have probably not have been visible during use. The south-eastern alcove contains a pit with a medium size vessel of fabric C, SF 4013, decorated with a single incision, deposited within it.

The eastern hearth area in house 2 stands out through its size and complexity. Two large slabs placed to the south and north of the hearth are raised above the level of the main hearthstones, while two smaller slabs were placed within the hearth. Both of these arrangements may have enabled the cooking and warming of large joints of meat, by placing them lengthwise across the slabs. High phosphate readings to the south and east of this hearth indicate that ash was raked out in this direction, again to the left. Interestingly, this ash area was the only recorded location from Barnhouse to contain high levels of barley chaff, as well as charred grains of barley (Hinton 1995). It would appear then that the secondary processing of cereals occurred in this area. Notably heating grain over the fire facilitates the dehusking process. The localised nature of this activity suggests a number of things. Firstly the processing of cereals may have been subject to prescriptive rules, resulting in this activity being demarcated spatially. Furthermore the restrictive processing of cereals may have been controlled, and barley may have been redistributed between houses from this location. It is interesting to note in this regard that only one of the vessels from house 2, SF 1667, contained barley.

It would seem then that the eastern hearth was marked out both architecturally, and by the kinds of activities carried out around it. How does this relate to the use of Grooved ware in this area? Again specific kinds of vessels are found around this focal area. There are a number of interesting aspects of this material in contrast to the western hearth area. All of the vessels are medium size and are a mixture of fabrics A

and C. Two vessels found within the hearth have simple cordons, and one of these, a medium size vessel of fabric A, SF 1665, was found to contain cattle meat residue. A further medium size vessel of fabric A, represented by a base sherd, SF 1655, was found amongst the ash deposit. This vessel was unusually decorated with both incised and cordoned designs, furthermore it also contained cattle meat. Located to the west of the hearth was a single medium size vessel of fabric A, SF 4827, with a unique decorative scheme which consisted of a series of small thumbnail impressions running diagonally across the outer surface (see Fig 7.4). Overall then it would seem that the hearth was used for the cooking of large quantities of cattle meat, since two of the sherds from this area indicate cattle meat residue. This concurs with the evidence from the hearth structure itself which would seem to suggest that joints of meat were placed over the hearth during cooking.

The western room also contained a central hearth, although this was not embellished with additional furniture. However, the base of this hearth was furnished with a sandstone slab, possibly for resting vessels on. To the left of the hearth a small charred hollow may have indicated the presence of an oven, as the ovens at Rinyo were located in this position in relation to the hearth. In close proximity to this area was a pit, lined with slabs, with a single sherd within it from a medium size vessel of fabric C, SF 4529. The hearth fill itself contained three decorated sherds, from both medium and small vessels. The medium vessels were decorated in two contrasting schemes, one SF 1652, of fabric C, was decorated with double curvilinear incisions, the other SF 1653, of fabric A, was decorated with linear incisions embellished with dots running in a line directly above the incision. The first decoration is similar to decorative scheme 8, the second is almost unique amongst the Barnhouse assemblage, its closest similarities in terms of decorative elements and decorative scheme are with the earlier pottery from Rinyo (cf. Childe and Grant, pl. LXXIII and Fig 3.8).

The south-western alcove contains almost no pottery apart from two sherds within the fill of both of the uprights. These are from a single undecorated medium size vessel of fabric A, and another sherd from a medium size vessel of fabric C decorated with a single incision. These sherds seem to have been badly abraded prior to deposition, and are unlikely to represent *in-situ* deposits. In front of the orthostat slab a small semi-circular pit was dug, in which two medium size vessels of fabric A were placed, one decorated with a simple cordon, decorative scheme 14.

The western alcove contained a series of pits and cuts, possibly the remains of some form of dresser arrangement, within each pit a sherd from a medium size vessel of both rock and shell temper was placed. Two sherds were found against the back wall of this alcove, one from a medium size vessel of fabric A, and the other a rimsherd from a small decorated vessel of fabric E, SF 1667, which was found to contain barley. In view of the location of similar vessels in other houses, it is likely that this vessel may have been deliberately placed here. Both sherds were highly abraded and it is likely that this area of the house has been disturbed.

Interestingly, the spatial position of Grooved ware in house 2 is a homology of the other houses, but on a different scale. Again large vessels are placed in alcoves opposite the door, although it is unlikely that they would be immediately visible to the visitor. Small vessels are also placed in peripheral recesses. Just as in the other houses the spatial focus for the medium vessels are the two central hearths, although these vessels also appear to be placed in pits within recesses. Some of these pits may be the result of specific depositional practices, as we shall see below.

The second phase of activity within house 2 involved reflooring the eastern room and part of the western room. This involved covering the eastern hearth and cist cover, as well as the possible oven next to the western hearth. This substantial remodelling obviously necessitates that very little activity was undertaken in the eastern half of the building, although the western hearth was retained as a focus for

activity. All of the material from this phase is from medium size vessels of fabric A and C, and much of it is badly abraded. Of those sherds that are decorated, the most common form is with a simple cordon, decorative scheme 14, although a number of vessels are further embellished. A medium size vessel of fabric A, SF 1012, with serpentine decoration is located in close proximity to the hearth in the western room, while another medium size vessel of fabric C, SF 1604, decorated with a series of simple stabs into the cordon, decorative scheme 17, is also located in close proximity to the hearth. Probably the finest vessel is a rimsherd from a medium size vessel of fabric A, SF 1064, decorated with a single incision and a diagonal infill motif, decorative scheme 48, which is located in the western room near the south-west alcove. These last two decorative schemes are unique to house 2. This material would appear to represent a continuation of specialised and secluded consumption activities within house 2, although the preparation and processing of foods will now have taken place elsewhere.

Having examined both phases of use in house 2 it is worth taking a step back to review the nature of activities. Notably, the eastern hearth appears to be the site of considerable production and processing activities, with the easy access of a water supply and the processing and redistribution of barley. The provision of stone slabs either side of the hearth may also have allowed the cooking of large quantities of meat. It would seem that the cooking and preparation of large quantities of foods were undertaken around this area, and this is reflected in the Grooved ware which is all from medium size vessels of both fabrics A and C. However, this activity was specialised and spatially restricted, and the special nature of this is reflected in the unique decorative schemes found on the Grooved ware in this area (see Fig 7.4). Contrasting activities were to be found around the western hearth. The provision of a stone bottomed hearth may have allowed vessels to be placed within the hearth in order to warm them, while the possible oven may have been used for warming or the secondary

cooking of foods. The vessels clustered within the hearth are different to those around the eastern hearth, as these vessels are finer and again are decorated in a unique manner suggesting their use in specialised consumption activities. The proliferation of pits in this area may be the result of two kind of activity. The pits may have been containers for vessels which were temporarily stored in this area, and this is almost certainly true for the vessel placed in the stone lined pit next to the hearth, while we may also be seeing the deposition of vessels utilised in activities within this part of the house.

There are a number of points to draw out from the use of Grooved ware within house 2. The cycle of use of Grooved ware seems to follow a similar pattern to that outlined for individual houses, with a difference in pottery from right to left and specifically east to west. This is associated with different kinds of activity in each area, to the east production and processing, to the west consumption and, probably, deposition. Supporting evidence for the contrast in activities in the two areas is the distribution of decorated vessels. If we take both phases into account there are three times the number of decorated vessels in the western room compared with the eastern room.

In contrast to the other houses we see the large scale consumption of cattle meat, and the localised and controlled processing of barley. Cattle meat is not found within vessels from other houses and it is likely that its consumption is infrequent. The consumption of cattle meat within house 2 is entirely confined to rock tempered vessels, often those which are strikingly decorated. The overall use of unusually decorated Grooved ware vessels would appear to suggest a disjuncture with the normal acts of consumption. Vessels may have been specially produced for use within this house, and they appear to have been decorated in a manner which was intended to mark them out, note for instance the use of thumbnail decoration on SF 4527, a mode of decoration which almost certainly signifies the individual (Tomalin 1996).

What is more interesting is that vessels also appear to have been brought into house 2 from another location, of note here is SF 1655 which conjoins with SF 1852, found within the ash dump outside house 3. It seems reasonable to assume that this vessel was brought from house 3 to be used within house 2, and on breaking, the greater part of it was returned to its point of origin. This raises a number of questions about the use of house 2. It seems likely that house 2 was used for communal consumption activities and that these activities were marked out by the use of certain forms of decoration. However, in the light of the example noted above and the uniformity of production of the vessels within house 2, it seems possible that many of these vessels may have been made elsewhere and brought into house 2, and in this respect it is notable that no lumps of burnt clay were found in this structure. Given the apparent similarity in decoration between some of the vessels within house 2 and those from Rinyo, the activities conducted within house 2 would seem to be referring to places beyond Barnhouse.

If we now widen the view of activities conducted within house 2 it is interesting to note that while the use of Grooved ware almost certainly reflects the specialised preparation and consumption of foods, with a distinction between these activities from east to west, this pattern of activities is the reverse of that observed from the stone tool evidence. With regard to stone tools, Clarke (1991) noted that house 2 was marked out by a high number of finely worked pieces. Two multi-hollowed stones, probably unfinished maceheads, were found in the western area, while a lump of red and black banded mudstone was found in the west recess. This piece has remarkable similarities to the macehead deposited behind house 6. What is most remarkable is the fact that it is precisely this material which is used to temper the Grooved ware in house 2. Interestingly, in the eastern alcove next to the hearth, a complete polished stone chisel was deposited beneath the floor. It is possible this object was used in the secondary dismemberment of cattle carcasses prior to cooking on the eastern hearth. The pattern

of production and deposition suggested with regard to stone tools, seems to be mirrored by the flint evidence, as a polished flake from a possible polished axe was found in the north-west alcove. Furthermore, the technological evidence suggests that the flint material was the result of secondary core reduction sequences, in other words secondary processing (Middleton 1994).

It would seem then that we are seeing the production of stone and flint tools in the west of house 2, and their deposition in the eastern half. This represents the inversion of the cycle of activities suggested above for Grooved ware. Notably we see two different kinds of production activity. The first, associated with food, specifically barley and cattle meat, is conducted in a *less* secluded context to the east, while the second form of production activity associated with stone tool manufacture occurs in a *more* secluded context to the west. The consumption of food occurs in the western room, and may be related to overlapping cycles of consumption and production associated with specialised flint and stone artefacts.

Grooved ware and spatial categories in Structure 8

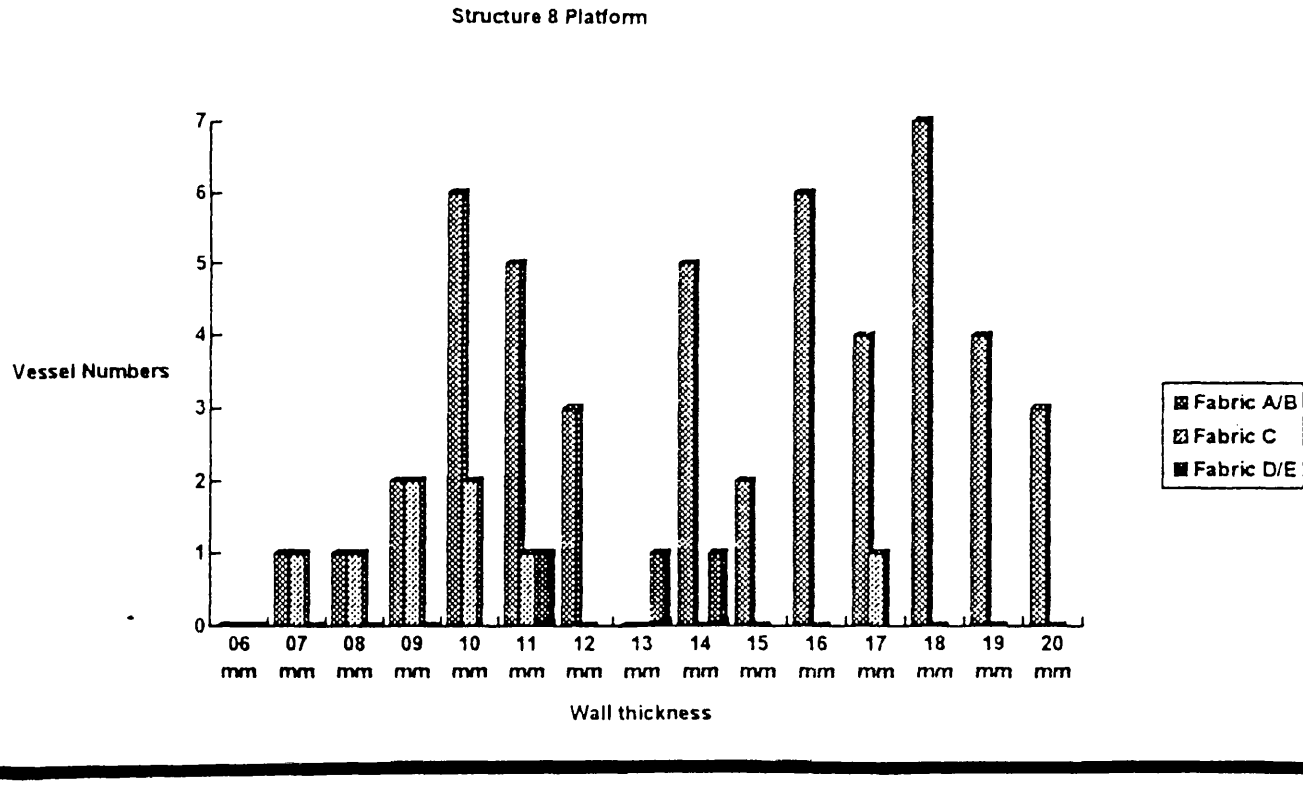
The latest phase of construction at Barnhouse was dominated by the monumental building, structure 8. As noted in chapter 3, structure 8 appears to draw on the architecture of the passage grave, with the construction of a surrounding clay platform, and an encircling wall. This platform surrounds an inner structure, with an elaborate porch like entrance facing south-west, which is mirrored by a similar porch into the central area of the Stones of Stenness (Ritchie 1976, Richards 1994). This entrance area was further demarcated by a hearth structure, probably covered by paving.

Internally, this structure is spatially analogous to the cruciform arrangement of the house, with a central hearth and dresser, with large box-beds to the left and right.

We will begin our discussion with the platform area where we observe a concentration of activity around the entrance area. On entry to the platform the visitor may turn either to the left or right. In both directions a series of hearths and stone-lined pits or boxes are situated. On the right hand of the entrance there are two large stone boxes, to the left a large rectangular hearth, and a stone box, while further round the platform on the left there is a second large hearth. A brief examination of the Grooved ware in the interior building and on the exterior platform indicate stark differences in the categories of vessels found in both areas (Fig 7.6), and it is these differences I will explore below.

The Grooved ware on the platform is located to the right of the entrance. This assemblage of Grooved ware is composed of a total of twenty vessels, of two general categories, large vessels of fabric A and B vessels, and medium size vessels of fabric A and C. Around half of this assemblage is burnished, with most burnished sherds belonging to the large vessels. A number of these large vessels are also decorated, either with a simple cordon, decorative scheme 14, or with zoned cordons with a diagonal infill cordon, decorative scheme 33 (Fig 7.7). As indicated in chapter 6, five of these vessels have distinct sooting patterns on the exterior surface, and furthermore one of these vessels, SF 5299, was found to contain cattle milk. Medium size vessels of fabrics A and C are decorated with decorative schemes 8 and 13 as well as the all-over incised decorative schemes 23, 26 and 39. Again we appear to see considerable distinctions in the use of space to the left and right of the entrance, with most activity being concentrated around the right hand side of the entrance (Fig 7.8).

Remarkably, we appear to be seeing the same distinctions in the use of space as noted in the earlier structures. In the case of structure 8 however the activities are highly complex. It would seem that the large vessels have been used for cooking foodstuffs, particularly cattle milk, although, unlike in the earlier houses, they are not positioned around the hearth but are placed around a series of stone boxes.



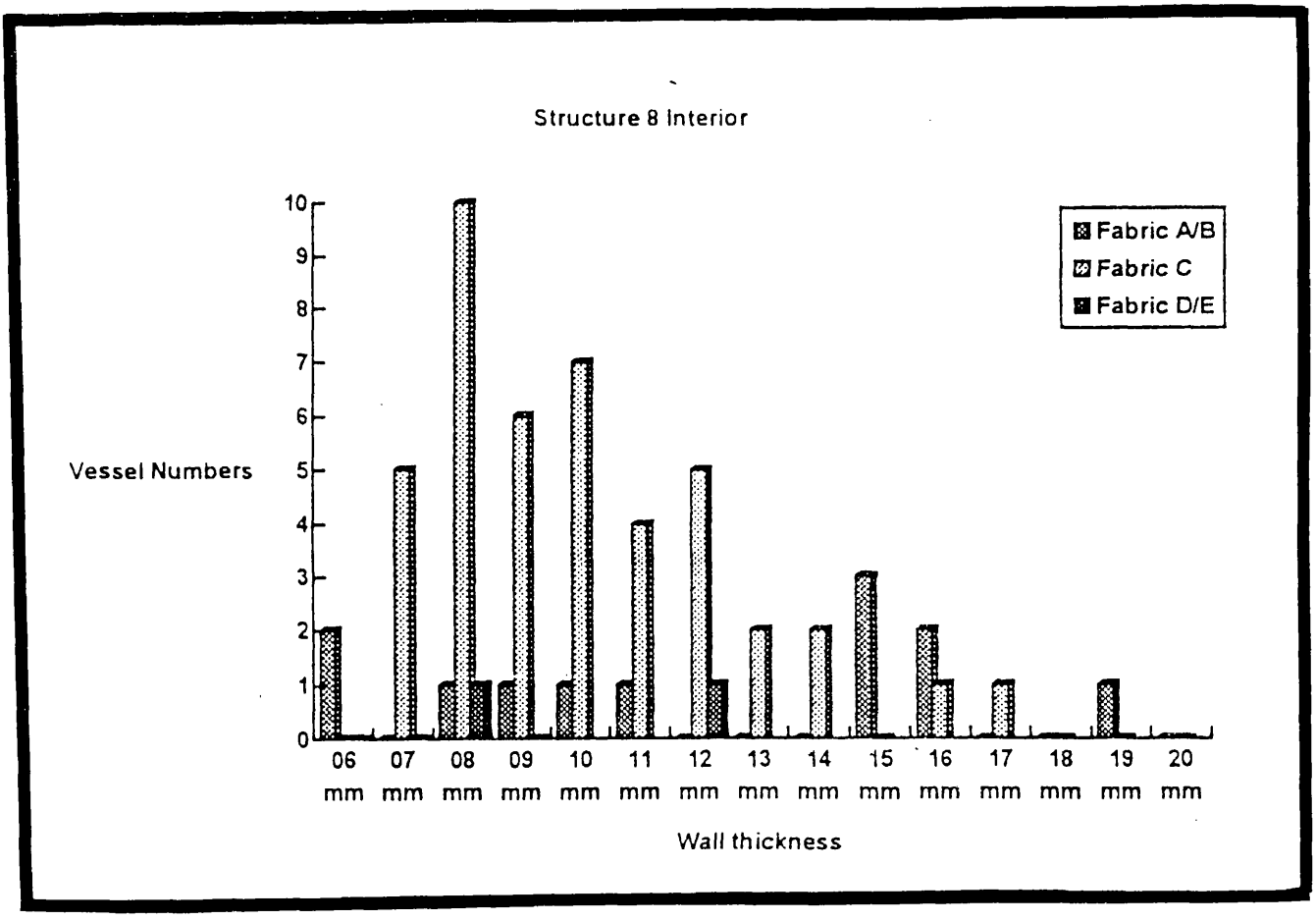


Figure 7.6: Difference in wall thickness between sherds in interior and on the platform of structure 8

(from Richards 1993a, 244 and 245)

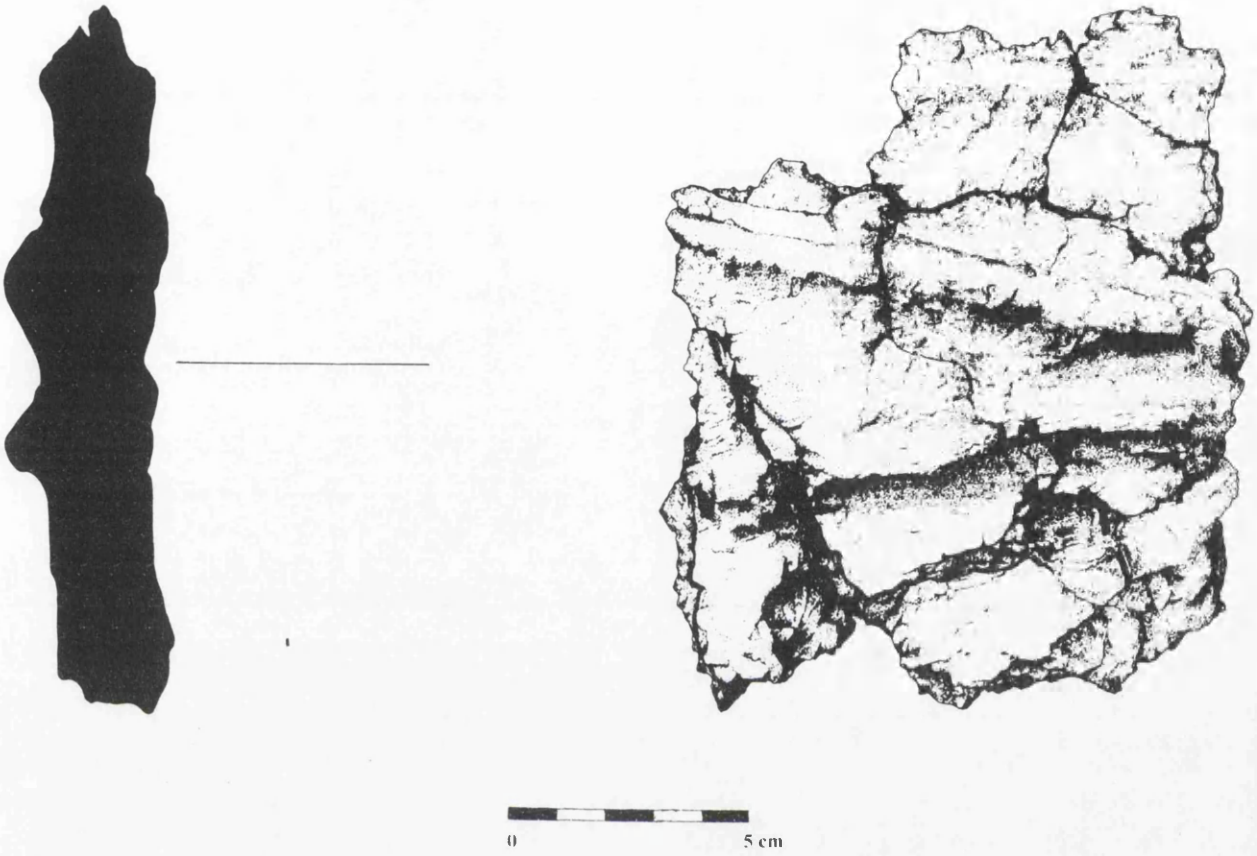


Figure 7.7: Example of decorative scheme 33, SF 6016.

It would seem that these vessels are stored temporarily on the right hand side of the entrance when not being used as cooking vessels. Indeed, the large hearth on the left side of the entrance contains a sherd from a large fabric B vessel. Of particular note with these vessels is that they are considerably larger than the vessels utilised for cooking in earlier houses. This suggests that the number of people involved in consumption activities is much greater in the case of structure 8. Judging by the wall thickness of these sherds some of these vessels are twice the size and volume of earlier cooking vessels.

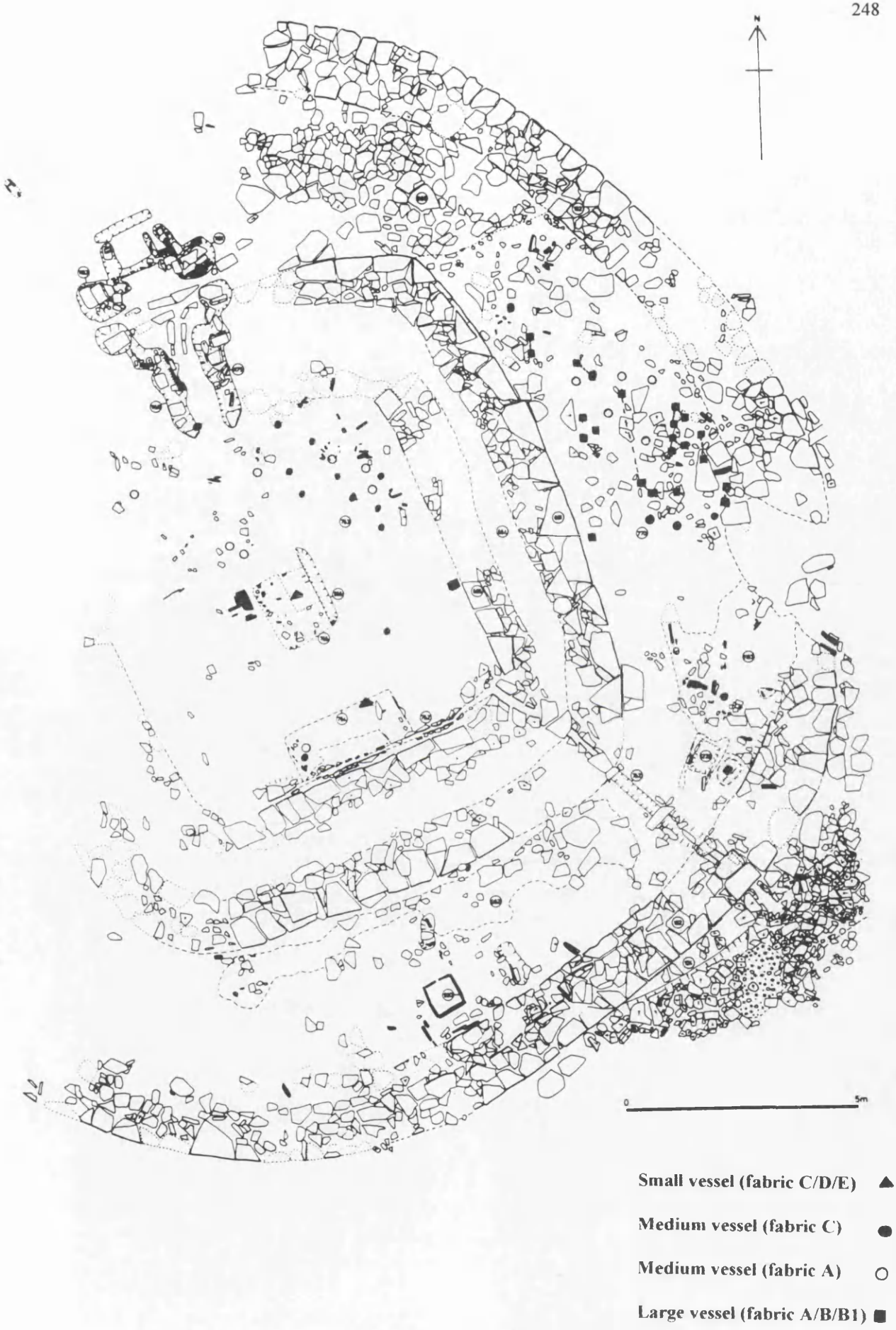


Figure 7.8: Plan of structure 8 with position of vessels on platform and interior. Dotted lines indicate sherds from same vessel group (after Richards 1993a, 240)

Entrance into the interior of structure 8 is through the south-western porch and across a large hearth which was paved over. As already noted, the spatial arrangement of the interior draws on much of the architecture of the earlier houses, with two of the most important elements retained, the central hearth and the dresser. Principally we see at least two phases of use represented by the reclaying of the floor within the interior, although both these phases appear to be associated with ceramics of a similar character. In both cases ceramics are focused on the left of the entrance to the building (Fig 7.8). most vessels in the interior are medium or small vessels, of fabric A, C or E only. They are decorated using similar decorative schemes, either a series of shallow parallel incisions, decorative scheme 39, or up to three deep parallel incisions, decorative scheme 23 (see Fig 7.9). In the first phase there are a total of nine vessels, in the second phase eleven vessels. A cut for a stone upright in the area of the dresser, at the back of the house, contains two medium vessels of fabrics A and C, decorated with decorative scheme 39, and a small vessel of fabric E also decorated with decorative scheme 39. All of the material is highly abraded around the edges and must represent material that may have stood in this general area, and which has not been swept up and deposited outside the house, but was instead hidden around the dresser area. Within the fill of the secondary hearth in the centre of structure 8 is a single sherd from a small vessel of fabric E, SF 4648, decorated with a complex decorative scheme with a series of vertical incisions with diagonal infill (Fig 7.9). This decorative scheme is unique amongst the Barnhouse assemblage.

It would seem that, as with the earlier houses, the hearth and the left hand side of the house are symbolically important for the consumption of material and for the discard of material used in consumption practices around the hearth. However, the level of preservation within structure 8 is problematic since the right hand side of the building has been severely damaged by ploughing. This makes any detailed

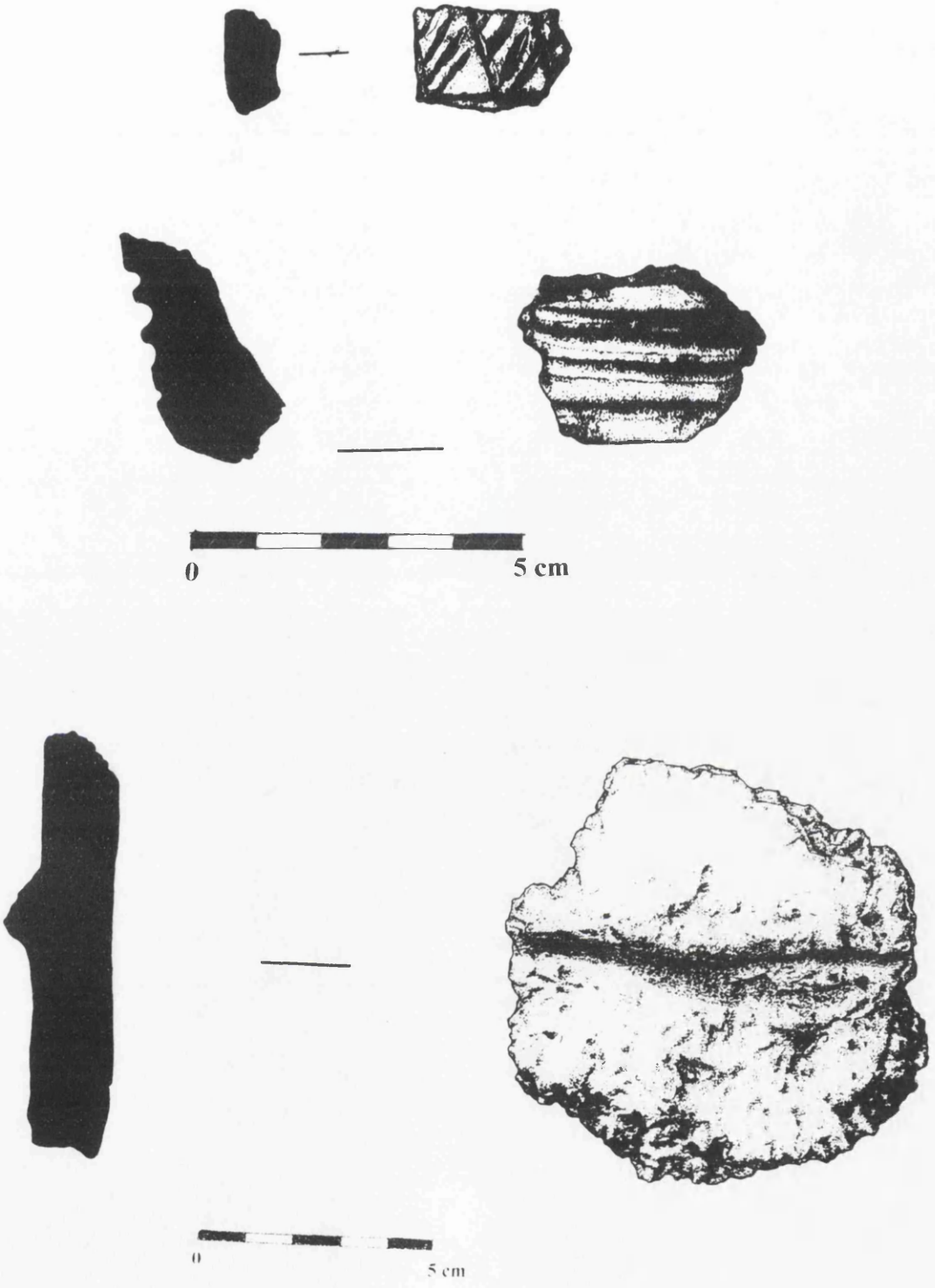


Figure 7.9: Examples of decorative schemes on structure 8 Grooved ware. Top decorative scheme 37, SF 4648. Middle decorative scheme 23, SF 4601. Bottom decorative scheme 14, SF 5055.

propositions about the use of space within structure 8 difficult to sustain, although a further indication that the left hand side of the house was important, is evident due to the placement of a large fabric B vessel set into the floor close to the left hand wall, behind the left hand box-bed. This vessel was buried upto the rim, and the only section visible was decorated with a two deep incisions near to the rim. The vessel contained barley, and it is likely that the contents may have been covered over during use.

There are a number of points to be made about the use of Grooved ware within structure 8. Notably the whole architecture of structure 8 is organised according to the principles of centrality and concentricity. Broadly we see larger vessels focused around the outside of the structure on the platform, and in the interior the largest vessel, containing barley, was placed in a fixed position against the left hand wall, a number of smaller vessels also seem to have been placed around the dresser area, while medium and small vessels would again seem to have clustered around the hearth area. Thus we observe many of the spatial principles observed in the earlier houses extended to this later phase of settlement. Although the distinction in the use of space within structure 8 is comparable to earlier houses, this does not carry the same cosmological impact since the orientation of material is no longer from east to west. Due to the orientation of the platform entrance towards the east, left and right are now from north to south. In the interior the focus on the left hand side of the structure would again seem to conform to earlier patterns, but this time the material is placed on the east rather than the west side of the structure, the opposite of earlier houses.

It is essential to realise that despite some gross similarities, the Grooved ware within structure 8 is being used differently. In the earliest phases at Barnhouse, medium size shell tempered vessels were being used in the preparation and consumption of food, and medium size rock tempered vessels were used in the consumption of food. Vessels are used within structure 8 according to a new

grammatical structure. Large vessels are now being used for cooking food on the platform and for storing food in the interior, and medium size shell tempered vessels and small untempered vessels are being used for the consumption of food in the interior.

The Death of Grooved ware: deposition at Barnhouse

The deposition of Grooved ware at Barnhouse involves a complex series of activities and each deposit is associated with different kinds of activity. In order to compare differences between material deposited in different locations, I have quantified a series of attributes associated with each deposit. These include total number of vessels per fabric and total number of sherds per fabric. This will provide a broad view of the degree of fragmentation of vessels in each context. Mean sherd weight (MSW) has been used, as elsewhere in the study, for each category of fabric, as a means of determining the degree of disturbance and attrition within the deposit. Along with this, decorative scheme and petrology will also be noted in order to draw out the differences in each deposit. In the second section of the chapter I wish to draw out a number of aspects concerning the act of deposition. Of paramount importance is the relationship between the deposition of Grooved ware and specific houses, although as we shall see it is also essential to consider the nature of deposition across the site as a whole (see Fig 7.10). I propose to begin by considering the nature of depositional practices associated with the centre of the settlement and work outwards.

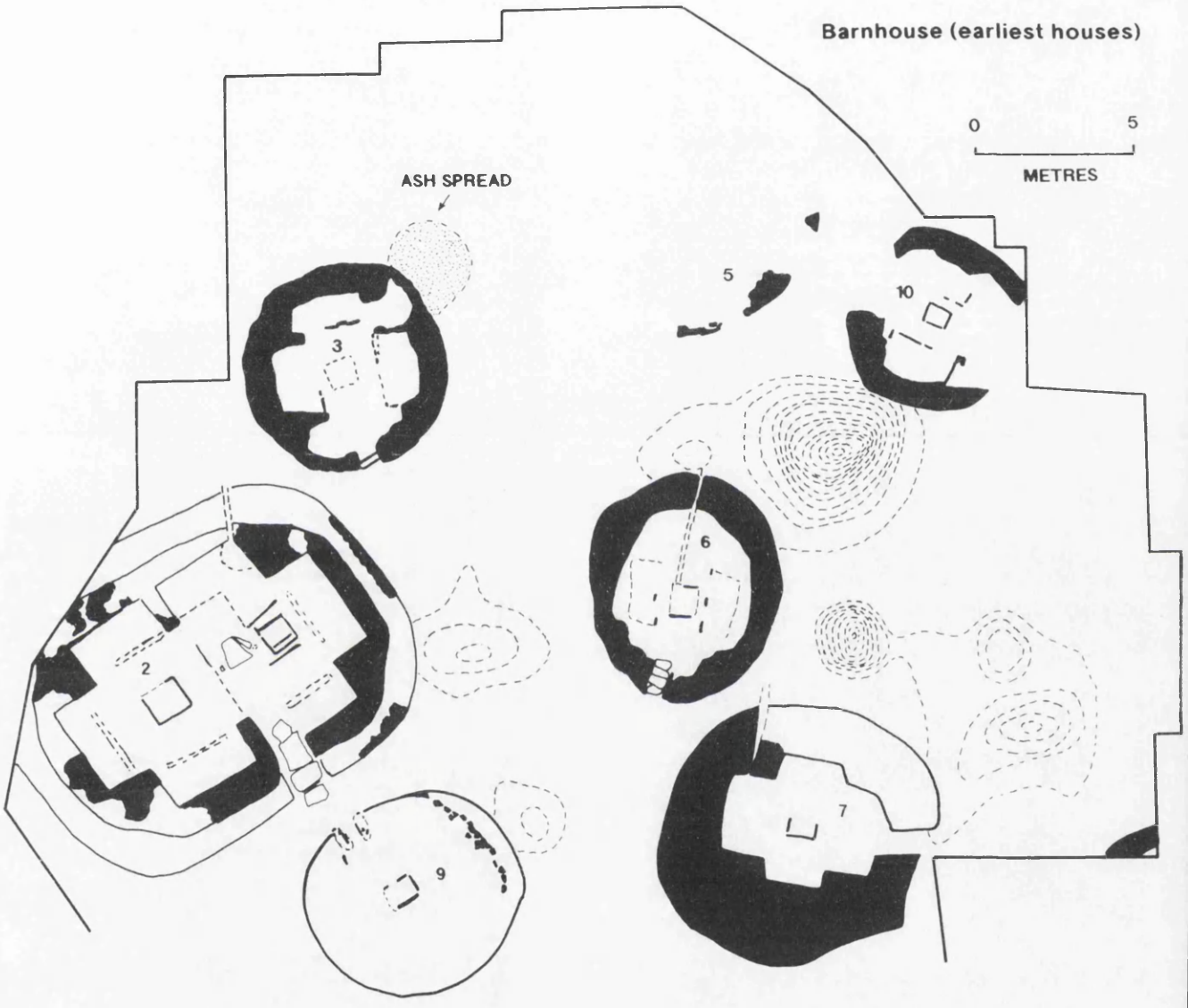


Figure 7.10: Plan of Barnhouse indicating the position of ash and burnt bone and ash dumps

Deposits around the central area: the house 6 dump

We have already observed the complexity of deposits in the central area. In chapter 5, I argued that these deposits were largely the result of pottery firing in the area. However, it was noted that some of this material was sooted, suggesting its use elsewhere prior to deposition. While I do not wish to review these deposits here, there are a number of unusual deposits within the central area which have some bearing on the nature of depositional practices associated with the central area. Of particular interest are the series of pits cut into the central area. One pit (context 1245), already mentioned with regard to pottery production, was filled with a large quantity of clay. In the top fill of the pit a very fine sherd of untempered pottery was placed (Fig 7.11). The pit was then capped with stones. The sherd, SF 3251, was both highly burnished and unusually decorated with a series of shallow zigzag incisions, decorative scheme 35.

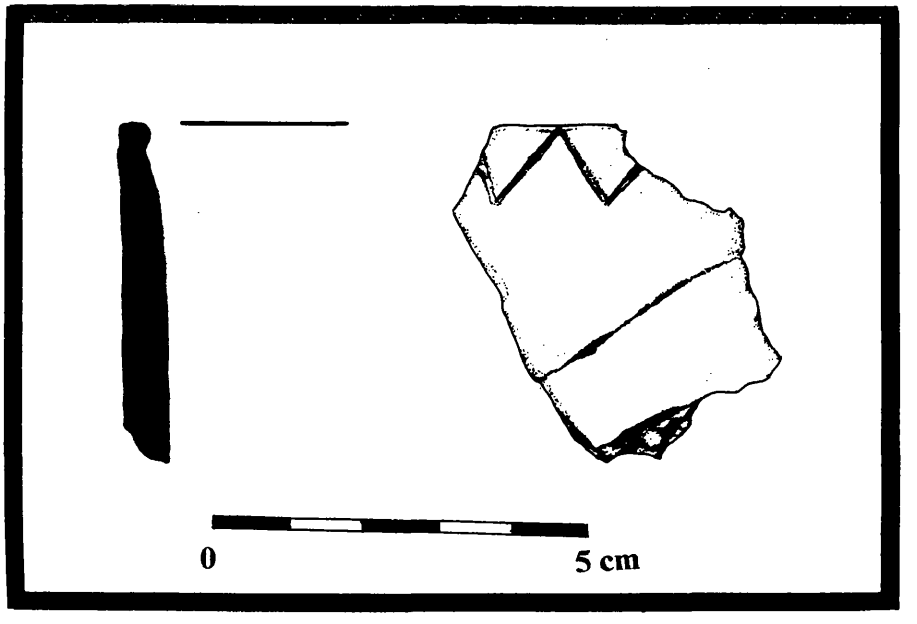


Figure 7.11: Sherd, SF 3251, of decorative scheme 35, placed in clay pit in the central area

A second pit (context 1239/1249) contained two thick walled vessels tempered with shell. Both of these vessels had evidently been used since the first had an interior

deposit of residue and the second, represented by SF 5697, was found to contain milk. A second shell tempered vessel, represented by sherd SF 5662, was also analysed from this area and was also found to contain milk. These vessels were represented by a large number of sherds and were fairly abraded. It is suggested that they represent material which has been redeposited in this area, due to the certain indications of use.

The dumps of burnt bone, ash and pottery at the edge of the central area to the north-east are mixed with the deposits located behind house 6. As we can see from figures 7.12 and 7.13, there is a severe degree of fragmentation and attrition amongst these deposits, with many of the sherds from shell tempered vessels being smaller and more abraded than sherds within the central area. It is likely that this is due to trampling around the outside of house 6, as the gap between houses 6 and 10 provides access to the central area itself. The most important aspect of these deposits concerns the distribution of different kinds of pottery. A detailed examination of this reveals some interesting patterns. Those deposits placed in closest proximity to the central area contain a larger quantity of shell tempered pottery, with a total of 16 vessels with 62.5% (10 vessels) tempered with shell, 25% (4 vessels) untempered, and 12.5% (2 vessels) tempered with rock.

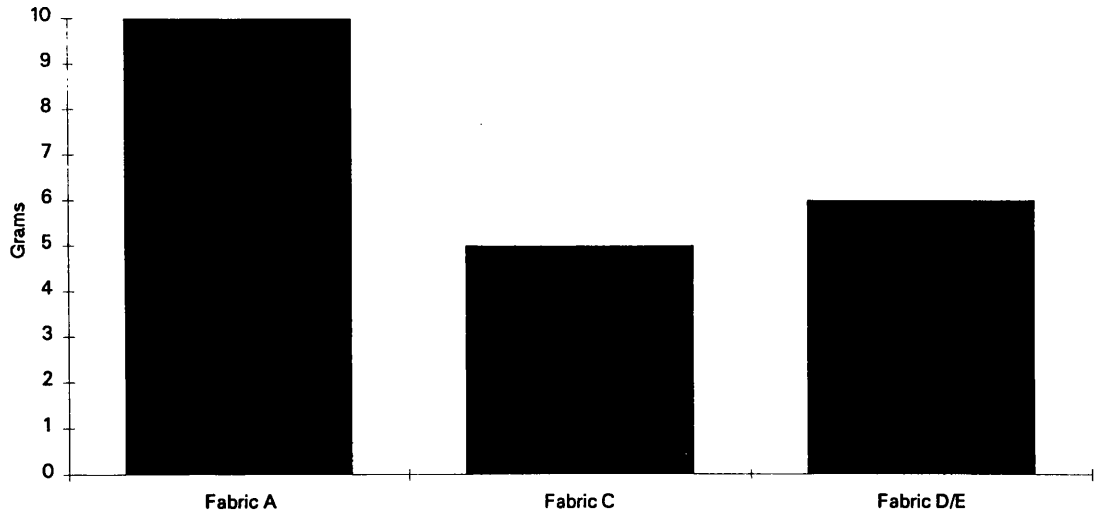


Figure 7.12: Mean sherd weight (MSW) of fabric categories in house 6 dumps

While those deposits placed directly behind and to the left of house 6 comprise 49 vessels, 63% (31 vessels) of which are shell tempered, 6% (3 vessels) untempered and 31% (15 vessels) tempered with rock. Thus, this second deposit has a greater overall percentage of rock tempered vessels.

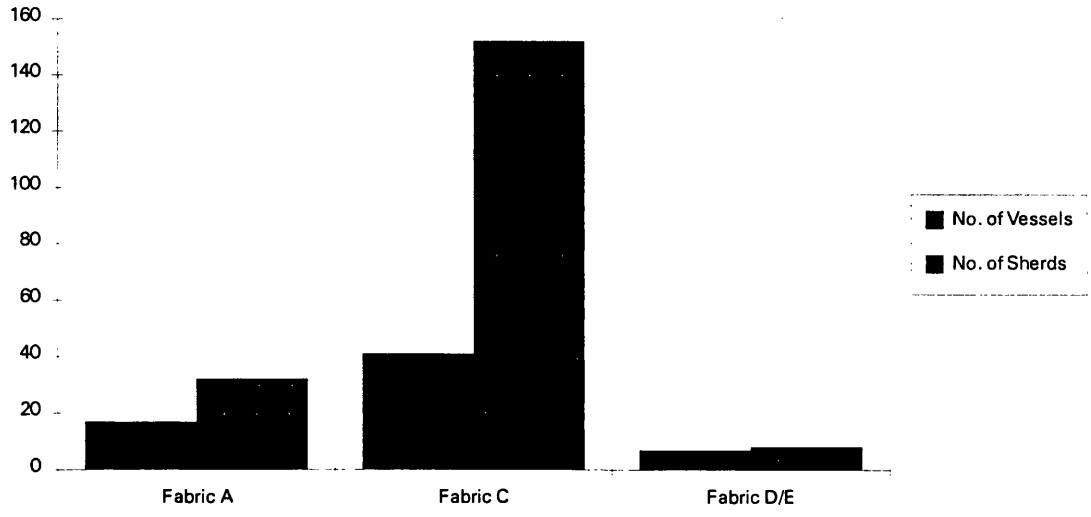


Figure 7.13: Vessel: Sherd relationship in house 6 dumps

Although this pattern is fairly fluid, the spatial distribution of sherds (see Fig 7.14) indicates that within these pottery dumps as a whole, the shell tempered pottery is clustered towards the central area, while the rock tempered pottery is focused towards the back of house 6. The material located behind house 6 itself may be the result of deposition from a number of other sources within the settlement, especially when we note that the decoration on the Grooved ware in this area, is generally of decorative schemes 8 and 13. An obvious origin for this material is house 10, although this is difficult to demonstrate.

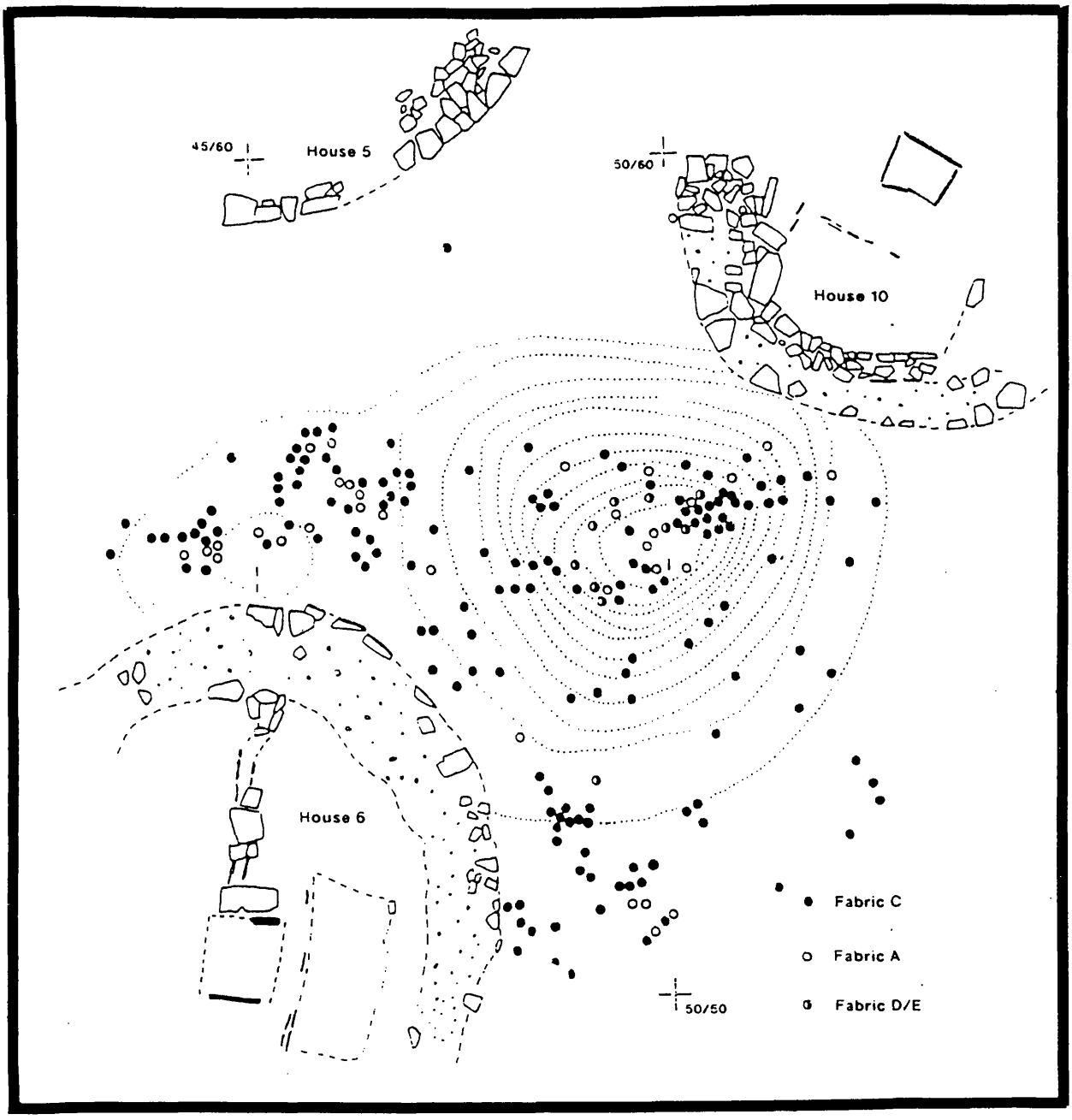


Figure 7.14: Distribution of sherds of fabrics A, C and D/E in relation to the house 6 dump and the central area (Richards 1993a, 235)

I now wish to take a step back from the central area and more clearly appraise the nature of depositional activities within the area. We have already seen in chapter 5 that in both the earliest and latest phases of activity in this area, the propensity of redeposited vessels appear to be shell tempered. It would appear that the appropriate place for the deposition of much shell tempered pottery was close to the central area. In support of this statement it is worth noting two aspects of the evidence examined above. Firstly the distribution of vessels around house 6 would seem to indicate that shell tempered vessels are more likely to be found close to the central area than rock tempered vessel. Secondly we have seen that in some cases shell tempered vessels that have been used elsewhere have been redeposited within pits in the central area. What we seem to be observing is a cycle of activities in which shell tempered vessels are produced in the central area, are used within individual houses, and then deposited back in the central area. Thus, individual vessels are being returned to the location in which they were produced. This suggests a very powerful attachment between the central area as a place of production and the identity of vessels produced there. It is precisely this close attachment to place which makes the deposition of the fine untempered vessel in the fill of the clay pit comprehensible. The vessel is closely attached not only to the place of its production but also to the substance from which it was produced.

It is interesting to note that although the material located in the central area deposits is mostly derived from medium and small size vessels, this is not the only context of deposition for these kind of vessel, as they are also deposited in a series of ash dumps in close proximity to the houses on the periphery of the settlement. The dumps of pottery, ash and burnt bone located outside houses 2, 3 and 9 are the main locations for the deposition of Grooved ware outside the central area. The deposition of large amounts of rock tempered pottery within these deposits is notable, and the comparison of the petrology of vessels within these dumps and within individual

houses allows a finer grained picture to emerge of the nature of depositional practices in relation to the settlement as a whole.

The House 2 dump

The house 2 dump is composed of both ash and burnt bone, which originates from both large and small animals, probably cattle and sheep/goat (King 1994). Within this dump, sherds from medium size rock tempered vessels are more numerous than those of shell tempered vessels, as is noted in Figure 7.15. Overall the quantity of different categories of pottery within this dump of material appears to conform to the demography of vessel categories used within house 2 itself, thus it would appear that this dump of material is related to activities within house 2.

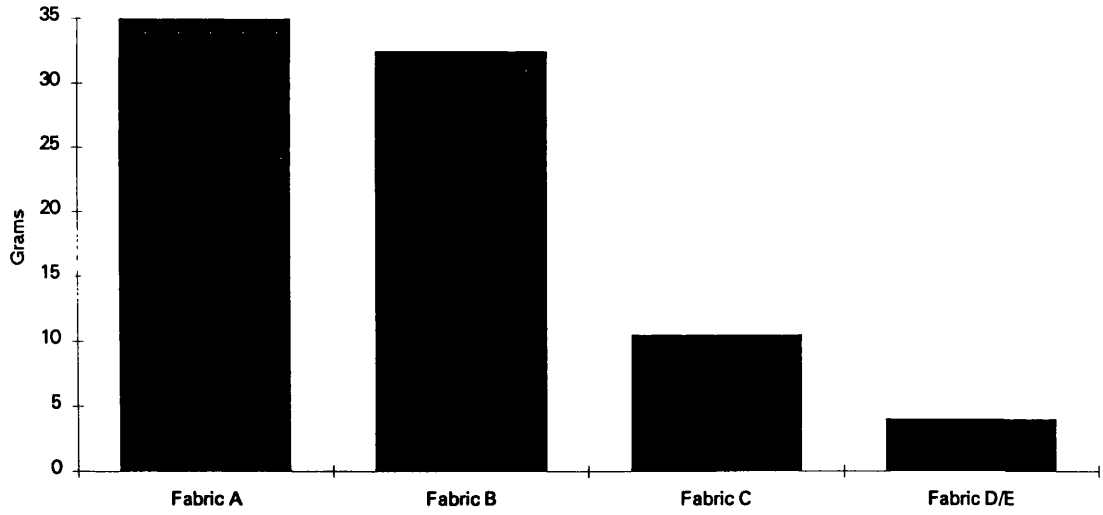


Figure 7.15: Mean sherd weight (MSW) of fabric categories in house 2 dump

Petrological thin-sections of sherd of fabric A within this dump of material also indicate that the material was most likely to have its origin within house 2, since it was tempered with siltstone and mudstone in the same way as the house 2 assemblage.

However, it is notable that an unusually decorated sherd SF 1185 within this dump of material is conjoined with SF 5463 from house 9. This sherd is decorated with a single incision with an infill of dots below the incision, decorative scheme 34. The incidence of sherds of this vessel in this dump indicates that this dump of material is not exclusively derived from activities within house 2. The decoration on Grooved ware within this deposit is remarkably uniform, generally consisting of simple cordons, decorative scheme 14. However, SF 398 is decorated with a curvilinear decorative element consisting of two parallel incisions which is similar to the predominant decorative scheme, 8. Only two sherds appear to stand out decoratively. One is SF 1181 which is decorated with alternating incisions and lines of dots, decorative scheme 16. This decorative scheme is similar to a vessel within house 2. The other, SF 1191, is decorated with five parallel incisions, decorative scheme 26. This decorative scheme is not generally found in the early phases at Barnhouse, although it is common to vessels within structure 8.

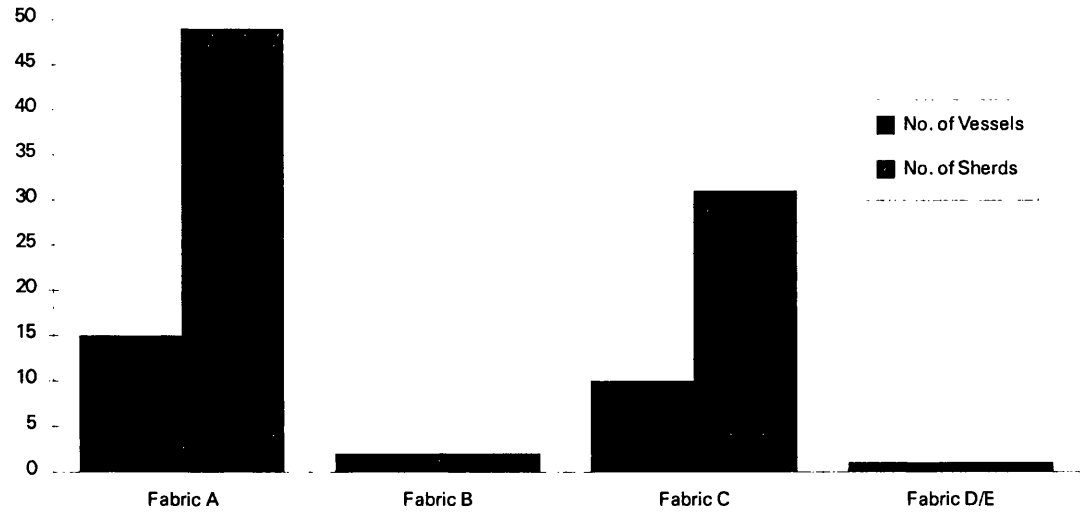


Figure 7.16: Vessel: Sherd relationship in house 2 dump

The pottery within this dump is remarkably well preserved, although there appears to be a marked contrast between the preservation of shell tempered and rock tempered sherds. Shell tempered sherds are more abraded and generally smaller in size than rock tempered sherds. It is worth comparing the MSW of both categories of vessel with those within the house itself. As we saw in chapter 4 the abrasion of vessels within house 2 was fairly uniform. It is possible then that we are observing differential treatment of sherds from different types of vessels. While shell tempered vessels may be allowed to abrade for some time on the floor of house 2, rock tempered sherds are deposited within the dump fairly rapidly. This is particularly interesting when we note that a number of vessels within house 2 contained cattle meat, and indeed a sherd of rock tempered pottery, SF 10, within the house 2 deposit also contained bile acid from cattle stomach. It is possible then that these vessels are being deposited more rapidly due to the nature of their contents.

It was noted above that a large number of pits in house 2 contained sherds from Grooved ware vessels. Some of these pits, especially those closest to the hearth in the western room, were undoubtedly used to hold vessels prior to use in the hearth. However, a number of other pits within the alcoves off the eastern and western rooms suggest rather more deliberate deposition. Of the six vessels deposited within pits in house 2, four of these are medium size rock tempered and two are medium size shell tempered vessels. An examination of the sherds from these vessels reveals that they are again unabraded, although they are fairly small in size. It is likely that due to their use within this house, and the nature of this use, that these particular vessels were deposited within the house rather than in the exterior dump. We appear to be observing a number of related depositional practices associated with house 2, and these are related to the nature of activities occurring within the house. Of particular note here is the relationship between the consumption of cattle meat and the use of certain Grooved ware vessels. It would appear that due to the association between this

consumption practice and medium size rock tempered vessels, these vessels were either retained within the confines of the house where they were deposited in pits, or they were rapidly deposited in the exterior dump.

The House 9 dump

The house 9 dump of material is again composed of ash and burnt bone, although the animal species present within this dump have not been determined. The dump is not as large as that of house 2. The propensity of material within this dump is of sherds from medium size shell tempered vessels rather than rock tempered vessels. This pattern contrasts markedly with house 2 where we noted a concentration of rock tempered sherds. It is possible, given the apparent deposition of material from house 9 within the house 2 dump that we are observing the selective deposition of vessels of different categories within each dump.

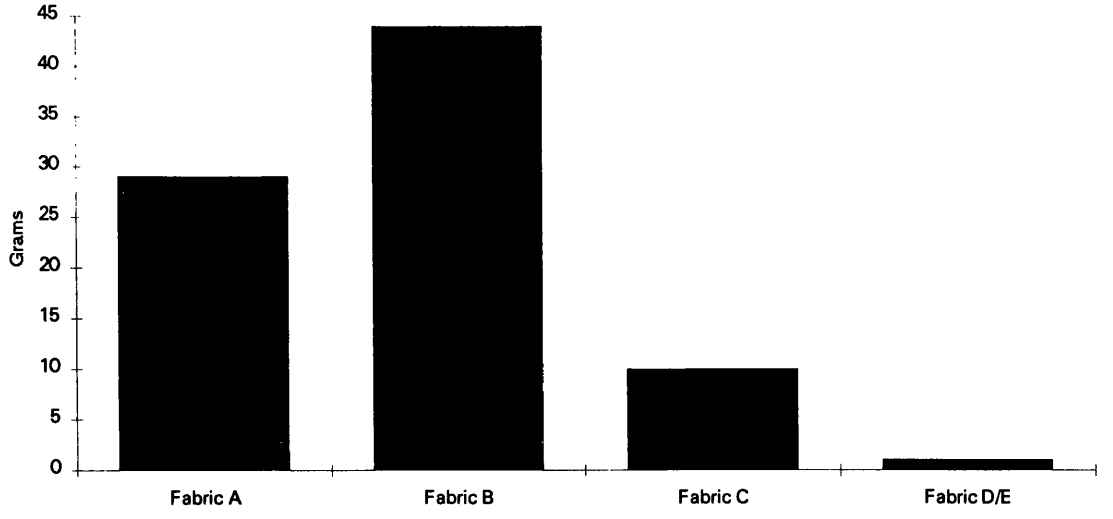


Figure 7.17: Mean sherd weight (MSW) of fabric categories in house 9 dump

Petrologically the thin-sections of rock tempered sherds from this dump of material reveal an even more complex pattern of deposition. Two sherds SF 332 and SF 576 are certainly derived from house 3, since they contain igneous dyke material (olivine-basalt: dyke 4) which is exclusively used within house 3. The decoration of sherds within the house 9 dump is also fairly unusual. Two sherds are decorated with single cordons and incisions, however two sherds are decorated with more unusual designs. One small vessel of fabric E, SF 127, is decorated with a linear cross hatched design, decorative scheme 2. Another, medium size vessel of fabric C, SF 250, is decorated with a curvilinear cordon design, decorative scheme 24.

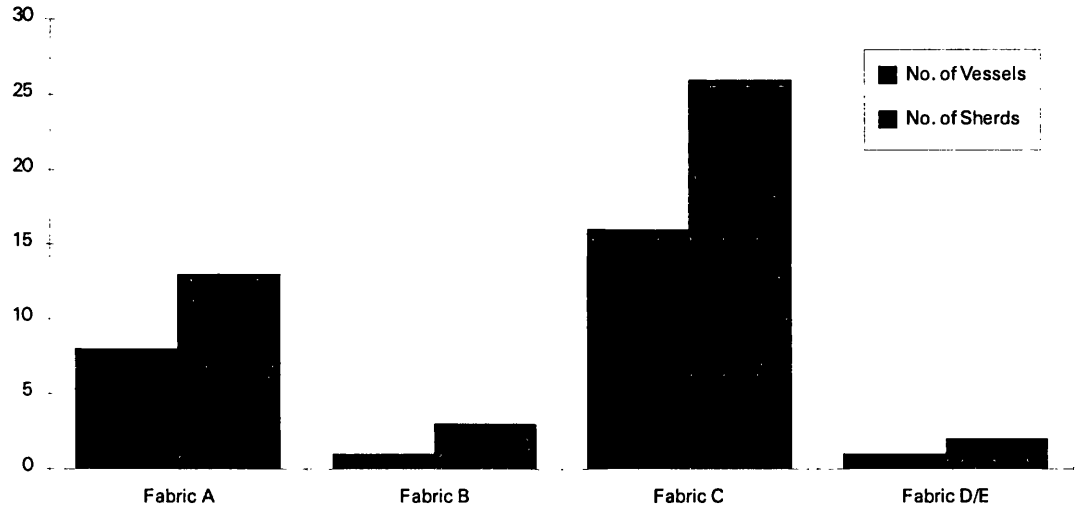


Figure 7.18: Vessel: Sherd relationship in house 9 dump

The house 9 dump appears to consist of rock and shell tempered sherds which have been treated in slightly different ways prior to deposition; the shell tempered sherds are abraded and small in size while the rock tempered sherds are fairly large and well preserved. This pattern may be due to differential survival of materials, since shell tempered fabrics have suffered severe post-depositional changes, with the shell temper itself having been broken down chemically. However I believe this differential

pattern of survival is real. If we compare the abrasion of both shell and rock tempered sherds within the houses (see Figure 4.19) with the patterns observed in the dump, then we see that the abrasion of sherds of different fabric within the houses occurs at the same rate, while the abrasion of sherds of different fabrics within the dumps occurs at different rates. Given the close association between material within the house 2 dump the pattern is likely to be the result of the same kind of treatment suggested for house 2.

The House 3 dump (North-east)

The north-eastern dump is of a quite different character to the house 2 and 9 dumps, since it contains very little burnt bone and is composed mostly of ash. The dump contains sherds from vessels of a number of different categories. These include large vessels of fabric B, medium size vessels of fabric A and fabric C. Notably there are no small untempered sherds within this deposit.

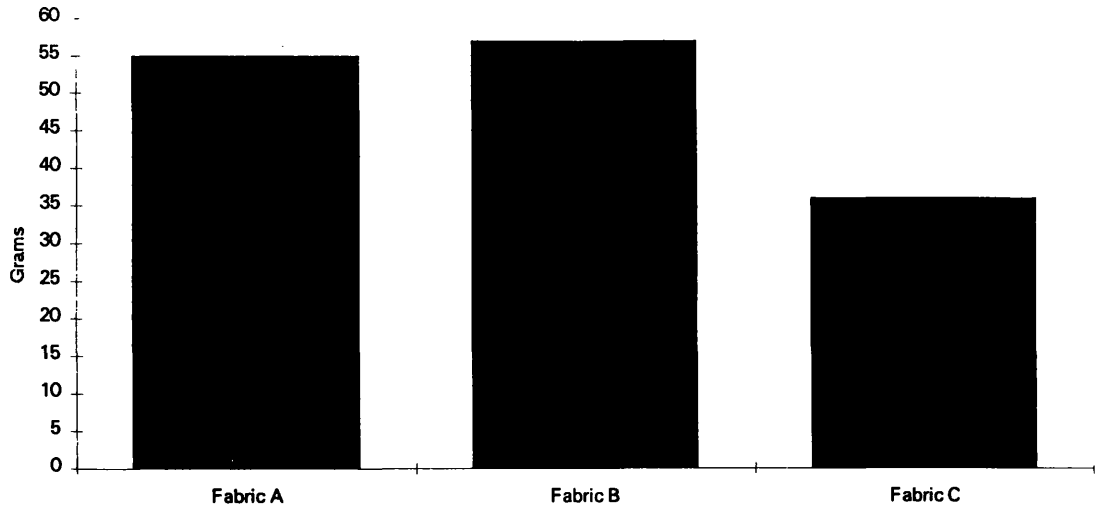


Figure 7.19: Mean sherd weight (MSW) of fabric categories in house 3 (north-eastern) dump

The absence of burnt bone and small vessels would suggest that this deposit is not simply the result of discard from house 3. Indeed, a number of ash deposits of different colours and textures were distinguished during excavation of this area, which tends to suggest separate depositional events. A large spread of burnt bone, placed separately to the north of this dump and probably containing a concentration of cattle bone (King 1994), suggests some separation of ash, pottery and burnt bone in this area. If we examine the petrological thin-sections for this deposit, we see a diversity of origins for this material, with sherds SF 1869 and SF 3478 containing igneous dyke material (olivine-basalt: dyke 4) found only in the house 3 assemblage. However, another sherd, SF 1902, contains igneous dyke material (camptonite: dyke X) only found in the house 5 assemblage. What is more a sherd, SF 1655, from the eastern hearth of house 2 conjoins with a sherd, SF 1852, from this dump of material.

A high proportion of this material was decorated. A number of vessels were decorated with decorative scheme 8, especially SF 1852 and SF 3001. A number of vessels were also decorated with large cordons, decorative scheme 14. Unusually a single base sherd SF 1100 was decorated with a complex decorative scheme including curvilinear incisions and dot impressions, decorative scheme 12. This design is typically found in untempered and shell tempered vessels, however here it is executed on a rock tempered vessel. Another sherd, SF 1863, had a complex curvilinear decorative scheme with alternating embellished and non embellished serpentine cordons, decorative scheme 31, which is similar in many ways to design 13. It would appear then that this dump of material comprised vessels decorated with the three predominant decorative schemes.

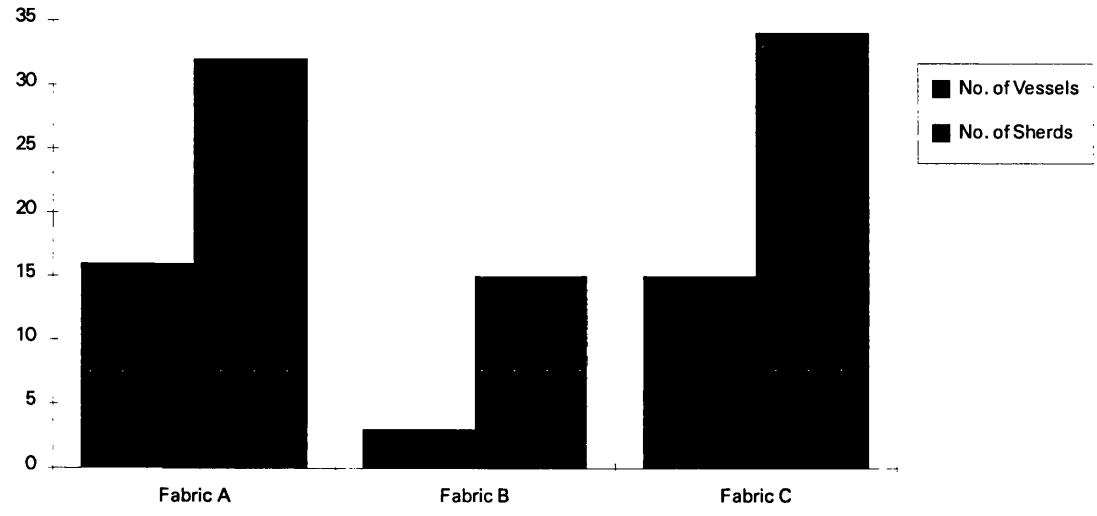


Figure 7.20: Vessel: Sherd relationship in house 3 (north-eastern) dump

As indicated in fig 7.20, the number of sherds in this deposit is remarkably low compared to the number of vessels. This would tend to suggest that vessels were less fragmented within this dump of material. Indeed, at least four vessels, SF 1100, SF 1850, SF 1852 and SF 3001 were almost intact, with substantial parts of the vessels profile remaining. Notably all of these vessels are medium size vessels of fabric A. Again, the size of sherds determined by mean sherd weight indicates that medium size vessels of fabric A are larger than comparable vessels of fabric C. Indeed the average size of sherds in this dump of material is higher and the level of abrasion lower than the other two deposits already discussed, which would seem to indicate that most of the material was rapidly deposited, having little time to abrade. Again these differential patterns of preservation would appear to conform to the patterns observed within the house 2 and 9 dumps.

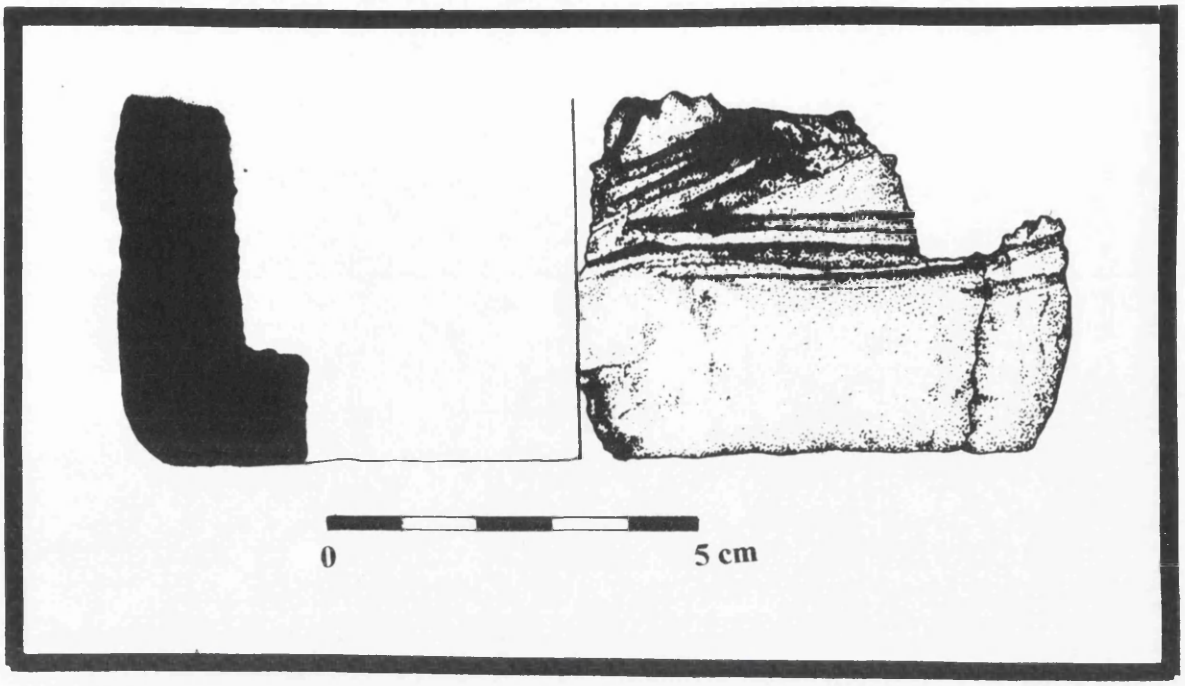


Figure 7.21: Conjoining sherds SF 1655/1863. One sherd from house 2, the other from the north-eastern dump of house 3.

It is possible to say a lot more about this depositional activity, since, as noted above, SF 1852 actually conjoins with SF 1655 from house 2 (Fig 7.21). This sherd was found to contain cattle meat, as already discussed. It seems likely then that those vessels used to contain cattle meat were deposited rapidly after use, since the size of sherds containing this substance within these deposits is consistently large. Interestingly another sherd in this deposit SF 3477 conjoins with a sherd SF 2547 from within house 3 itself, which was found to contain cattle milk. This sherd, while also of fabric A, is much smaller and more abraded. This, once again, suggests that it is the contents of the vessels which are responsible for their treatment in deposition, with those which contain cattle meat being deposited almost entire and therefore presumably fairly rapidly, while sherds from vessels containing different substances such as milk may be deposited after a period of time, suggesting that the two substances are perceived quite differently. The rapid deposition of vessels containing cattle meat suggests that both the vessels and the substances they contain were

considered as polluting, while those vessels containing milk, being allowed to abrade, were of a less polluting nature.

House 3 dump (north)

The deposit behind house 3 is different in nature to any of the dumps of material previously discussed, since it is composed of neither ash or burnt bone. The only vessel categories found within this dump are large vessels of fabric B and medium size vessels of fabric A. Along with these, in the lowest levels of the deposit, were a number of sherds from large vessels of fabric B1. The only other location in which vessels of this fabric are found at Barnhouse is the central area. The large vessels of fabric B comprise 74% (17 vessels) of the deposit, while the medium size vessels of fabric A comprise 13% (3 vessels) of the deposit. The remaining 13% (3 vessels) are large vessels of fabric B1.

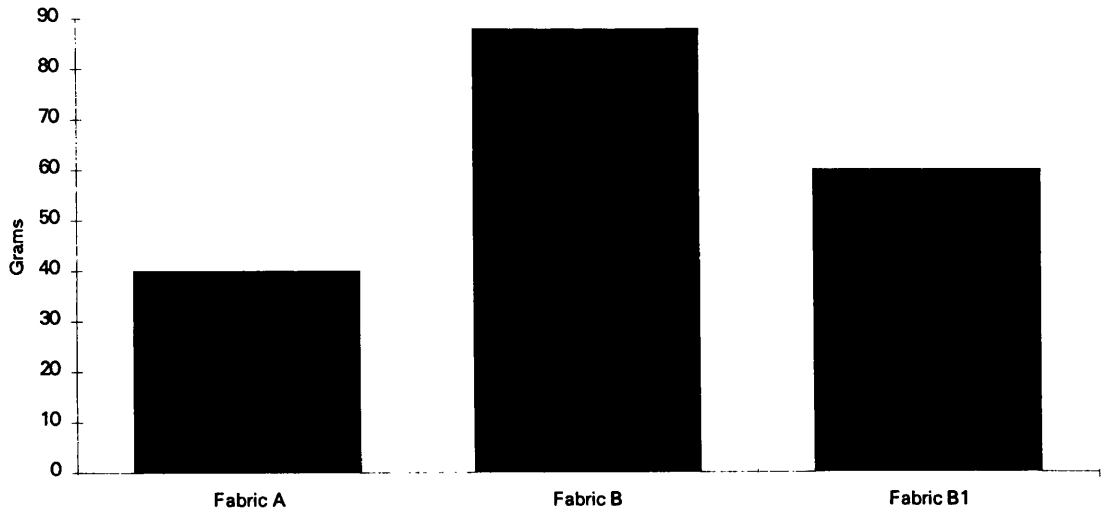


Figure 7.22: Mean sherd weight (MSW) of fabric categories in house 3 (northern) dump

An examination of petrological thin-sections indicates that vessels within this dump are from a number of locations. One sherd, SF 3022 contains camptonite (dyke X) which is used exclusively within house 5. A number are from house 3 itself, since SF 2520 and SF 3501 both contain olivines probably derived from olivine-basalt (dyke 4). The fabric B1 vessels themselves are likely to be derived from one of the houses surrounding the central area. A small number of vessels are decorated with large applied cordons, decorative scheme 14.

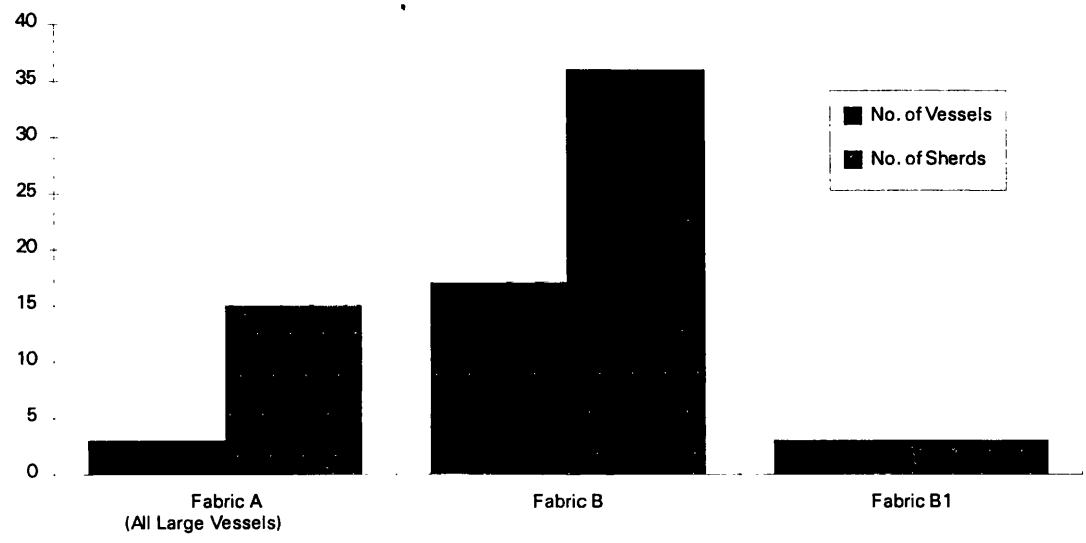


Figure 7.23: Vessel: Sherd relationship in house 3 (northern) dump

A comparison of vessel number against sherd number for each fabric suggests the degree of fragmentation for fabrics B and B1 is low. This indicates that these larger vessels were deposited in this location almost whole. Furthermore, vessels of both fabric B and B1 are represented by extremely large sherds with very little abrasion, suggesting that they were deposited in a fairly fresh state. By contrast, vessels of fabric A are more fragmented and smaller, although they are broadly comparable in size to fabric A sherds from the north-eastern dump.

Having reviewed individual dumps of material it is essential, at this point, to take a broad view of the depositional practices associated with the earlier phases of settlement. It is evident from the accounts of these deposits that there is a fair degree of selective deposition occurring, with certain dumps of material having a number of different sources. The most obvious pattern is related to the spatial structure of the deposits. It was noted in the account of the central area dump that shell tempered vessels appear to be redeposited there after some period of use. It would appear then that the central area is the most appropriate location for the deposition of shell tempered vessels.

However, when we move outwards from the central area we observe deposits which predominantly consist of rock tempered sherds. What is most interesting in relation to these dumps is the steadily increasing proportion of rock tempered vessels as we progress further to the north, away from the central area. The house 9 dump has a large number of shell tempered vessels, while the house 3 dump has very few. What is also interesting is the deposition of large vessels behind house 3. In the earlier phases of settlement this area would be at the periphery of the settlement. What we are observing is the deposition of large vessels at the edge of the settlement. They are being placed at the furthest possible distance away from the central area.

Thus, we appear to be observing an overarching pattern of deposition which encompasses the settlement as a whole. It is notable that the spatial location of the dumps in relation to houses 2, 3 and 9 is towards the right hand side of the exterior of the building. The deposits are situated in relation to the central area, and therefore describe an arc of deposits circling this area (Fig 7.10). It would appear that the deposition of different categories of vessels echo the patterns observed in chapter 4 for the distribution of different categories of vessel within the houses. More importantly the spatial patterning of deposits also mirrors the spatial layout of the settlement itself, as discussed in chapter 3.

Structure 8 dumps

There are two main dumps of material associated with structure 8. The first is a large dump of material associated with ash and burnt bone placed to the left of the entrance, this deposit is sealed by the collapse of the structure 8 outer wall. The second dump of material is within trench K, a large rock cut trench which is situated to the south-east of structure 8, and is certainly associated with structure 8, since drains associated with structure 8 actually drain into trench K.

The dump of material in close proximity to structure 8 is composed of a series of depositional episodes, with small amounts of material within the drain encircling structure 8 itself, while other material is deposited in a series of layers. The dump is composed of seventy-nine vessels, with a low degree of fragmentation, since there are a relatively low number of sherds in comparison to the number of vessels. However, many vessels are represented by single sherds suggesting that they have been fragmented elsewhere, in which case we are observing only single sherds being placed within the dump rather than whole vessels. Most of this dump is composed of medium size vessels, 40% (31 vessels) of the assemblage is of fabric A, while 55% (43 vessels) are of fabric C, 3% (2 vessels) are large vessels of fabric A, and only 2% (1 vessel) are small vessels of fabric E.

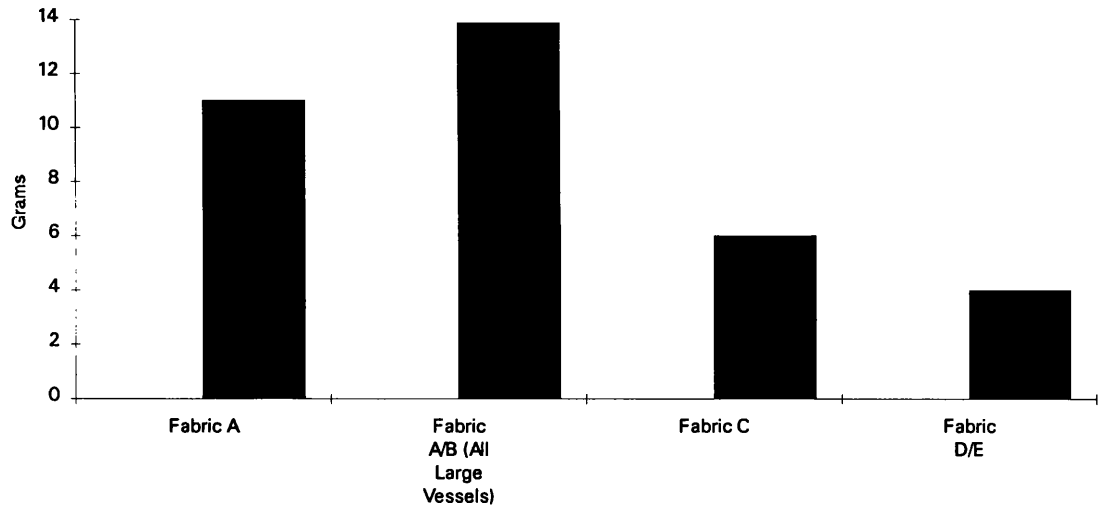


Figure 7.24: Mean sherd weight (MSW) of fabric categories in structure 8 dump

Petrologically most of this material is fairly uniform and is tempered with siltstone and coarse sandstone, although a few vessels contain a complex mixture of dyke material. SF 5575, for example, a large vessel of fabric A, contains bostonite (dyke 3), olivine-basalt (dyke 4) and camptonite (dyke X). This relates, petrologically, to the vessels on the structure 8 platform, since no other material at Barnhouse has such a complex array of dyke material.

A number of vessels were decorated with a simple cordon, decorative scheme 14. Further decorative scheme include a vessel SF 5506/5508 with a serpentine branched cordon design, with alternating cordons with a presence/absence distinction, decorative scheme 19a. Another vessel, SF 5558, has an elaborate thin raised cordon, decorative scheme 36, while vessel, SF 5532, exhibits a line of dot impressions running horizontally across the vessel surface, decorative scheme 15. Interestingly a further vessel was decorated with a decorative scheme 8.

Of particular note is the use of three main decorative schemes on material in this area. One involves repetitive shallow horizontal incisions running in bands around the exterior surface, decorative scheme 39. The second decorative scheme utilises deep

incisions with upto three parallel incisions, decorative scheme 23, while the third decorative scheme involves the use of repetitive incisions, decorative scheme 26. Overall then this material is fairly uniform and is very similar to that used within the structure 8 interior. The decoration is found equally on vessels of fabric A and C.

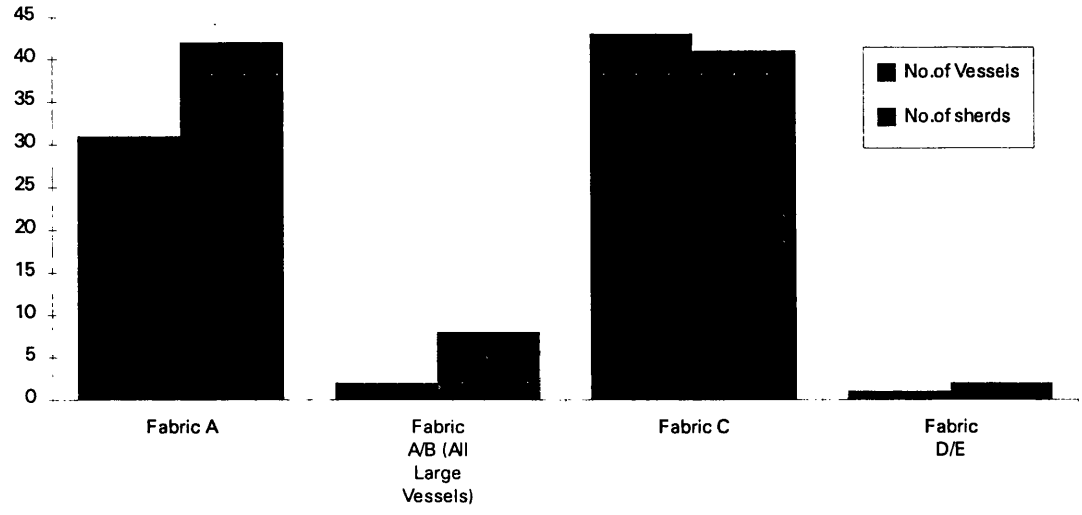


Figure 7.25: Vessel: sherd relationship structure 8 dump

In the lower deposits, particularly those within the drain area, the fabric C vessels are much less abraded and are of a comparable size to the fabric A vessels, while in the upper deposits the fabric C vessels are substantially smaller and more abraded. However, the distinction is not as pronounced as in earlier deposits, suggesting broadly similar depositional practices associated with each type of vessel. Although a number of sherds were analysed for residue analysis, only a single sherd SF 5618 contained milk. Interestingly, this fits with the use of milk on the platform in vessel SF 5299.

Trench K dump

The dump of material within Trench K is composed of a vast deposit of material, mostly of large rock tempered sherds with 83 vessels being dumped in this area in total. Of these vessels 43% (36 vessels) are medium size vessels of fabric A, 28% (24 vessels) are large vessels of fabric A, 23% (19 vessels) are medium size vessels of fabric C and 5% (4 vessels) are small vessels of fabric E.

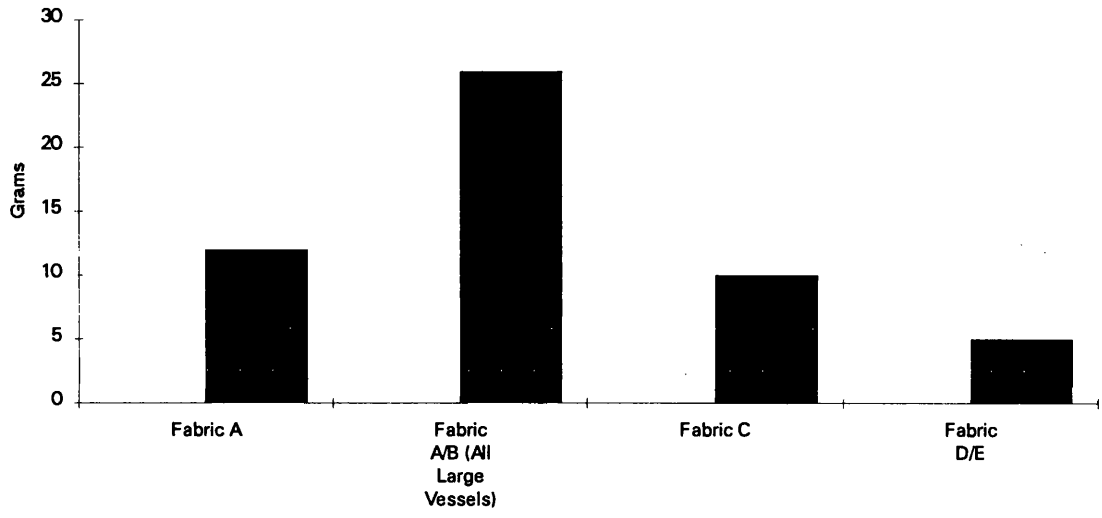


Figure 7.26: Mean sherd weight (MSW) of fabric categories trench K

Petrologically this material is fairly uniform with most sherds being tempered with siltstone and mudstone. The only igneous rock evident in this material is olivine-basalt (dyke 2). Most of this material is undecorated. Decoration, where it occurs, is of simple cordons, decorative scheme 14. A few examples of more complex decoration are found on vessels in this dump, such as SF 51, which has a single cordon embellished by an incision, decorative scheme 27, and SF 1284, which has three broad incisions, decorative scheme 23. In the main, this dump of material is characterised by the uniformity and simplicity of decorative schemes.

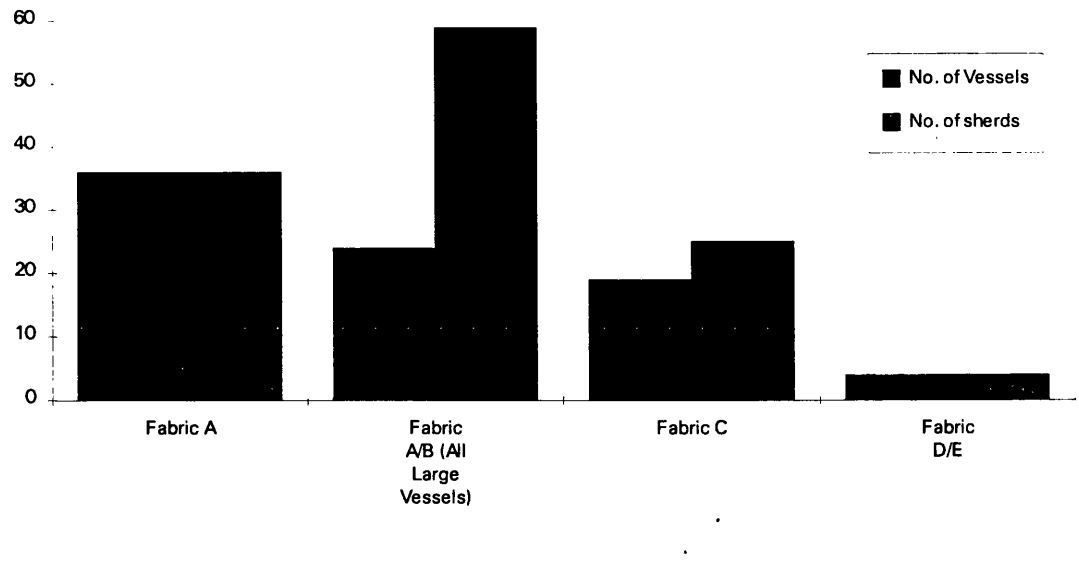


Figure 7.27: Vessel: Sherd relationship in trench K

Many of the medium and large rock tempered vessels are represented by very large sherds which are relatively unabraded, suggesting fairly rapid deposition, while the shell tempered and untempered vessels are represented by smaller, abraded sherds. Overall we observe many of the same patterns of depositional activity occurring in association with structure 8.

The spatial structure of deposits conforms to earlier patterns of concentricity and centrality with medium size vessels being placed in close proximity to structure 8, and large vessels being placed at the periphery within trench K. However, the nature of this depositional pattern is quite different to that from the earlier phases of settlement.

Foundation deposits: the redeposition of Grooved ware at Barnhouse

We have reviewed the nature of secondary deposition at Barnhouse and have observed that spatially different categories of vessel are treated in different ways on deposition. These differences are partly the result of the way in which different vessels

are drawn on in use. I now wish to turn to another aspect of deposition practices, that is, the incorporation of Grooved ware vessels into the walls of later constructions. The only structures where it is possible to be certain about the association between sherds from wall fill contexts are house 3 and structure 8. Of note here is the incorporation of certain categories of material in precise locations within the structure of buildings. In particular, the incorporation of a sherd from a large cordoned fabric B vessel below the threshold slab of house 3, and the analogous incorporation of an identical sherd within the inner wall of structure 8. The incorporation of the sherd beneath the house 3 threshold slab must have occurred at an early stage in the construction of the building since the threshold slab is integral to orienting the house (Richards 1991). It is notable that this category of vessel should be chosen for reincorporation as foundation deposits within structures, since it is this very category of vessel which, due to its spatial location within the house, is physically associated with the house. The incorporation of this material, the remains of previous habitation, provides a mnemonic link between the past and the present.

In house 3 the wall cavity also has a number of sherds of medium size rock tempered vessels and a fragment of burnt clay, suggesting that a wider range of activities are being drawn in the act of redeposition. The association between artefacts and house walls is not confined to Grooved ware, as flint artefacts have been found within wall cavities in house 3, structure 8 (both the inner and outer walls), and house 11 (Middleton 1994). In each case both implements and debitage are found suggesting the reincorporation of both waste and utilised material. The state and nature of the Grooved ware indicates that it has been reincorporated after a considerable period of abrasion. Furthermore, its haphazard position within the wall suggests that a mixture of occupation material was incorporated together. This process can best be seen as a formative stage in the incorporation of midden material within the walls of houses, an

act which is most visible at sites such as Skara Brae (Childe and Paterson 1928, Childe 1931a).

Summing Up: The Life and Death of the Barnhouse Grooved ware

We have already considered in some detail the mode of production of various categories of Grooved ware. While there was excellent evidence for the firing of shell tempered vessels and a limited number of untempered and rock tempered vessels in the central area, there was little evidence for a specific production site for rock tempered vessels, although the difference in tempering agents and 'recipes' between houses 2, 3 and 5 could be demonstrated. Therefore, while the specific site of production for rock tempered vessels was not located each household was identified with a different temper 'recipe'. It was suggested that these differences are related to differential rights of access to the places from which temper was provenanced within the cultural landscape.

We need to consider now how these vessel were used in practice. Firstly, we noted some gross differences in the use of different categories of vessel through use-wear, particularly sooting. Notably in the earliest phases at Barnhouse both the large and small vessels were not sooted. The major distinction in this aspect of use-wear was between medium size vessels. Here it was noted that most of the sooted sherds across the site were shell tempered. However, when we examined the nature of sooting within the houses we found that a number of rock tempered vessels were also sooted, with a particularly high number in house 2. What is more, on the platform of structure 8 we found that a number of large vessels were also sooted.

Residue analysis provided a further means of demarcating the differences between vessels. Here it was noted that the large and small vessels were marked out by their strong association with barley. Some of the large vessels also contained cattle

milk, especially those on the structure 8 platform. The medium size vessels also contained cattle milk, although a number of medium size rock tempered vessels associated with house 2 also contained cattle meat. From this it was suggested that the large vessels could be considered as storage vessels, the small vessels as serving vessels for the consumption of barley and that the medium size vessels were both cooking and consumption vessels for cattle milk or meat. It was suggested that there may be a distinction between the use of shell tempered vessels for cooking and rock tempered vessels for serving and consumption in certain houses.

An analysis of the way in which categories of Grooved ware are spatialised at Barnhouse revealed some interesting patterns. Firstly the large vessels were typically placed in alcoves at the back of the house or around the walls, concurring with their use as storage vessels. The small vessels were both stored in alcoves or utilised around the central hearth. Most interesting was the use of medium size vessels. While a number of vessels could be observed in positions which suggested storage, others were associated both with the hearth and the hearth ash. A high proportion of these vessels were also decorated. This spatialised pattern of use is preserved in the case of structure 8 where large vessels cluster around the platform area, while medium size and small vessels are found in the interior.

Finally, an analysis of the deposition patterns of different categories of Grooved ware vessel revealed a striking level of complexity. As with the differential distribution of vessels observed between houses, shell tempered vessels were concentrated around the central area, while rock tempered vessels were located in close proximity to houses on the periphery of the settlement. However, we also noted that there was some evidence of deliberate selection of material, with shell tempered vessels being dumped closest to the central area and rock tempered vessels further away. This was observed amongst the house 2, 3 and 9 dumps as well as the house 6

dump. We also observed that in certain cases shell tempered vessels were placed in pits cut into the central area.

The most striking deposit was the dump of large vessels. These vessels were derived from a number of locations around the site and dumped on the periphery of the settlement. If we stand back and view these deposits as a whole it is evident that the spatial pattern of deposition is analogous to the spatial pattern of use, with large vessels being placed around the periphery of the house in use and the periphery of the settlement on deposition, while the medium size shell tempered vessels are used around the central hearth and deposited within or towards the centre of the settlement. This is a general pattern and it is evident that in many cases vessels are being dumped in close association with specific houses, such as houses 2, 3 and 9.

The overall spatial pattern of deposition is again preserved around structure 8, since large vessels are dumped in the peripheral trench K, while medium size and small vessels are dumped in close proximity to structure 8 itself. Having provided this brief overview, in the following chapter I will describe the biographies of various categories of Grooved ware.

Chapter Eight

The Biography of Grooved ware

Grooved ware, Barnhouse and Social Identity

Having reviewed the evidence for the use and deposition of Grooved ware at Barnhouse we are now in a much better position to consider the biographies of different categories of vessel. The first point to note is that different categories of Grooved ware have different biographies. Although these biographies may overlap spatially or temporally they each have a different 'shape'. In order to understand these biographies it is essential to map the way in which social identity is related to different categories of vessel during production, use and deposition.

Here it is important to reiterate the distinction between the production of rock and shell tempered vessels. The production of shell tempered vessels is associated with communal production in a specific place, the central area, while rock tempered vessels are produced by specific individual households. Here the materials used in production are related to a specific place rather than the act of production itself. Such a distinction suggests that the precise place and manner of production, either communally or individually, has a considerable affect on the way in which vessels are used and perceived. In a similar vein, the use of vessels will either be related to specific households, a more communal identity, or specific individuals within households, a more individual identity. Finally, the manner in which vessels are deposited is guided by the duality between the vessels identity through production and its identity through use. I now wish to sketch the outline of the biography of each category of vessel.

The biography of the Barnhouse Grooved ware

The large vessels at Barnhouse are produced both communally in the central area and by individual households. In use they are placed around the walls, where their position probably remained fairly static. In support of this it is worth noting that the vessel in structure 8 was actually set into the floor. The immovability of this category of vessel is especially apparent if we examine the evidence from a number of other sites. Within hut D at Rinyo, Childe and Grant (1938, 24) noted that a large vessel had broken *in-situ* within a small alcove. Reconstruction of the vessel and measurement of the alcove entrance indicates that this vessel could not have been removed from the spot in which it was situated. Furthermore, when Childe (1928, 1929,1931a) excavated house 7, Skara Brae, there were a number of large Grooved ware vessels smashed *in-situ* within small alcoves, or placed in the slab built box beds, while a further vessel was placed in close proximity to the rear 'dresser'. While not all these vessels were immovable within the house, they were too large to fit through the low doorway, and the largest vessels were again confined small alcoves.

The spatial position of these vessels suggest that they were hardly visible during their period of use, and as such they are best regarded as storage vessels, used to contain both barley and cattle milk. It is notable from the frequency of these vessel within the house that, typically, each house had a single large vessel, and as such it was used by all members of the household. On discard large vessels are placed in a peripheral location at the back of house 3, spatially conforming to the same peripheral position in which they remained for much of their use-life. This material was provenanced from a number of locations around the settlement, thus on deposition the vessels are placed in a communal location. Certain vessels may, at a later stage, be incorporated within the walls of later houses.

The biographies of medium size vessels are more complex and I will describe them according to fabric. Medium size shell tempered vessels are produced and fired in the central area, as such their production is communal. They are used in a number of locations around the settlement. Most are used in the houses that border the central area, although a number are used in the houses on the periphery of the settlement. In both locations they are used in a similar manner. They are stored around the periphery of the house and are used within the central hearth. As such they are often used for cooking, being heavily sooted. They are used to cook cattle milk products and possibly barley. A number of shell tempered vessels may also be used as serving vessels for the consumption of foodstuffs especially cattle milk products. The high frequency of these vessels within the individual house suggests that they are used as individual serving vessels.

The identity of these vessels depends on two factors, where they were used and where they were made. If used in the houses around the periphery of the settlement then they are deposited amongst the ash dumps outside the house, although the composition of these dumps suggests that shell tempered vessels are preferentially dumped near house 9, closer to the central area. If used in the houses bordering the central area they are deposited back within the central area, in the location in which they were produced.

Medium size rock tempered vessels have quite different biographies. These vessels are produced according to specific temper 'recipes', which relate them through production to specific houses. Despite the clear association with certain houses it is difficult to determine precisely where they are fired. They are located in similar places to the shell tempered vessels within houses, being stored around the periphery of the walls but also being used within the central hearth. These vessels may have been used either as cooking or serving vessels. A number, within house 2, are sooted, suggesting their specific use as cooking vessels in this context. They are used to contain cattle

milk products and cattle meat, although the latter is only found in house 2. As with medium size shell tempered vessels, their frequency suggests that they are employed as individual serving vessels. The deposition of these vessels is complex and relates to the specific manner of their use. Those vessels used in house 2 are either deposited in pits within the house or are rapidly deposited in the dumps exterior to house 2 or 3. In this case, deposition depends on a number of factors. Certain vessels are related through use to specific houses and as such they are deposited in exterior dumps outside these houses. However, if used for the consumption of cattle meat in house 2 they are dumped outside this house or house 3. The identity associated with their use and deposition is complex then, since it is related to the use of vessels in specific houses, such as house 2, and also the consumption of certain substances such as cattle meat.

Small vessels have a much simpler biography. Again, depending on how they are tempered, they are produced either communally in the central area or for individual households. Their use is similar to medium size vessels, since they are found both in peripheral alcoves within the house and around the central hearth. However, unlike medium size vessels they are used to contain barley, and as such can be considered as serving vessels. The frequency of these vessels, with typically only one vessel found within individual houses, suggests that in use these vessels were shared, and would have been communal. The deposition of these vessels occurs in a similar way to shell tempered vessels. If produced within the central area they are redeposited there, if used within individual houses they are deposited amongst the hearth ash exterior to the house.

Grooved ware and social identity at Barnhouse

Now that we have examined the nature of different vessel biographies we are in a better position to consider the manner in which vessels are used to represent different

kinds of social identity at Barnhouse. In order to do so we need to begin our examination of the nature of social identity with the individual house. Each house at Barnhouse has a broadly similar assemblage of pottery, the major difference being the manner in which the pottery is tempered. Spatially each category of Grooved ware is used in a different way. It is worth pointing out that the large vessels are most likely to refer to the household, since they are static within the house and are used by all members of the household. However, of most importance here are the medium size and small vessels which are used around the hearth. It is these vessels that are most often decorated with decorative schemes which are used throughout the settlement and would therefore suggest a notion of communal identity. Their use around the hearth means they would be highly visible on a daily basis. What is most important is that they are used in cooking and consumption activities. As indicated in chapter 2, one of the primary modes by which identity is represented is through the social relations of consumption.

Given this, we need to consider precisely what aspects of social identity are being represented through the use of medium size and small vessels around the hearth. It was noted above that small vessels are likely to be used in acts of sharing. These vessel refer, via decoration, to the community as represented by the settlement, while, in use, they refer to a different aspect of community, as represented by the household. Meanwhile, medium size vessels may have been used as individual serving vessels. As such, decoratively, these vessels refer to community as represented by the settlement, but in use they also represent the individual.

The complex activities occurring in house 2 also appear to be linked to certain notions of community. The house is undoubtedly being used by the community as a whole, and it is unlikely that it is inhabited. It is notable in this regard that house 2 is a focus for the processing and redistribution of barley. In terms of Grooved ware it is worth noting the uniform temper 'recipe' used in the production of the vessels used in

house 2. Yet the decoration on these vessels is quite unlike that across the site as a whole. Specific categories of vessel are also being utilised for the consumption of cattle meat. Notably, consumption activities within house 2 are confined and restricted, and can only be witnessed by those within the western room of house 2. Given this and the nature of the food eaten and the form of decoration on the pots, we may be looking at activities restricted to those of a specific identity, with possible restrictions according to age, gender or lineage. What is more, we may be observing some form of small scale competitive exchange conducted within the settlement. Here the nature of the decoration on the vessels is of importance since they seem to strongly refer to other settlements. What is more, house 2 is a focus for the production of specialised stone tools, and as we shall see below these objects are of particular importance in exchange.

In the earliest phases at Barnhouse vessels employed in the cooking and consumption of food were used around the central hearth and were decorated in a similar manner, as such they represented both ideas of community and the individual. However the use of vessels in these kinds of activities contrasts strongly with the use of vessels for cooking and consumption within structure 8. Here the activities of cooking and consumption are spatially separated. Large vessels are used on the platform and are undecorated, or decorated with simple cordons, while those in the interior are decorated with incisions. The activities which surround the production of Grooved ware and its use in the cooking and consumption of food have changed, and the identities involved in the use of these vessels are different. Notably, the scale of cooking around the structure 8 platform is considerable, the vessels employed for cooking were sometimes twice the volume of earlier cooking vessels. It seems reasonable to assume that, if structure 8 is utilised as a house, then the scale of everyday cooking and consumption practices has increased, suggesting a larger number of people included within the household.

Materially the large cooking vessels and medium size and small serving vessels both represent similar production histories and similar communal notions of identity. However, the distinction between cooking and consumption has been preserved in practice through the spatial separation of these practices. Importantly, while cooking is a highly visible activity which occurs on the platform, consumption is more restrictive and occurs around the central hearth within the interior. The association between the act of consumption and the use of the central hearth has been retained suggesting the hearth still provides a focus for social interaction. It would seem that in this later period there was less emphasis on utilising pottery to represent differences within the settlement, rather we may simply be seeing large scale consumption as a means of cementing social ties within the community. We need not necessarily see this change in consumption practices reflecting changing social relations, especially kinship relations, but rather a change in the way social relations are expressed and represented. Richards (1994, 163) notes that structure 8 may be seen as a representation of a house. In a similar way the Grooved ware used within it may also be considered as representational. The uniform and conglomerate method of construction and decoration would appear to be referring to a new kind of identity, a more overarching notion of community.

Having considered the various aspects of social identity represented by Grooved ware vessels at Barnhouse, it is essential to take a step back and examine what this represents in terms of our understanding of social organisation. It was observed in chapter 3 that the dominant model of society during the Late Neolithic was of a modular and cellular segmentary society. Although Renfrew considered this society to have 'centralising tendencies', recent criticisms of this view have suggested that Late Neolithic society is best viewed as segmentary and egalitarian with a few internal power relations.

We have observed throughout this study that the Barnhouse settlement is arranged according to a concentric spatial plan with a central area used for production activities. This spatial plan appears to be reproduced through the differential distribution of certain categories of Grooved ware vessel. What is more, the production of these different categories of Grooved ware appeared to conform to this spatial arrangement. Shell tempered vessel were produced in the central area, and in houses 1 and 6, while the production of rock tempered vessels are related to houses on the periphery of the settlement. There would appear to be a simple dichotomy within the settlement between the houses which border the central area and those on the periphery.

However, there are also a series of dualities evident in the production and use of different categories of Grooved ware. Firstly, despite the dichotomy in production, medium size vessels of both fabrics were decorated in the same way, as were small vessels. Secondly, despite the production of rock tempered vessels in certain houses, the pottery assemblage within these houses was also composed of shell tempered vessels. Furthermore, as we have observed above, while certain decorative schemes are used by the settlement as a whole, vessels employing this decoration are used in the representation of specific kinds of social identity within the house. What do these series of dualities represent? In order to answer this question it is essential to return to the petrological evidence. Here it was suggested that, due to the use of two contrasting types of temper from two different regions of the landscape, we were observing the construction of relations of affinity. It was suggested that these relations of affinity were articulated by marriage. Thus they encompassed the different social identities represented by both gender and kinship and the social relations between them.

It is possible, given the series of dualities observed above, that a similar series of affinities are being expressed at Barnhouse between social groups representing different lineages or genders. In this case, we may envisage the spatial pattern of the

settlement as representing different kin groups or lineages. Therefore, the use of two different categories of Grooved ware within a single house would involve exchange relations between one kin group and another, while the decoration of vessels with the same decorative scheme would be a powerful metaphorical statement concerning the relationship between two distinct social groups. Both of these examples would involve relations of affinity between the two social groups and would suggest the formation of a more general overarching identity representing the settlement as a whole. Given this, the identities represented by the use of house 2 stand out all the more starkly, since the decoration on the Grooved ware in this structure is so obviously different. Within house 2 we also see a mixed assemblage of Grooved ware tempered with either shell or rock temper. What we may be observing here is the use of house 2 by a social group whose social identity both cross-cuts and transcends the differences discussed above within the settlement. If we accept this interpretation then this suggests that the identity represented by the production and decoration of the Grooved ware within structure 8 is one in which these separate strands of the earlier settlement have coalesced representing a different kind of communal identity.

While conceptions of segmentary societies have traditionally viewed social relations to be egalitarian, our view of social relations and the nature of social identity from the evidence of Grooved ware production and use reveals a far more complex view of social relations. Rather than thinking of each settlement being represented by a single social group, a more realistic view of social relations during the Late Neolithic includes the possibility of social relations extending beyond the settlement. What is more, social identity within the settlement is not fixed and should instead be seen as contingent and overlapping.

Grooved ware and social identity beyond Barnhouse

We have seen then that segmentary societies are not internally homogenous, but are rather composed of a series of overlapping social identities. What we need to examine now is whether these societies can be considered as bounded. I have already discussed, through the petrological evidence, the possibility of marriage relations extending beyond Barnhouse into the wider environs. We now need to expand this examination of Late Neolithic social relations by extending our discussion beyond Barnhouse. Notably Grooved ware is found in two other major contexts, henges and passage graves, and I will now turn to these.

The Stones of Stenness and Barnhouse Odin

The Stones of Stenness henge is situated some 150 metres to the south of Barnhouse. In this account I wish to examine the use and deposition of Grooved ware, not only within the henge, but also in contexts around the henge. As discussed in chapter 3, Barnhouse and the Stones of Stenness are part of a wider complex of monuments which are situated on the promontories of Stenness and Brodgar (Richards 1996b). As Richards suggests, these monuments are not used in isolation but are used as part of a wider cycle of activities over the year. Furthermore, Richards has recently noted that the whole landscape around this area may be drawn into wider representations of the world during the Late Neolithic. As such different parts of the landscape are used in contrasting but complimentary ways.

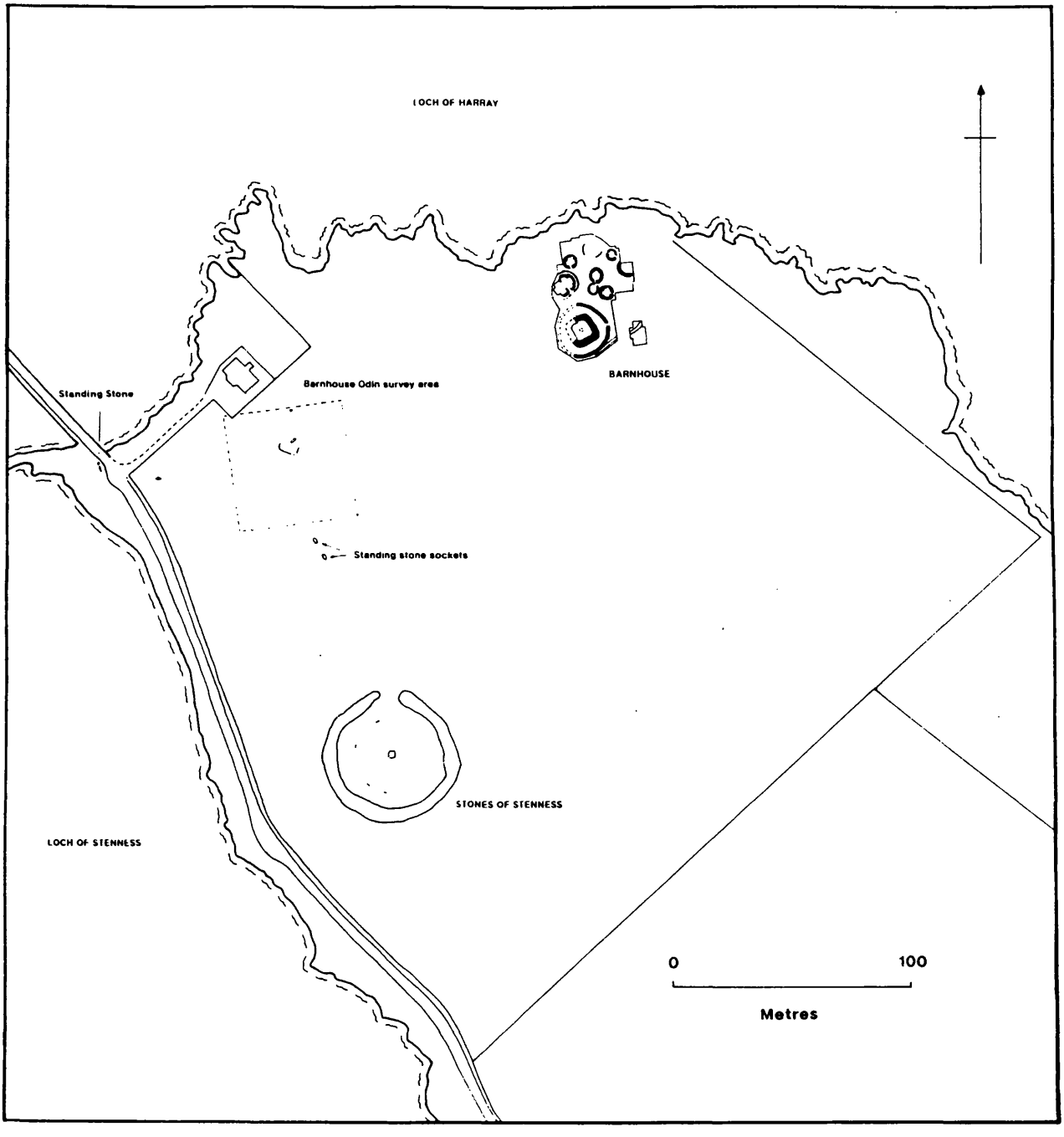


Figure 8.1: The position of Barnhouse, the Stones of Stenness and Barnhouse Odin on the Stenness promontory (from Richards 1993a, 247)

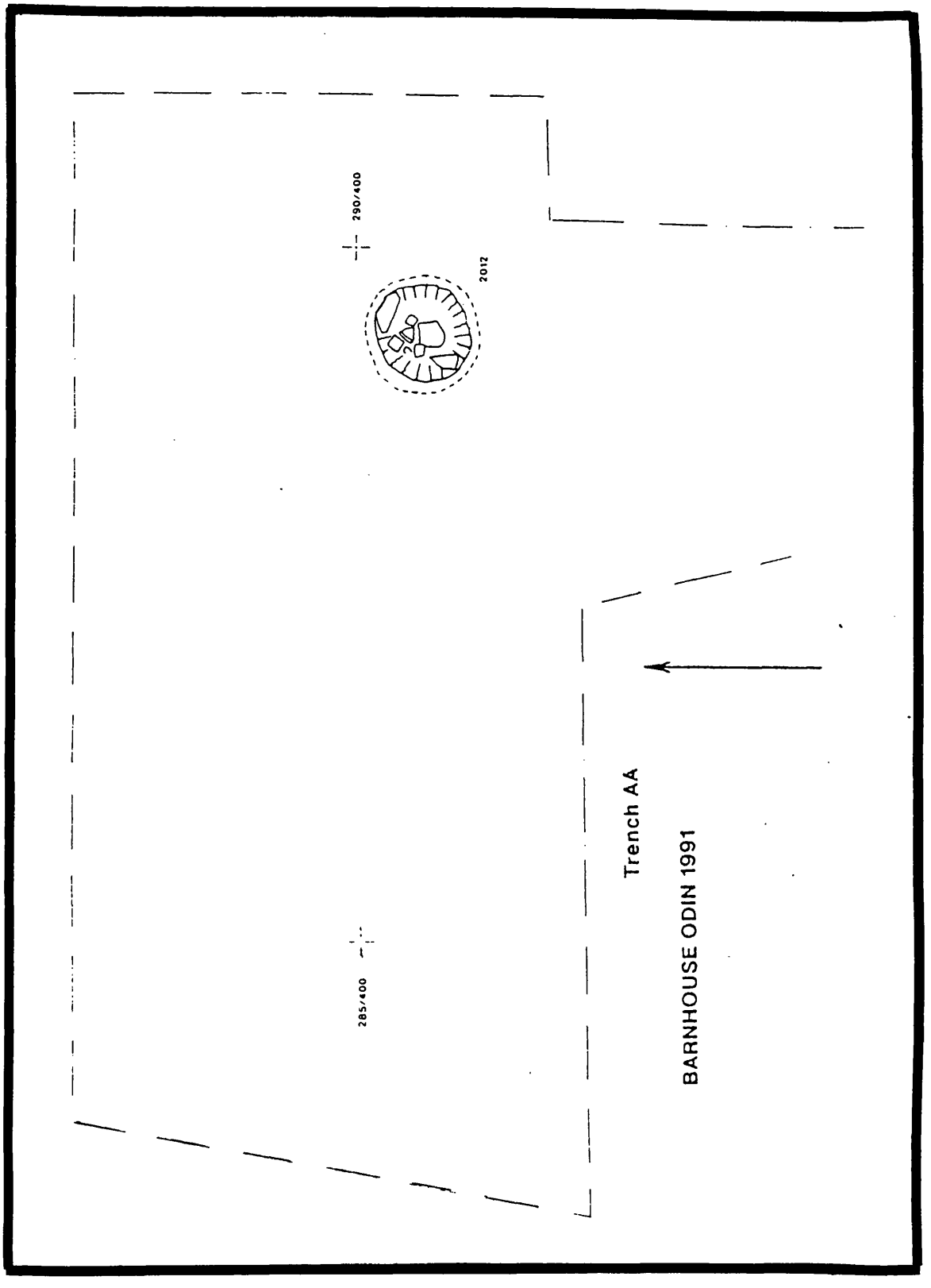


Figure 8.2: The hearth in the Barnhouse Odin survey area (from Richards 1993a, 250)

To begin with I would like to contrast the activities at two locations within this landscape, the site of Barnhouse Odin and the Stones of Stenness (Fig 8.1). The Barnhouse Odin site represents the remains of two standing stones situated some 6 metres apart, and has been recently described as a form of symbolic gateway, allowing access from the Brodgar complex into the Stenness complex (Richards 1996b, 199). On the south-eastern side of the stones a large scooped hearth was situated (Fig 8.2). This hearth was associated with large amounts of flint debris and most importantly, Grooved ware. An examination of the Grooved ware indicates that it entirely consists of vessels tempered with shell. What is more very little of this material is decorated. Parallel incisions can be detected on a few sherds, but the material is too fragmented to indicate the precise decoration.

If we compare this with material found within the Stones of Stenness, we see a considerable contrast. Grooved ware was found at the Stones of Stenness in two specific contexts, in the ashy fill of the central hearth, and in the western terminus of the rock cut ditch (Fig 8.3). However, this material was of a quite different nature to that from Barnhouse Odin, since all of the material was rock tempered and much of it was decorated with very specific decorative schemes. Of particular note is the decoration employed on SF 16 (Henshall and Savory 1976, 23), which is identical to decorative scheme 8, found in almost all contexts at Barnhouse (Fig 8.4).

Petrological examination of the Grooved ware reveals that it was tempered with two different sorts of rock, sandstone and camptonite. The first cannot be sourced although it was used in a number of specific contexts at Barnhouse, especially house 2. The second is the dyke of unknown origin, dyke X, which was used exclusively in house 5. A total of twelve possible vessels are represented, and it is worth noting in some detail the contexts in which different material is found. The central hearth contains four rim sherds from different vessels, a rim and wall sherd, three wall sherds, and a group of seventeen wall sherds. SF 7, a wall sherd is decorated with 2 horizontal

incisions, SF 9 a group of wall sherds decorated with an incised line. Nearly all of this material is tempered with sandstone, except SF 6 which is tempered with camptonite (dyke X). The western terminal of the rock cut ditch also contains a number of vessels, in particular SF 16 already mentioned above, and a single flat base.

Radiocarbon determinations for the use of the henge, include dates from animal bone from the secondary layer in the ditch and from charcoal amongst the ash within the hearth, both give fairly late dates of 2356+/-65bc and 2238+/-70bc respectively. However, as Richards (1993a, 318) points out, the contexts for both of these dates probably dates the final use of the monument, especially when we take into account the substantial remodelling of the hearth (Ritchie 1976, Richards 1994). Indeed, the Grooved ware from the ditch deposit stands as the most accurate means of dating the use of the monument.

If we consider the nature and contexts of the Grooved ware, then this gives us a very specific impression of activities conducted within the henge. At the Stones of Stenness we see the use of at least one vessel, SF 16, which refers quite obviously to Barnhouse. Its presentation in a context outside the settlement must involve the representation of the idea of community, and the community of Barnhouse in particular. This is of interest if we consider that activities within the Stones of Stenness were visible to people beyond the community of Barnhouse. Of more interest is the realisation that precisely the same form of pottery is being used both in the intimate confines of the house at Barnhouse, and the wider arena of the henge. This is especially interesting when we note that the architecture of the henge draws on the architecture of the house, and of particular note here is the construction of a central hearth in both structures. This architecture is furthermore reproduced at a later date within the settlement, in the construction of structure 8.

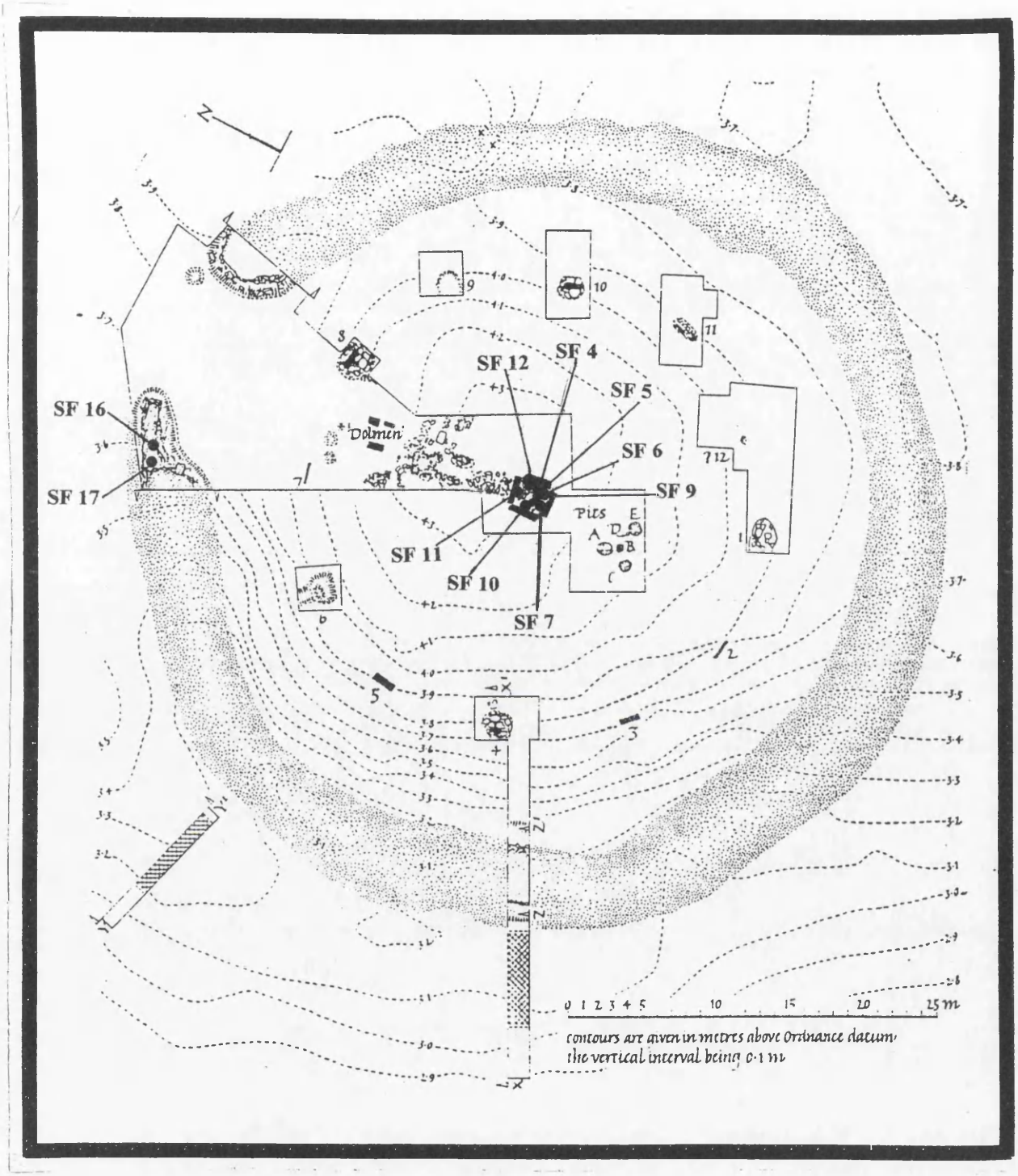


Figure 8.3: The Stones of Stenness henge with the position of sherds noted (from Ritchie 1976, 3)

Through the use of Grooved ware, which refers both to the house and the community, both the intimacy of the social relations of the household and membership of the wider community were drawn on by those participating in the activities within the henge. This is an important point since we are seeing the sharing of substances normally associated with the household. In a wider communal context, this act would have been essential in the creation of relations of affinity between those from Barnhouse, and those living beyond Barnhouse. I suggested above that decorative schemes are an important aspect of the construction of relations of affinity within Barnhouse. But we must be careful in considering the nature of representation in relation to decoration beyond Barnhouse.

It is important at this point to note that the decorative schemes on vessels are used actively in constructing and drawing conceptual and subjective boundaries around groups of a particular identity. It is worth reiterating Bradley's (1982) point that although it is unlikely that Grooved ware itself circulates over large distances, the designs themselves may have had a fair degree of currency, and the ideas associated with the use of Grooved ware obviously circulated extensively. Decorative schemes are communicative then, and given the specificity of certain decorative schemes to settlements, the use of a vessel with a specific decorative scheme was important in signifying precisely who was conducting activities within the henge. I believe that the vessel SF 16 was used as a means of demarcating and referring to Barnhouse as a discrete and unified community, as Cohen (1985, 11) notes the boundaries associated with communities are subjective, and may be visible at one point, invisible at another. Thus the use of vessels in communicating both the provenance and the specific identity of the people using these vessels is extremely subtle, and operates according to a very localised pattern of understanding. It is precisely due to the specificity of decorative schemes between settlements that the identity of vessels will be recognised *beyond* the settlement.

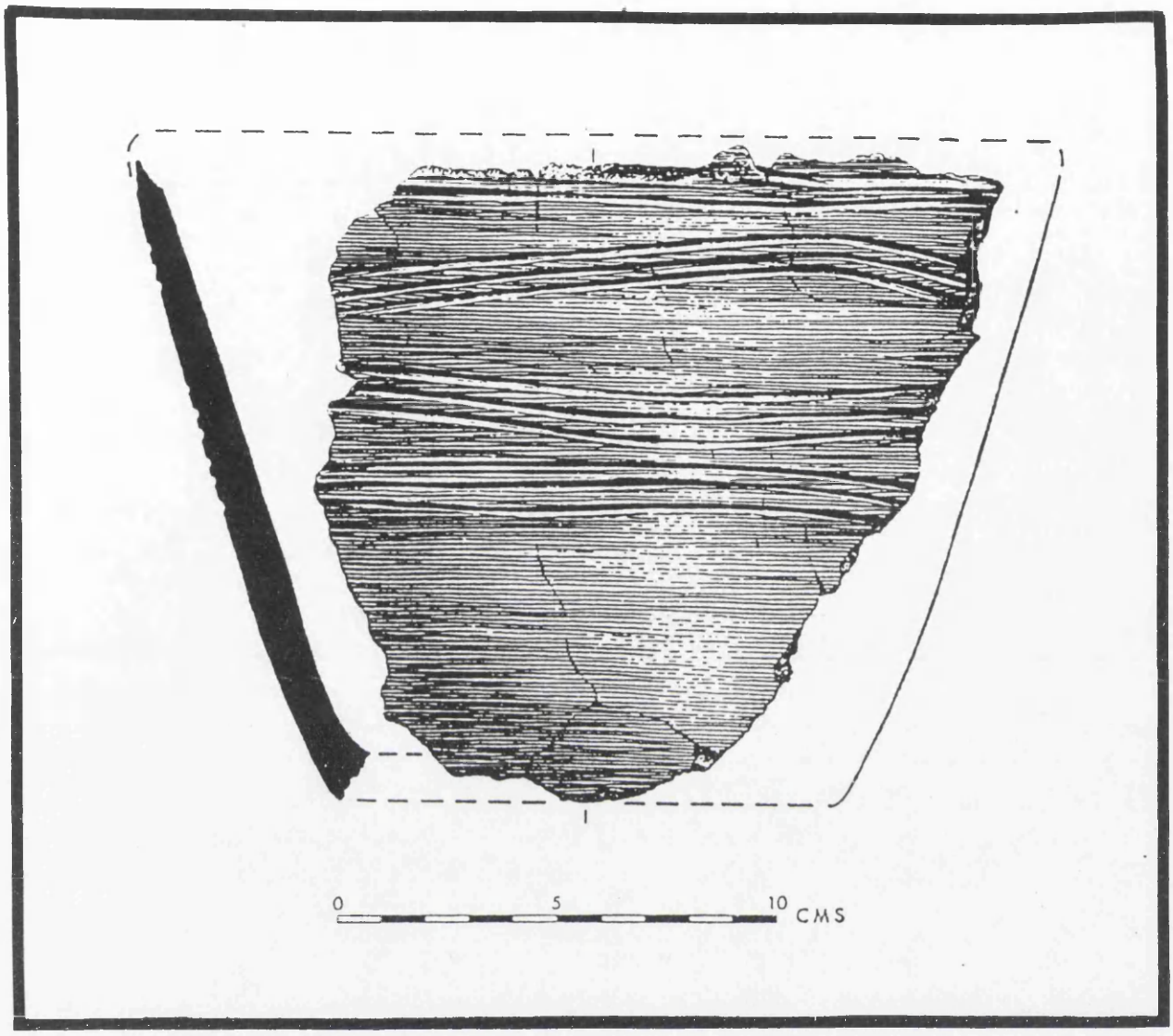


Figure 8.4: Grooved ware vessel, SF 16, from Stones of Stenness ditch (after Henshall 1976, 23)

How was Grooved ware used in the henge, and what form did these activities take? In order to answer these questions we need to return to Barnhouse Odin, where we see large amounts of shell tempered Grooved ware intermixed with deposits of cramp and flint tools, but surprisingly little burnt bone. In contrast it is notable that very few flint tools were found within the henge indicating that animals were probably butchered and skinned outside the henge itself. However, we do see deposits of animal

bone within the ditch section and terminal of the henge, particularly the terminal joints of cattle, sheep and dog (Clutton-Brock 1976, 35). What is also of interest with regard to the animal bones is the propensity of juveniles amongst the assemblage, suggesting that the animals had been slaughtered around late autumn or winter. Colin Richards (1993a, 238) has suggested that this may indicate activity around midwinter, a symbolically important point in the Orcadian year. Thus we observe the spatialised preparation and consumption of food, with different categories of Grooved ware associated with each task. Medium size vessels of different fabric are differentiated in use inside and outside the henge. At the Barnhouse Odin site the use of shell tempered pottery is likely to represent preparation activities, while the use of rock tempered vessels within the confines of the henge represents consumption. By analogy with similar forms of Grooved ware from Barnhouse, it is likely that either cattle milk or meat was consumed in vessels within the henge.

Having considered precisely how Grooved ware vessels are used within the henge it is illuminating at this point to consider the manner of their deposition. What is notable in this regard is the difference in the nature of the sherds within each context. Within the hearth deposit there are five separate rim sherds and nineteen wall sherds. One vessel, SF 7, appears to be smashed *in-situ*, since at least seventeen wall sherds are present. Within the western ditch terminal, where only wall sherds and a base sherd are present, the major wall sherd, SF 16, comprises almost a quarter of a vessel. What is also interesting is the probable relationship between rim sherds SF 4 and SF 5 with SF 16 (Henshall 1976, 26). If this is the case, it would appear then that pots were smashed in the central hearth and then deposited in the terminal of the ditch, with the size and relative lack of abrasion of wall sherds from SF 16 suggesting that deposition was fairly rapid. Indeed SF 16 has a remarkable number of similarities in decoration, size and manner of deposition to the vessels within the house 3 dump at Barnhouse. In this regard it is notable that all vessels utilised within the henge are deposited within

the confines of the henge. It is possible then that vessels may have also contained substances such as cattle meat which were considered as polluting, as this would concur with the rapid deposition of material and its deposition within the confines of the henge. A concomitant of this is that this may explain the similarity in the deposition practices within the henge to those which occurred within the house 2 and 3 dumps at Barnhouse.

There are a number of other aspects to note about this manner of deposition, which have similarities with those at Barnhouse. In order to fully understand these depositional practices we need to consider the nature of the henge itself. As Richards (1994, 1996) notes, the architecture of the henge draws on a number of things simultaneously. Architecturally the henge represents the house, however part of this architecture represents the natural elements which constitute the world, with fire at the centre, and water at the periphery. The smashing of Grooved ware vessels in the central hearth can be considered as an act which gains its power from drawing on these ideas. The vessels are smashed within the hearth, an act which is likely to be a commonplace occurrence within the house, and deposited within the ditch on the left at the entrance of the monument, mirroring the dumps of material adjacent to houses within Barnhouse.

However, there are further symbolic levels to this act of destruction and depositon, since the vessels are smashed within the fire, a transformative element essential for the creation of pots, and they are deposited in a ditch which is filled with water, clay and rock which are the constituent elements from which a Grooved ware vessel is made. Thus the act of deposition within the henge maybe a reversal of the typical life cycle or biography of a Grooved ware vessel. Given the time of year these events may have been taking place, and the status of certain Grooved ware vessels in relation to the Barnhouse community as a whole, it is possible that such acts may have carried further symbolic weight, and were not only related to the reversal of the life

cycle of Grooved ware, but of time itself. Such symbolism would have been of the utmost importance to the community during midwinter, a time of the year in which ideas of rebirth would have dominated.

Figure 8.5: The location of Quanterness in relation to Barnhouse

The Quanterness Passage grave

The passage grave at Quanterness (Renfrew 1979) is situated some 12 miles away from Barnhouse overlooking the Bay of Firth (Fig 8.5). It is worth considering in some detail both the architecture and deposits at Quanterness. Architecturally the passage grave consists of a central chamber, joined to the exterior of the monument by a south-east facing passage. There are six side chambers adjoining the central chamber (Fig 8.6). It is essential to note that Quanterness is contemporary with the earliest

phase of use of Barnhouse. Indeed, as Richards (1990a, 310) has noted there is a strong similarity in the spatial arrangement and the fine workmanship of both Quanterness and house 2, Barnhouse. The radiocarbon determination, of around 2600bc (2640 +/-75bc), indicates that Quanterness was constructed at a similar date to Barnhouse. Further determinations for the primary cist burials of 2300bc (2410 +/-50bc, 2350 +/-bc and 2220 +/-50bc) indicate that these burials were slightly later, and it is notable that they cut through earlier deposits. Finally, the burial within pit C indicates late activity around 2000bc (2180 +/-60bc, 1955+/-70bc and 1920 +/-55bc). Interestingly the calibrated thermoluminescence dates centre around 2370 B.C. indicating fairly late activity in comparison with the construction of the cairn, although one sample from the lower stratum indicates early activity with a date of 3260 B.C.

Excavation in the central chamber revealed a sequence of deposits, which are initiated with deposits placed directly on the bedrock floor. Three cists were then cut into the floor deposits, of these only two were excavated, cists A and B (Fig 8.7). Both cists contained a single inhumation, found to be an adult male between 30-40 years old in cist A. Cist A had been disturbed by being reopened after some time for the burial of two further individuals, a child and a female teenager, but the deposits in cist B may be *in-situ*. A further series of deposits of human bone were placed over these cists. A pit containing a single inhumation of a 25 year old adult male was found cut into the upper deposits.

The deposits within Quanterness are much disturbed and confused (Barber 1988, Hingley 1996), and their spatial integrity is questionable. Nevertheless, for the purposes of discussion, the exact spatial position of Grooved ware vessels within the central chamber is irrelevant. Much of this material is scattered both horizontally and vertically around the central chamber, although notably very few sherds appear to have been found in any side chambers (Fig 8.8).

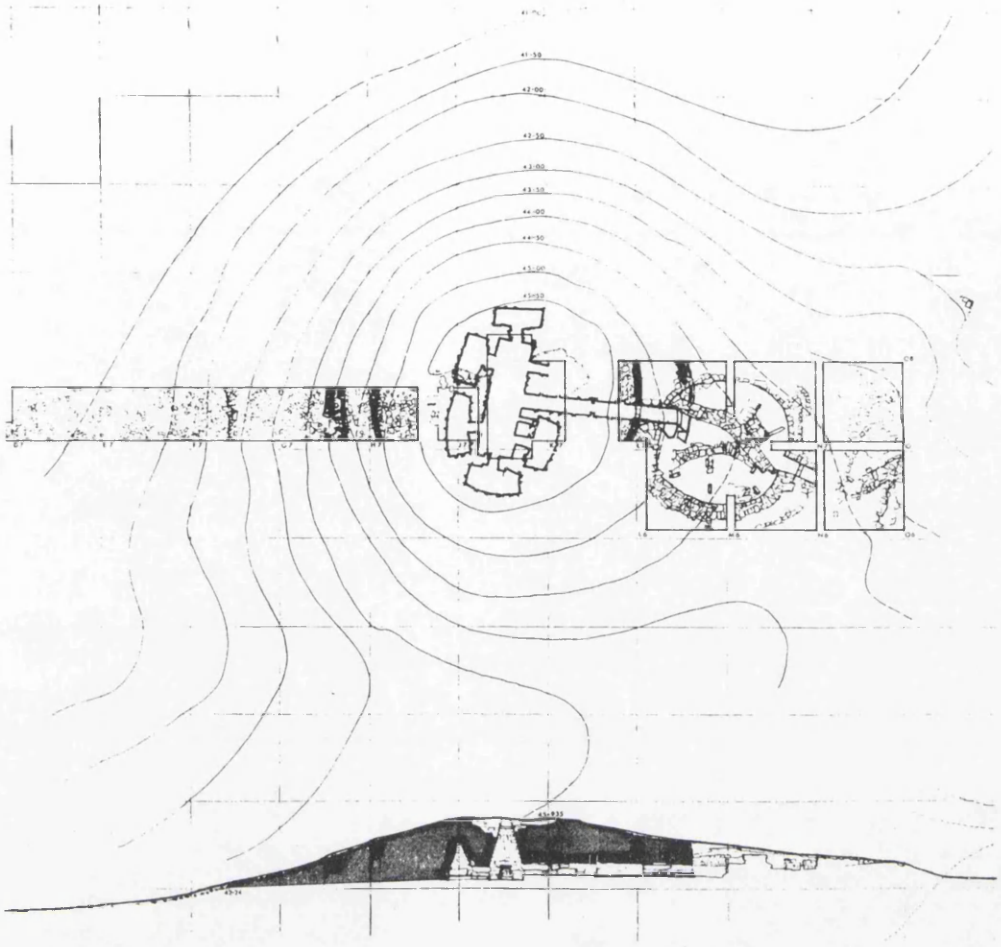


Figure 8.6: The Spatial organisation of Quanterness (from Renfrew 1979, 47)

Henshall (1979, 75) estimates that between 22 and 34 vessels were deposited at Quanterness, although only three vessels could certainly be reconstructed, P1, P2 and P3. Petrological thin-sectioning of these vessels shows that the vessels were tempered with a number of different things; lava, olivine-basalt, camptonite, bostonite, nepheline-monchiquite, sandstone and shell (Williams 1979). Williams suggests that of the twenty-six Neolithic vessels examined from the cairn, at least twelve were not made in the vicinity of Quanterness (ibid., 96). Probably the most remarkable vessel was P2 which is decorated with a decorative scheme identical to decorative scheme 8, Barnhouse (Fig 8.9). Although Henshall reconstructs this vessel with sharp incised lines, examination of the photograph of the vessel (Renfrew 1979, pl. XIX, b)

indicates that the incisions are in fact curvilinear. This was the only vessel from Quanterness to have been tempered with olivine-basalt (Williams 1979, 84), and examination of the thin-section reveals that it is precisely the same source of olivine-basalt situated at Onston Ness, dyke 2, used to temper pottery at Barnhouse. Given the specificity of decorative schemes and this remarkable petrological concordance, it is suggested that this vessel was certainly produced at Barnhouse. Further examination of thin-sections from Quanterness revealed two sherds characterised as camptonite, one, SF 204 (P10), is equivalent to dyke 3 from Onston Ness, which is actually bostonite, the second sherd, SF 1148, is equivalent to dyke X which is used only in vessels from House 5 at Barnhouse. The use of these precise igneous dyke sources suggests that these sherds were also provenanced from Barnhouse. Given the considerable mixture of vessels, each tempered with rock from different widespread sources, it seems likely that we are seeing a number of social groups, related through kinship, using the tomb simultaneously.

Richards (1988, 55) has suggested, due to the variable condition of the human bone, and the large number of individuals at Quanterness, in comparison with other monuments, that the bone material which comprises the main bone spread may be the result of quantities of human remains being removed from other tombs and brought into the tomb as a dedicatory deposit. Whether the Grooved ware has been deposited along with human remains from another tomb, or deposited deliberately within Quanterness during its use does not detract from the notion that the tomb was used by a number of contemporary and different communities. It would seem likely that much of the material must represent vessels which were brought whole to the tomb, since many of the pots are reconstructable. As Renfrew (1979, 158) rightly notes, if the pottery was intermixed with bone prior to deposition, there would be less spatial differentiation between human bone and artefactual material.

It is notable that compared to the human remains the pottery within the tomb is comparatively less scattered, and is fairly tightly contextualised (Renfrew 1979, fig 44). It is notable that in most cases the vessels are not associated with any specific individual, although a sherd was found just in front of the rib cage of the primary internment in cist A, and sherds were also found in cist B. Interestingly, these deposits were mirrored by the deposition of a large sherd in front of the rib cage of the individual in pit C. In all cases these were large unabraded sherds and it seems likely that they were placed in this position deliberately (see Fig 8.7).

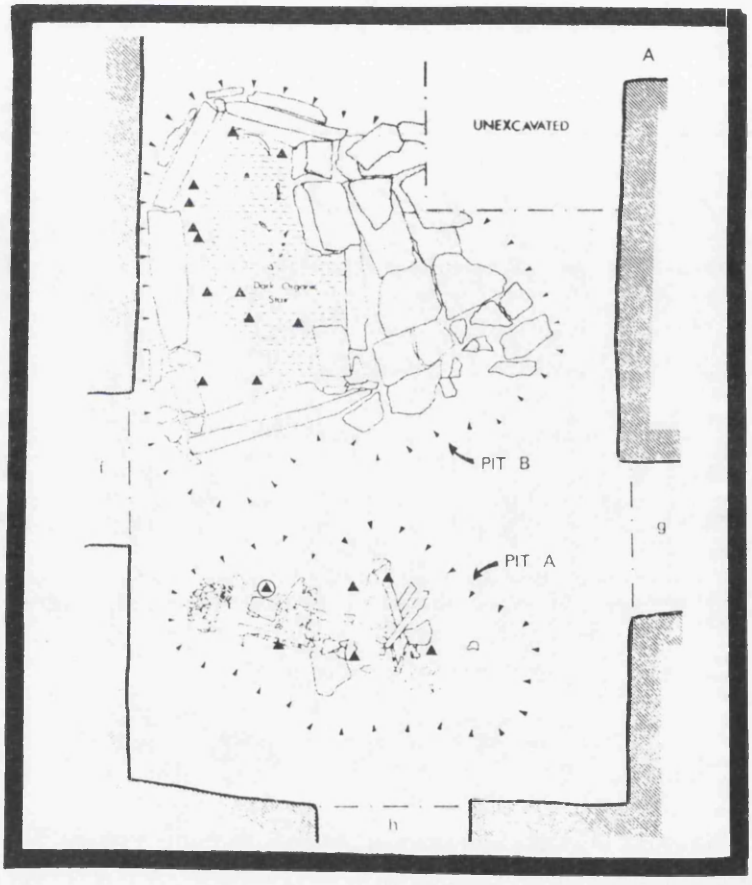


Figure 8.7: Plan of pits A and B, central chamber Quanterness. Note triangles indicate position of sherds. Most of these overlie the cists, only a small number are within the pits themselves (from Renfrew 1979, 59)

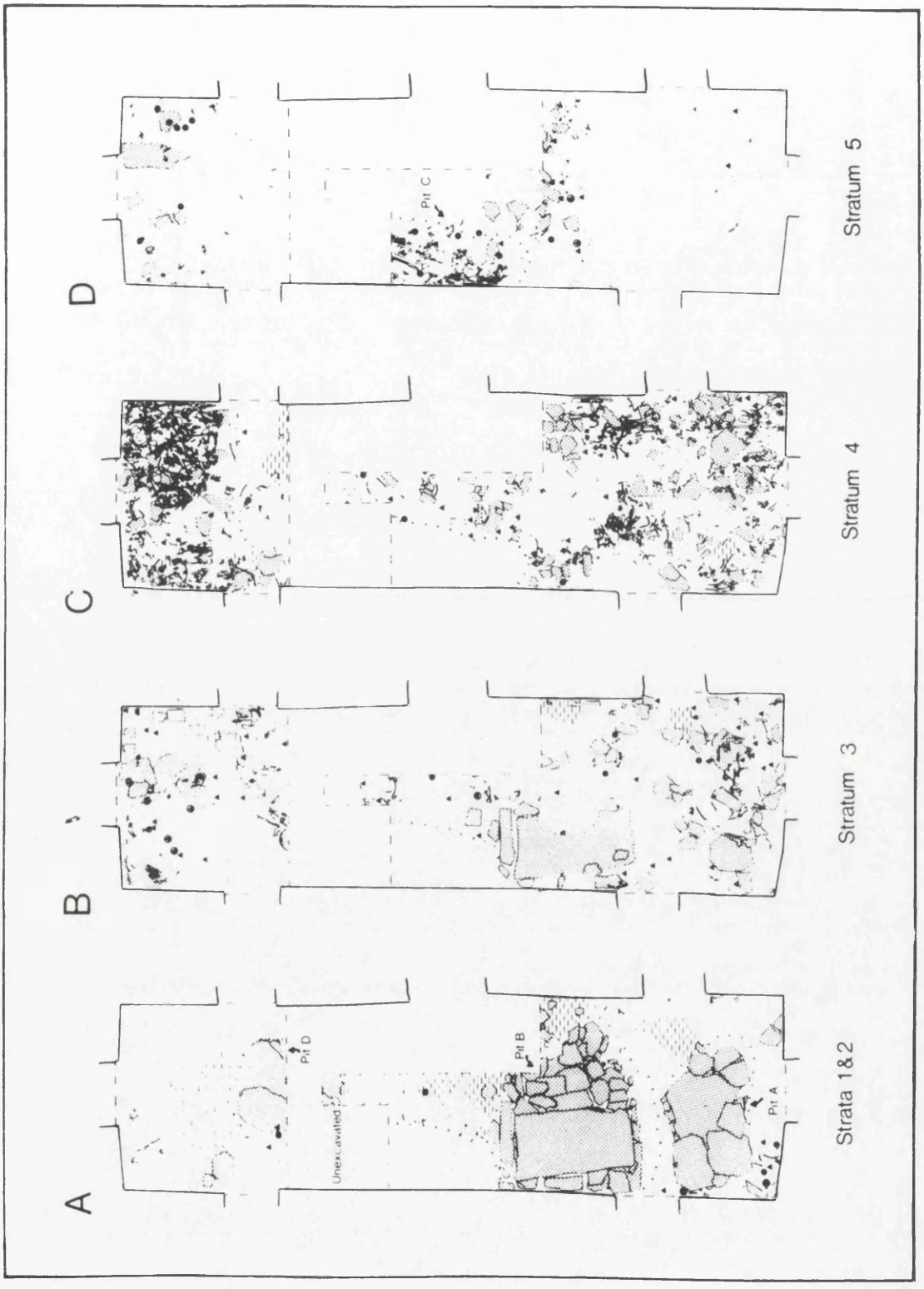


Figure 8.8:The central chamber at Quanterness. Sherds are indicated as triangles (from Renfrew 1979, 56).

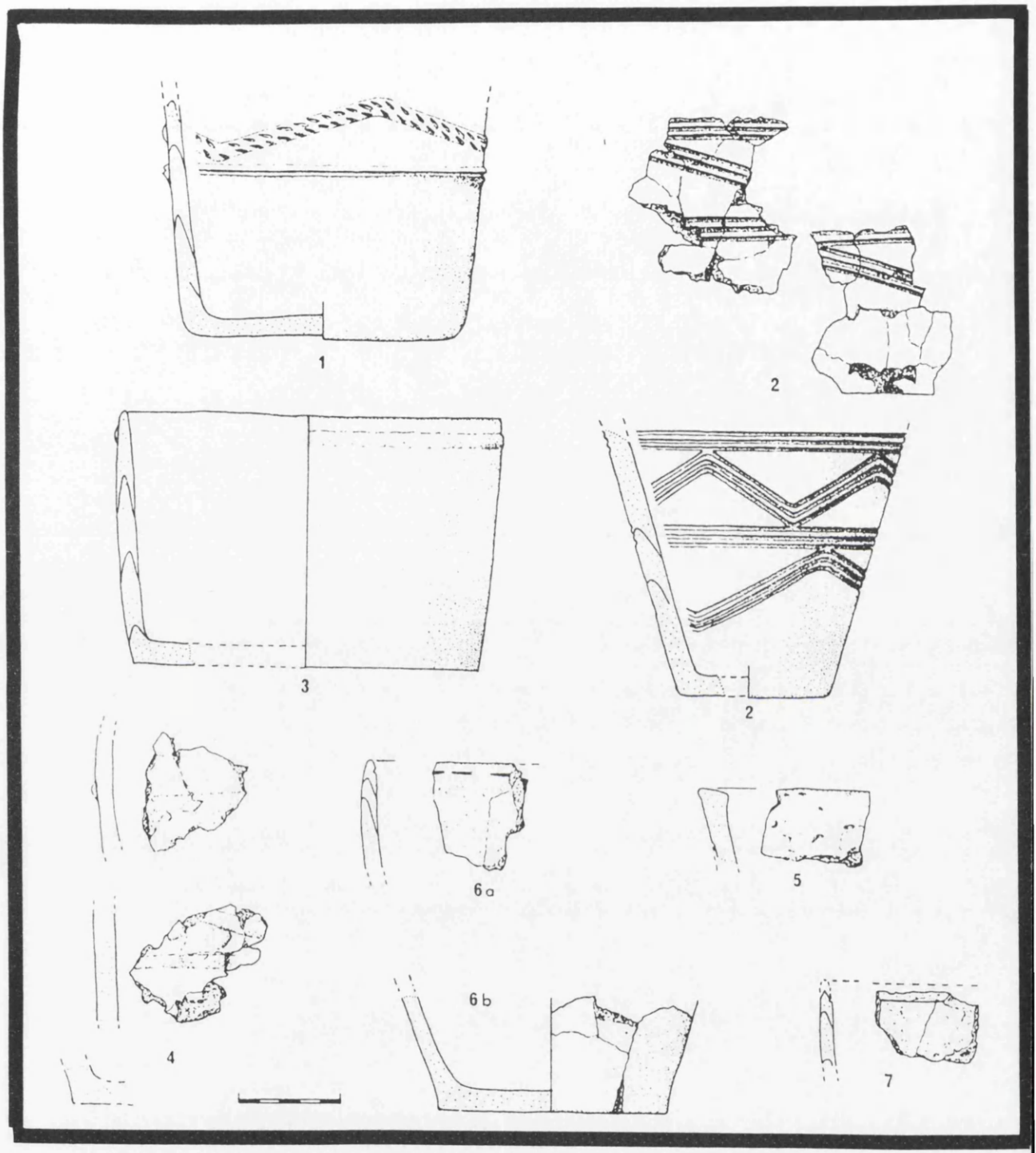


Figure 8.9: The Grooved ware vessels from Quanterness. P2 is provenanced from Barnhouse (from Henshall 1979, 76)

There are a number of points which can be made about the Grooved ware placed in the central chamber at Quanterness. All of the material is of a similar character, mostly being derived from medium size rock tempered vessels. On this basis it seems likely that this category of vessel is the most appropriate for use and deposition in the context of the activities surrounding passage graves. This category of vessel was used, at Barnhouse, for the serving and consumption of specific foodstuffs, either cattle meat or milk. It is difficult to determine whether the vessels placed within the passage grave were used beforehand or produced specifically for deposition within this context, but the presence of sooting on many of the vessels (Henshall 1979, 77) suggests they have been used elsewhere. The burning in the central chamber at Quanterness may relate to cooking and consumption activities. Here it is interesting to note that the Grooved ware vessels were confined to this central area, thus the very pots which are typically used in the everyday context of the central hearth are being utilised in a similar spatial location in the centre of the passage grave (Hodder 1982b, 224).

What is the nature of the social practices surrounding the introduction of individual Grooved ware vessels into the passage grave? If we return to Barnhouse, then this particular category of vessel was produced by individual households. The vessel P2 deposited at Quanterness was almost certainly produced by the inhabitants of a specific household at Barnhouse. Its use would therefore have been fairly restricted during its use-life, being confined to consumption around the central hearth of an individual house. Its use in a context beyond the settlement would suggest that a very specific identity was being drawn on; an identity associated with kin relations between specific households in different settlements. A similar argument may be advanced for other vessels within Quanterness. Given the widespread provenance of pots within Quanterness, we are certainly seeing some form of exogamous kinship system connecting a number of geographically distinct groups. The relationship between people and tombs is far more complex than the segmentary society proposed by

Renfrew (1979, 221), the dispersed nature of settlement is certain, but the complexities of the relationship between the passage grave and settlements necessitates against a simple view of society. Rather, we are seeing a number of complex exogamous kinship relations, probably reckoned through marriage, being expressed over a wide area. The implications of this to an understanding of Late Neolithic society will be discussed more fully in chapter 10.

The relatively small scale of deposition in Quanterness, with a maximum of thirty-four vessels placed in the tomb compared with an estimated total of 394 individuals (Chesterman 1979) suggests that rather than this activity being associated with the individual deceased, that deposition was associated instead with the generalised community of ancestors. The deposition of vessels within the tomb expressed the identity and nature of the *relationship* between the living kin members and the generalised ancestral group (Parker-Pearson 1982).

What is more interesting is that vessels appear to have undergone two stages of deposition. Most of the sherds are clustered towards the middle and left of the tomb, and although the precise location of most sherds of Grooved ware is uncertain, five sherds are placed within pits; a sherd SF 288 from P5 and SF 304 from P25 were each placed within pit A, while a sherd SF 4629 from P1 and SF 3432 from P15 were placed within pit B, while a sherd SF 4611 was placed next to the inhumation in pit C. Notably, many of these sherds, including SF 288 and 4629, are conjoined with sherds from vessels within the main spread of pottery, thus indicating that pots were placed within the tomb, were smashed, and at some time later were incorporated in pits with human burials. The deposition of pottery within burial cists is particularly appropriate since Grooved ware vessels in use are intimately associated with the reproduction of life. Broken sherds from these vessels are being used to metaphorically symbolise the state of death, and in this way they are being physically and metaphorically associated with the dead.

The biography of things is bound up with the biography of people. The biography and memory associated with particular people and particular sections of society are bound up in the production and use-life of the vessel. Thus, the use of an object which is so intimately related to notions of identity is especially appropriate in this context since it is the memory of the relationship between one group and another which is being commemorated. Through the use of a vessel with a specific production history and decorative scheme, the place of origin and the relationship indicated by this origin was presenced (Munn 1986). If we consider that pots have biographies just as people have biographies, and that vessels which symbolise both the origin and life cycle of specific kin groups are placed into the passage grave, then it is possible to see this activity as signifying an exchange of one set of objects which stand for people, with people who are exchanged through marriage. Such an exchange is most likely to relate to the severance of relations between one kin group and another on the death of an individual. As such the smashing of pottery in this context may have symbolised the dissolution of exchange relations.

Grooved ware and the representation of identity beyond the settlement

We have considered the evidence for the production, use and deposition of Grooved ware at Barnhouse. We have also observed that different Grooved ware biographies are shaped by the nature of different kinds of social identity expressed in different contexts. We have observed that within the settlement at Barnhouse there was a considerable degree of subtlety to the way in which Grooved ware was used in different contexts, and as such we cannot consider social groups to be unitary and homogenous. What is more, we have seen that there are complex relationships between social groups during the Late Neolithic, and thus we cannot consider Late Neolithic society to be made up of a series of bounded units, or segmentary societies.

Therefore, rather than employing decorative elements or schemes as a means of categorising Grooved ware on a broad level (Wainwright and Longworth 1971, MacSween 1992, 1996), it is essential to understand the complexities of Grooved ware decoration on a regional and localised level, since it is at this level that the relationship between decoration and identity operates. Paradoxically, Ritchie (1976, 21) describes the decoration on SF 16 as belonging to the *Clacton* sub-style. Given the specificity of the decoration on this vessel and its relationship with the Barnhouse settlement we can see quite clearly that broad categorical groups such as those devised by Wainwright and Longworth have little real validity. Not only do we observe differences in certain decorative schemes on vessels within different contexts, but we also observe different decorative techniques and elements employed on different categories of Grooved ware, with other properties, such as burnishing, also serving to differentiate between categories.

Here I wish to consider precisely how decoration and burnishing serve to differentiate Grooved ware in various social contexts. Richards (1993a, 194) notes that decoration has a wide significance in Late Neolithic Orkney. He isolates two particular forms of decoration; bounded linear and unbounded curvilinear (Fig 8.10). Both are confined to certain types of media. Bounded linear decoration is typically restricted to the settlement, as carving on the passage walls and furniture of houses at Skara Brae (Childe 1931a), Barnhouse and Pool. Linear designs are also found on the burial cists at Brodgar farm (Marwick 1926) and on a side entrance slab at Maes Howe (Ashmore 1986), although the presence of this form of decoration at the latter site may bear witness to the reuse of a slab from an earlier house (cf. Richards 1994, 1996b). Linear decorations are also found on bone pins at Skara Brae (Childe 1931a) and on two Skaill knives from the same site (Saville 1994). Unbounded curvilinear decoration by contrast is found on the walls and lintel slabs of passage graves at Pierowall Quarry

(Sharples 1984), Eday Manse and Holm of Papa Westray South (Shee Twohig 1981, 227).

If we examine the use of these forms of decoration on Grooved ware, particularly from Barnhouse, we note that both bounded linear and unbounded curvilinear designs are found. The congruence of both forms of decoration on Grooved ware is shared by another form of material culture, the carved stone ball. The important thing to note with both these forms of material culture is that they are mobile, and this may be one reason why decoration on these media can be either linear or curvilinear. While linear decorative motifs appear to be fairly clearly associated with settlements, curvilinear motifs are associated with tombs. Although these two localities serve as a duality, the meanings associated with them may be more fluid. I have suggested above that the large vessels of fabrics A, B and B1 are immobile and associated with the house, and notably it is precisely these vessels that are decorated with linear decoration at Barnhouse. Other vessels, especially the medium size vessels of fabric A and C are decorated with curvilinear motifs, and it is these that are more mobile, and may be utilised in social contexts beyond the settlement. Clearly then, decoration is used as a means of categorising vessels, and is constructed around notions of the living and the dead, the house and the tomb.

Burnishing may be also be a means of categorising the vessel. Interestingly, Taylor (1996) suggests that degrees of roughness or smoothness may be a more general means of categorising objects during the Neolithic. As indicated in chapter 4, burnishing cannot be tied down to a single fabric type, thus suggesting that burnishing is not an entirely functional process. A burnished surface may be considered as an embellishment of the vessels appearance. An important point to consider is that both burnish and decoration may be considered as part of the process of making objects more socially desirable, enhancing their appearance and imbuing them with social and spiritual power (Gell 1992, Morphy 1992). I have indicated that

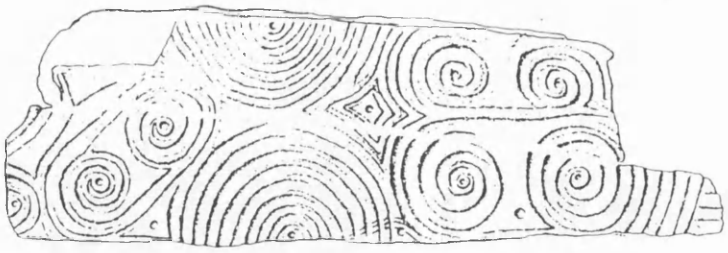
decoration may be a means of categorising vessels, and in a similar vein it would appear that burnishing is a further means of categorisation. Those vessels that are the least burnished are those that are the large vessels of fabric A, B and B1 that are immobile and associated with the house, while burnishing becomes progressively more common on medium and small vessels.

There are a number of further points worth considering arising from the above discussion. One observation is that the more complex the decoration and the more burnished a vessel, the more mobile the vessel is likely to be. If vessels are more mobile they are also more visible. Notably the Stenness vessel, SF 16, and the vessel from Quanterness, P2, were both highly burnished, and were decorated according to a highly specific decorative scheme which presenced the settlement of Barnhouse. The very nature of these vessels suggests they were meant to impress. Burnishing and the use of complex decorative designs are an integral part of the aesthetic properties of objects. The use of this form of decoration and burnishing may be a form of embellishment which is particularly important in vessels used in contexts outwith the settlement.

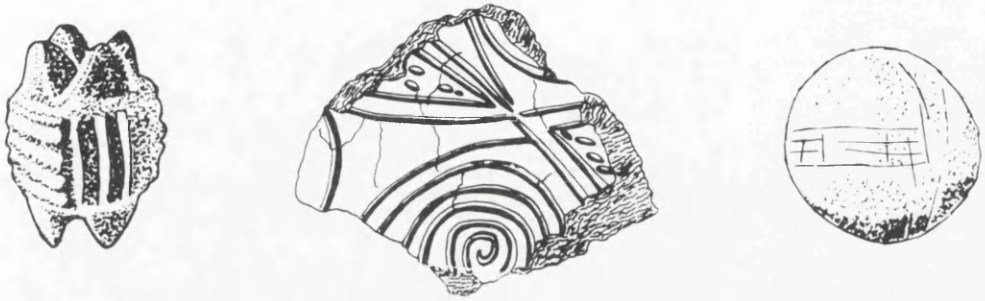
Here I wish to reiterate a number of points, firstly that decoration and burnishing were a means of categorising a vessel, and that the presence of these attributes on Grooved ware vessels suggested that the vessel was more appropriately used in more visible social contexts. A further point to note is that the attributes of decoration and burnish are not only found on Grooved ware, but are also found on other forms of Late Neolithic material culture.

We have already noted the similarity in decorative techniques on Grooved ware and carved stone balls, however burnishing also extends to other forms of material culture. Burnishing and polishing are analogous processes, which both achieve the same effect in creating a lustrous quality to the surface of objects. It is notable that polished axes, polished knives, carved stone balls, and maceheads are all common

Curvilinear



Both linear and curvilinear



Linear

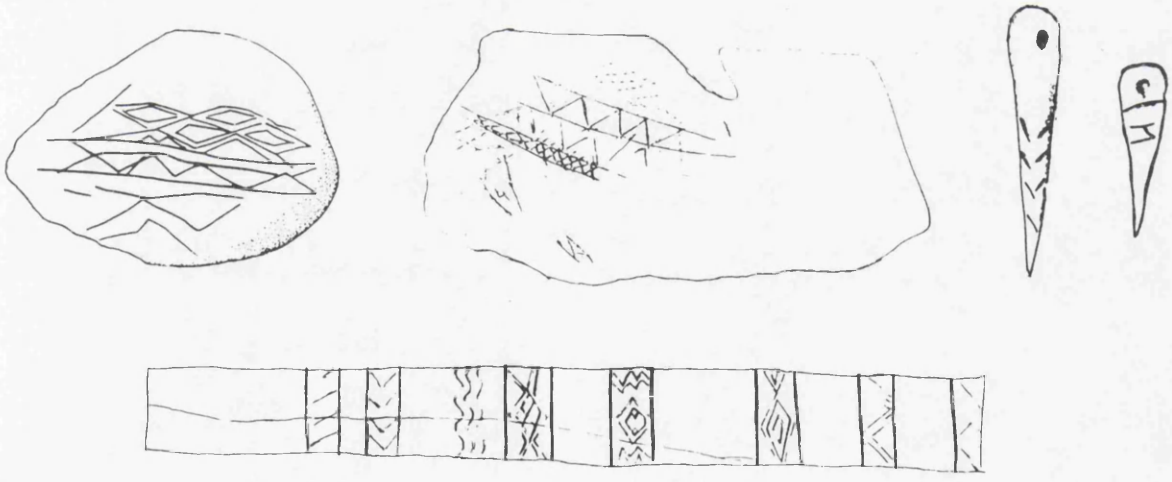


Figure 8.10: Curvilinear and linear decoration from Late Neolithic material culture in Orkney. Top: Stone from Pierowall Quarry (after Sharples 1984, 46). Middle: carved stone balls from Skara Brae (after Childe 1931a, pl. XXXVII and XXXVIII), Grooved ware from Skara Brae (after Richards 1993a, 189). Bottom: Carved Skaill Knife from Skara Brae (after Saville 1994, 21), carved stone from Barnhouse (after Richards 1991, 23), Bone pins from Skara Brae (after Childe 1931a, pl. XLII), carved stone from Brodgar Farm cist (after Richards 1993a, 195).

artefacts occurring both at Barnhouse and at other settlements and passage graves within Orkney. Notably, at Barnhouse two of the best preserved polished artefacts were the chisel placed beneath the floor of house 2, and the macehead fragment and axes in the house 6 ash deposit (Clarke, A 1991, Simpson and Ransom 1992). These artefacts are associated with the two largest concentrations of burnished Grooved ware. It would seem then that there is a close relationship between the contexts in which polished artefacts and burnished pottery are found. However, these are not the only attributes that link Grooved ware with other forms of material culture.

It was noted in chapter 5 that certain kinds of stone tool were often manufactured from similar sources of rock to those used to temper Grooved ware, and this is certainly the case for carved stone balls and polished stone axes. Another predominant form of stone tool from Orkney, the macehead, is often produced from the same rock sources, although the manufacture of maceheads from highly distinctive rock sources is also prevalent (Simpson and Ransom 1992). Indeed, within house 2 at Barnhouse, mudstone was used for the production of both Grooved ware and maceheads. A similar use of distinctive rock sources for the production of stone balls has been noted by Edmonds (1992, 188-190). Materially then there are certain properties which link Grooved ware with these other forms of material culture. However, they are only partially linked through use, and although the production of stone tools and the production of food within Grooved ware vessels appeared to be spatially linked within house 2, Barnhouse, both Grooved ware and a variety of stone tools are found in quite different kinds of context during the Late Neolithic.

Grooved ware, stone tools and the representation of identity

We have observed that certain categories of Grooved ware are used in social contexts beyond the settlement. These contexts can, in certain circumstances be

considered to be bound up with acts of exchange. I have observed above that the properties of Grooved ware used in these wider social contexts may be considered to be an integral to the way in which they were perceived and employed in constructing particular kinds of social identity. These vessels were decorated with decorative schemes which represent the settlement, and it is because of the specificity of these decorative schemes that they were employed in these contexts. Depending on the context they were either employed to represent relations between communities, as in the henge, or between particular individuals and the wider community, as in the passage grave. In these contexts this category of Grooved ware vessel is being used in order to define particular relations of mutuality (Gosden 1993, 82-4), which refer in general to the relationship between the individual members of one community with another community. However, I have also observed that a number of other objects also possess similar material and aesthetic attributes to those of Grooved ware. What I wish to examine is how these other forms of material culture are used in certain social contexts beyond the settlement. Of particular interest here is the nature of identity represented in these contexts, through the use of different forms of material culture, as a way of clarifying the particular nature of social identity in relation to Grooved ware.

Certain kinds of stone implement were exchanged over considerable distances. Simpson and Ransom (1992, 238-243) note that a number of maceheads found on Sanday were made of camptonite, and since Sanday has no igneous dykes these implements must have been exchanged. Indeed, many of the Orcadian maceheads could ultimately have been provenanced from Shetland (Ritchie 1992). Furthermore, Childe (1931a, 99) notes a polished stone axe of flint from Skara Brae. This implement cannot have been produced from local rock since flint is scarce on the Mainland, but other islands, such as Rousay, have native sources of flint, thus the presence of this axe at Skara Brae suggests exchange between Rousay and the Mainland.

Despite the apparent inter island exchange networks operating during the Late Neolithic, the contexts in which these objects are found is fairly restricted. Maceheads are generally found either within settlements or as stray finds, and they are only occasionally found in mortuary contexts, such as in Taversoe Tuick, Rousay and Isbister, S. Ronaldsay (Davidson and Henshall 1989, 74, Henshall 1983, 44). Similarly, polished stone axes are typically found in settlements, such as Skara Brae, Rinyo and Barnhouse or as stray finds, although they may also be deposited within late chambered tombs, such as Blackhammer (Callander and Grant 1937), the Knowe of Lairo, Rousay (Grant and Wilson 1943), the Calf of Eday Long (Calder 1937) and Huntersquoy, Eday (Calder 1938). Carved stone balls are found in settlements or as stray finds (Edmonds 1992), although they are occasionally found in passage graves such as Cuween Hill, Mainland and Korkquoy, Eday (note in Davidson and Henshall 1989, 112, 141). The type of contexts for the use and deposition of these forms of material culture are similar to those for Grooved ware, but not as wide ranging, for instance no stone tools were recovered from the Stones of Stenness.

We can draw a number of distinctions then between the use of stone tools and Grooved ware. Both may be constructed using similar sources of rock and I have already demonstrated in the context of the Barnhouse Grooved ware that these rock sources are employed by individual households and, during production, signify specific individual identities. However, it is at the point of production that the relationship between stone tools and Grooved ware diverges. While the social importance associated with the provenance of individual rock sources is transient in the production of Grooved ware, since the rocks become incorporated within the clay matrix of the vessel, the provenance of rocks is both obvious and visible when used in the manufacture of stone tools. Indeed, it is for this reason that distinctive rock sources are chosen for producing stone tools, since the identity of these rock sources will be intimately related to specific individuals.

Both forms of material culture are mobile, and may be materially and decoratively referencing particular kinds of social identity, but the nature and context of this referencing may be quite different. The material nature of all stone tools is varied and they may be composed of a variety of rock sources, furthermore when decorated the decorative schemes employed tend to be individualistic, no two carved stone balls look similar, and it is this, in part, which initially confused their typological and chronological attribution (Edmonds 1992, 181-2). Grooved ware, on the other hand, is rarely decorated in such an individualistic manner, but generally conforms to a series of decorative schemes which are common to the settlement.

I have indicated above that both through production history and decoration Grooved ware may be used to represent relations of mutuality between certain individuals and the *community*. However, since stone tools are not decorated with such specific decorative schemes and are also materially bound up with specific individuals, they are more likely to be involved in the construction of relations of mutuality between individuals and other *individuals*.

It is important to note that there is a complexity to the ways in which Grooved ware is used to represent different kinds of social identity. The largest and smallest vessels undoubtedly represent notions of household identity, medium size shell tempered vessels represent the links between members of the settlement as a community, while the use of medium size rock tempered vessels represent the links between members of the settlement and other settlements, here the notion of community is on a quite different level and I believe this is constructed most explicitly through kinship links.

Medium size vessels are used in two contrasting ways. Shell tempered vessels are produced communally and exchanged within the settlement, and the contexts of use for these vessels is restrictive. Meanwhile, rock tempered vessels are produced in a more restrictive manner, in individual houses, but their use is more extensive. Indeed,

it is precisely because of their close identification with individuals that they are used in exchange beyond the settlement. Of note here is the way in which the construction and design of objects creates a direct link with particular kin members, this relationship between materiality, design and identity has been noted by Kuchler (1992) in her work on the exchange of Malangan sculptures in New Ireland. Both the manner of production and use of medium size rock tempered vessels will affect the nature of the social identities associated with them, and their distinctive use both practically and spatially will tend to be associated with different types of people. These contrastive production histories and uses may, depending on the kinship system, indicate activity structured by either gender or age.

Summing Up

We have seen in this chapter that the use of Grooved ware within the settlement is complex, and is associated with the expression and representation of a series of different social identities. Rather than considering segmentary societies as unitary and homogenous we have observed that they are in fact composed of a series of different social identities. Turning our attention to the use of Grooved ware vessels beyond the settlement, we observed that a single category of Grooved ware was used in the expression of certain aspects of social identity beyond the settlement. It was suggested that, due to the use of certain decorative schemes and the relationship between Grooved ware and certain kinds of social identity, these vessels were used to construct specific kinds of social identity which represented community. This was contrasted with the form of social identity represented by the exchange of stone tools beyond the settlement, as these were seen to be related to individual identities. Above all we have seen that the use the same category of Grooved ware vessel in different contexts

represents different kinds of social identity. Social identity does not inhere within material culture, rather it is brought out through social practice.

Chapter Nine

Food and society in Late Neolithic Orkney

Introduction

In chapter 3, I considered the different approaches to social organisation in studies of the Late Neolithic period. To reiterate, while Renfrew proposed a view of segmentary societies tending towards a centralised authority, which focused its activities towards the central region of mainland Orkney, this view has been criticised as relying too heavily on a notion of societies as social types. As an alternative, more recent writers such as Hodder and Richards have suggested that we can still retain a modified model of segmentary societies for the Late Neolithic. Over the course of chapter 8 I have been concerned to stress the complex nature of society during the Late Neolithic. One of the points which arose from this discussion was that Grooved ware was employed to construct a series of different social identities in various contexts. In summing up I noted that social identities were created through social practices. I wish to develop this view in a detailed study of the way in which Grooved ware is related to food storage, preparation and consumption.

One of the major theories to arise from Renfrew's model of segmentary societies is David Fraser's notion of totemism (1983, 396-401). This theory ties together a model of social organisation with a theory which relates social practices to social identity, and as such it provides the perfect counterpoint to this chapter. Fraser, like Renfrew before him, concentrated his efforts on the nature of social practices within chambered tombs and passage graves as a means of understanding social organisation. As a result his analysis was partial and took little account of the nature of deposition

on settlement sites. In this chapter I will examine the evidence from settlement sites, as well as passage graves and chambered tombs known to have witnessed Late Neolithic activity. In the course of this study, I will critically examine previous accounts, including Fraser's, of the social practices surrounding both animal and plant remains in these contexts. Furthermore, due to the information gained from residue analysis it is possible to provide an integrated account of the social practices surrounding plants and animals and the use of Grooved ware.

We are what we eat: Food, classification and identity

We will begin our review by examining the nature of the relationship between social identity, plants, animals and food. All of these are important aspects of totemism, and as noted above this has served as the dominant interpretation of the social practices surrounding the deposition of animals within chambered tombs and passage graves during the Orcadian Late Neolithic (e.g. Fraser 1983, Hedges 1983, 1984). What I wish to examine here are the range of possible relations between identity, plants, animals and food. Both animals and plants may be drawn on to create metaphorical and metonymical links with humans (Ingold 1996), and structured similarities and differences apparent in the natural world have been viewed as a fruitful metaphorical medium for the organisation of human society. Levi-Strauss' (1964, 1966) formulation of totemic relations draws on the differences inherent in the natural world. According to this view, particular sections of society are metaphorically identified with particular species of plant or animal. Here elements of the natural world are drawn on to create *corporate* or *communal* identities. Besides using animals and plants as a means of differentiating between social groups, the natural world is often actively employed as a means of pointing out structural differences in the ways in which human societies work. Plants, animals and various substances related to them

are often drawn on to create differing relations of purity, and such differences in purity are commonly used as a means of differentiating between people. This is of particular importance in the creation and maintenance of rigid social structures such as caste (Smith 1991), and here the consumption practices associated with food are a prime means of distinguishing between members of different castes.

However, this is only one way in which the natural world may be used to differentiate between specific social identities, as the characteristics of different species may be also drawn on either metaphorically or metonymically to point up similarities between humans and the natural world. Here then we are seeing ways in which organisms are drawn on in creating *individual* identities. One obvious point of reference in forging identities between humans and animals is the similarity in life cycle. Of particular importance would be the outward and highly visible growth of many organisms. Indeed, the assimilation of, for instance, domestic animals into the social world constructed by humans is often demarcated by ritual proscriptions on the death or slaughter of domestic species. As Buxton notes, amongst the Mandari of the Sudan the dog has dynamic (power) because it grows with man (1968, 39). Further, the relationship between cattle and the Dinka (Lienhardt 1961) and Nuer (Evans-Pritchard 1956) is one of close ontological and symbolic identification, in both societies the worthiness of men is judged by the quality and appearance of their cattle, indeed in sacrifice cattle are seen to substitute for men. Thus the similarities between organisms may be pointed out not only through proximity (Bulmer 1967, Tambiah 1969) but also through similarities in the ontology and biography of creatures. Ohnuki-Tierney (1990) has noted the way in which the differing physiological characteristics of monkeys are drawn on in traditional Japanese society, either metonymically or metaphorically, as a means of creating negative or positive identities with particular classes of people, or individuals.

Plants are a fertile source of symbolism in this regard. The ethnographies of Melanesia are replete with references to garden magic, due to the great significance attached to the cultivation of plants such as taro and sago. In many societies the growth of plants is surrounded by excessive secrecy (c.f. Young 1971, Kahn 1986), this may be for a number of reasons, but typically taro tubers are closely identified with the men who grow them. The shape and size of the tubers are drawn on metaphorically in order to point up characteristics of personhood (Munn 1986, 95) and they are important in a number of competitive social displays. On a more holistic level Howe (1991) indicates that in Bali the growth cycles of rice mirrors the growth cycle of a persons soul. Equally then we can see ways in which animals and plants may be drawn on to create differences in *individual* identities as much as *communal* identities.

Most importantly we need to examine the way in which particular foods are related to identity. Orlove (1994) argues that particular kinds of foods, especially meat, are closely bound up with the identities of people. He suggests that we cannot separate the categories of foods and humans, as they form part of a single system. Thus foods, appropriately, are inalienable and inseparable from the processes of production, consumption and exchange enacted by people. Furthermore, he notes that in the case of meat: 'Since animals like humans, are made of flesh, animal meat reminds us of ourselves, and therefore meat-eating brings into question the boundary between the self and the other' (ibid., 122). Douglas (1973) has noted that foods demarcate different social occasions, with differing hierarchies of food being used depending on the closeness of the relationship and the gravity of the social occasion. It would appear that while foods are individually classified, they may also be classified according to a hierarchical model, with certain foods being treated as mundane, others as special. In a similar vein, Kahn (1986, 122) suggests that we can think of food consumption as a language, in which the kinds of foods eaten during specific social occasions may be a means of communicating considerable information concerning the identity and status

of individuals or social groups. The consumption of food is not simply an everyday functional activity, but it communicates a series of social details. The grammar of this language can be thought of as being provided by a number of media, the most powerful of which are: who is eating with who, and what kinds of foods are they eating. Most notably then, foods are typically part of a structured symbolic system, each food is perceived differently and is subject to different rules of storage, preparation and consumption. Miller (1985, 150-4) notes the considerable complexity of food preparation and consumption rules, in his study of a community in Central India. Here food was ordered hierarchically according to the strict laws of caste, and the relative purity and impurity of foodstuffs are an important factor in structuring the nature and order of the meal eaten by members of different castes. Here we can see ways in which the classification of various elements of the natural world intersects with consumption practices and, further, how these consumption practices may be a means of demarcating people with different social identities. Miller also demonstrates how these classifications are further demarcated by vessels of different form (ibid., 153) and of different colour (ibid., 142). The use of different categories of pottery in order to demarcate different classes of foodstuff has also been noted by Braithwaite (1982). Food consumption is a powerful symbolic medium both for expressing a specific kinds of relationships between people, and between people and the natural world.

Plants, classification and food in Late Neolithic Orkney

The plant remains from the Neolithic are fragmentary and in comparison to the animal remains offer us a far less complete view of this aspect of Neolithic life. Most material comes from the midden deposits associated with houses and settlements. Large amounts of carbonised grain of *Hordeum* sp. were found in fairly discrete

deposits within the earlier middens at Skara Brae (Clarke and Sharples 1990, 73), and along with these finds more recent work has also recovered *Malus sylvestris* (crab apple) pips in small quantities (Camilla Dickson pers. comm.). At Tofts Ness, Sanday a mixture of *Hordeum vulgare* (hulled six row barley) and *Hordeum vulgare* var. *nudum* (naked six row barley) were found (Bond 1994, 175), while at Pool, Sanday there was a marked change in the use of naked barley to hulled barley during the Late Neolithic, from phase 2 to 3:1 (Bond 1994, 173). *Triticium* spp. (wheat) was also found at Pool, however, due to the low levels of this cereal it is likely that it was a weed component. Other edible plants were found at Pool (ibid., 225), most notably *Conopodium majus* (pignut) and *Empetrum nigrum* (crowberry). Similar evidence for plant use comes from Barnhouse, although here we have a richer variety of material and clearer depositional contexts. The main edible plant remain was *Hordeum vulgare* var. *nudum* (naked six row barley). Charred barley remains were found in discrete contexts, especially within hearth material. The only evidence for chaff came from the large primary eastern hearth of house 2, while isolated grains came from occupational spreads within house 3 and hearths on the platform of structure 8 and pits within the building, as well as a variety of more accidental deposits such as cuts and slots for furniture. Grains were found in contexts such as the ash deposits behind house 3 and around house 6, around house 2 and under house 9, while in the central area grains were found in pits. A single grain of *Avena* (oat) from a hearth context within the structure 8 platform was considered to be a wild species (Hinton 1995, 3). There were other edible plant remains from Barnhouse, including *Corylus* (hazel nuts) and *Malus sylvestris* (crab apples). Hazel nutshells were found around the eastern hearth, house 2 and within two of the recesses within this house and within a platform hearth context and pit context in structure 8, as well as in the ash deposits around house 6, around house 2 and pits in the central area, while apple pips were found in ash spreads around house 6 and a pit in the central area. Two other, more unusual, edible plant remains

found, were *Conopodium majus* (pignut) and *Arrhenatherum eliatus* ssp. *tuberosum* (onion couch). The latter may be an accidental inclusion amongst turf fuel since it was found in the hearth of house 9, the former was found amongst the ash deposits in the central area.

Hinton (1995, 2) notes that much of the barley from Barnhouse entered the houses in a pre-processed state, due to the relative absence of chaff. This suggests a fair degree of threshing and winnowing outside the house. Nevertheless the presence of chaff in house 2 suggests that secondary processing involving the heating or roasting of the grain to remove the husk. We may be observing a spatialised process of preparation within house 2 and the redistribution of the products of this preparation process to other houses. Of particular note is the concentration (thirty times greater than other contexts) and the evidence of chaff within house 2, in contrast to the processed state of remains within houses, notably house 3. This notion is in marked contrast to the suggestion of 'as needed' processing proposed by Bond (1994, 139), based on her analysis of material from Pool and Tofts Ness, Sanday. Bond considers that unprocessed grain would be threshed and dehusked on a regular basis. Although it is difficult to tell, it would seem that given the spatialisation of the preparation process at Barnhouse this was probably occurring on a very occasional basis.

Fire was only one element necessary for secondary processing, as grains, seeds and nuts also require grinding. Tools for grinding are fairly abundant on Late Neolithic settlement sites. Ground cobble tools were found at Barnhouse, and Clarke (1991, 11) suggests they may have been used for processing organics. The generalised scatter of such tools outside the houses may suggest external processing of plant foods prior to their introduction into the house. Tools of this nature were also found within houses 1, 2, 3, 5, 6, 8, 11 and 12. A stone mortar and possible quern were also found at Barnhouse, the mortar in the central area and the quern in the deposits outside house 2. It would appear from this evidence that there was a complex series of activities

associated with plant processing, with the main processing occurring outside the houses and more specialised tasks within house 2. Despite Childe's continued assertion that the economy at Skara Brae was essentially pastoralist (1931a, 1940, 1946), there were a number of saddle querns at Skara Brae, placed close to the dresser and hearths in a number of houses, especially within house 1, as noted by Petrie (1867). Furthermore, the stone carved mortars found within house 7 and within the midden may have been used in the processing of plant foods.

Once plants were processed it was then essential to cook them, and we are fortunate to be provided with evidence for cooking. Most obviously at Rinyo, in houses A and C, low clay ovens were placed to the left of the hearth (Childe and Grant 1938). In a similar fashion, the western hearth in house 2 at Barnhouse had a small burnt circular feature which may have been an oven, again placed to the left of the hearth.

The deposition of plants occurs in other contexts in the Late Neolithic. There are large deposits of material within the pits close to the central hearth at the Stones of Stenness (Ritchie, J.G.N 1976), with each of the three pits containing large quantities of barley (MacClean 1976, 43). While the date from pit C (519 AD +/-110) suggests later intrusion, a sherd of possible Grooved ware from pit A may mean that at least some of the deposits are of a Neolithic date. Cereals were also deposited within mortuary contexts; a large deposit of carbonised cereal grains along with the weed seeds of cultivation were placed in the central stall at Isbister (Lynch 1983, 174). Here the identified cereals were of *Triticium dicoccum* (Emmer wheat), *Hordeum vulgare* (hulled six row barley) with the propensity of grains being *Hordeum vulgare* var. *nudum* (naked six row barley). At Quanterness a fragment of the rubber of a saddle quern was placed in chamber C, although there were no apparent cereal or plant remains (Henshall 1979, 75).

The diversity of plant remains from Late Neolithic contexts, suggest that a number of environments were being utilised; scrub woodland for apples and hazelnuts, marshy areas for pignuts and onion couch. Judging by the ardmarks at the Links of Noltland (Clarke and Sharples 1990) and the dark earth layer, which may constitute cultivation, close to Stove Bay (Bond et al. 1995), it is likely that cereal cultivation was undertaken in close proximity to the settlement.

The growth cycle of barley within an Orcadian climate begins in spring (March/April) and continues through to autumn (August/September). It is punctuated by the appearance of new shoots (around May) and the ripening of the cereal (around July/August). Bond (1994, 210) suggests that barley was often harvested early (when 'milk-ripe') during the Neolithic due to the inclemency of the climate. This early harvest would obviously foreshorten the length of the growing season and reduce yield. While the quantities of barley within Late Neolithic contexts are not great, it is likely that barley represented an important foodstuff. Barley, unlike many other food sources, is renewable and can also be effectively stored throughout the winter. The quantities harvested each year structure both the yield of the next years crop and the quantity of stored food held over the winter, thus in a bad year this may mean little food over the winter and little grain for next years crop. However, barley can also multiply easily and a small quantity of grain may produce a much greater quantity of cereal. Thus the growth of this renewable food source is problematic and owes much to the vagaries of weather and sunlight, both of which may fluctuate extremely within an Orcadian environment. It is no accident then that barley was grown in close proximity to the settlement, since its growth must have required careful attention.

The cultivation of barley structured time in a cyclical manner. This cycle was punctuated at various points during the year by events within the growth cycle, and the cycle was necessarily repetitive. Moreover, the yield of the crop was a significant indicator of a good year or bad year. While storing barley meant that it could be used

throughout the winter, leaving enough grain for the subsequent seasons crop, the storage of foodstuffs effectively meant that material could be removed from the temporal cycle for a considerable period of time; storing barley meant storing time. Interestingly, Gell (1993, 87) considers the growth cycles of plants and the productive regimes which these growth cycles entail, to be a primary means by which societies structure their conception of time. A similar idea is proposed by Bourdieu (1977), who noted the way in which the temporal aspects of plants are symbolically drawn on to structure meals and other activities at particular times of year. As indicated above, as well as being involved in ordering the temporal cycle, crops may be seen to serve as a model for the growth of human beings (Howe 1991). Thus the growth of plants underpins the way in which people experience and position themselves in time. The cyclical nature of barley production would be an important means of ordering the Late Neolithic annual cycle, and the punctuated nature of barley growth may have also been seen as significant points within this cycle. Above all due to the nature of barley growth, time is likely to have been perceived as cyclical rather than linear, and this may effect the way in which the life cycle itself was ordered.

The transformation of dried grain into flour took place in close proximity to the hearth using querns such as at Skara Brae, while at Barnhouse this may have taken place outdoors. Some material may be cooked within ovens placed in close proximity to hearths as at Barnhouse and Rinyo. The whole process appears to be strictly spatialised and material may have been combined and then redistributed as it was used by individual households within settlements. Finally, carbonised material was placed intermixed with other plant waste amongst primary and secondary midden deposits. It is notable that most plants from Late Neolithic sites, such as barley, hazelnuts and apples are harvested at a specific period of time, namely autumn and as such may constitute stored material utilised over the winter months. The utilisation of these plant species, especially barley, is temporalised. The deposition of material within pits at the

Stones of Stenness and in the central chamber at Isbister is directly referencing this activity and time of year, and as such cannot be seen simply as carbonised waste but as a powerful statement embodying the sustenance of life. The edible plant found in most contexts outside the settlement is barley, and given the probable close proximity of barley cultivation to the settlement, this plant above any other may be specifically metaphorically related to the everyday world of the living. The growth cycles of barley also closely match those of cattle and sheep, thus this plant may be ontologically and symbolically associated with these animals for this reason. If we accept the proposal of manuring practices suggested by Bond (1994, 139) for Tofts Ness, Sanday then cattle dung may have been used as a form of manure, thus making it an essential medium for the growth of cereals. A further means by which this link may be expressed is through the intermixing of cereals and animal remains in settlement midden material and within mortuary contexts such as the central stall at Isbister.

Animals, classification and food in Late Neolithic Orkney

Evidence for the use of animals as food must initially focus on the midden deposits which are characteristic of the Orcadian Neolithic in general. While I have noted the nature of the midden deposits at Barnhouse in chapter 7, the acidic nature of the soil at Barnhouse means that only fully carbonised bone survives, and this gives us an impoverished picture of the use of animals within the settlement. King (1994) divides the bone material into medium and large animals, and tentatively identifies cattle, sheep and pig from this material. Most of the deposits were mixed, with only the deposit between house 3 and 5 being distinguished by a propensity of cattle remains. Childe and Grant (1938, 1947) noted a similarly poor level of preservation at Rinyo. In order to fully examine the use of animals as food then, it is necessary to turn to Skara Brae where middens were preserved some two metres in depth.

The mammal remains from the Skara Brae midden are dominated by cattle and sheep, with pig, red deer, dog and dolphin bones present in small quantities. Demographically the remains are dominated by neonatal to immature individuals which died in their first year, especially those of cattle (Watson 1931, Noddle forthcoming). An anatomical analysis of cattle and sheep bones revealed that proportionally the whole carcass was included in the midden with no discrepancy in body parts. All bones are fragmented, which may be due to bone working, suggesting a fair degree of destruction prior to deposition.

Bird bones are recorded from Skara Brae, and Clarke and Sharples (1990, 96) note the propensity of gannet bones used in the production of bone points. However, it is difficult to assess the range of bird species from the scant information for the site. The midden at the Knap of Howar, albeit earlier in date, is comparable in many ways. Here a wide variety of bird species were deposited, including waders, wildfowl and cliff dwelling seabirds (Bramwell 1983). Notably, despite the intermixing of bird bones with the rest of the midden there appeared to be some selection of certain parts of the bird skeleton prior to deposition. It appeared that the head, wings and feet had been removed leaving only the torso of the bird deposited within the midden (ibid., 96).

It is difficult to determine spatially distinct deposits within the midden, although each recorded layer has a consistent proportion of animal species and demographies (Noddle ibid.) The only distinctive deposits within the midden were found amongst the shellfish, where large dumps of limpets were placed against external house walls (Clarke 1976). Animals from a number of different habitats are incorporated and homogenised, thus the initial generation of midden deposits involves the classification of a variety of species together within a single context, denying the ontological, spatial and temporal differences between individual species.

In order to gain a fuller picture of deposition practices it is necessary to contrast the overall homogenised nature of the midden deposits with other deposits. Although homogenised, it is evident from the bird bone that selection of species occurred prior to deposition, and this is highlighted by the evidence from the butchery site at Skaill Bay (Richards forthcoming). Here a number of animal bones were recovered from a sandy deposit, some twenty-five metres from Skara Brae. The bones were intermixed with over 100 Skaill knives, considered by Clarke (1992) to be primary butchery tools. The bones comprised a mixture of sheep and red deer, as well as the mandible of a whale and the leg bone of a small bird (Roberts 1997). This deposit indicates a series of important things. Firstly, primary butchery occurred off-site, and secondly, the main species found within the Skaill Bay deposit was red deer, notably almost absent from the midden deposits at Skara Brae. Finally, like the midden deposits, the remains were mixed and there seemed to be little separation of species within the deposit.

While, within the context of the middens, it would appear that individual animal species were homogenised, outside the midden individual animals were incorporated in highly specific forms of deposit. Two obvious instances of specialised deposition in the Late Neolithic are the placement of the skulls of both cattle and whale over passage ways at Skara Brae. Childe and Paterson noted the head of a small whale placed directly above the main passage (1928, 242), while the head of a small ox was placed in a similar position above the entrance into house 6 (1928, 243). Both of these animals are incorporated as structural elements within the settlement elsewhere. A whale bone slab was found in a similar position above the passage in the juncture between the main passage and passage F, furthermore large whale bone mandibles and ribs were found as part of the collapsed roof structure in house 1 by Petrie and Watt (1867, 208) and were thus suggested as a viable roof support in the absence of wooden rafters. The long bones of cattle were clearly visible structural elements in the surrounding exterior walls at Skara Brae (note in Sharples 1984, 114). Other

specialised deposits includes the placement of two cattle skulls and an articulated Sea eagle onto the rubble infill within the main structure at the Links of Noltland, Westray (Clarke and Sharples 1990, 68, 77). At the same site the fully articulated skeletons of fifteen Red deer were placed beneath primary midden, while disarticulated Red deer were also deposited beneath external field walls.

The primary source of evidence for deposition practices comes from mortuary monuments such as chambered tombs and passage graves, although the analysis of these deposits is problematic due to their open nature. While tombs and passage graves are often sealed towards the end of the Late Neolithic, it is difficult to date the deposits within the tomb prior to this date and many of the deposits within Early Neolithic monuments are the result of Late Neolithic activity (Sharples 1985, Renfrew and Buteux 1990). A further problem is that of taphonomy, since many of the deposits within structures may be the result of intrusive activity by scavenging animals or nesting birds. This latter problem is outlined by Barber (1988) who notes that it is essential to take into account the natural use of the tomb by animals. He cites three examples of the use of standing structures by animals, the first from his own excavation at the Point of Cott, Westray where an otter holt was noted within the structure of the tomb, thus accounting for both the bones of otter and fish and by extension other small predators. The second example was drawn from MacCormack's report from Pierowall Quarry, Westray (MacCormack in Sharples 1984) which suggests that sheep have a tendency to seek shelter when they die. The final example is that of tombs being used as convenient nesting spots for birds of prey, and here he notes the deposit of 36 talons of a large bird of prey at the Point of Cott to back up his argument. It is notable that with the collapse of the roof of chambered tombs and passage graves animals may gain egress into the tomb. As evidence of this many of the deposits, including a cat, within the passage grave of Quanterness, Mainland were intrusive. What is more the deposits become mixed and here Barber notes that the

separated bones of fox in Quanterness with a date of 30 bc +/-80 were obtained from a chamber deposit. The incidence of fox bones throughout the chamber stratum serve to make Quanterness, at least, an example of an open access tomb with high post-depositional disturbance.

However, given these problems we need not reject the possibility of some of these deposits being real. In order to demonstrate this I wish to note a number of objections to Barber's assumptions. Firstly, the architecture of most chambered tombs and passage graves involves a restricted and low entrance, therefore, while in use, it would be impossible for any large ungulate to enter the tomb through its own volition, although the possibility remains for such species entering after the collapse of the tomb. Nevertheless, this can be easily demonstrated archaeologically through careful excavation. My second objection concerns the behaviour of bird species; most of the birds found within the tombs are cliff or sea dwelling and it would be unnatural for them to enter tombs in order to nest, as the nesting tendency of most species is an open cliffside setting. In considering these two objections, it would seem that with careful consideration of the stratigraphical context of deposition that many of the animal remains within tombs may well be real. It is unnecessary to embrace Barber's pessimistic suggestion that all animal remains within tombs are intrusive and unassociated with primary use. With this in mind, I will now proceed to examine the nature of deposits of animals within mortuary contexts.

Probably the most illuminating are a series of deposits within chambered tombs on Rousay, where we have a large number of tombs placed in a discrete area on the southern coast of the island. The tombs are placed on a series of natural terraces and each has a distinctive set of deposits. The tombs on lower terraces, such as Midhowe and Rowiegar, are long stalled cairns, each with twelve separate chambers. The primary deposits at Midhowe (Callander and Grant 1934) included cattle, sheep, red deer and various species of bird such as guillemot, cormorant, skua, carrion crow,

buzzard and Sea eagle, as well as fish such as wrasse, with cattle appearing to be the predominating species. The animal bones are piled up on shelves to the right of the entrance, along with human remains. Rowiegar (Davidson and Henshall 1989, 138) had large quantities of sheep with examples of young ox, deer and gannet also present. Again the bones were mixed with human remains on what remained of the side shelves (uncontexted dates from this material indicate use between 3035 BC +/-110 and 2600 BC +/-110). Blackhammer (Callander and Grant 1937), built on the lower terraces, had a discrete primary deposit of material on the eastern side of the tomb, this consisted of sheep, ox, red deer, pink-footed goose and cormorant. This deposit was entirely separate from the human remains which were placed behind an internal blocking wall. At this site sheep predominate, with at least eight specimens as part of the primary deposit. A contrasting set of species predominate in those tombs situated on the upper terraces; the Knowe of Ramsay (Callander and Grant 1936) and the Knowe of Yarso (Callander and Grant 1935). Ramsay is a large stalled cairn with fourteen chambers, here a series of discrete deposits were placed in stalls 2-10. The predominate species was red deer with a total of fourteen individuals, mostly immature. However, ox and sheep bones were also found along with a wide variety of birds: cormorant, gannet, bittern, curlew, duck, swan, great auk, pink footed goose and sea eagle. Fish were represented by a conger eel jaw. It is notable that deposits included mixtures of cattle, sheep and red deer, with the deer bones as well as those of cattle and sheep being fragmented. Bird bones were in the main concentrated in a single chamber, number eight, roughly central to the tomb (dates between 3080 BC +/-110 and 2610 BC +/-110 came from animal bone material within the tomb). The Knowe of Yarso has a remarkable series of deposits, it has four stalls and the animal remains are concentrated in specific areas of the tomb. Overall Red deer predominate, with at least thirty six individuals, including those in the infill of the inner chamber, while other animal species include dog, sheep and ox. Again the remains are placed

either side of the stalls with the greatest concentration of species in the inner chamber (a date of 2940 BC +/-110 was obtained from uncontexted animal bone, however the infill deposit contained a food vessel sherd indicating open access throughout the Neolithic, with final closure only in the Early Bronze Age).

Probably the most thorough excavation of a late tomb is that of Isbister, South Ronaldsay (Hedges 1983). It is important not only for the quality of evidence from within the tomb but also for the association of animal remains with a foundation deposit. The foundation deposits sealed beneath the flagstones of stall 5 consisted of cattle, sheep, otter, Sea eagle and great black-backed gull along with human remains (these gave dates between 3285 BC +/-110 and 2355 BC +/-110). Those from within the tomb included cattle, sheep, red deer, otter and possibly seal. Bird bones include at least thirteen Sea eagles, two great black-backed gull, two crow, two short-eared owl, raven, shag, curlew, greylag goose and eider duck, with the major fish remains including wrasse and limpet shells. Barker notes that there is little mixing for the mammal remains, and bone groups remain discrete (1983, 135). However, there appears to be a large amount of mixing between stalls 3 and 4 amongst the remains of Sea eagles. The remains of animals appear again to be associated with human remains in all areas of the tomb, with four cattle skulls and a deer skull placed amongst human cranial material opposite the entrance in stall 3. Mixed deposits of cattle, sheep, red deer and otter occur in stalls 3 and 4, while only sheep are found in stall 5. Bird remains appear to be mixed and occur in stalls 3-5, and in each case the propensity of remains is that of the Sea eagle.

Faunal remains from Late Neolithic passage graves are few. We have already observed that the remains from Quanterness are not reliable, due to intrusion and the extreme amount of vertical and horizontal mixing. However, there are some passage graves which do provide fairly secure evidence for animal remains. Probably the most remarkable of these is Cuween Hill (Charleson 1902) where twenty four dog skulls

were found throughout the central chamber, intermixed with human remains and five human skulls. Nearby Wideford Hill also contained animal remains, principally horses which may well be intrusive deposits (cf. Davidson and Henshall 1989, 169-70). The deposits within the tomb at Burray (Davidson and Henshall 1989, 106-7) were of a remarkably structured nature and similar in some ways to those at Cuween Hill. This tomb was tripartite with a possible side cell, probably of a later date and similar in architecture to Isbister. In both the side cell and either side of the stalls an articulated dog skeleton was placed in association with two-three human skulls.

Quoyness, Sanday (Childe 1951b) contained deer horn in the southern cell, and ox bones in the northern cell, while a lamb's skull was found in a cist in the main chamber (remarkably consistent dates around 2900 BC were obtained from uncontexted samples here). Animal remains associated with the passage grave at the Howe of Howe, Mainland (Smith 1995) included cattle, sheep, pig and red deer, with cattle predominating. At Pierowall Quarry, Westray (Sharples 1984) a series of animal remains were found around the collapsed revetment. These consisted of sheep, cattle, pig, dog, red deer and pine marten, with Gannet, black backed gull and buzzard remains also present. There was the distinct separation of young and old sheep in this area. The animal remains associated with the Late Neolithic structure placed over this collapse included cattle, sheep, pig and red deer (dates between 2830 BC +/-110 and 2640 BC +/-110 came from this material). The most interesting form of activity employing animal remains involved the use of cattle long bones in the construction of the cairn revetment, in an analogous form to that at Skara Brae (this material was dated to 2830 BC +/-110).

The henge is another Late Neolithic context for deposition. Deposits of animal bones were found in the ditch section (a date from this material of 3040 BC +/-110 was obtained) and western ditch terminal at the Stones of Stenness (Ritchie 1976). Dog and cattle were associated with two fragments of human bone in the western ditch

terminal while the main ditch section included a mixture of dog, cattle and sheep bones. There are two main points to note about this material, firstly as with the midden and mortuary contexts the propensity of cattle in the ditch section were juveniles or neonates, secondly the major parts of animals represented were of the extremities of limbs and mandibles (Clutton-Brock 1976, 35-7), and I would suggest that these represent joints of stored meat. This interpretation would concur with the lack of butchery tools or waste, both lines of evidence suggest autumnal or winter activity.

There are a number of points which must be noted concerning the animal remains within mortuary and henge contexts, including the age range and demography of animal species, the treatment of animals and the specific elements of the skeleton placed within the tomb. Firstly, the age range of ungulates is biased towards immature or young individuals with approximately 30-50% of sheep, cattle and red deer being of this age bracket, bird species all appear to be adult specimens as do fish. Many of the bones of ungulates appear to be fragmented, and Barker (1983, 143) notes, in the case of Isbister, that this may be due to the extraction of marrow. A similar interpretation was suggested by Platt (1935, 341 and 1936, 415) for the Knowe of Ramsay and the Knowe of Yarso especially amongst the remains of red deer. It is notable in this respect that there were no articulated remains of mammals in any of the tombs. Bird bones, on the other hand, appear to be intact and unfragmented suggesting a different process of consumption. It is difficult to comment on the state of fish bones since so few have been recovered from mortuary contexts. The elements of the skeleton placed within tombs would appear to be highly selective. For ungulates this appears to involve ribs, pelvis, scapula and humerus, tibia and ulna, which Barker suggests belong to those skeletal elements which form carcasses of meat. As such they are brought into the tomb as specific joints (1983, 143). Bird bones are quite different since very specific elements appear to occur regularly, these are the wing bones, foot bones and skulls, similarly fish appear to predominate as mandibles and jaws.

Figure 9.1: Table of contexts of deposition of animal species

	Cow	Sheep	Pig	Dog	Deer	Whale	Birds	Eagle	Fish
Mortuary Context	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Settlement Midden	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Henge Ditch	Yes	Yes	No	Yes	No	No	No	No	No

What we have here are a series of contrasts and similarities between species found within the settlement and within the tomb (see Fig 9.1). Cattle, sheep and to some extent pigs predominate in the settlement middens, while red deer appear to be found in increased numbers within mortuary contexts. Whale bone is only found in an unmodified state within settlement middens. Probably the most striking are the finds of Sea eagle remains in tombs, especially at Isbister, but also at the Knowe of Ramsay and Midhowe. There are a number of further contrasts in deposition (see Figs 9.2-9.9), and these concern the treatment of different species in different contexts. Note that the presence and absence of animals in different contexts have been tabulated rather than presented as a series of graphs due to the extreme differentials in the quality of the evidence.

Figure 9.2: Table of treatment of cattle in different contexts

	Fully Articulated	Fragmented	Burnt	Skull	Ribs
Mortuary Contexts	No	Yes	Yes	Yes	Yes
Settlement Middens	No	Yes	Yes	Yes	Yes
Henge Ditch	No	Yes	Yes	No	No

Figure 9.3: Table of treatment of sheep in different contexts

	Fully Articulated	Fragmented	Burnt	Skull	Ribs
Mortuary Contexts	No	Yes	Yes	Yes	Yes
Settlement Middens	No	Yes	Yes	No	Yes
Henge Ditch	No	Yes	Yes	No	No

Figure 9.4: Table of treatment of pig in different contexts

	Fully Articulated	Fragmented	Burnt	Skull	Ribs
Mortuary Contexts	No	Yes	Yes	No	No
Settlement Middens	No	Yes	Yes	No	No
Henge Ditch	----------				

Figure 9.5: Table of treatment of Red deer in different contexts

	Fully Articulated	Fragmented	Burnt	Skull	Ribs
Mortuary Contexts	No	Yes	Yes	Yes	Yes
Settlement Middens	Yes	Yes	Yes	No	Yes
Henge Ditch	----------				

Figure 9.6: Table of treatment of dog in different contexts

	Fully Articulated	Fragmented	Burnt	Skull	Ribs
Mortuary Contexts	Yes	No	No	Yes	No
Settlement Middens	No	Yes	Yes	No	No
Henge Ditch	No	Yes	Yes	No	No

Figure 9.7: Table of treatment of whale or dolphin in different contexts

	Fully Articulated	Fragmented	Burnt	Skull	Ribs
Mortuary Contexts	----------				
Settlement Middens	No	Yes	No	Yes	No
Henge Ditch	----------				

Figure 9.8: Table of treatment of White-tailed Sea Eagles in different contexts

	Fully Articulated	Torso	Skull	Wings	Feet/Talons
Mortuary Contexts	Yes	Yes	Yes	Yes	Yes
Settlement Middens	Yes	No	No	No	No
Henge Ditch	----------				

Figure 9.9: Table of treatment of bird species other than eagles in different contexts

	Fully Articulated	Torso	Skull	Wings	Feet/Talons
Mortuary Contexts	No	No	No	Yes	Yes
Settlement Middens	No	Yes	Yes	No	No
Henge Ditch	----------				

Overall we need to draw out a number of things related to the state of the animal and the social and cultural perceptions of that animal. The relationship between the specific element or elements of the skeleton and their deposition in certain contexts is important to the examination of the way animals are perceived ontologically and symbolically. It would appear that the fragmentary nature of ungulate remains from both midden and tomb deposits suggests that in these contexts a whole series of species are perceived in terms of their meat. Thus, categorically, they appear to be identical, as there is little difference in the treatment of these species as food. In contrast, birds appear to be treated differently according to context; while those within middens represent the major meat bearing part of the animals, the remains found in

tombs are almost certainly not understood as food, and refer instead to those elements which most obviously represent birds, such as the wings and head.

Fraser based his theory of totemic relations on the same structured set of differences that I have drawn out. While Fraser (1983, 396) considered the differences apparent in the material within chambered tombs and passage graves, he took little account of the contrasting nature of animal remains in different kinds of context, and in particular paid little attention to the treatment of different animal species. What is more, Fraser's main criteria for recognising the differences in depositional practices within different tombs was based on a count of minimum number of individuals (MNI) per species per tomb. However, given these criteria, then Isbister becomes the tomb of the sheep, rather than the tomb of the eagles. Like Fraser, it is essential to retain the view that these deposits are structured differently, however rather than viewing them as the result of totemic practices it is likely that these differential contexts of deposition are related to the manner in which the world is classified during the Late Neolithic. In this case we need to understand the way in which different kinds of deposit relate to issues of place and landscape. Here it is essential to draw a contrast between the locations of settlements and those of chambered tombs and passage graves. Settlements are generally located in close proximity to the coast or the loch, if not they are within sight of the coast, in contrast chambered tombs and passage graves are usually placed some distance from settlements, often in elevated positions on a hillside or terrace, although in some cases they are placed on lochside or coastal promontories (Richards 1993a, 114-166). The differences in the location of settlement and tomb appear to be reflected in the differences in deposition of animals associated with different habitats.

The process of deposition in various Late Neolithic depositional contexts is not arbitrary, but involves the selection of animal remains most appropriate to particular kinds of place. It is notable that certain species of animals, such as Sea eagles, whales,

cattle, red deer and dogs appear to be selected for special treatment, and in some cases are deposited in similar ways to human beings. In each case, these animal species represent the most obvious characteristics of particular kinds of place and particular sorts of activity and identity. Sea eagles constitute the example of a bird par excellence, being the largest bird in Neolithic Orkney and the bird which is able to fly the highest. Whales, however, are the largest sea mammals in Neolithic Orkney and constitute the most obvious aspects of the sea. Of animals from the land, cattle are the largest domesticates, being of a similar size to the Aurochs (Noddle 1983), while red deer are the largest non-domesticated land animal. Dogs on the other hand are the only carnivorous, domesticated animal and as such may serve to point up similarities between humans and themselves, both eating the flesh of other animals. However, both dogs and cattle are associated with the settlement, while deer are associated with the hunt, and the margins of the settled landscape. What is more both cattle and deer represent sources of meat.

It would appear then that animals are used to concretise and affirm specific ideas of place, and particularly the memories which are bound up with specific places. Notably, whales are excluded from mortuary contexts and are associated only with settlements, which are typically placed in coastal or lochside locations. On the other hand, Sea eagles are almost exclusively deposited within chambered tombs located in particular places, with all those tombs which contain eagle remains being positioned coastally or in cliffside locations. While eagles appear to be utilised in certain tombs, there are generally high numbers of bird bones found within mortuary contexts. Moreover, they are exclusively represented by certain elements of the skeleton, such as the wings, head and feet, those elements of the skeleton which most obviously represent birds. Given the importance of place, and the metonymic association between animals and particular kinds of place, it seems that birds are being used to represent the sky, and are thus used in very specific ways within mortuary contexts. In

this respect it is interesting to note that the association between birds and spirits is a common one (Crocker 1977, Evans-Pritchard 1956, Firth 1966). The association between certain aspects of birds, especially flight, and the metaphysical status of the soul in relation to the corporeal body would surely be apt in this context. Cattle, deer and dogs appear to be deposited in places which overlap these extremes of high and low, sea and sky. At the Knowe of Ramsay and the Knowe of Yarso, red deer are deposited in large numbers, a total of fourteen individuals in Ramsay and thirty six at Yarso. These tombs occupy an upland location, the typical habitat of red deer. Cattle and dogs are typically placed in close association with human remains, thus reaffirming their ontological similarity with humans. The deposition of both species draws on ideas of the community of the living, and the settlement. It would seem that animals are deposited in certain places according to a series of topographic and symbolic principles, and it seems likely that the combination of different animal deposits in any one place represents a conceptual map of the resources located in any one part of the landscape. Different landscapes contain different resources and this is represented by the differential deposition of animals in different places.

An examination of the animal remains from Late Neolithic sites has enabled us to bring into focus a number of important principles associated with the classification of animal species. The opposition between high and low and the close identification between animals and habitat, and animals and humans is of obvious importance. Another point that follows on from this is the hierarchisation of animal species, with some species being apparently more symbolically powerful than others and, furthermore, the hierarchical use of animals extends to the preferential use of animals of different ages. Given the above we are now able to examine the use of animals as food in various contexts during the Late Neolithic and the relationship between animals, various categories of Grooved ware and the expression of different social identities.

The World on a Plate: Food, cosmology and identity in the Late Neolithic of Orkney

We have seen that plants and animals are incorporated in a variety of contrasting contexts during the Late Neolithic and that their use is concerned with a series of cosmological principles which draw on their habitat, growth cycles and morphological characteristics. Plants are embedded within a seasonal and cyclical temporality, while animals are also embedded within the same temporal cycle, in which immature individuals are slaughtered around the autumn months (Watson 1931). However, the use and deposition of animals also indicates that animal species are perceived according to their spatial inhabitation of the landscape and as such certain animals are accorded different symbolic properties to others. The use of specific forms of food is socially and symbolically charged, and various parts of plants and animals are treated quite differently. It is interesting, therefore, to see how these products are utilised in relation to categories of Grooved ware.

Of most interest is the use of milk, as it was noted above that cattle are marked out symbolically through specific forms of deposition. They appear most appropriate in representing the settlement and as such are incorporated into a number of structures at Skara Brae. Moreover, they appear to be ontologically identified with human beings through the close association of cattle skulls with human skulls at Isbister. The close association of cattle with human remains and the settlement in general may suggest that cattle are treated as part of the self, or the individual. In this respect the consumption of cattle products would have considerable power and it is appropriate that both cattle milk and cattle meat have been identified within vessels at Barnhouse. Milk is essentially associated with the nurturing of life, since its most obvious role is in the feeding of young animals and people. Its use as a form of food is then

symbolically charged and there is an obvious relationship between mother's milk and the milk from cattle.

How is the use of this particular food categorised in relationship to Grooved ware at Barnhouse? Notably milk is found in two main contexts; in the large vessels associated with the house, and medium size vessels which appear to be more generally associated with the hearth. Notably, no single vessel contains evidence of both cattle meat and milk in the same vessel. While vessels of fabric A are used for the consumption of milk and cattle meat, vessels of fabric C are only used for the preparation of milk based meals.

The large vessels at Barnhouse are used to contain barley, as well as milk. As with cattle, barley is also associated with the settlement, with the growth cycles of barley mirroring those of the cattle. Therefore, the use of vessels to contain both the product of cattle and cereals is especially appropriate. However, there are further symbolic associations between many of these substances. Cereals, as well as milk, are also associated with growth and nurturing. Once sown, the crop may be nurtured, and visibly be seen to grow, only being harvested when the crops ripen and become white or 'milk-ripe'. Meanwhile, if cattle dung was a component of manure then the dung may be seen as an instrument of growth for barley. We seem then to have a series of substances classified together, metaphorically related by their specific symbolic and ontological properties.

Despite the storage of both milk and barley in large vessels, the consumption of foodstuffs appears to involve the separation of substances, with different vessels used for the consumption of barley, milk and cattle meat in different contexts. Medium size vessels are employed for the consumption of cattle products, while small vessels are employed for the consumption of barley. On a broad level, the redness of meat and blood may be associated with the continuance of life, the whiteness of milk, cereals and water may be associated with properties of nurturing and growth. The separation

of substances in consumption may be linked to ideas of purity and uncleanliness, for instance Vialles (1995) considers blood to be an especially polluting substance since it is related to both the vitality of life and the violence of death, and this may be one reason why it is separated from milk in consumption.

On a broader level, it is interesting to note that both of the major foodstuffs found within Grooved ware, cattle meat or milk and barley are foods obtained from domesticates. This is of particular importance, since while cattle remains are found within Late Neolithic middens, it is sheep which predominate. This may suggest that cattle are consumed less often. Similarly, the quantities of barley at Late Neolithic settlement sites are low. In both cases it is likely that the association between Grooved ware vessels and these particular plant and animals species serves to emphasise their importance, and symbolically demarcates their consumption as different to those of other species.

In order to understand the precise way in which the symbolic associations between animals, plants and Grooved ware are expressed in practice it is essential to note how vessels are used spatially. We will begin by looking at the spatialisation of those vessels associated with barley. As noted in chapter 7, the large vessels are typically located around the periphery of the house, in alcoves or around the dresser area. Similarly, where it was possible to determine the spatial location of the smaller vessels they were also situated in this peripheral location. The large vessels are typically static and are often set into the floor. This was certainly the case with the vessel within structure 8 which was set into the floor within the left-hand box-bed. Due to this static location, the enormous size of many of the vessels, and their specific association with barley it was suggested that these vessels were primarily for storage. However, through a study of the spatial and contextual associations of vessels of this kind it is possible to say a little more about the social and symbolic nature of storage during the Late Neolithic.

In order to explore the spatial locations of these vessels in greater detail it is necessary to turn to Skara Brae and Rinyo. The houses at both sites are obviously later in date than most of the houses at Barnhouse, and they are constructed with a great many more alcoves, keeping places and stone boxes for the storage of things than the houses at Barnhouse. Nevertheless, they still provide us with valuable information concerning the spatial location of objects within the house. The first thing to note is that most of these storage places are located around the periphery of the central space within the house. Notably house 2, Skara Brae, had considerable space behind the dresser, while stone boxes in other houses are always located at the back of the house between the hearth and the dresser. We have already noted the *in-situ* location of vessels at Skara Brae and Rinyo in chapters 4 and 8. At Rinyo a large vessel was placed within an alcove at the back of house D (Childe and Grant 1938, 24). At Skara Brae, house 8, two large pots were found in the porch, a further pot stood to the south-east of the hearth, while pot fragments and animal bones were found in a ruined cell in the west wall (see Fig 5.9). Meanwhile, within house 7 (Fig 9.10), in recess Z, two large 'cooking pots' contained a mass of animal bones, while cell K sheltered a large pot, and a further large pot in bad condition had been resting on the floor against the wall between cists W and X. These were not the only locations in which pots were found; in box bed Y a 'decorated pot' was found, while to the south of the hearth there had stood a very large pot with a decorated rim (Childe 1928, 255).

While these two well preserved houses are fairly unusual structures, at Skara Brae the other houses also contain evidence for the *in-situ* positioning of vessels. House 1 contained a large vessel placed within an enclosure to the left of the entrance, and a further large vessel against the wall to the right of the entrance. Most intriguingly a large vessel was also found set into the floor beneath the stone pier of the left hand box-bed (Fig 9.11). A similar situation prevailed in house 2, where two large vessels

and a medium size vessel were placed in a stone enclosure to the left of the entrance (Fig 9.11).

It is revealing to note that it was the larger, right hand box-bed in house 7 which had decorated surfaces. Given that decoration was used at Skara Brae as a means of defining space (Richards 1991), it is likely that the decoration of the box-beds involved the demarcation of an especially important space. What is interesting is that it is precisely the same simple unbounded linear decoration used in this context which is also found on large vessels. The relationship between linear decoration and houses was pointed out in chapter 8, here we observe in finer detail the way in which the decoration on both box-bed and Grooved ware vessels serves as a means of categorising things together.

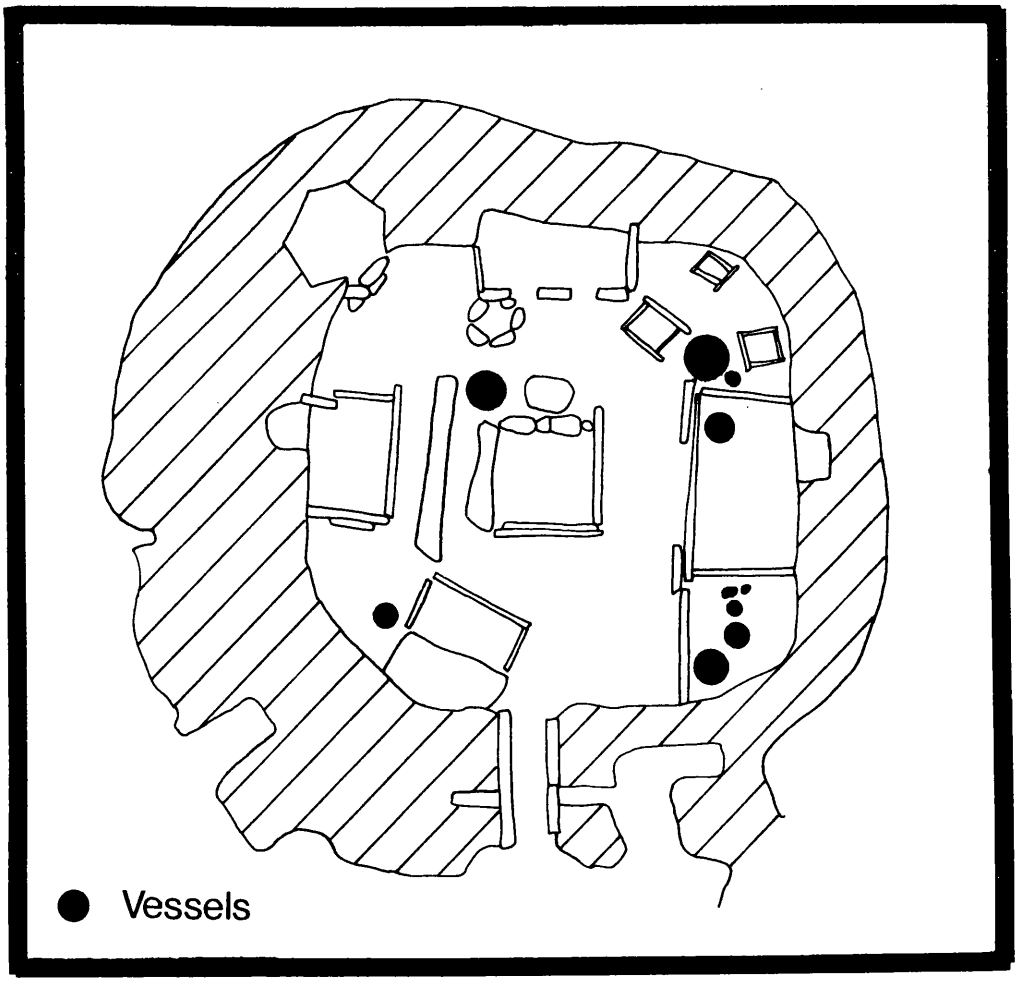


Figure 9.10: Position of vessels in house 7, Skara Brae (from Richards 1991, 26)

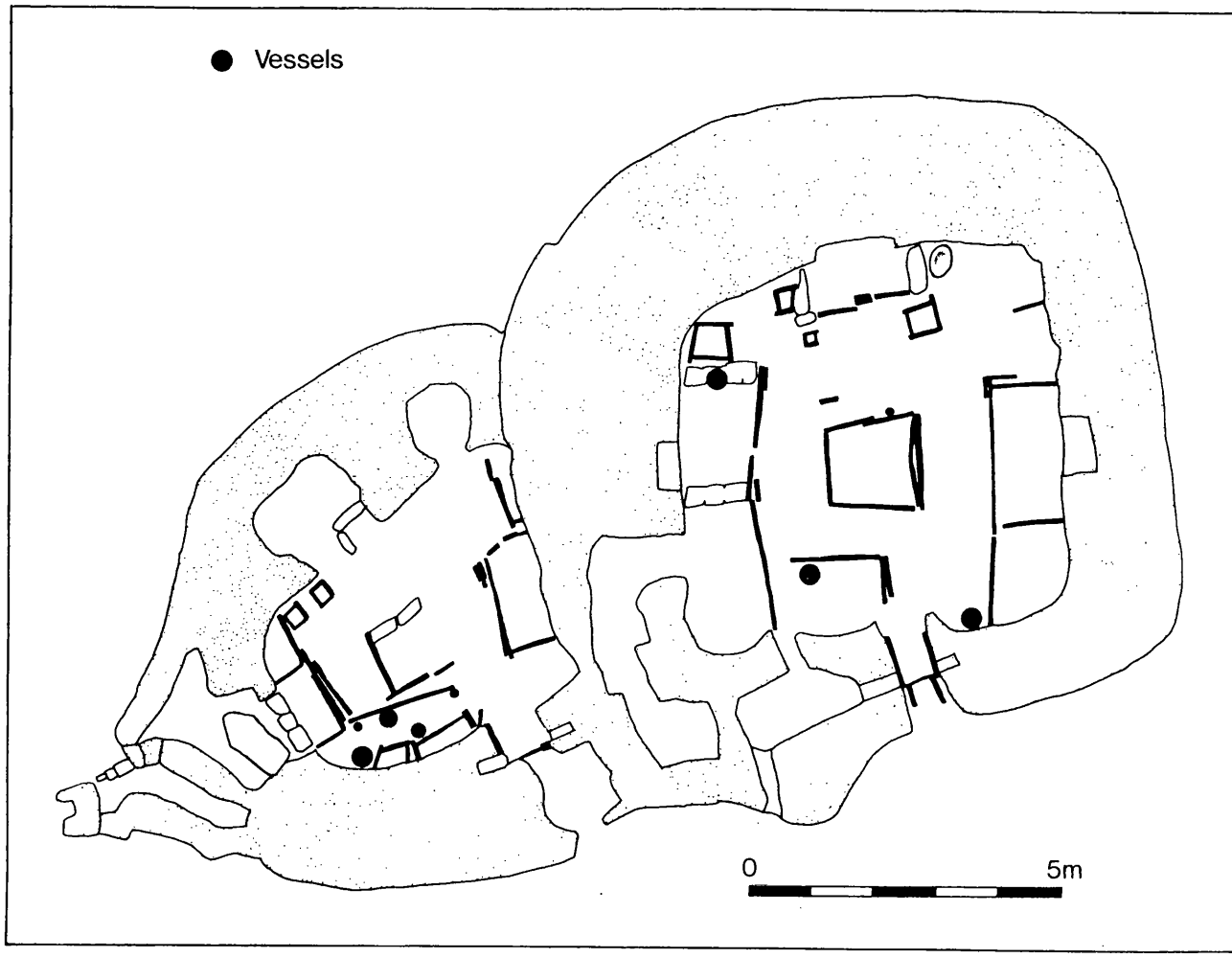


Figure 9.11: Position of vessels in houses 1 and 2, Skara Brae (Richards 1991, 25)

Of further interest is the location of the largest vessels within the box-beds. Box-beds have been considered as analogous to the neuk beds of 19th century Orcadian houses since Childes' earliest description of them (Childe 1931a, 15, 182-3). However, if we also consider them as storage boxes then this makes the finds associated with them comprehensible. For instance the short-horned cattle skull located in house 7, bed D, which Childe considered to be the remains of a barbaric midnight feast (1928, 25), can now be seen as an item of stored food. We need not see these structures simply as storage boxes or beds, but as multifunctional, indeed Fenton (1978, 135) notes that in comparable structures in 19th century houses there was

plentiful storage space beneath the wooden planks of the bed, and a similar arrangement may be envisaged for the structures within Late Neolithic houses. Fenton (ibid., 370) also notes the description of storage spaces for barley as neuks, therefore relating the storage of specific foodstuffs with beds.

As noted previously the storage of barley involves removing the grain from the temporal cycle. However, the association of storage vessels with box-beds allows us to be a little more specific about the relationship between storage and time, and here the metaphorical relationship between storage and sleep may be appropriate. There is a further contextual association which allows us to understand the social perception of storage. Placed beneath the right-hand box-bed and the wall of house 7 was a cist containing two adult women (Childe 1931, 141). Here we have a further dimension to the metaphor, with death, sleep and storage all being perceived in a comparable fashion. Barley, and the vessels associated with its storage were associated most intimately with the periphery of the house, and were metaphorically related to ideas of sleep and death.

There is little evidence from Skara Brae or Rinyo of the smallest vessels in association with this area of the house, although small vessels are more mobile and are also associated with activities around the hearth. It seems likely in this respect that these vessels were used in the consumption of barley, an activity which was certainly associated with the hearth, since most of the carbonised barley grains from Barnhouse are associated with this area of the house.

We must also turn to the hearth in order to understand the nature of the use of the medium size Grooved ware vessels. These vessels are associated with the products of one animal, cattle. It has already been noted above that cattle are of social importance during the Orcadian Late Neolithic, however this importance is further emphasised by the specific association of both cattle meat and milk with certain categories of Grooved ware, most notably those of fabric A which are individually

produced and often highly burnished and decorated, with a specific decorative scheme which represents specific notions of the community and the individual. However, we have also seen that medium size shell tempered vessels are used for the preparation of only one specific cattle product; milk. These vessels are produced communally and are decorated with similar decorative schemes, which represent the idea of community. However, the symbolic importance of cattle and the use of these vessels draw considerable power from the spatial location in which they are used, the hearth. Most of the evidence for the association between these vessels and the central hearth comes from Barnhouse, and was clearly demonstrated in chapter 7.

It has already been noted that the hearth is centrally located and is the focus both for the construction of the house and for its use. Richards (1996b) has noted that the hearth is also the focus for a series of transformative activities, in particular cooking. Most important is the simple fact that there is only a single central hearth within the typical Late Neolithic house. The centrality of the hearth obviously provides a focus for all activities within the house, and as such can reveal considerable details about the nature of social relations during this period.

There are many anthropological instances of the separation of consumption either by age, gender, by family membership, or by lineage. Jolly (1991, 58) indicates that during exchanges on North Vanuatu, Melanesia, the highest ranking men are segregated from other individuals. Within the houses of the Tukanoa of Northern Amazonia a series of families reside in separate compartments, but they use a central hearth for the sharing of food as a symbol of unity of the household as a group linked by co-residence and kinship (Hugh-Jones 1995, 231). Similarly according to Janowski (1995, 88) the members of a household amongst the Kelabit of Borneo are actually described as a 'hearth' due to their mutual use of the hearth in food sharing and consumption. Overall then I would suggest that the use of a central hearth within the Late Neolithic house indicates very specific ideas concerning social relations. The

consumption of food in this central location indicates that while there may have been considerable inequalities and differences between individuals during life, the act of consumption in this area was important in representing a particular kind of social identity, which bound individuals together as a household.

It is particularly important then that while a central hearth is used for the cooking and consumption of foodstuffs in the typical Late Neolithic house, in other contexts the activities of cooking and consumption are distinguished by the spatial separation of these activities. Within house 2 we saw that the eastern hearth was employed for the preparation and processing of barley and cattle meat, while the more confined western hearth was used for the consumption of cattle meat. This activity was especially demarcated by the use of unusually decorated Grooved ware vessels.

At the Stones of Stenness the activities of cooking and consumption were also spatialised, with undecorated shell tempered vessels being used for cooking outside the henge at the Odin stone site and highly decorated and burnished rock tempered vessels being used for consumption around the central hearth within the confines of the henge. Similarly, at a later date, the use of structure 8 also implies the separation of cooking and consumption activities, with large undecorated rock tempered vessels being used around the platform and decorated medium size shell tempered vessels being used in the interior.

This spatialisation of cooking and consumption serves to emphasise the importance of consumption as an activity which is bound up with the construction of links between members of the community or between members of different communities. The use of specific kinds of Grooved ware in these consumption activities is of the utmost importance since, through decoration, certain vessels communicate considerable information on the nature of the event and the identities of those involved in the event.

Food symbolism, consumption and identity in the settlement

It is interesting to note that while different categories of vessel are used together around the central hearth, they are used for the preparation and consumption of different kinds of food. Foods such as barley and milk are cooked within medium size shell tempered vessels, but are consumed in different categories of vessel. Barley is consumed within the smallest and most highly decorated vessels, while either cattle milk or meat is consumed within medium size rock tempered vessels, often also highly decorated. The consumption of foods in a complex set of ceramics, and in specific restricted contexts, suggests that different foodstuffs may have been perceived hierarchically and may, furthermore, be related to notions of purity and impurity. As we saw in chapter 7 this was evident from the differential treatment of vessels associated with either cattle meat or milk in the house 2, 3 and 9 ash dumps. Interestingly, quite different foods such as barley and milk are cooked in the same kind of vessel, but it is their consumption which is important and requires their separation into separate categories of vessel. I would suggest then that the cooking of different foodstuffs within these vessels occurred at different times, and that it was the combination of foods together at the same time, and in consumption, which was polluting. The complex use of Grooved ware allows food to be separated and thereby enables the expression of different aspects of social identity in different contexts. Interestingly, the consumption of cattle meat within house 2 suggests that it was perceived as highly polluting and that, necessarily, its consumption was highly restricted.

We seem to have a contrast between food which is associated with the community as a whole, such as barley, and foods which are associated with particular kinds of individual, such as cattle meat. This contrast allows us to understand how different foods are used in expressing different kinds of social identity. Cattle are

associated with the self and the individual and as such the consumption of cattle products in a number of different contexts is a powerful statement of the relationship between people. The consumption of barley is no less symbolically significant, but since this food is shared between the community it carries no weight as a prestige food in non-domestic social contexts.

I have already noted, in chapters 6 and 8, that the use of vessels of different size and of different frequency suggest that different aspects of social identity are being expressed through the consumption of different foods. Thus, the small vessels are used to contain barley and, due to their frequency within each house, they are likely to be shared between individuals. Meanwhile, the medium size vessels contain either cattle milk or meat, depending on context. These vessels are more numerous and are more likely to be used as individual serving vessels. Given this I wish to reconsider the use of food in the expression of different kinds of social identity beyond the settlement.

Food symbolism, consumption and identity beyond the settlement

Here I wish to examine the way in which the consumption of food is used to construct and express different kinds of social identity in both the context of the henge and the passage grave. In order to do this we need to reconsider the position of Fraser (1983). Fraser saw the use of animals as integral to his vision of Neolithic society. Through his notion of totemism, in relation to mortuary contexts, animals symbolised and demarcated the use of tombs by distinct social groups. In his use of totemism, Fraser's account owes more to the structural-functionalism of Radcliffe-Brown (1952, 117-133), than the structuralism of Levi-Strauss (1966). Totemic relations, for Fraser, are simply a means of retaining bounded differences between communities. The account I have provided above suggests that Fraser's criteria for evidence of totemism cannot be sustained as a viable theory. Rather we have seen that the ordering of animal

deposits is related to a culturally specific view of the order of the world. Given this, we have also seen that animals are used and perceived differently, and their use as food is not uniform and may relate to ideas of purity and impurity, prestige and mundaneness. As all communities within Late Neolithic Orkney utilise similar animal resources, what we wish to examine now is how they use them in expressing themselves socially. Here we can now integrate evidence from animal and plant remains as well as Grooved ware.

If we reconsider consumption activities in the environs of the Stones of Stenness, we observe a number of interesting things. The primary cooking of food in a hearth associated with the standing stones at the Barnhouse Odin site is associated with medium size vessels of fabric C. Meanwhile, the vessels within the hearth and ditch of the henge are provenanced from Barnhouse, but in this case the vessels are of fabric A, and therefore are most likely to contain either cattle meat or milk. There is no doubt that both food sources were extremely important as prestige foods. The consumption of milk in the context of the henge is symbolically striking since it refers simultaneously to household consumption, while the consumption of cattle meat is normally restricted to specific individuals. If we assume that the use of henges involved members of a number of communities then the sharing of prestige foods in this context indicates the expression of social ties of an important nature between communities. I have already suggested, in chapter 8, that the use of Grooved ware in the context of the henge is involved in the construction of social relation's between one community and another. However, are we observing large scale competitive consumption activities or activities of a periodic nature undertaken on behalf of the community by a small number of individuals?

What is notable in this regard is the relatively low numbers of vessels recovered from the hearth and ditch deposits at Stenness, suggesting that consumption was periodic and on a fairly low level. Furthermore, if we consider these foods to be related

to different ideas of purity, then the consumption of more prestigious but impure food within the henge may be a further means of demarcating individuals of different identities. What is striking in relation to this issue are the other foods consumed within the henge, in particular the dogs. Dogs are likely to be similarly related to ideas of individual identity, since dogs are intimately associated with human skulls at Cuween Hill and Burray passage graves. The consumption of dogs in this context is likely to be even more symbolically powerful than the consumption of cattle, and again indicates the powerful social ties between people using the henge. What is more all the foods consumed within the henge are likely to be stored foods, indicative of activities occurring within the henge during the winter months. Given the nature of storage, the use of stored animal products serves to heighten the importance of activities occurring within the henge. Finally, if the deposits of barley within pits close to the central hearth are Neolithic in date then they may be a further element of stored produce. Overall then the small scale nature of activities does not suggest competitive consumption, but the type of foods eaten within the confines of the henge suggest that they were of a prestigious nature. If the animal bones represented in the henge are considered as stored foods then we are likely to be observing consumption activities which occur during winter. As such it is likely that we are observing consumption which occurs in relation to a calendrical event during winter, and is more likely to be of a communal nature.

Turning now to the structure of consumption within passage graves, on the face of it we see a very similar set of consumption activities. Certain species such as cattle, sheep, pig and red deer are introduced as joints of meat and are perceived as food. In this case the provision of certain foods, such as cattle and deer, is prestigious and also mediates between the idea of the tomb as a particular place and the position of the individual within the ancestral community. Barley and wheat on the other hand are related symbolically to ideas of death, destruction and the life cycle, thus the

deposition of grain destroyed by fire is especially important in this context. The Grooved ware within the passage grave of Quanterness would appear to provide us with the clearest picture of the nature of these activities. Most of the vessels within the central chamber at Quanterness are fabric A vessels, and by analogy with similar vessels from Barnhouse these vessels are likely to contain either cattle meat or milk. Both foods may represent the individual, but as I suggested in chapter 8, the specific nature of the social context of deposition of vessels within the mortuary context refers to the relationship between a particular individual and their lineage and the rest of the community. The low number of vessels deposited within the Quanterness passage grave suggests periodic and low levels of consumption, as at the Stones of Stenness. However, here it is more likely that this occurs on the death of individual members of the community, rather than at prescribed points during the year. While the number of Grooved ware vessels is low in these contexts, the number of animal species deposited within a single chambered tomb or passage grave may be very high.

I would suggest that we are observing two different kinds of practice in the tombs. The first, concerned with Grooved ware and the consumption of certain foods such as cattle meat or milk, may occur on the death of an individual. The second practice involves the deposition of certain animal species as food. These species include cattle, sheep, pig and red deer, and here there are broad correspondences between the treatment of these species within both settlement and mortuary contexts. In both cases remains are fragmented, however in settlement middens these remains are grouped together, while in mortuary contexts they are partially separated. Interestingly, both contexts appear to include remains of neonates and immature animals, which must correspond both to the deposition of animals at a certain stage in their life cycle, and at a certain time of year, probably around autumn or winter, and is therefore episodic. While it seems that the meat rich parts of birds were associated with settlements, these elements are not found within the tomb. The selection of

certain species for special deposits, is influenced by the nature of the deposit and the place of deposition, and it is this I wish to draw out further.

Rather than being a secondary feature of the mortuary ritual, I suggest that animals are used as a means of structuring and framing the perceptions and associations with certain places, and the selective deposition of animals in this way creates qualitatively different kinds of place. Therefore, rather than thinking of groups of chambered tombs and passage graves as distributions of monuments of similar function, each tomb can now be seen to be a different kind of place, each of which is related to other places as part of the wider classified landscape. What is more, the selective deposition of different species of animal within different tombs relates to different kinds of ancestral community. We need not think of these communities as totemic in nature, but rather consider animals as a possible means of categorising different kinds of human remains. If we consider that animal species are considered as hierarchical, then the deposition of certain species in certain tombs may be a means of making a statement about the nature of the identity of the ancestral community.

Midden deposits and social identity in the Late Neolithic of Orkney

The presence of deep midden deposits have come to characterise the Orcadian Neolithic, yet there has been little discussion of their ontological status. Thomas notes the position of midden within and around the walls of houses throughout the Neolithic in Orkney as evidence of a culturally different attitude to 'dirt' (1991, 59). One of the major properties of animal remains within the midden is their highly fragmented appearance, and the overall homogenised nature of the midden.

This impression is stated clearly by Childe and Paterson on encountering the midden deposits at Skara Brae, they describe the midden as:

> A hard compact mass of clayey nature, embodying very numerous fragments of broken and more or less decayed animals' bones, limpet shells, ashes, cracked stones, coarse and very friable potsherds, and various artefacts, including Skail flakes, bone pins, beads etc. No regular stratigraphical change in the composition of the midden could be observed (1928, 239).

The later excavations at Skara Brae conducted by Clarke (1976) were explicitly designed to examine the nature of the midden in detail. A series of different episodes of midden deposition were evident (dates between 3270 BC +/-135 to 3005 BC +/-115 came from occupation deposits on the OLS prior to midden formation), the primary structures on the site which were built onto earlier deposits (between 3215 BC +/-135 and 3095 BC +/- 145), in the next phase (around 3020 BC +/-135 to 2850 BC +/-115) the midden around these structures was cut back and structures were built utilising midden as a wall core material. Thus the accumulation, cutting back and redeposition of midden material is episodic and related to cycles of building and rebuilding. The episodic nature of midden deposition is emphasised by the interleaving of wind-blown sand with midden layers. While the midden at Skara Brae involved periods of deposition and reincorporation within house walls, the time lapse between these periods of activity may have been considerable. It would appear then that it was necessary for the midden to decay prior to reincorporation, and it was the process of decay which affected a natural ontological change in the state of the midden. The process of decay was of obvious importance during the Late Neolithic in Orkney; the decay of the human body would appear to be carefully managed with the movement of human remains within and between tombs according to the state of the body (Richards 1988), and the weathered and fragmented appearance of bone within middens suggests

a similar interest in the management of decay. The fragmentation visible in the mammal bones is a deliberate part of this decay process, whereby the contents of the midden rather than being composed of individual components became a single decayed mass. This fragmentation may well have been the result of the working, cooking and burning of bone, but the end result was such that the material was unidentifiable as the component of any specific species.

There are a number of points which arise from this view of middens, firstly midden deposits will have taken a considerable period of time to accumulate. We can contrast the midden deposits at Barnhouse, where according to my analysis in chapter 7 there is considerable selective deposition occurring in middens associated with different houses, with the middens at Skara Brae where the houses are conjoining and the midden deposits have become homogenised and mixed. While the earlier middens at Barnhouse were certainly concerned with demarcating different kinds of material associated with different kinds of social activity and specific forms of social identity, the later middens at Skara Brae appear to be undifferentiated and things appear to be so mixed within the deposits that specific activities and identities are of less concern. Rather than referring to activities associated with specific households, through the depth of accumulation, midden deposits come to simply refer to the history of occupation of a site. It is for this reason midden is incorporated within the walls of subsequent houses since it refers to the previous occupants of the settlement. The midden is a resource drawn on by the community, which ties them to a particular place and signifies their overarching identity as a coherent community.

Summing Up

To reiterate, food is bound up with expression of different kinds of social identity and identities are especially expressed through acts of consumption. We have seen the way

in which plants and animals are bound up within specific temporal and spatial structures, especially the cyclical seasonal notion of time. Further, we have seen that the deposition of animals powerfully draws on and refers to ideas of place and landscape, and the association and treatment of different species depends very much on how they are perceived according to a cosmology which views the landscape hierarchically as relations of high and low. The use of Grooved ware vessels for the storage and consumption of different foods enabled us to examine the structure of food consumption and the importance of the use of foods spatially as a means of defining different types of social identity. It would seem from this that certain important foods are used within Grooved ware vessels, since Grooved ware provides the means of separating them spatially. Food is separated during consumption, and the deposition of both food remains and Grooved ware appears to mirror this, at least at Barnhouse, where we see the separation of vessels used around the hearth and those used at the periphery of the settlement. Finally with the decay of midden material, middens no longer involve the separation of substances but refer instead to the whole history of settlement on the site and become a symbolic resource with reference to the idea of the community.

Chapter Ten

A Biography of Ceramics

People and Pots

The central aim of this study was to explore the ways in which the relationship between people and pots are articulated, through an examination of the biographies of different categories of Grooved ware both within and beyond the Late Neolithic settlement at Barnhouse. By examining the processes of production, use and deposition contextually, the biography of various categories of vessel were mapped both spatially and temporally. It would seem that the life of different categories of vessel are quite different, and their use is framed by their association with different kinds of activity, different foods and different social occasions. Essentially then the biographies of different categories of vessels are associated with different overlapping social identities.

What I wish to explore in this final section is the way in which the biographies of these categories of Grooved ware are structured by particular kinds of metaphor. Both the biographies and social identities associated with different categories of Grooved ware are themselves structured by particular metaphorical linkages. Metaphors can be thought of not only as a means of defining and understanding the relationship between one action and another, but as being more generally coherent. As Lakoff and Johnson note (1980, 22), metaphors are a powerful means by which whole fields of social action may be structured. What is more, the use of metaphors may only be partial, only certain elements of the whole series of possibilities implied by a metaphor are realised (ibid., 52), and it is this which gives metaphors their power,

since it is by drawing on specific aspects of the relationship between one thing and another that a whole set of ideas are emphasised.

Probably the most interesting feature of metaphor, in relation to this study, is the common use of ontological metaphors in which inanimate things and processes are imbued with the characteristics of entities or substances. One of the most obvious ontological metaphors is that of personification, in which things are understood as the result of human characteristics or motivations. One of the most interesting points noted by Lakoff and Johnson concerns the field of activities associated with making things. Here they indicate that the most common metaphor for production involves the idea of making one thing out of another (ibid., 74), in which substances are viewed as containers and objects viewed as solids. Again this process is often personified and typically configured as a process of birth in which the object, the baby, comes out the container, its mother's womb. Therefore, we can see that metaphorically it is extremely common to draw on aspects of personhood as a means of understanding things and processes, and that certain processes such as production are often personified as birth. However, despite overall metaphorical coherence, not all of the possible extensions of a metaphor may be used, and certain features will be picked out and emphasised.

In this regard I wish to examine the metaphors which structure the production, use and deposition of Grooved ware in Late Neolithic Orkney, and in particular the way in which metaphor provides a congruence between pots and people. What is more important is understanding how this metaphor is expressed, since only certain elements of metaphor are used. Through careful contextual analysis it may be possible to examine the way in which the metaphor 'pots are people' is understood during the Orcadian Late Neolithic. In the final section of this chapter, I will explore the way, given the metaphorical association between pots and people, that this metaphor is deployed to represent different social identities over time.

Pots, people and houses

For many archaeologists pottery is tacitly related to cultural groups, providing a methodological and metaphorical link between pots and people. The validity of this link is questionable. It is notable that many archaeological studies of pottery, and indeed most material culture, views material as operating within bounded units, within which material culture is homogeneous. These units have been described as cultures. Both the bounded and homogeneous nature of this formulation of culture is questionable, and by examining the complex way in which a specific archaeologically formulated category, namely Grooved ware, is categorised through production, use and deposition it is possible to see that internally the category 'Grooved ware' as a single entity, has no real validity. Furthermore, the way in which specific categories of Grooved ware are used in specific contexts, especially within the henge and other more communal contexts suggests that the material and symbolic categories of pottery are socially constructed in relation to those in other communities, therefore the notion of spatial boundedness, even on the level of a single settlement site again appears to have little validity. While a broad correlation is being made here between pots and people, the pots simply metaphorically signify the presence of people, the link between the two is not active or purposeful, but a simple reflection, pots simply stand for people. The link here is more broadly one of metonym as opposed to metaphor.

It would seem then that the metonymic link made between this aspect of pots and people cannot be sustained. Simply put, cultures do not operate in such a rigid bounded fashion, furthermore the congruence between people and things is rarely of the scale at which this form of archaeological analysis normally operates. Rather, it is through localised social practice that the relationship between material culture and certain identities are constructed and maintained. Objects are, however, constructed, used and discarded by particular people, and particular kinds of people, thus the

relationship between things and people is a valid one, particularly in relation to the exchange of objects between people (Munn 1986, Battaglia 1991, Thomas 1990, Weiner 1991).

Throughout this study I have demonstrated the link between particular categories of vessel and different kinds of social identity, here I wish to clarify that link by examining the central metaphorical associations made between these vessel categories and the expression of different identities. The metaphorical association between pottery and people is a common feature of many ethnographic accounts of pottery production and use. Herbert (1993, 210) notes that the equation pots equal people is made by a number of African societies. Pots are made by particular people, typically women and they are anthropomorphised, the morphological characteristics of pots are named after the body (cf. David et.al. 1988); pots have necks, bellies, shoulders, feet and mouths. Decoration itself may be thought of as adornment. What is more the whole life cycle of the vessel is metaphorically associated with that of the person, pots are seen to be born within the fire, through a process of transformation, in a similar way to the transformation of a human baby within the heat of the mothers womb. It would appear here that the metaphor 'pots are people' is used in a specific sense, with the surface and form of the pot being suggestive of the skin and shape of a human being, and the production of the pot being suggestive of birth.

However, Herbert (1993, 211) also suggests that pots may accompany people through life, and being identified with people, actually change their status over time. Similarly, Barley's (1994, 69) discussion of the relationship between particular kinds of vessel and specific kinds of people in the consumption of food is another extension of this metaphor, in which certain people are associated with certain pots. Here it would appear that it is not only the physical characteristics of humans that are being drawn on metaphorically but the relationship between the vitality or life of people and pots.

The central metaphor that pots equal people would seem to coherently structure certain fields of activity associated with pottery in the African context. This metaphor has powerful resonances with the biography of Orcadian Grooved ware, but it is too simplistic to simply transpose these aspects of this particular metaphor onto this material. We cannot expect the precise metaphorical extensions present in the African context to be used within an Orcadian one. While I believe this metaphor is of value in understanding how Grooved ware was produced, used and deposited in Late Neolithic Orkney, there will be other aspects of the metaphor which are drawn on in this cultural context, as well as other linked metaphors which appear to be equally as powerful.

In particular I wish to examine the metaphorical relationship between pots and houses in Late Neolithic Orkney. There are a number of ways in which pots and houses may be considered as metaphorically related and these can be examined archaeologically. Pots are circular and are built using a flat clay base, their walls are built using successive interlocking rings of clay, this process is analogous to the construction of a Late Neolithic house, first a clay floor is laid, and a low bank of clay is placed around the circumference of the house, the walls are laid as successive interlocking rings of stone walling.

The Grooved ware vessel is strengthened using temper which is derived from specific sources related to the identity of particular people and the ancestors. The walls of the houses are strengthened with material which is related to the identity of the previous inhabitants of the settlement. The exterior of the vessel is slipped with a clay slurry in order to smooth the surface prior to firing which allows a series of decorations to be placed onto the pots surface. The exterior of the house is covered in a jacket of turf, however the interior of the house may be decorated with a linear decoration of a similar to that found on the surface of some Grooved ware vessels. The pot is fired either within the centre of the settlement or out with this area, possibly within individual houses. The location of firing appears to structure the nature of the

relationship between particular categories of vessel and the house. Just as the pot is warmed by fire to enable its transformation, the house is also socially transformed by the existence of fire within the central hearth (cf. Richards 1991).

Pots are used within houses in different ways, with the large vessels, used for storage, being placed around the periphery of the house in alcoves, around the dresser or within pits. Medium and small size vessels are typically used around the central hearth. Most strikingly, pots are deposited in relation to houses, with those used around the hearth being deposited in close proximity to the house. Those made and used in the central area are deposited in this area, while the largest vessels which are most closely associated with the house are placed at the periphery of the settlement. I would suggest then that the social significance, the biography and the identity of different categories of Grooved ware was dependant on their conceptual distance from the house. Thus the whole field of activities associated with Grooved ware was dependant on the important metaphorical notion that pots are like houses and are naturally related to houses.

However, houses themselves can be thought of as being metaphorically linked to people. Carsten and Hugh-Jones (1995) indicate that through inhabitation, houses may be thought of as moving through a life cycle, and are born, mature, grow old and die, indeed Bradley (1996) has suggested this is a central principle in the generation of settlement patterns in the European *Bandkeramik*. Such changes in the life cycle may be marked by significant structural changes within the house, related to the concreteness of the social relations of the inhabitants (Bloch 1995), while the overall construction of the house and the use of space within may be thought of as having similarities with elements of the human anatomy (Hugh-Jones, C 1986, 1996). Indeed Childe employed the metaphorical link between houses and bodies on numerous occasions in his discussion of Skara Brae. For instance, he describes the midden as

standing in the same relation to the huts and passages as the flesh to the organs and veins of a living body (1931a, 24).

Again these metaphors appear to be powerful within an Orcadian context. Houses appear to be demolished and rebuilt on a number of occasions, and are often rebuilt offset from the foundations of previous houses. Some houses, such as house 5, Barnhouse, are rebuilt at least four times, while others, such as house 11, Barnhouse, are built over the foundations of previous houses, in this case house 6. Some settlements such as Rinyo appear to see rebuilding within an extremely tight physical space, suggesting that the location of the house drew on the significance of previous houses. However, there are other more powerful ways in which houses are related to the human body in the Orcadian Late Neolithic, since in a number of instances human remains are actually embedded within the structure of the house. The most striking example is that of the two adult women inserted into a cist beneath the wall of house 7, Skara Brae, while human bones are also inserted into a cist within the eastern room in house 2, Barnhouse. What is especially striking here is that both these houses retain their importance throughout the life of each settlement, and although modified (see Clarke 1976, for modification of house 7, Skara Brae), neither are actually rebuilt. This use of the remains of previous generations also extends to the incorporation of material culture within the fabric of the house. While Grooved ware is not the only artefact placed within the walls of houses, at Barnhouse the category of pot deposited were those which appear to most significantly relate to the house, those of fabric A whose production appeared to be determined according to household, and fabric B whose use is closely associated with the house.

Furthermore the use of space within the Orcadian house is importantly oriented around the movement of the human body, with different kinds and qualities of space being distinguished to either the right or the left, and the back and front (Richards 1991). These different qualities are imbued with further significance due to the

orientation of the house and the relationship between this orientation and certain events of calendrical significance which are of especial importance in the northerly latitudes of Orkney. However, as I have demonstrated, this generalised static orientation is drawn on in practice through the use of pots of different categories within certain parts of the house. Therefore, the use of pots within the house also draws on the movement of the human body within the house, and the movement of the sun over the day and over the year. Thus the use of certain categories of Grooved ware, particularly those vessels of fabric A and C which are used around the central hearth, are embedded within a temporal and spatial pattern which is determined by the human body and the seasonal and diurnal cycles.

It would seem then that there is an important metaphorical link between houses and people during the Orcadian Late Neolithic, and it would seem that this link was expressed primarily as one of vitality, between the life cycle of people and that of houses, with the building and rebuilding of houses, on one hand, and the insertion of the dead within the house on the other. Each involves drawing on the vitality of the ancestors, the previous inhabitants of the settlement. In one instance the building and inhabitation of houses appears to be a fairly transient activity, probably related to changing patterns of residence and descent (Lane 1994, Richards 1990), in the second the building and inhabitation of the house is more permanent, where houses remain in use throughout a settlements history. It is possible that the human remains placed within the houses are of special significance, imbuing the house with a more concrete notion of history and genealogy.

We have a complex of metaphorical linkages between pottery, people and houses expressed during the Orcadian Late Neolithic. People equal both pots and houses, and all three can be viewed as containers with bounded surfaces and an empty internal space; pots contain food, houses contain people and things, while people contain vital organs, and food. It is possible, given the examples noted above, that

houses are viewed as having lives and vitality in the same way as people, and given the close metaphorical link between houses and pots this aspect of the metaphor may be extended to pots. The primary extension of the people equal pots and houses metaphor is that all three are motivated by vitality, they can all be seen to be born, mature and die. However, given the physical similarity between people, pots and houses it would seem that this may not be the only aspect of each which animates the metaphor, all are containers with a bounded surface with an inside and an outside. It is due to the close relationship between houses, pots and people and the notion of each being imbued with a similar life cycle that Grooved ware vessels are retained within the house after its abandonment.

Thus the metaphorical link between pots and people does appear to exist in the Orcadian Late Neolithic, although it is not linked so closely with outward physical aspects of humanity such as anatomy, rather the link seems to be mediated through the house. The house, as a focus for the identity and biography of human beings, is a means by which pots are similarly related to people. However, the metaphors applied to pots depend on their context and the varying relationship they have with the house.

Richards (1991, 1994,1996b) has done much to highlight the spatial order by which Late Neolithic houses, settlements, other monuments and indeed the landscape itself is organised. On the most basic level this can be viewed as operating according to principles of concentricity and circularity. Thus the central hearth within individual houses is a point of transformation and creation, as is the central bonfire within the central area at Barnhouse (Richards 1996b, 195). Furthermore, as noted in chapter 9, the hearth is the physical and conceptual point around which the social relations concerning the preparation and consumption of food are carried out. This idea of concentricity and centrality also extends to the organisation of space within henges such as the Stones of Stenness and passage graves such as Quanterness.

Social space is defined and experienced as a series of concentric circles with a centre. Physically this is perceived as the central hearth of the house which is surrounded by the walls of the house, the central area of the settlement surrounded by the concentric rings of houses which make up the Barnhouse settlement, the central hearth within the henge surrounded by a ring of stones and the ditch, the central chamber of the passage grave surrounded by the side cells. The movement of individuals between places within the landscape is a movement between overlapping circles with a central focus, and indeed the central bowl of Mainland Orkney is itself a circle with a central focus; the Brodgar and Stenness peninsulas and their monuments. The lives of individual people within such a socially conceived space will similarly involve a movement between overlapping circular spaces. On the broadest level the whole life cycle will involve a movement both spatially and temporally from the central focus of the settlement out to the passage grave, from birth to death. However, this is simplistic and, depending on the specific residence and marriage rules, certain individuals may move from one settlement to another, or from one household to another, possibly even from one island to another, while others may remain within the same settlement, house or island for their whole life.

The movement between qualitatively different kinds of place, each organised according to similar principles, involves a transformation in experience, and a transformation in the metaphorical meaning applied to things. The metaphorical meanings associated with an individual Grooved ware vessel will be transformed as the vessels moves through different contexts. With close proximity to house and settlement, metaphors which draw on the relationship between pots and houses will be more applicable, while as the vessel is removed and taken to other contexts, the metaphorical relationship between pots and houses will be less appropriate and a closer metaphorical link will be made between pots and people.

I have demonstrated in previous chapters the relationship between different categories of pottery and houses, and related this more generally to the idea of mobility (Battaglia 1991), where the movements of different categories of vessel are more or less fixed in relation to the house. There are a number of attributes which define the social mobility of the vessel, these include the vessel size, the use of materials used in production, location of production, and the typical contents of the vessel. Two other important factors to consider are the decorative scheme and surface treatment of vessels, since both of these are drawn on in the differential use of the vessel contextually. Decoration and burnishing are not confined to Grooved ware but found in a number of contexts during the Orcadian Late Neolithic, what is more this decoration is executed in a number of ways. Broadly, there is a tendency for bounded linear decorative elements to be found on houses, cist slabs, skaill knives, carved stone balls and Grooved ware, and unbounded curvilinear decorative elements on passage graves, carved stone balls and Grooved ware. The presence of decoration on artefacts of both Grooved ware and stone tools is a means of categorising material. However this categorisation may be in relation to both settlements and passage graves, with bounded linear decorative elements signifying the former and unbounded curvilinear decorative elements signifying the latter. Here we can see that the presence of these decorative elements forms part of the way in which Grooved ware is related to the settlement or the passage grave.

Burnishing is also a means of categorisation, and it is notable here that it provides a link between particular categories of Grooved ware and particular kinds of artefact, such as carved stone balls, polished axes and maceheads. What is also important about all these objects is that they are partly composed of material derived from similar sources, namely igneous dykes. Again as noted previously, all these objects are mobile and are involved in exchange beyond the settlement.

To reiterate, Grooved ware, amongst other things, is categorised by a number of means, related to material form and outward appearance, spatial position and relative mobility, and all of these categorical dimensions are mediated in relation to the house. Due to the Late Neolithic conception and experience of space as having a centre and an outer concentric area, it is suggested here that for Grooved ware, and possibly a number of other things, the house acts as the central focus or axis around which a series of relations are mediated. However, for objects such as Grooved ware that are produced and used in the settlement but are decorated with decorative schemes which refer to the passage grave there may be a tension between house/settlement and tomb, with those pots decorated with curvilinear design elements being more appropriately used and deposited within passage grave contexts. Furthermore, I would suggest that we may be able to think not only of the positioning of objects in space according to this principle but possibly also in time, as certain categories of things move outward from the house, both spatially and temporally. Given this, I wish to examine the biography of each category as it moves from one context to another, in relation to the principles of spatial and temporal order outlined above.

We shall start with the large vessels, those of fabrics A, B and B1. These vessels are infrequently built and are probably built at the same time as the house. The rocks used to temper them may be derived from specific ancestral locations within the surrounding landscape, close to the tomb of Unstan, or they may simply be tempered with the locally available sandstone and siltstone. Due to their large size, they are set in fixed positions in alcoves, beneath the dresser and within the floor, around the circumference of the house, which effectively means they are embedded within the fabric of the house. What is more, through use as storage vessels, as containers of barley and milk, they are intimately associated with both the house and the household, since the specific temporal and biological cycle of barley is associated with the

reproduction of both the household and the community. Moreover, since barley has regenerative properties it may be associated with the ancestors.

Through construction and use these vessels are closely associated with the house, yet they are located in niches and alcoves at the periphery of the main focus of activity; the central hearth. They remain largely undecorated, although if decorated it is with simple linear decorative schemes, which provide a further link between these vessels and the decoration found in houses. Due to their long life cycle, their spatial location and their embeddedness within the house, these vessels remain within the settlement on deposition, they are not associated with the mortuary rituals at passage graves. All of these aspects of the vessels social position, biography and identity are drawn on in their deposition; they are deposited at the periphery of the settlement; they are not associated with a particular house but are grouped together in a communal dump. Occasionally sherds of vessels of this kind may be redeposited within the fabric of later houses. These vessels are then metaphorically related to the house and the household as a whole, rather than individuals within it. They metaphorically represent the relations of the household itself, and as such they are discarded at the periphery of the settlement, where they become associated with the dead and the community. The memories associated with the deceased and the ancestors are drawn on in a generalised way in the reuse of sherds of these vessels.

On a metaphorical level these vessels are constructed using the bones of the ancestors, and the flesh of the land; rocks derived from specific sources and clay from the loch edge. They are part of the skin of the house, since they are embedded in the walls. They store the life giving essence of the house, barley and milk. Above all they are part of the body of the house, and when the house dies, these vessels die along with the house. Just as the human body is taken out from the settlement on death, so the bones of these vessels are placed on the periphery of the settlement, they are dumped in a communal group, as are the bones of the dead within the passage grave.

The smallest vessel, those of fabrics C, D and E, are associated with the house through production and they are certainly associated with the house through use. Where it is possible to determine the location of vessels of this kind they are found within alcoves around the walls of the house or around the hearth, thus their spatial location within the house is fairly fluid. On deposition these vessels are associated with ash and burnt bone typically placed in close proximity to the house. Like the larger vessels discussed above, the relative frequency of these vessels suggests that they were both infrequently produced and had a fairly long life-span.

Interestingly the mobility of these vessel is not simply related to the concrete physical relationship between vessels and houses, but rather to the social mobility of the vessel. This aspect of the social significance of the vessel appears to be framed by the use of the vessel in certain types of social context and the contents of the vessel. Thus, despite the small size of these vessels, they are never used in contexts beyond Barnhouse. This is curious since they do appear to reference places beyond the settlement through decoration, since they are predominantly decorated with complex decorative schemes which incorporate decorative elements found within passage graves. Such decorative schemes may have also involved the demarcation or emphasis of the contents of the vessels and their association with a special substance, barley. They were used in a complimentary manner to the large vessels, they contained barley and may have been used to remove barley from the larger vessels. They are most likely to have been used for the consumption of barley which has been cooked in medium size shell tempered vessels.

Although these vessels were used around the central hearth, they were not used in the same cycles of consumption as those which characterise medium size vessels. Their identity was tightly tied to household consumption, and as such they were deposited close to the house wall. Metaphorically speaking these vessels are not so closely related to the body of the house. They are made using the flesh of the land, clay

derived from the loch edge. Their skin is decorated with the designs of the ancestors, passage grave art, since they contain the food of the ancestors, barley, which has been handed down from one generation to another. They are cooked in the womb of the house or the settlement, the central hearth or bonfire, and their whole lives revolve around this area of the house. They contain the life giving essence of the house, barley, and are used in acts of exchange between members of the household. Metaphorically they are closely identified with the lives of people rather than the house, and the relationship between people, the house and the hearth, and thus it is essential to note that they are deposited in the ash from the hearth, but close to the house in which they were used. Biographically then they are tied to the house and are less concerned with the social relations of exchange between households, more in the social relations between members of the household.

Medium size shell tempered vessels of fabric C are produced within the central area and are fired in a bonfire within this area. These vessels are decorated with decorative schemes which are also found on medium size rock tempered vessels. They are used predominantly within houses circling the central area, although many vessels of this type are also used in the houses beyond this area. Within the site as a whole they are the most common vessels, most often produced and discarded. These vessels are used primarily for the cooking of cattle milk and barley. Certain vessels are used in contexts beyond Barnhouse, around the hearth next to the Barnhouse Odin Stone. They are notably not used in contexts within the confines of the Stones of Stenness and only a single shell tempered vessel was deposited at Quanterness. They are deposited in a number of contexts depending on where they were used, if used within houses they are deposited amongst ash and burnt bone in close proximity to the house, if used close to the central area they are deposited in this area, if used at Barnhouse Odin they are deposited there.

In decoration and size they are identical to the other medium size vessels, and it is through use that they are demarcated. Overall they are associated most closely with the settlement, and links between the central and peripheral houses. They are not used to represent specific households, kin groups or lineages but do represent the social relations and social ties operating within the settlement. As such the biography of these vessels is always situated in relation to the house and depends on the links between specific clusters of houses or within the settlement as a whole.

Metaphorically speaking these vessels are composed of the flesh of the land, clay from the loch edge, and the bones of the sea, shell derived from coastal locations. They are related to both the land and the sea, and not to specific people. They are decorated with designs which refer them both to the ancestors and to the living, with decorative schemes which are found both in passage grave and settlement contexts. They are cooked in the womb of the settlement, within the central area bonfire. Just like certain kin members within the settlement, they are involved in exchanges between houses throughout the settlement and they are used to contain a life giving substance which is exchanged between people and cattle; milk. These vessels are deposited in the centre of the settlement, since unlike other vessels they are associated not simply with the life of the house, but also the life of the settlement as a whole. They are not associated with particular people like other vessels, and their biography describes a full circle in which they are returned to their point of origin, the area around the central bonfire. Those vessels associated with the house have been identified with specific people through use, and their deposition in close proximity to the house reflects this, while the use of these vessels at Barnhouse Odin is associated with the settlement as a whole. Their depositional location is fluid, reflecting the fact that through production, use and exchange they are only loosely related to specific people or groups of people.

Medium size rock tempered vessels of fabric A, are constructed from material from specific sources within the Barnhouse environs. These sources have specific associations, either with ancestors or with other settlements, these specific sources are used for making Grooved ware in different houses, and are used to construct vessels with a similar outward appearance to shell tempered vessels. The vessels are fired within the central hearth of the house and are therefore closely associated with both the house and the hearth. Again the decorative schemes on these vessels are similar to those used on shell tempered vessels. These vessels are used in a whole series of different contexts, around the central hearth within the individual house, within the communal setting of house 2, in the central hearth of the Stones of Stenness. Finally they are also used within mortuary exchanges within the passage grave of Quanterness. The use of vessels in these contexts is quite different, the sharpest distinction is the use of vessels of this kind to contain cattle milk within the individual house, and to contain cattle meat within house 2. The precise contents are uncertain in contexts beyond Barnhouse. They are deposited in different ways depending on use, most usually in the ash and burnt bone next to individual houses, but also within the ditch of the Stones of Stenness henge, within the central chamber of Quanterness, and in proximity to the human burials within pits and cists in the central chamber.

Biographically these vessels extend outward from the central hearth of the house. They may be associated with the representation of individuals when used within individual households, with particular groups within the community, as in house 2, or in representing the community as a whole in the Stones of Stenness or Quanterness. Finally they may be used to represent specific kin members or the links between kin in the deposition of sherds in the pits and cists at Quanterness. Of all the categories of Grooved ware constructed and used at Barnhouse these vessels appear to have the most fluid set of identities and the most complex biography. Metaphorically speaking these vessels are constructed from the flesh of the land, clay, and the bones of the

ancestors, rocks from specific sources in the Barnhouse environs. They are decorated with decorative schemes which refer them to the settlement and the passage grave, and they are cooked within the central hearth of the house. The lives and physical essence of these vessels ties them to particular people or groups of people, defined by their use in houses, henges and passage graves. As such, metaphorically we can think of these vessels as closely being identified with the movement of people according to residence and marriage rules. In this respect the use of specific decorative schemes would serve to emphasise the particular settlement origin, and kinship connections of those using the vessel.

Through use certain vessels become associated with particular people, and they are used in the henge to represent these people on behalf of the community as a whole in the ritual cycle of activity in the henge, a process which involves smashing and dissolving their associations with particular people, and returning them to their constituent elements within the water of the ditch. The pots die, and their bones are returned to the earth. A similar process occurs in the passage grave, again certain vessels become associated with particular people and as such they are used to represent links between the dead and particular groups of the living. Here they are smashed in an action which symbolises the death of the individual and the dissolution of ties between the living; the body of the pot is broken and the bodily parts scattered amongst the bones of the dead, some time later a piece of the body of the pot is placed with a specific member of the community of the dead to symbolise the link between the body of the pot and the body of the person.

This account has constituted an idealised view of the metaphorical extensions of the idea that pots equal people, and has focused in particular on Grooved ware vessels and their use in different contexts from the earliest phases of Barnhouse. However, in order to provide a complete account of the use of Grooved ware and its relationship to people during the Late Neolithic it is essential to examine the later phases of the Late

Neolithic, especially the use of Grooved ware in structure 8. In doing this I wish to examine the social and material changes associated with Grooved ware throughout the Late Neolithic.

Houses, passage graves and social change in the Late Neolithic

I have demonstrated above that there is a close metaphorical relationship between Grooved ware vessels and people during the Orcadian Late Neolithic. What is more this metaphorical relationship is expressed in different ways in different contexts; in the settlement there is a close relationship between Grooved ware and houses; in passage graves there is a closer relationship between Grooved ware and particular groups of people; within the henge there is a different relationship expressed, between the use of Grooved ware and different groups of people. What I wish to suggest at this stage is that we can see a change over time in the nature and emphasis in different kinds of social identities in different locales within the landscape, in particular between those identities expressed in mortuary rituals and those expressed in the consumption practices within houses and to some extent henges.

Here it is worth reiterating a number of points made in chapter 3. Chambered cairns and passage graves have been the cornerstone of most discussions of social organisation within Neolithic Orkney. From Childe (1942), to Renfrew (1979), Fraser (1983) and Sharples (1985) much of our understanding of social organisation has been derived from a single facet, the study of mortuary monuments. Childe in a number of syntheses (e.g. 1940, 1946) had difficulty in reconciling the evidence from Orcadian mortuary contexts with the evidence from settlement contexts and treated both as separate cultural units. Overall the bodies of evidence have been treated with some exclusivity. However, both Hodder (1982b) and Richards (1991,1994) have sought to re-examine the evidence from settlements and integrate this with evidence

from other contexts. In view of this, what I wish to examine here is the changing nature of mortuary and settlement contexts, and the changing use of Grooved ware within these contexts throughout the Late Neolithic.

Renfrew's (1979) analysis of mortuary monuments and henges within Orkney from the Early Neolithic to the Late Neolithic emphasised a change from a segmentary society to a centralised society focused on the central Brodgar-Stenness locality. This suggestion fitted into a social evolutionary framework which drew on the calculated man-hours required to build each monument, coupled with a close reading of the radiocarbon dates. According to Renfrew the Ring of Brodgar, Stones of Stenness and Maes Howe all constitute the culmination of achievement for a gradually evolving society. Richards (1993a, 312-328) has undertaken a sustained criticism of these ideas, and in particular has noted that many of the monuments that Renfrew supposed represented the culmination of a centralised, evolving society were in fact built in a single flourish of activity focused around 2600-2400 bc (ibid., 317-20). This activity is characterised by the construction of most of the major monuments of the Orcadian Late Neolithic including Maes Howe, Quanterness, the early phases of Barnhouse, Skara Brae and the Stones of Stenness. As Richards notes, through a careful examination of the contexts of the radiocarbon dates, all can be demonstrated to be built in this initial phase of activity. Thus we seem to see the construction of a coherent group of monuments all spatially organised in a similar way, according to principles of concentricity and centrality, and all associated with similar forms of Grooved ware.

What I wish to examine now are the contrasting sequences of activity associated with these monuments after this initial phase of activity. While most passage graves, including Quanterness and Maes Howe, were built in this early phase of activity, what is interesting is that beyond this there is no substantial evidence for the continued embellishment of these monuments, rather they appear to have been built and

continued in use for some considerable period of time. It is illuminating to note that the construction of some passage graves, such as Maes Howe (cf. Richards 1996a) and Howe of Howe (Smith 1995), incorporated material remains from Early Neolithic houses, thus cementing a link between houses and mortuary contexts, and effectively monumentalising the remains of earlier houses.

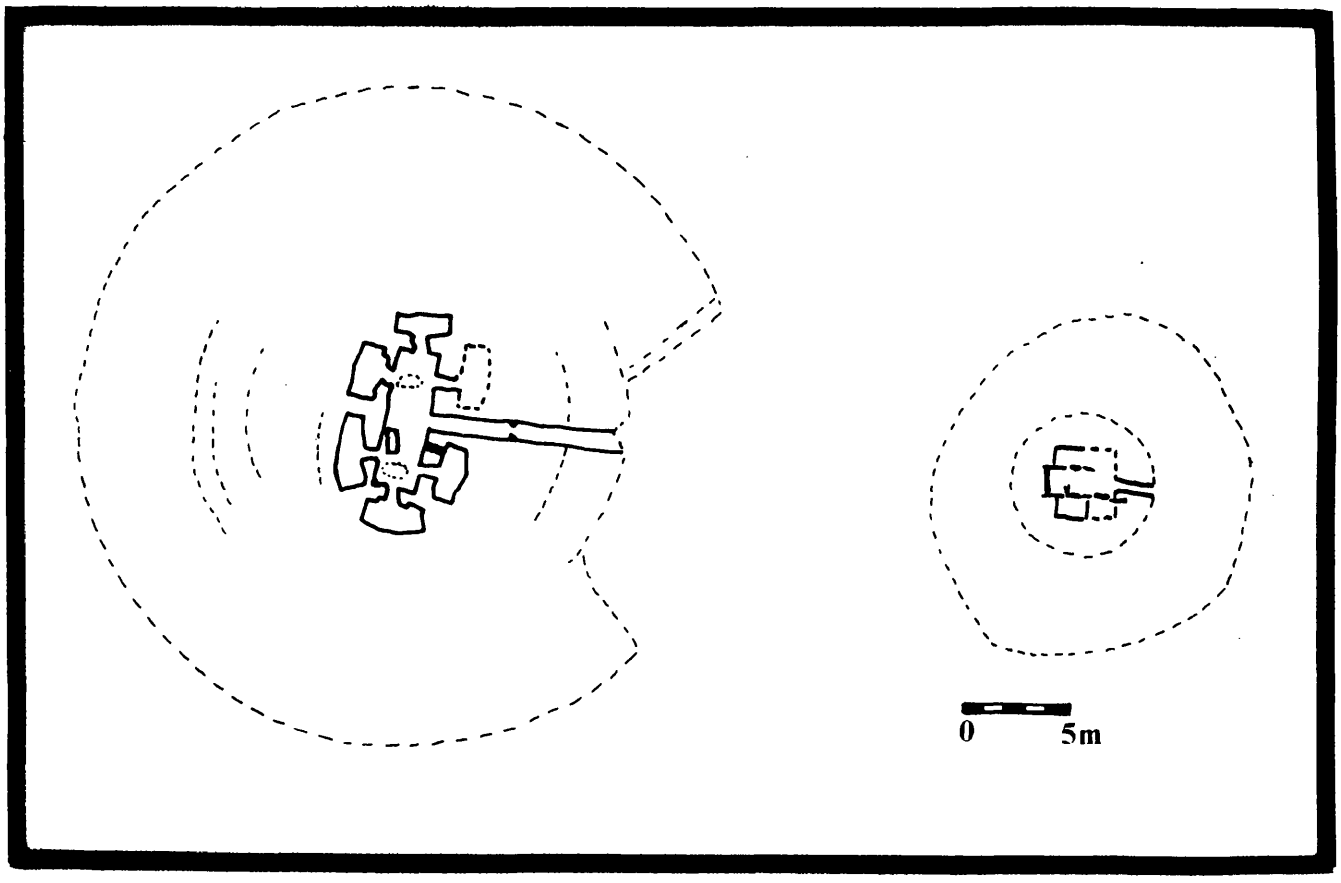


Figure 10.1: The changing nature of mortuary architecture in the Orcadian Late Neolithic. Left: Passage grave with central chamber and side cells (Quanterness). Right: Chambered cairn with central chamber and stone-built boxes (Bookan). Both after Davidson and Henshall 1989, 104, 151.

However, it appears as if there is little further activity associated with passage graves after this initial period of activity. Only two notable instances occur, the extension of the hornworks at Isbister, S. Ronaldsay (Hedges 1983) and the insertion of a series of cists and pits within Quanterness, over the period 2300-2000 bc. Indeed, many passage graves appear to see some amount of destruction, such as at Pierowall Quarry, Westray (Sharples 1984), while a great many others are infilled with rubble in the passage itself (Davidson and Henshall 1989, 60-63). Although few mortuary monuments continued to be built, those that were had a very different form (Fig 10.1). The spatial organisation of later mortuary monuments appears to be considerably transformed. This is especially interesting when we note that the later tomb at Bookan appears to draw more heavily on the house for spatial arrangement (Richards 1993a, 326). What is more, burial in cists within this monument, in the cists and pits within Quanterness, and the cist burials at Brodgar Farm (Marwick 1926) may be seen to draw on earlier burials within houses, such as the burial within the earliest phase of house 2, Barnhouse. It is notable here that one of the Brodgar Farm cists is decorated with bounded linear designs which would appear to link it closely with the kinds of decorative scheme found in settlement art, indeed the decorated slab could potentially be derived from a settlement.

This overall decrease in activities associated with passage graves and the realm of the dead in general can be contrasted with a number of changes in the architecture of the house over the duration of the Late Neolithic. Here Richards (1991) has noted that the earliest houses, observed at both Barnhouse and Skara Brae, have stone furniture recessed within the walls of the house, while the secondary phase of house construction has stone furniture which projects outwards into the internal space of the house. Importantly, this is compensated for by the construction of larger houses, and indeed the outer wall of house 7, Skara Brae is remodelled to compensate for these changes (Clarke 1976). From an outward appearance these houses would appear to be

substantially larger than previous examples. The house would appear to be monumentalised (Fig 10.2).

Most importantly, it is notable that around 2400 bc a number of other changes were occurring within settlement architecture. This is most starkly characterised at Barnhouse, by the construction of structure 8. This monument emphasises the development of the monumentalisation of the house. While it preserves many of the similarities of earlier house it is again organised by a spatial organisation which draws on concentricity and centrality and has similar stone furniture. The very size of this structure suggests that residence patterns had changed considerably over the Late Neolithic, with a move from distinct free standing houses arranged in a concentric pattern at Barnhouse to a single large structure (Richards 1993a, 325). It is possible to discern this process more generally at Rinyo, Skara Brae and the Links of Noltland. At both sites the final phases of activity involves the conjoining of houses, and at Skara Brae a single wall is built around the whole settlement effectively creating a single settlement unit.

What is of further interest here is the status of the henge in this cycle of activities, one of the major architectural features at the Stones of Stenness is the large central hearth, analogous to the hearth within the typical late Neolithic house (Richards 1994). Moreover, at a later phase within the life of the Stones of Stenness a large monumental porch is built facing towards the Barnhouse settlement. A similar porch was constructed in the inner entrance of structure 8. It would seem then that the Stones of Stenness at least could be considered to be linked both conceptually, and in use, to the settlement. Therefore we may be seeing an analogous process of elaboration and monumentalisation associated with henges. It would seem then that while a visible monumentalisation of the house occurs throughout the Late Neolithic, this occurs in tandem with the changing status of passage graves and the dead in general over the same period.

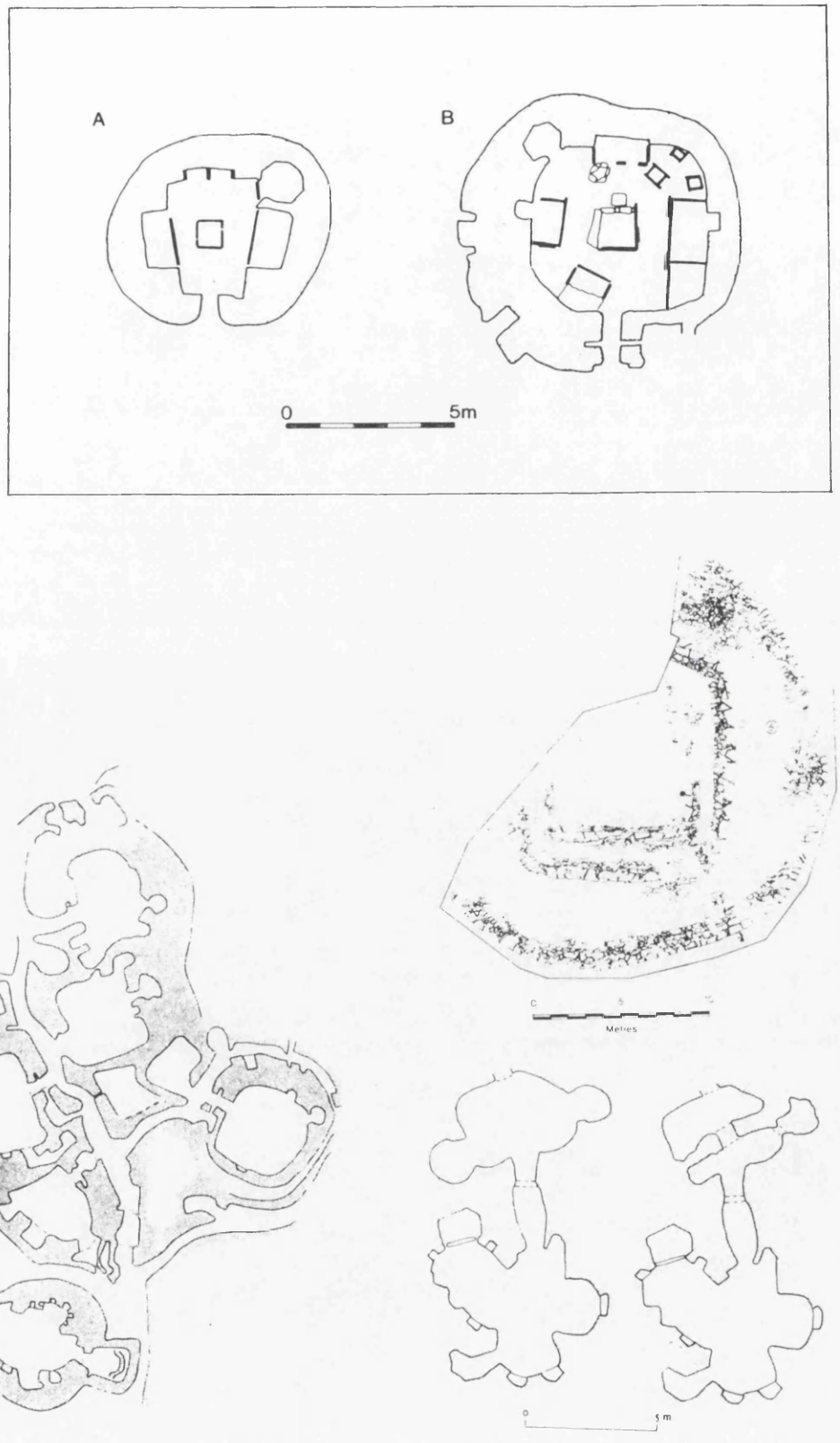


Figure 10.2: The changing nature of house and settlement architecture in the Orcadian Late Neolithic. Top: The change from recessed (A) to projecting (B) furniture (after Richards 1991, 23). Middle: Structure 8, Barnhouse (after Richards 1990b, 320). Bottom Left: Skara Brae, Bottom Right: Links of Noltland (from Clarke and Sharples 1990, 59, 67).

Individual and community: kinship, residence and the representation of social identity in the Late Neolithic

The changes outlined above are motivated by a whole series of social practices which I now wish to explore. Initially I wish to focus on the problem of kinship and residence patterns. Sharples (1992) suggests a change from an exogamous to endogamous kinship system within Orkney from the Early Neolithic to the Late Neolithic. His assertion is based on the apparently dispersed nature of Early Neolithic settlement patterns against the clustered villages of the Late Neolithic. However, with the recent discovery of Stonehall, Mainland where a cluster of Early and Late Neolithic settlements are situated around the lee of Cuween Hill, and with the more general settlement histories of sites such as Rinyo (Piggott 1954, 327) and Pool, Sanday (Hunter and MacSween 1991) this idealised distinction appears problematic. Rather, I would suggest that there is little change from the Early to Late Neolithic, and that the kinship system in both cases was exogamous.

As noted in chapter 8, we see definite evidence of exchange occurring within the Orkney Isles as a whole during the earlier phases of the Late Neolithic especially in regard to Grooved ware. Rather than thinking of a fundamental structural change in the kinship system I would suggest that we are simply seeing differences in residence patterns. Furthermore it would seem that these changes in residence patterns continue throughout the Late Neolithic.

This may be briefly illustrated at Barnhouse where we see a change in the pattern of residence occurring over the life of the settlement, with the initial phases characterised by a settlement pattern in which space was arranged concentrically. Here, broadly, we see a group of houses arranged around a central space, with a further group of houses arranged concentrically around them. The differences between these two groups of houses is cemented by the use of a drainage system which joins all

houses in the inner ring, and a second drainage system which connects the houses in the outer ring. These two groups of houses are further defined by the use of Grooved ware constructed according to two different methods; the inner ring of houses uses pottery largely constructed with shell temper, while the outer ring uses pottery largely constructed with rock. Both decorate their vessels with the same decorative schemes. What is more there seems to be some interchange of pottery between these two groups of houses. What we are seeing is a residence pattern where there are obvious relationships between the two groups, possibly best perceived as moieties or lineage groups within an exogamous kinship pattern, each having a distinct spatial location within the settlement. However, by the final phase of the settlement we see a single structure built with the same spatial arrangement. Again the Grooved ware within this structure demarcates different areas, with the inner building being exclusively associated with shell tempered pottery, and the outer platform being associated with rock and shell tempered pottery. Here it would seem that while we are seeing similar patterns, residence now occurs within one large house rather than numerous small houses.

However, I do not wish to simply present this as a series of observed patterns, rather it is essential to explore the nature of the social practices which brought about the changes which have been observed. These changes do not simply reflect changes in residence but they are an active representation of particular social identities. In order to do this it is essential to examine the changing nature of social practices associated with the house, settlement and other contexts during the Late Neolithic. In particular I will examine the use of Grooved ware within changing social practices bound up with the consumption of food, and examine this activity in relation to the representation of different aspects of individual and communal identity during the Late Neolithic.

As both Jones (1997, 124) and Thomas (1996, 78) have emphasised, identities are contingent, and the deployment of material culture in the representation of specific

identities is similarly overlapping. Therefore, depending on context, the identities represented by any aspect of material culture may be quite fluid. What is more, Jones notes that it is through the use of material culture within habitual activity, such as the preparation and consumption of food, that identities are formed. More importantly, Cohen (1985) suggests that communities are constructed using symbols around which a whole series of beliefs and understandings can be articulated. These symbols may be imputed with a whole series of meanings by different members of a community, as long as the symbol used is recognised as demarcating that community. Although symbols of this sort may take many forms, there are certain resonances between his approach and the association of meaning with material culture (Hodder 1986, Shanks and Tilley 1987). Thus material culture may be used in the representation of specific types of identity. This identity will not however remain fixed, rather it may change over the duration of the objects life as it moves from one social context to another.

I have already noted above the strong metaphorical association between Grooved ware and houses. This is due in part to the way in which Grooved ware vessels are bound up with biographies which were centred on the production and consumption of food within the house and settlement. I also noted that the metaphorical association between pots and houses became less distinct the further the vessel was from the domain of the house and the settlement. Here then we need to examine how this metaphor is used in expressing particular aspects of social identity in a variety of contexts. What is more important is the realisation that Grooved ware is used in each context in specific acts of consumption, especially in the consumption of cattle products, meat and milk.

It is notable from a whole series of settlement sites within Orkney that we see a fundamental change of Grooved ware over the Late Neolithic period. On the broadest level this can be characterised as a change from Grooved ware with decoration executed by incision, to Grooved ware executed with applied cordons (MacSween

1992). However, I noted that despite this apparent coherence the earlier examples of incised pottery and pottery with embellished cordons employed a whole series of decorative elements in a novel fashion. Indeed, it was noted that certain decorative schemes were specific to certain settlements (see chapter 3). By the later phases of the Late Neolithic, pottery employing large applied cordons predominates. What is most interesting is that in this phase the pottery is not distinctive of specific settlements, and vessels from a number of settlement sites, such as Barnhouse, Pool, Rinyo and Skara Brae, are largely indistinguishable each employing scalloped rims, simple applied cordons arranged in a weak curvilinear pattern and pellets of clay as infill. Vessels of this kind are large thick walled examples, characterised as fabrics A, B and B1 at Barnhouse. Finer vessels do occur, however the decoration is again simple, typically shallow incisions.

What is also interesting is that in this later phase of settlement a few sherds of beaker are also found, especially at Rinyo (Childe and Grant 1938, 26, Piggott 1954, 327) and at Barnhouse. In all cases the beakers appear to be comb stamped or comb incised. Also of interest is the presence of Arran pitchstone at Barnhouse. While this is not related to the use of structure 8, it is related to the secondary phase of occupation within the settlement, suggesting gradually expanding links with other areas over the duration of the Late Neolithic. What is notable however is the cache of fourteen flint nodules placed beneath the floor in structure 8. These nodules are not naturally occurring within Orkney and are probably the result of extensive exchange links (Middleton 1994).

If we turn now to the contexts in which Grooved ware is found then we see that what is outstanding is the presence of the earlier types of incised Grooved ware at all kinds of site, settlements, passage graves and henges during the earliest phases of the Late Neolithic, and the restriction of the later types of applied Grooved ware to settlements. Through detailed examination of the Barnhouse Grooved ware

assemblage we have seen that in the earlier phases of settlement, a single category of vessel is utilised in certain specific contexts both within and beyond the settlement; this category is the medium size rock tempered vessel. Its production and use appears to be structured by context, its production is closely identified with specific households, it is decorated according to a decorative scheme which is distinctive of the settlement and its use is associated with cattle milk. Within house 2 its production is unassociated with specific households, its decoration is entirely distinctive, and appears to reference other settlements and its use is associated with cattle meat.

However, this category of vessel is also found in contexts beyond Barnhouse, in particular within the confines of the Stones of Stenness henge, and within the central chamber of the passage grave of Quanterness. Here both vessels are decorated in a similar fashion, with the decorative scheme which is distinctive of Barnhouse. Grooved ware is being used in a series of different social contexts and in a number of different ways. Within the house the use of vessels represents the household, within house 2 it represents a particular form of social identity which transcends the idea of the lineage, possibly structured by age, gender or both, within the henge it represents the community as a whole, while within the confines of the passage grave it represents the kinship relationship between the deceased and members of the living community.

A single category of vessel is being recategorised through use, and in each context represents a different aspect of the relationship between individuals and the community. Within the settlement, vessels of this category are being used to mediate relations between the individual and the household and settlement, while in contexts beyond the settlement the vessels are being used to mediate relations between the individual and the wider aspects of the community; in the henge the community of the living, in the passage grave the community of the dead, in each case different aspects of community are being emphasised, and in each case different metaphorical aspects of vessels are drawn on.

Most notably the presence and nature of Grooved ware within the passage grave at Quanterness indicates that the vessels were brought to the passage grave from some distance (Williams 1979, 96), with examples from Barnhouse and Hoy. It would seem then that extensive exogamous kin relations are being expressed in this context. What is more interesting is that the mortuary rituals within the passage grave were an appropriate occasion for the expression and reworking of particular kinship relationships and the creation of a holistic and extensive idea of community.

If we turn now to the later phases of the Late Neolithic we see that the appropriate contexts for consumption are much more restricted. The later Grooved ware forms are only found in settlements. If we focus on Barnhouse we see that a different category of vessel has replaced the category previously used within consumption practices. Rather than a medium size rock tempered vessel which was made individually and used in emphasising the relationship between the individual and the community, we now see finer shell tempered vessels which are made by the community and emphasise the community in use. A further vessel category is employed in structure 8 which is used for cooking in the platform area. These vessels constitute a combination of aspects of earlier vessel categories. Just as with earlier fabric B vessels they are extremely thick walled, and they are positioned around the periphery of the structure. What is interesting is that they are twice the volume of vessels previously used in cooking, suggesting an increase in the scale of consumption and the number of participants. Therefore we are seeing two things occurring, previous categories of vessel form and fabric have been extended and recategorised in practice. More importantly, these vessels are only found in the context of the settlement.

During the Late Neolithic the kinship system was exogamous, and the pattern of marriage and residence involved the movement of individuals between settlements within Orkney. The idea of community was extensive, however it was only at specific times and at specific places that kinship relations were expressed and the community

was reaffirmed. These places were restricted and only certain individuals were involved in the expression and reaffirmation of community through the consumption of specific foodstuffs within Grooved ware vessels in both henges and passage graves.

However, in the later phases of the Late Neolithic these contexts became of less importance, and rather than expressing community within these contexts, the settlement and the house became important contexts for the expression of community. This change in the representation of community involved not only a change in the residence pattern and the concomitant monumentalisation of the house as a context for defining the community, it also involved substantial changes in the production and use of Grooved ware. Within Barnhouse we see a change from the use of specific rock sources used in certain houses to the use of the same rock sources in combination within large vessels in structure 8. On a more extensive level, the decoration of Grooved ware was no longer used to categorise and define specific settlements but was rather used to categorise and define a larger Orcadian community which linked all settlements.

Here it is interesting to note that it is in this period that beakers are also used, possibly indicating links beyond Orkney. Furthermore, other links are suggested by the presence of Grooved ware of identical decorative schemes to this later Grooved ware at Sumburgh Head, Shetland (Downes, Jones and Richards forthcoming), indicating that the idea of community extended to groups living further afield within the Northern Isles which had hitherto had little apparent contact with Orkney.

What we are seeing is a change in the representation of the idea of community, in the earliest phases of the Late Neolithic there were a series of social occasions within which it was appropriate to express a series of specific relationships between the individual and the community. Beyond the settlement this included the henge and the passage grave. However, due to the restrictive and periodic nature of these latter contexts, the community came to be represented in a different way, with a shift in

emphasis from a concern with monumentalising the community of the dead, to monumentalising the community of the living.

In conclusion

We have seen that even within a single 'Grooved ware' settlement, the use of Grooved ware is complex. Different fabrics, volumes and decorative schemes distinguish different categories of Grooved ware. 'Grooved ware' is not a homogenous object which is simply glossed according to an overarching or monolithic notion of cultural identity signified by the use of specific classes of pottery. Rather it is produced, used and deposited according to different and overlapping regimes of social identity. These social identities are expressed through the production, use and deposition of different categories of Grooved ware according to an attachment to place, with certain pots being constructed from materials which are place specific, and others being constructed within specific places, such as the house or the centre of the settlement, while pots are also used in specific places. All of these aspects of a pots production and use demarcate a series of overlapping social identities. One component of this categorisation process is decoration, and again decoration is a means of categorisation, since decoration is internally variable within the assemblage. Furthermore, certain categories of Grooved ware are decorated in a manner which identifies their place of origin, again tying identity to place.

The variables which occur within an assemblage are, then, the result of an active categorisation process and are a means of demarcating vessels. They are actively manipulated and reproduced by people, they do not vary according to sub-divisions within an overarching cultural unit. Rather than reifying material culture as part of a single bounded cultural entity, I have demonstrated that pots are employed in a variety

of social practices concerned with the construction of different kinds of social identity, either individual, household, lineage based or of a community.

While people may have a unity of cultural symbols which can be employed in order to formulate cultural meaning, these symbols can be manipulated in a number of ways. Barth (1987), in his study of the creation and variation of ritual knowledge in inner New Guinea, emphasises the point that cultural symbols may be shared by a number of neighbouring cultural groups, but while these symbols may have a communality of origin, being largely drawn from nature, they are recombined in novel ways by each individual group to construct distinct but similar cosmologies. The affinities and differences in these cosmologies depend very much on the social organisation and contact between groups. The reproduction of cultural and material symbols thus relates in part to the way in which they are employed to represent different kinds of social identity. These social identities are constructed both by the social organisation of social groups, which will be structured by kinship, and the contexts in which social groups meet. Both of these factors will serve to both define and reproduce the affinities and differences between social groups.

Thus the different identities and biographies of categories of Grooved ware are related to the definition of the affinities and differences between different communities during the Orcadian Late Neolithic. The fluidity of the manipulation and recombination of these material symbols enables them to be combined and recombined in both different and similar ways. During the earlier phases of the Late Neolithic we see certain categories of Grooved ware being used to represent differences between communities, particularly through decoration, while towards the end of the Orcadian Late Neolithic, we see differing settlements symbolising a holistic sense of community. The association between material culture and people is subtle, and rather than understanding the variation in material culture as occurring on a large scale, at the level of bounded cultures, variation occurs according to the active categorisation of

material culture and its use in specific social practices. It is the similarities and differences in these social practices which we can observe varying at a localised or regionalised level, and it is through this means, and at this level, that we observe cultural identity.

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Appendix One

The Petrological thin-section project

Introduction

The thin-sectioning programme was undertaken in order to examine the nature of the five main fabrics determined by macrosection. In order to do this a series of sherds were sampled from different contexts across the site. This initial stage was focused on the determination of fabric differences amongst the assemblage. Once the nature of the different fabrics had been determined the research focused on a different series of issues.

Here the main objective was to determine if any difference existed in the petrology of pottery from different houses, and to examine whether this could be related to the organisation of pottery production. In order to determine this, sherds were sampled from most houses where a reasonable quantity of material was available. Furthermore a number of sherds were sampled from other contexts such as the central area. It is essential to point out here that a number of sherds of shell tempered fabric were also thin-sectioned to check the possibility of rock temper also being utilised in vessels of this category.

Having determined the petrological signature of certain houses, a series of sherds were thin-sectioned from contexts external to the houses, particularly the ash and pottery dumps next to the houses, as well as trench K located next to structure 8, and the dump of large fabric B vessels behind house 3. A few vessels were thin sectioned from beyond Barnhouse, especially from the Barnhouse Odin area between Barnhouse and the Stones of Stenness.

Although the petrology programme was successful in determining variation between contexts within the settlement, a more fine grained approach was necessary in order to understand the nature of interaction between Barnhouse and other sites within the Late Neolithic Orcadian landscape, particularly Stenness and Quanterness. In order to allow a more fine grained picture of resource procurement and its relationship to pottery from contexts within Barnhouse, a provenancing project was undertaken which would allow the sources of temper to be tied down to a specific geographical location and geological source.

Methodology: Production of petrological thin-sections

A similar process was used for the production of both archaeological ceramics and geological samples procured in the pottery provenance project. In order to produce petrological thin-sections it was necessary to first prepare the pottery. In order to prepare the sherd, a slice was cut from each selected sherd using a cleaned, dedicated diamond tipped band saw. This provided a flat surface from which to work. The sherd was then allowed to dry naturally for at least a day.

After this period each sherd was numbered on the base using a combination of tippex and permanent marker and encased in tin foil so that only the upper surface was visible. A 4:1 mixture of Epotek A and B, a commercially produced epoxy resin, was then prepared. This mixture was then dripped over each sherd until the sherd had absorbed resin into the upper 2-3 mm of its surface. The sherd was then allowed to dry for at least a day.

The upper flat surface of each sherd was then smoothed down on a glass plate by hand, using a successively finer grained substrate of Aluminium hydroxide (12, 20 and 30 microns). Once smooth, each sherd was cleaned with ethanol and was then allowed to dry for at least a day. Meanwhile, a glass slide was prepared by gently smoothing it

on cleaned glass plates using the same method. This has two effects, it roughens the surface and aids adhesion and also smoothes the surface to a regular thickness allowing the sherd to bond equally to all parts of the slide. The slide was then cleaned with ethanol and allowed to dry.

Another 4:1 mixture of Epotek A and B was then produced and spread evenly across one edge of the smooth surface of the sherd. The glass slide was then gently lowered onto the sherd. The slide was then moved into contact with the sherd until a bond existed between slide and sherd, with no air bubbles visible in the epoxy resin. Again the slide was allowed to dry for at least a day.

The excess was then removed from the slide using the cutting wheel on a Petrothin unit (supplied by Beuhler Scientific Instruments). The excess from this process was then ground down to a thickness of 60 microns using the grinding wheel on the same unit. In the final stage of the preparation process, the sherd was ground down to a thickness of 30 microns by hand on a glass plate, again using the same three grades of Aluminium hydroxide substrate. The slide was then cleaned with ethanol and allowed to dry for at least a day.

A third 4:1 mixture of Epotek A and B was prepared and a small quantity placed onto one edge of the slide and a glass cover slip was gently lowered onto the slide and agitated until all air bubbles were removed. The slide was then allowed to dry for at least a day. Finally, the excess epoxy resin was removed with a scalpel and the slide was cleaned with ethanol. Once dry it was labelled.

Methodology: Pottery provenance project

This part of the research on the Barnhouse pottery was focused not only on the general environs of Barnhouse including the shores of the Lochs of Harray and Stenness, but also the area around the Bay of Firth in the environs of both Quanterness

and the Stonehall settlement. Much of this part of the project was initially undertaken at the British Geological Survey Department (Edinburgh University) where a number of pre-prepared petrological thin-sections for the area are held. However, after the consultation of annotated maps held in the department and the examination of the above noted thin-sections a further field survey was felt to be important, in order to fill in gaps in those areas which remained unsampled.

A number of methods were used in order to locate the igneous dyke sources which appeared to be the major component of the pottery temper at Barnhouse. The approximate location of dykes was located simply by using the published O.S maps of the British Geological Survey for the Orkney Mainland, and notes taken with permission by British Geological Survey representatives. In order to locate the dykes, which can be as little as 0.5m wide, a remote sensing device was used; a proton magnetometer. The proton magnetometer (Geometrics Instruments) was supplied by the Department of Geology, Glasgow University. The proton magnetometer was felt to be the best detection instrument since it measures total field to an accuracy of 1 nano Tesla. During use the proton magnetometer was traversed across the known region of the dyke until an appropriately strong signal was read. This was felt to be the most appropriate method due to the small size of the dykes.

Once the dyke source had been located, each dyke was sketched, noted and sampled. Samples were taken at approximately metre intervals along the dykes length wherever it was exposed. These were then thin-sectioned as noted above.

Methodology: Analysis of Petrological thin-sections

The analysis of thin-sections was undertaken using a Leica/Wild M420 Universal Zoom Macroscope. The microscope was fitted with an attachable mechanical stage. This stage had both centring and rotation facilities for the analysis of

thin-sections under polarised light. The analyser itself was also fixed within a rotating mount and was simply placed in position in order to analyse thin-sections under polarising conditions. The thin-sections were analysed under both plane and polarising light sources at various levels of magnification. The most useful of these in terms of distinguishing the mineralogy of material within the ceramic thin-sections was x 32. Identifications of igneous and sedimentary rocks were made through consultation of the relevant collections held in BGS (Edinburgh). Photomicrographs of thin-sections were produced using a Canon RM attached to a tubular mount at the top of the microscope column. The Photomicrographs were developed using 64T Fujichrome Tungsten film.

Location of Dykes found in Barnhouse Grooved ware

A total of six different dykes were recognised within the Barnhouse Grooved ware. Of these, five were accurately located within the environs of Barnhouse. Here I will provide grid references for the dykes which are known to be utilised within the Grooved ware.

Dyke 2 (Olivine-basalt): NGR is HY 283116 (BGS Cat. No. 26011)

Dyke 3 (Bostonite): NGR is HY 285118 (BGS Cat. No. 26012)

Dyke 4 (Olivine-basalt): NGR is HY 291144 (BGS cat. No. 26005)

Dyke 5 (Camptonite): NGR is HY 291143 (BGS Cat. No. 26006)

Dyke 6 (Bostonite): NGR is HY 275176 (BGS Cat No. 26586)

Results of Barnhouse petrological thin-section programme

The results are discussed fully in chapters 5 and 7 above. Here I will simply provide a catalogue of thin-sections. These will be listed by context and small find number, since this allows a clear picture of the variation within each assemblage or group from different parts of the site. Particular attention will be paid to a number of variable features which exist in each thin section, these include geological type and source of temper, size of temper, shape of temper and size and shape of voids. The frequency of these temper or voids within the clay mass will also be noted.

Furthermore, a selection of the more important thin-sections are presented below as colour plates. This will provide the reader with a clear view of the differences apparent in the dyke sources present within the Barnhouse Grooved ware, and will enable the contrasting 'recipes' of temper to be clearly observed. It is essential at this point to comment on the photomicrographs presented. The four main dyke sources, dykes 2, 3, 4 and X are presented. Dykes 5 and 6, are only intermittently present within the assemblage and their presence within sherds is noted where appropriate. Following on from this a number of colour plates of thin-sectioned sherds from Barnhouse are presented. These were chosen for two reasons, the first being the clarity of the dyke sources within the thin-section, the second their importance in terms of context. Thus sources from houses 3 and 5 as well as structure 8 are presented (see chapter 5 for discussion of their importance in the context of igneous rock sources).
Two further photographs are presented which provide an example of the appearance of dykes *in-situ*.

Catalogue of Barnhouse and related thin-sections

All sherds have an anisotropic clay matrix, with both mica and quartz present in varying quantities, these will be noted where it is deemed of importance.

House 1

SF 449 (context 75): 30% frequency of angular inclusions of bostonite (dyke 3), each inclusion <2 mm in length.

SF 2009 (context 177): 10% frequency of platy voids (shell), maximum size around 3 mm in length, minimum 1 mm.

SF 4811 (context 279): Untempered. Low frequency of sub-angular and rounded quartz grains. Likely to be natural within clay matrix.

SF 4812 (context 279): 10% frequency of platy voids (shell), between 2-3 mm in length.

Also around 5% frequency of rounded coarse sandstone inclusions, each around 2 mm diameter across.

House 2

Context 130

SF 1042: 10% frequency of angular siltstone, inclusions around 1-2 mm in length, also 5% frequency of rounded coarse sandstone, inclusions 1-2 mm diameter across.

SF 1056: 5% frequency of rounded coarse sandstone, inclusions around 1-3 mm diameter across.

SF 1059: 30% frequency of rounded coarse sandstone, inclusions around 0.5-3 mm diameter across.

SF 1071: 30% frequency of angular siltstone, inclusions between 1-5 mm across. 1% frequency of rounded coarse sandstone, 1-2 mm diameter across.

SF 1101: 5% frequency rounded coarse sandstone, 1-2 mm diameter across.

SF 1101: 10% frequency of angular bostonite (dyke 3), 2-3 mm in length.

5% frequency of rounded coarse sandstone, 1-2 mm diameter across.

SF 1154: 50% frequency of sub-angular banded mudstone, 1-2 mm in length.

5% frequency of rounded coarse sandstone, 1-2 mm diameter across.

SF 1618: 30% frequency of angular siltstone, 1-2 mm in length, also 1% frequency of rounded voids. Probably burnt clay.

SF 1644: 10% frequency of angular siltstone inclusions, 3-4 mm in length. 5% frequency of rounded coarse sandstone, 1-2 mm diameter across.

Other contexts

SF 1630 (context 175): 1% frequency of angular bostonite (dyke 3), <1 mm in length.

5% frequency rounded coarse sandstone, 1-2 mm diameter across.

SF 1639 (context 315): 10% frequency of angular siltstone, 1-3 mm in length.

1% frequency of rounded coarse sandstone, 1-2 mm diameter across.

SF 1657 (context 350): 10% frequency of angular banded mudstone and bostonite (dyke 3), mudstone inclusions 1-2 mm in length, bostonite 2-3 mm in length.

1% frequency of rounded coarse sandstone, 1-2 mm diameter across.

SF 1665 (context 351): 10% frequency angular siltstone, 2-3 mm in length. 1% frequency rounded coarse sandstone, 1-2 mm diameter across.

SF 1671 (context 352): 10% frequency angular siltstone, 1-3 mm in length. 1% frequency rounded coarse sandstone, 1-2 mm diameter across.

SF 1678 (context 365): 10% frequency angular siltstone, 1-3 mm in length.

SF 1679 (context 393): 10% frequency angular siltstone, 1-3 mm in length. 5% frequency rounded coarse sandstone, <1 mm diameter across.

SF 1680 (context 321): 10% frequency of olivine-basalt (dyke 2), 1-3 mm in length. 1% frequency of rounded coarse sandstone, 1-2 mm diameter across.

SF 1685 (context 438): 5% frequency angular banded mudstone, 1-2 mm in length.

SF 4013 (context 369): 10% frequency of platy voids, 1-3 mm in length.

SF 4263 (context 402): 10% frequency angular siltstone, 3-5 mm in length. 5% frequency rounded coarse sandstone, 1-2 mm diameter across.

SF 4525 (context 135): 10% frequency of platy voids, 1-2 mm in length.

SF 4527 (context 376): 10% frequency of platy voids, 1-2 mm in length. 5% frequency rounded coarse sandstone, 1-2 mm diameter across.

House 3

Context 146

SF 1926: 1% frequency of platy voids, 1-2 mm in length.

SF 1928: 30% frequency angular olivine-basalt (dyke 2) and bostonite (dyke 3), each 2-4 mm in length. Bostonite inclusions appear to be larger.

Context 147 and 148

SF 1021: 10% frequency angular siltstone, 1-2 mm in length. 5% frequency rounded coarse sandstone, 1-2 mm diameter across.

SF 1022: 10% frequency angular siltstone, 2-3 mm in length.

SF 1886: 30% frequency angular siltstone, 3-4 mm in length. 5% frequency rounded coarse sandstone, 1-2 mm diameter across.

SF 1887: 30% frequency angular olivine-basalt (dyke 2) and bostonite (dyke 3). Both 2-3 mm in length.

SF 1958: 10% frequency angular siltstone, 2-3 mm in length. 1% frequency of platy voids, 1-2 mm in length.

SF 1961: 30% frequency angular olivine-basalt (dyke 2) and bostonite (dyke 3). Both 2-3 mm in length.

SF 2532: 5% frequency of rounded coarse sandstone, 1-2 mm diameter across.

Context 306

SF 1925: 1% frequency rounded coarse sandstone, 1-2 mm diameter across. probably burnt clay

SF 1978: 1% frequency rounded coarse sandstone, 1-2 mm diameter across. probably burnt clay.

SF 1993: 30% frequency of angular siltstone and olivine-basalt (dyke 4), siltstone 2-3 mm in length, olivine-basalt, 3-4 mm in length.

SF 2510: 30% frequency of bostonite (dyke 3) and olivine-basalt (dyke 4). Both between 2-3 mm in length.

SF 2511: 5% frequency of angular olivine-basalt (dyke 4), <1 mm in length.

SF 2522: 30% frequency of angular siltstone, 2-3 mm in length.

SF 2523: 30% frequency of angular siltstone, 2-3 mm in length.

SF 2540: 30% frequency of angular banded mudstone, 1-3 mm in length. 5% frequency of rounded coarse sandstone, 1-2 mm in length.

Other contexts

SF 2000 (context 377): 50% frequency angular siltstone, 3-5 mm in length.

SF 2527 (context 424): 30% frequency angular siltstone and camptonite (dyke 2). Both 2-4 mm in length.

House 5

Context 225

SF 1002: 30% frequency angular bostonite (dyke 3) and camptonite (dyke X). Both olivine-basalt and bostonite 1-3 mm in length, camptonite 2-5 mm in length.

SF 1936: 30% frequency angular siltstone, bostonite (dyke 3), camptonite (dyke X). Siltstone and bostonite 1-3 mm in length, camptonite 2-4 mm in length. 1% rounded coarse sandstone, 1-2 mm diameter across.

SF 3114: 30% frequency angular inclusions olivine-basalt (dyke 2) and camptonite (dyke X). Both between 2-4 mm in length.

SF 3624: 5% frequency rounded coarse sandstone, 1-2 mm in length.

SF 3625: 30% frequency angular bostonite (dyke 3) and camptonite (dyke X). All inclusions 2-4 mm in length.

Other contexts

SF 3107 (context 224): 30% frequency angular siltstone, bostonite (dyke 3) and camptonite (dyke X). Siltstone and bostonite 1-3 mm in length, camptonite 2-4 mm in length.

SF 3153 (context 690): 30% frequency angular bostonite (dyke 3). 1-3 mm in length. 5% rounded coarse sandstone, 0.5-1 mm diameter across.

SF 3127 (context 771): 30% frequency angular bostonite (dyke 3). 1-3 mm in length.

SF 3143 (context 828): 10% frequency platy voids (shell), 1-2 mm in length.

House 6

SF 3050 (context 110): 5% rounded coarse sandstone, 1-2 mm in length.

SF 3186 (context 404): No temper.

SF 3705 (context 51): 5% rounded coarse sandstone, 0.5-1 mm in length.

SF 3710 (context 51): 1% rounded coarse sandstone, 1-2 mm in length.

SF 3754 (context 739): 5% platy voids (shell), 1-2 mm in length. Note that the clays in this sherd appear to be highly mixed.

SF 3770 (context 874): 5% platy voids (shell). 1-2 mm in length. Probably burnt clay.

Structure 8

Platform

SF 5575 (context 1053): 30% frequency angular bostonite (dyke 3), olivine-basalt (dyke 4) and camptonite (dyke X). All between 1-3 mm in length.

SF 5509 (context 1053): 5% frequency of rounded coarse sandstone, 1-2 mm diameter across.

SF 5523 (context 1055): 50% frequency siltstone, bostonite (dyke 3), camptonite (dyke 5). Siltstone 2-4 mm in length, bostonite and camptonite 1-3 mm in length.

SF 5689 (context 1055): 10% frequency of platy voids (shell), 1-2 mm in length. Possibly burnt clay.

SF 3258 (context 1055): No temper.

SF 3235 (context 1056): 10% frequency of platy voids (shell), 1-2 mm in length.

SF 5546 (context 1061): 30% frequency angular siltstone. 1-3 mm in length.
5% rounded coarse sandstone, 1-2 mm in length.

SF 5045 (context 1158): 10% frequency angular siltstone. 1-3 mm in length.
5% rounded coarse sandstone, 1-2 mm in length.

SF 5048 (context 1158): 10% frequency angular siltstone. 1-3 mm in length.
5% rounded coarse sandstone, 1-2 mm in length.

SF 5301 (context 1158): 10% frequency of platy voids (shell), 1-2 mm in length.

SF 5290 (context 1158): 30% frequency angular olivine-basalt (dyke 2 and dyke 4), bostonite (dyke 3), camptonite (dyke X). All inclusions uniform length between 1-3 mm.

SF 6012 (context 1158): 50% frequency angular olivine-basalt (dyke 2 and dyke 4), bostonite (dyke 3 and 6), camptonite (dyke X). All inclusions uniform length between 1-3 mm.

Interior

SF 1152 (context 962): 10% angular bostonite (dyke 3). 1-3 mm in length.

SF 4641 (context 989): 10% angular siltstone. 2-4 mm in length.

SF 4606 (context 769): 10% angular siltstone. 1-3 mm in length.

SF 5042 (context 765): 10% angular siltstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 5085 (context 763): 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 5086 (context 812): 10% angular siltstone. 2-4 mm in length.

SF 5908 (context 812): 30% angular bostonite (dyke 6). 1-3 mm in length.

SF 5284 (context 806): 10% platy voids (shell). 1-2 mm in length.

SF 5905 (context 1144): 30% angular siltstone. 2-4 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 6043 (context 1182): 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 6047 (context 1187): 30% angular olivine-basalt (dyke 2) and bostonite (dyke 3). olivine-basalt 1-3 mm in length, bostonite 2-4 mm in length.

House 12

SF 5019 (context 1005): 30% frequency of platy voids (shell), 1-2 mm in length.

SF 5021 (context 1005): 10% frequency of platy voids (shell), 1-2 mm in length.

SF 5013 (context 1007): 10% frequency of platy voids (shell), 1-2 mm in length.

Contexts outside the houses

Ash dump outside house 2

SF 256 (context 34): 10% angular siltstone. 1-3 mm in length.

SF 304 (context 34): 10% angular banded mudstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 483 (context 94): 30% angular siltstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 564 (context 94): 30% angular olivine-basalt (dyke 2) and camptonite (dyke X). Both between 1-3 mm in length.

Ash dump outside house 3

SF 1830 (context 205): no temper.

SF 1869 (context 223): 30% angular bostonite (dyke 3) and olivine-basalt (dyke 4). Bostonite 2-4 mm in length, olivine-basalt 1-3 mm.

SF 1873 (context 226): 30% angular siltstone, bostonite (dyke 3). Both around 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1876 (context 283): 30% angular olivine-basalt (dyke 2) and bostonite (dyke 3). olivine-basalt 1-2 mm in length, bostonite 2-4 mm in length.

SF 1963 (context 280): No temper.

SF 1902 (context 205): 30% angular bostonite (dyke 3) and camptonite (dyke X). Both 2-4 mm in length.

SF 3215 (context 223): 30% angular olivine-basalt (dyke 2) and bostonite (dyke 3). olivine-basalt 1-3 mm in length, bostonite 2-4 mm in length.

SF 3216 (context 223): 30% angular siltstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 3476 (context 223): 30% angular siltstone and bostonite (dyke 3) Both 1-3 mm in length.

SF 3478 (context 223): 30% angular siltstone and olivine-basalt (dyke 4). Siltstone 2-4 mm in length. Olivine-basalt 1-3 mm in length.

Dump of material behind house 3: Context 605

SF 2520: 50% angular olivine (probably from dyke 4). 2-4 mm in length.

SF 3038: 50% angular siltstone. 2-4 mm in length.

SF 3480: 30% platy voids (shell). 1-3 mm in length.

SF 5148: 30% platy voids (shell). 1-3 mm in length.

SF 3022: 50% angular siltstone. 2-4 mm in length.

SF 3036: 50% angular siltstone and bostonite (dyke 3). Both 2-4 mm in length.

SF 3487: 50% angular banded mudstone and bostonite (dyke 3). Mudstone 1-3 mm in length. Bostonite 2-4 mm in length.

SF 3501: 50% angular olivine (probably from dyke 4). 2-4 mm in length.

SF 1944: 50% angular siltstone and bostonite (dyke 3). Both 2-4 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 4376: 5% platy voids (shell). 1-2 mm in length. Probably burnt clay.

SF 3022: 50% angular siltstone and camptonite (dyke X). Both 2-4 mm in length.

SF 3463: 50% angular siltstone. 2-4 mm in length.

SF 1974: 50% angular siltstone. 2-4 mm in length.

SF 3472: 50% angular siltstone. 2-4 mm in length.

SF 3479: 30% platy voids (shell). 1-4 mm in length. Fabric B1.

SF 3512: 30% platy voids (shell). 1-4 mm in length. Fabric B1.

Ash dump behind house 6: context 619

SF 3696: 10% platy voids (shell). 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 5101: 5% platy voids (shell). 1-2 mm in length. Probably burnt clay.

SF 6303: 10% angular bostonite (dyke 3). 1-3 mm in length.

SF 6323: 30% angular siltstone. 1-3 mm in length.

SF 6351: 30% angular siltstone. 1-3 mm in length.

SF 6318: 10% platy voids (shell). 1-2 mm in length.

SF 6340: 10% angular siltstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 6308: 30% angular mudstone. 2-3 mm in length.

SF 6322: 30% angular siltstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 6339: 30% angular olivine-basalt (dyke 2) and bostonite (dyke 3). Both 1-3 mm in length.

Ash dump next to house 9

SF 250 (context 34): 10% angular olivine-basalt (dyke 2) and bostonite (dyke 3). Both 1-3 mm in length.

SF 266 (context 34): 30% angular banded mudstone and bostonite (dyke 3). Both 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 269 (context 34): 30% angular bostonite (dyke 3). 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 332 (context 34): 30% angular bostonite (dyke 3). 1-3 mm in length.

SF 576 (context 34): 30% angular bostonite (dyke 3) and olivine-basalt (dyke 4). Both 1-3 mm in length.

Pottery dump next to structure 8: Trench K

Context 22 and 48

SF 397: 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 603: 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1202: 30% angular siltstone and banded mudstone. Both 2-5 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1224: 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1240: 10% angular siltstone. 1-4 mm in length.

Context 105

SF 532: 30% angular olivine-basalt (dyke 2) and camptonite (dyke X). Both between 2-4 mm in length.

SF 1310: 30% angular banded mudstone. 2-4 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1319: 30% angular banded mudstone and olivine-basalt (dyke 2) Mudstone 1-4 mm in length, olivine-basalt 2-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1322: 30% angular banded mudstone and olivine-basalt (dyke 2). Both 2-5 mm in length.

SF 1323: 10% angular siltstone and banded mudstone. Both 2-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1334: 10% angular banded mudstone. 2-3 mm in length.

SF 1337: 50% angular banded mudstone. 2-5 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1340: 50% angular banded mudstone. 1-4 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1367: 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 3204: 10% angular siltstone. 2-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 3230: 30% angular olivine-basalt (dyke 2) and camptonite (dyke X). Both between 2-5 mm in length.

Context 151/150

SF 1234: 50% angular banded mudstone and olivine-basalt (dyke 2) Mudstone 1-4 mm in length, olivine-basalt 2-5 mm in length.

SF 1242: 30% angular banded mudstone 1-3 mm in length.

SF 1275: 30% angular siltstone and banded mudstone. Both 1-4 mm in length.

SF 1308: 10% angular banded mudstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 1309: 50% angular banded mudstone and olivine-basalt (dyke 2) Mudstone 1-4 mm in length, olivine-basalt 2-5 mm in length.

SF 1350: 30% angular banded mudstone and olivine-basalt (dyke 2) Both 1-4 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 3191: 30% angular siltstone. 2-4 mm in length.

Central area

Context 200

SF 2111: 30% angular bostonite (dyke 3). 1-4 mm in length.

SF 2113: 30% angular olivine-basalt (dyke 2) and bostonite (dyke 3). Both 1-4 mm in length.

SF 5691: 10% angular siltstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 5693: 5% platy voids (shell). 1-2 mm in length. Probably burnt clay.

Context 335

SF 2120: No temper.

SF 2124: 10% angular inclusions of feldspar. 1-4 mm in length.

SF 2127: 5% rounded coarse sandstone. 1-2 mm diameter across.

Context 396

SF 4673: No temper.

SF 5472: 10% angular banded mudstone. 2-3 mm in length.

SF 5498: 10% angular siltstone and banded mudstone. Both 2-3 mm in length.

SF 4754: 10% frequency angular bostonite (dyke 3). 1-3 mm in length.

SF 5811: 30% frequency angular siltstone and olivine-basalt (dyke 2). Both 1-3 mm in length.

Context 400

SF 5766: 10% platy voids (shell). 1-3 mm in length.

SF 5772: 10% platy voids (shell). 1-3 mm in length.

Context 532

SF 6209: 10% angular banded mudstone. 2-3 mm in length.

Context 533

SF 5480: 10% angular siltstone. 2-3 mm in length.

Context 654

SF 5217: 10% angular banded mudstone. 1-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

Context 924

SF 5212: No temper.

SF 5119: 10% platy voids (shell). 1-3 mm in length.

SF 5182: 10% platy voids (shell). 1-3 mm in length.

Other contexts

SF 2537 (context 487): 50% frequency angular olivine-basalt (dyke 2 and dyke 4). Both 2-3 mm in length.

SF 1349 (context 349): 30% frequency angular mudstone and olivine-basalt (dyke 2). Mudstone between 2-4 mm in length, olivine-basalt 1-3 mm in length.

SF 2531 (context 349): 30% frequency angular bostonite (dyke 3 and 6). both 1-3 mm in length.

SF 573 (context 294): 5% frequency platy voids (shell), 1-2 mm in length.

Area S: Context 34, 39, 92, 94, 135, 187 (Old land surface)

SF 10: 30% angular siltstone. 2-5 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 57: 30% angular olivine-basalt (dyke 4) camptonite (dyke X) and bostonite (dyke 3). All around 2-5 mm in length.

SF 108: 10% platy voids (shell). 1-3 mm in length.

SF 165: 10% platy voids (shell). 1-3 mm in length.

SF 170: 30% angular bostonite (dyke 3) and camptonite (dyke X). Both 1-4 mm in length.

SF 206: 10% angular siltstone. 2-3 mm in length.

SF 314: 30% angular banded mudstone. 2-3 mm in length. 5% rounded coarse sandstone. 1-2 mm diameter across.

SF 366: 10% angular bostonite (dyke 3) and camptonite (dyke X). Both 1-3 mm in length.

SF 558: 30% angular olivine-basalt (dyke 2) bostonite (dyke 3) and camptonite (dyke X). All around 2-5 mm in length.

SF 1102: 10% angular siltstone. 1-4 mm in length.

SF 2036: 10% angular inclusions of feldspar. 1-4 mm in length.

SF 2037: 10% angular inclusions of feldspar. 1-4 mm in length.

SF 3229: 30% angular siltstone and camptonite (dyke X). Both around 2-4 mm in length.

SF 4254: 30% angular olivine-basalt (dyke 2), bostonite (dyke 3) and camptonite (dyke X). All around 2-5 mm in length.

Barnhouse Odin

AAH: 10% platy voids (shell). 1-3 mm in length.

AAG: 10% platy voids (shell). 1-3 mm in length.

Presentation of Photomicrographs

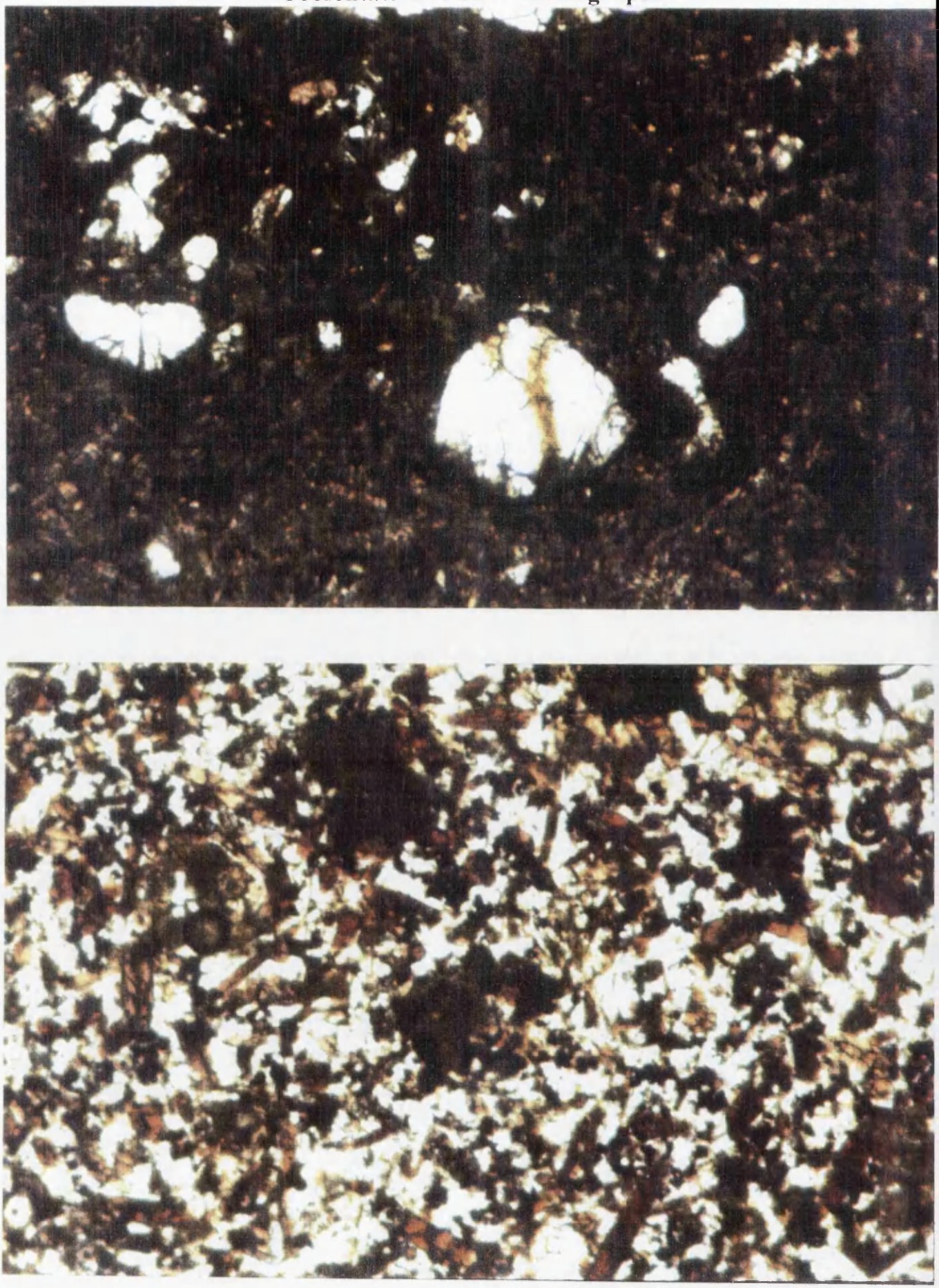


Figure 1 : (Top) Dyke 2, Onston Ness (x 16 magnification)

Figure 2: (Bottom) Dyke 3, Onston Ness (x 16 magnification)

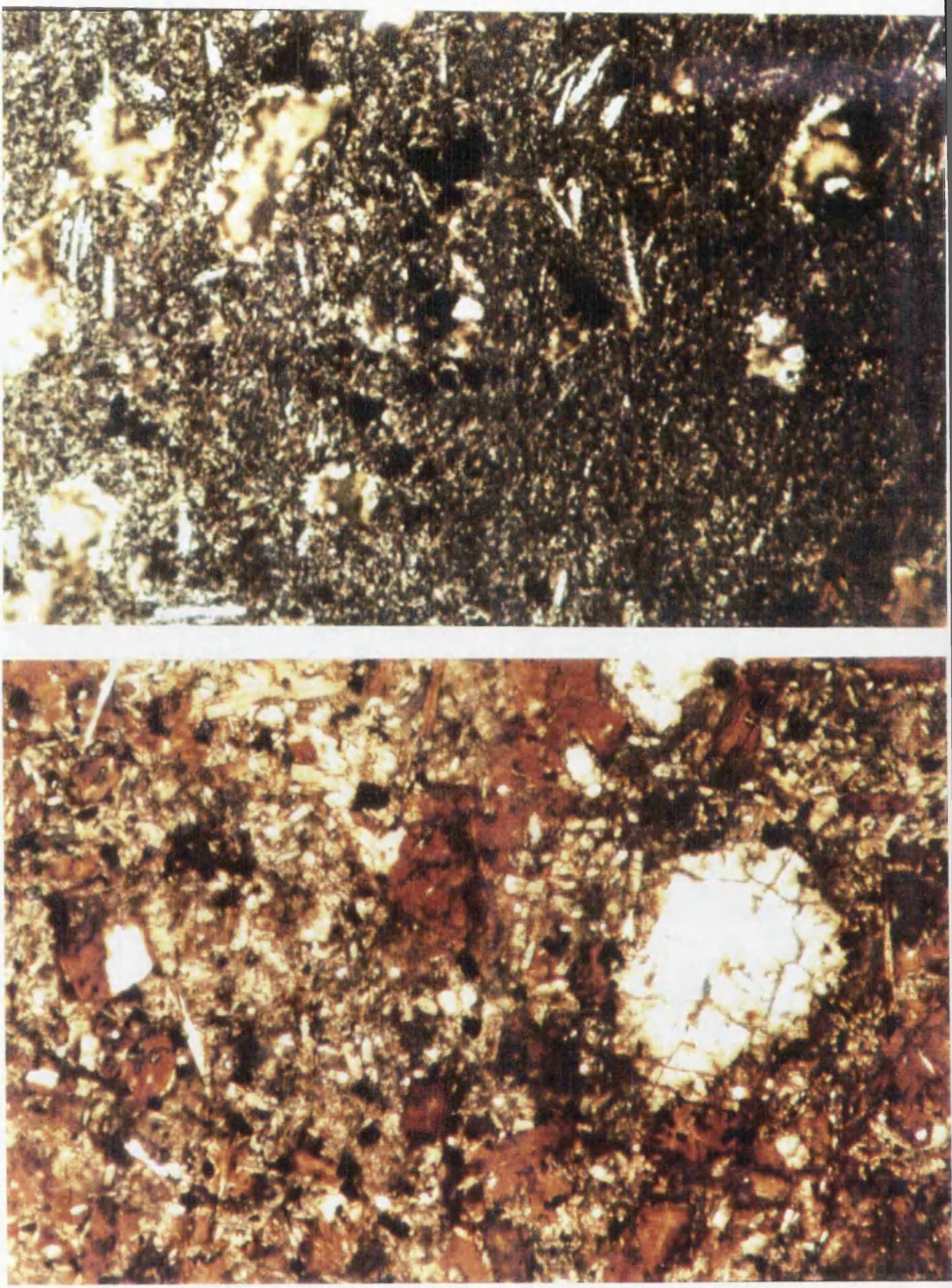
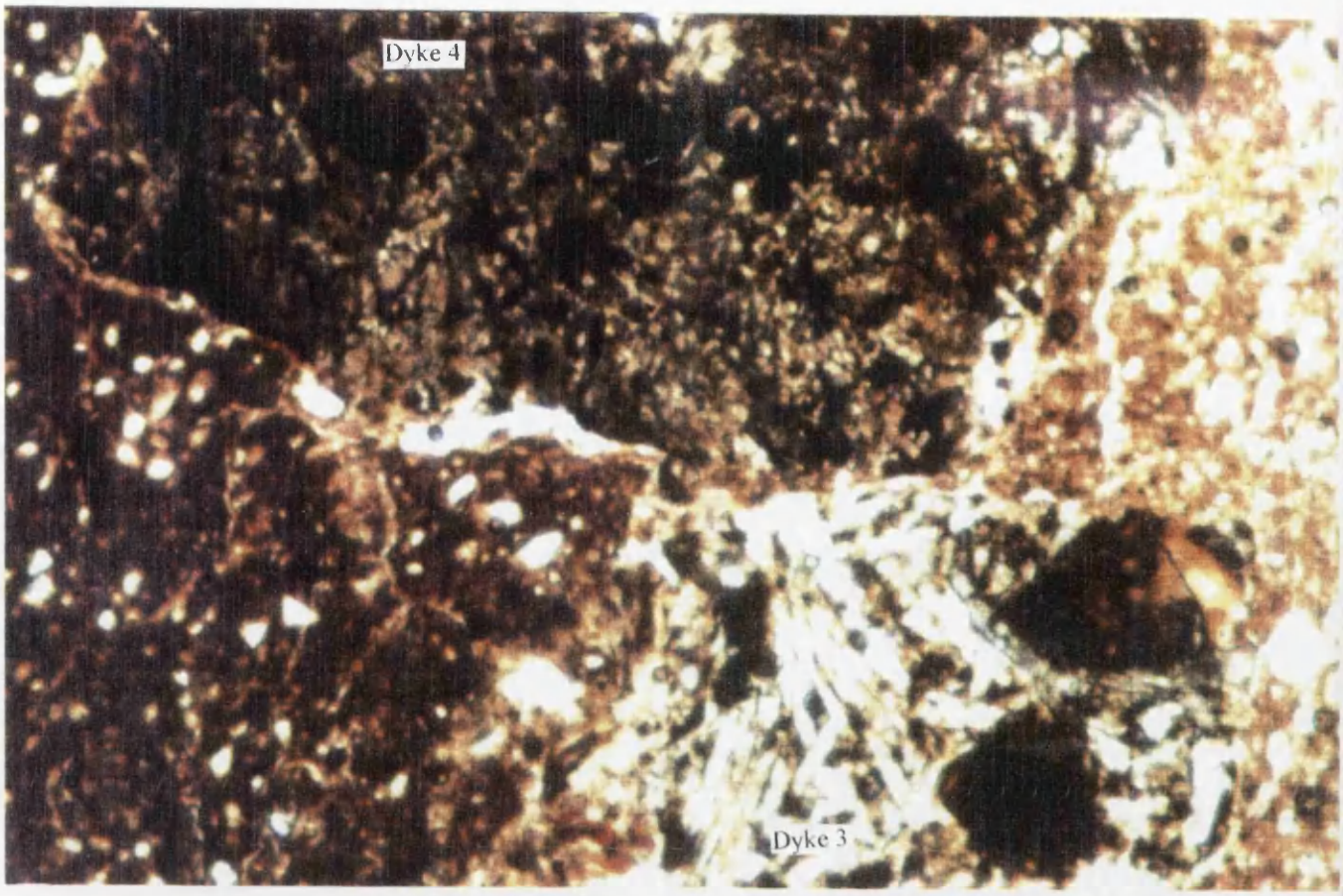


Figure 3: (Top) Dyke 4, Bookan (x16 magnification)

Figure 4 : (Bottom) Dyke X, source found at Barnhouse (x16 magnification)



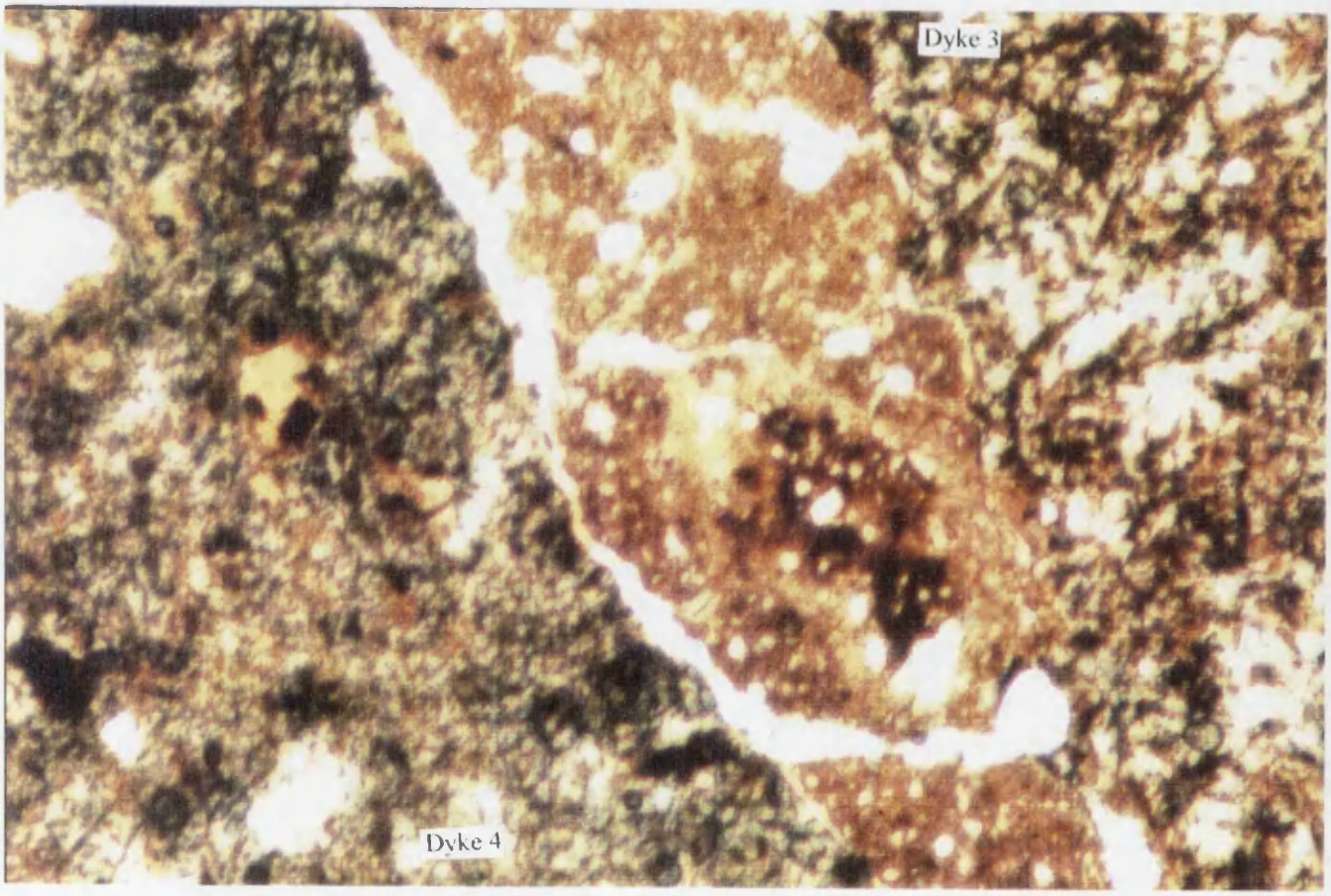
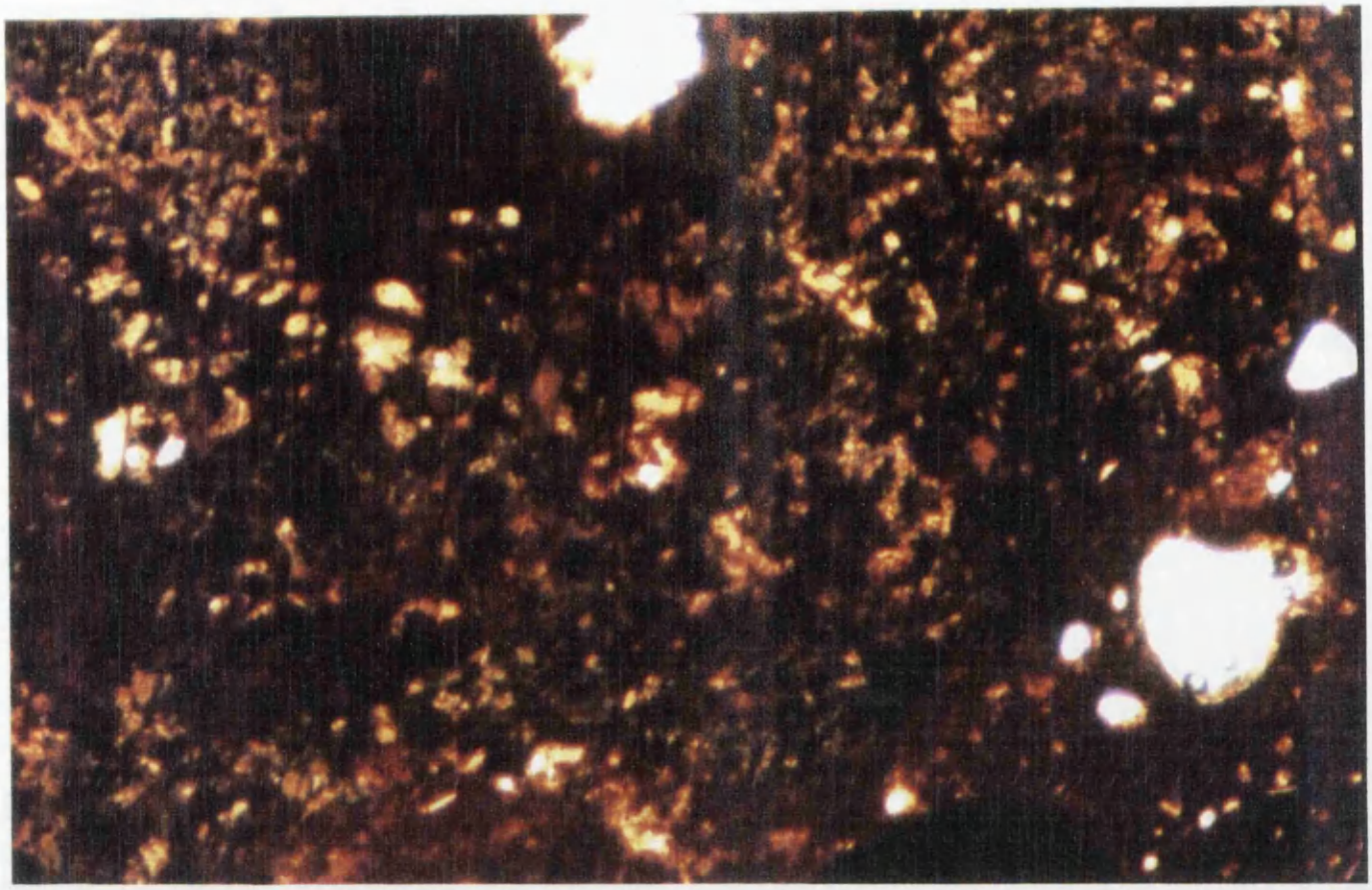


Figure 5: (Top) Dykes 3 and 4 in SF 2510, house 3 (x 32 magnification)

Figure 6: (Bottom) Dykes 3 and 4, SF 1869, house 3 north-eastern dump (x32 magnification)



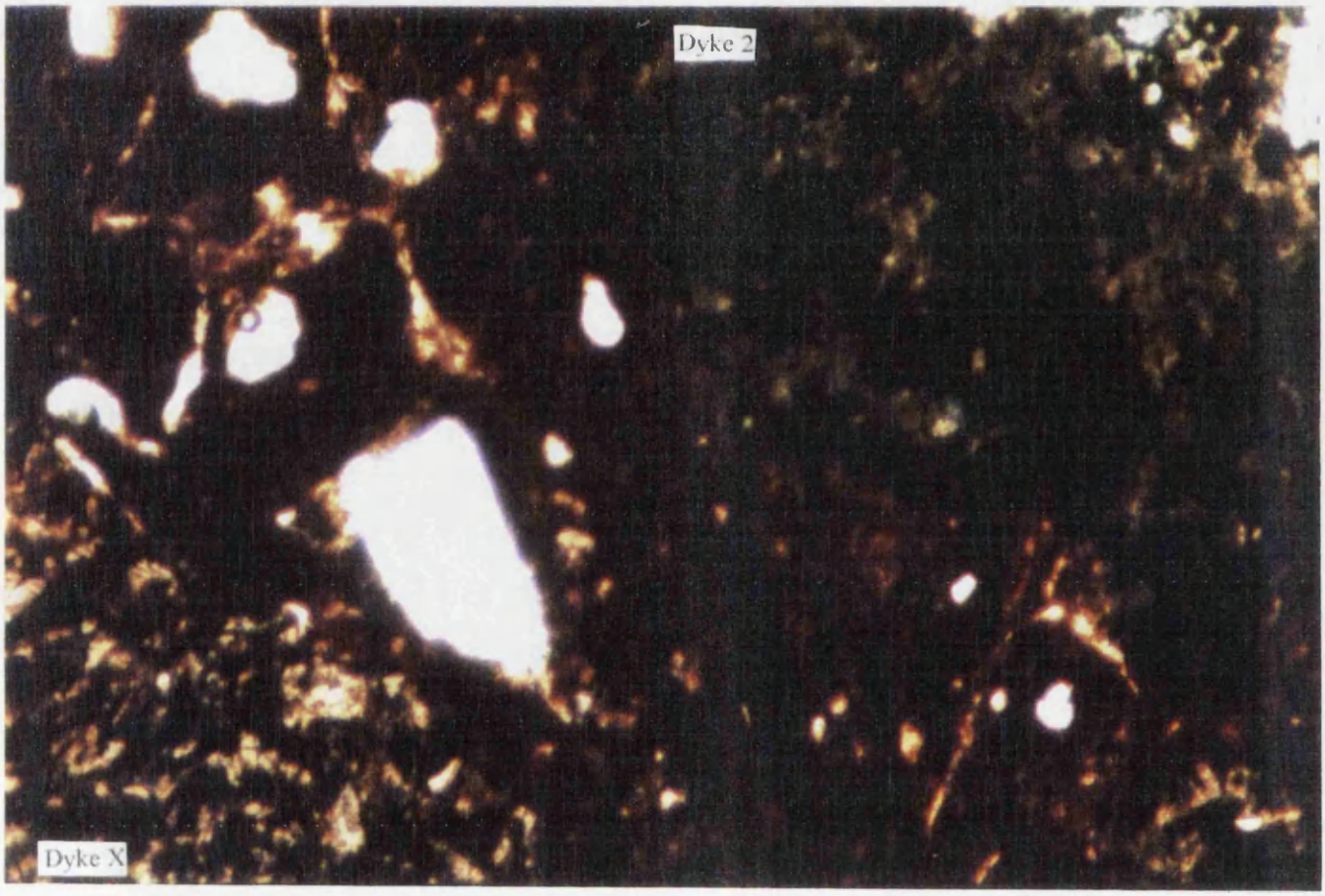
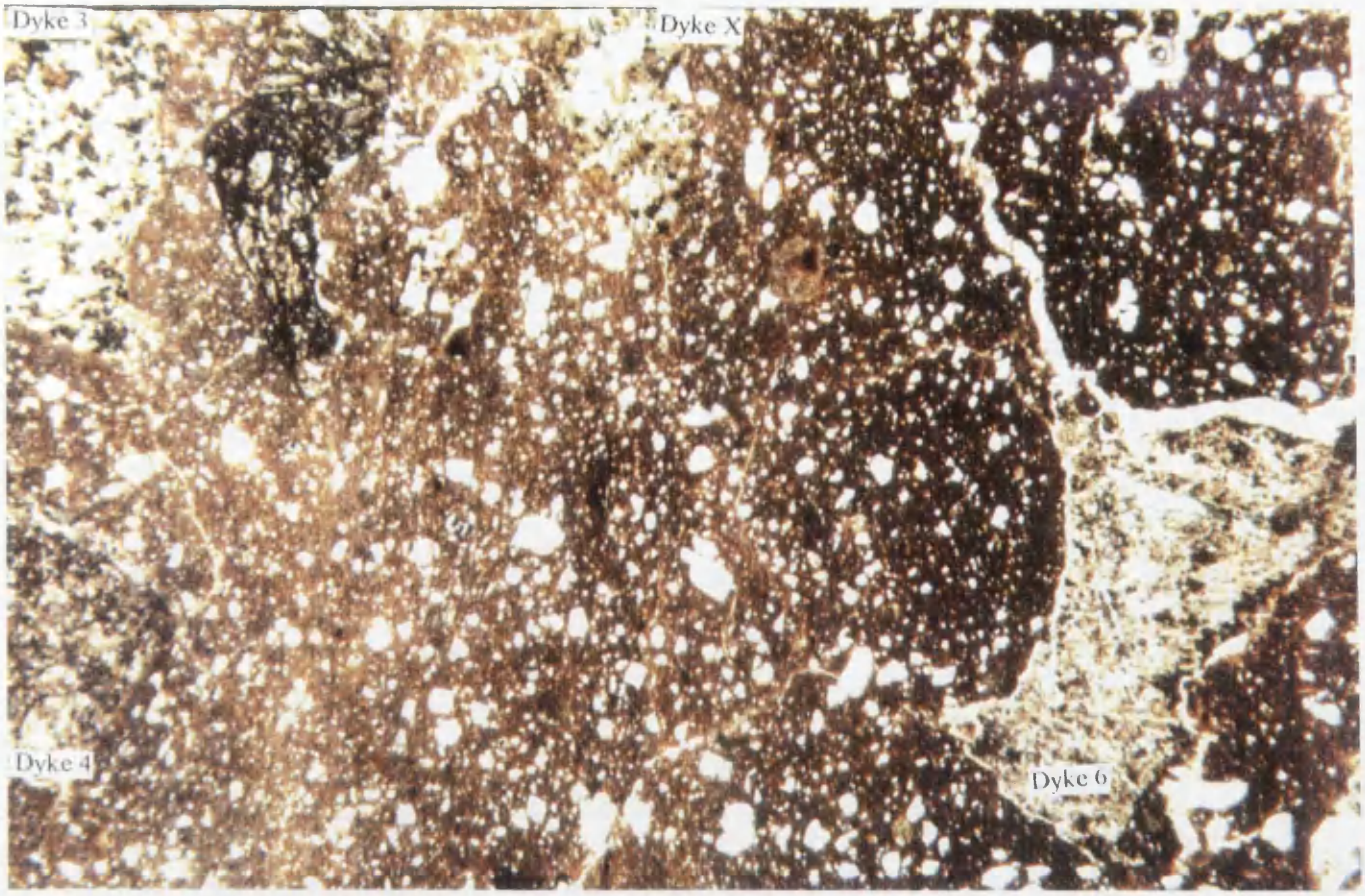


Figure 7: (Top) Dyke X, SF 3625, house 5 (x32 magnification)

Figure 8: (Bottom) Dyke 2 and Dyke X, SF 3114, house 5 (x32 magnification)



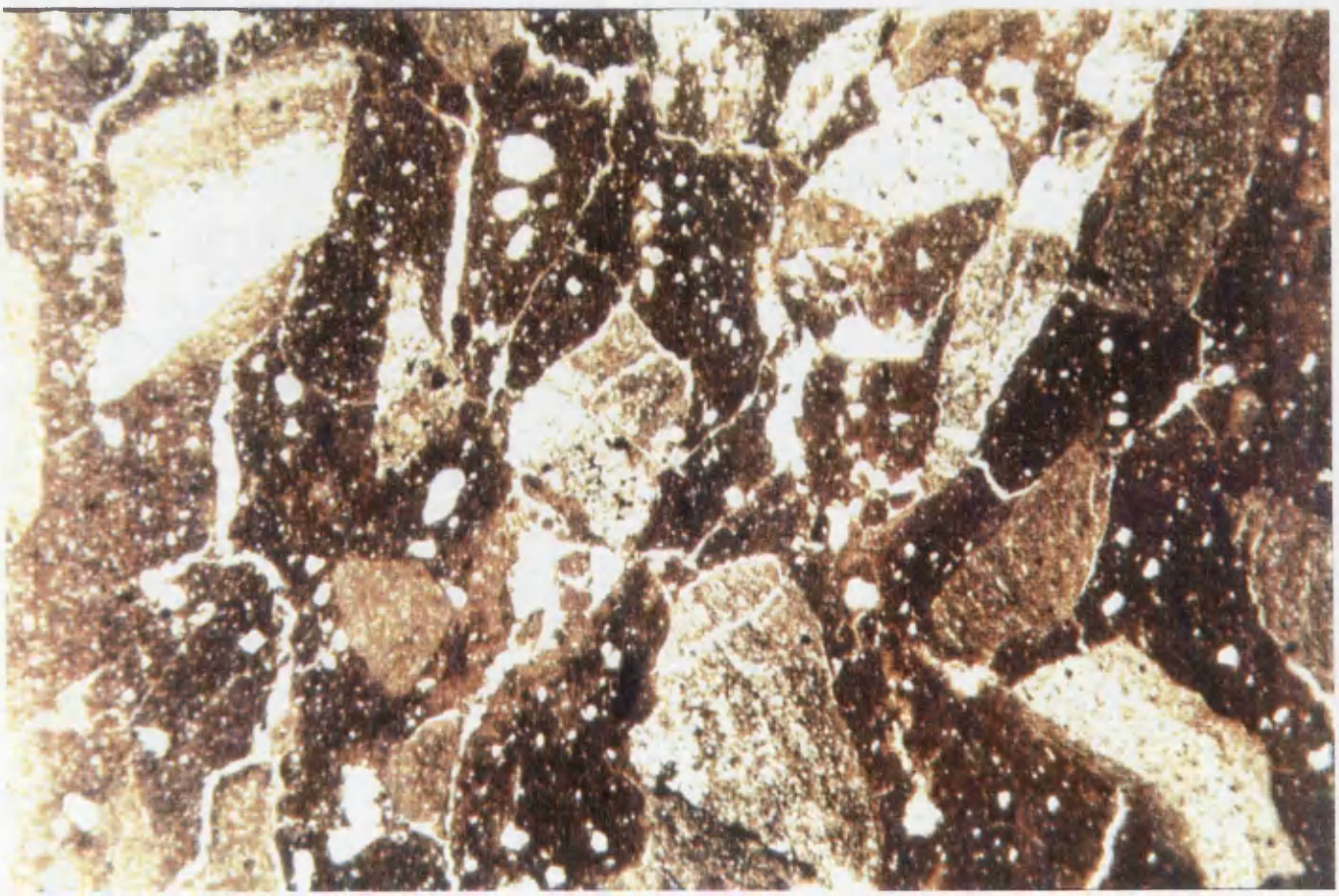


Figure 9: (Top) Dykes 3, 4, 6 and X, SF 6012, structure 8 platform (x 8 magnification)

Figure 10: (Bottom) Sandstone and siltstone, SF 1154, house 2 (x 8 magnification)

Figure 11: Dyke 3 (Onston Ness) in-situ

Figure 12: Dyke 4 (Bookan) in-situ

Appendix Two

Residue analysis results

Introduction

The residue analysis program was undertaken in two separate stages, the first stage was concerned to determine the viability of residue analysis on the Barnhouse pottery. This stage was necessarily experimental, and employed a number of different extraction methods. The second stage was undertaken some time later, and having determined the favourability of the analysis, was focused on specific categories of material from specific contexts within the site.

It was decided that the most appropriate form of analysis concerned the extraction and identification of lipids, and especially fatty acids. The analysis of these particular biochemical compounds within archaeological contexts has been successfully undertaken by Evershed et. al. (1990), and it is their methodology which was developed for the work described here. The analysis of fatty acids has both advantages and problems. The primary advantage lies in their level of preservation in archaeological samples; once they have migrated into the ceramic matrix of the vessel during cooking or storage, their hydrophobic nature allows them to be retained within the matrix (Heron et al 1991). Although there are problems with the diagenesis of fatty acids during cooking and from microbial oxidation within buried soil matrices (Evershed et al 1992), there is thought to be little migration of lipids from the ceramic matrix into the surrounding soil. Some migration of lipids in the opposite direction, from the soil into the pot matrix, may occur but Heron et al (1991) has shown this to be negligible. The main disadvantages are evident in the analysis of fatty acid suites,

since fatty acids are major components of both plants and animals. That many of the major fatty acids are present in a wide range of plant and animal species, creates difficulties in identifying and defining unknown archaeological residues of fatty acids. However, certain fatty acids are taxonomic markers, that is they are present in specific species, and the presence of such fatty acids within archaeological residues is essential in allowing the identification of residues to specific origins. With the use of taxonomic markers catalogued in the literature, along with the observed differences in fatty acid presence and concentration in comparative contemporary foodstuffs analysed from known food sources, it should be possible to reconstruct the food residues from the remaining fatty acids present within an archaeological sample. The use of known food residues provides a clear comparison of fatty acid suites between the known source and the archaeological sample, and provides a check against possible contamination (Evershed et al 1995).

The main objective of this research was to compliment other forms of analysis undertaken on the Barnhouse Grooved ware. As described in Chapter 4, vessels of three major size categories have been observed, each with a slightly different ceramic matrix. These are fabrics A/B, C and D/E, tempered with rock, shell or untempered respectively. It was appropriate, then, to examine these categories, as found in pottery from contexts across the site, from the point of view of function, a form of analysis which has been shown to have considerable use in an ethnoarchaeological context (Skibo 1993). Thus, rather than examining detailed differences in lipid composition within a single vessel (cf. Evershed et al 1995), the present study aimed to achieve a broad picture of the functions of different categories of Grooved ware.

Gas chromatography (GC) was the principal analytical technique, while mass spectrometry (MS) was used more selectively to confirm or clarify identifications made initially by GC; in addition to fatty acids, alkanes and alcohols were also analysed. As an aid to the identification of fatty acids by GC, standard n-fatty acids

and n-alkanols were derivatised and analysed in the same manner, as were plant oil mixtures (Prifac 7910 and 7940) of known composition, including unsaturated fatty acids, obtained from Unichema Chemicals Ltd.

Problems in methodology and analysis

The analysis of fatty acids has both advantages and problems, the primary advantage is their level of preservation in archaeological samples, once they have migrated into the ceramic matrix of the vessel during cooking, their hydrophobic nature allows them to be retained within the matrix (Heron et. al. 1991). Although there are problems with the diagenesis of fatty acids during cooking and microbial oxidation from microbes within buried soil matrices (Evershed et. al. 1992). There are a number of problems in the analysis of lipids extracted from ceramic matrices, and one of these concerns possible contamination from the surrounding soil. Despite experimental work to the contrary (Heron et. al. 1991), recent work has suggested there may be some migration of lipids from the surrounding soil into the ceramic matrix (Heron pers. comm).

The migration of lipids from the soil into the ceramic matrix is problematic and requires some further comment. It should be noted that no analysis of surrounding soil was undertaken in this residue analysis programme. In order to understand the nature of soil lipids in relation to those extracted from the ceramic matrix, it would be necessary to analyse soil surrounding the sampled sherds. However, no soil sample was taken during the excavation of the site, since at this point residue analysis had not been considered as a possibility. Nevertheless this need not invalidate the residue analysis results. Two points should be noted in support of this statement. Firstly, the soil matrix at Barnhouse was not uniform. Each sherd was derived from a different deposit, from hearth ash, from the old land surfaces, from clay floors etc. Notably

these different deposits were also often within different house structures. It is unlikely that each of these deposits contained a uniform suite of soil lipids. The second point concerns the samples themselves, it was noted above that samples were chosen to conform with the structure of the assemblage. As we shall see below, the results appear to be coherent with different types of fatty acid being present within different categories of ceramic, differentiated by fabric. It is highly unlikely that this pattern could have arisen through chance, and it is suggested that in terms of the pattern of results that the results should be considered as valid.

The main disadvantages are evident in the analysis of fatty acid suites, since fatty acids are major components of both plants and animals many of the major fatty acids are present in a wide range of plant and animal species, therefore making the identification and definition of unknown archaeological residues of fatty acids difficult. However certain fatty acids are taxonomic markers (present in specific species), and the presence of such fatty acids within archaeological residues is essential in allowing the identification of residues to specific origins. With the use of taxonomic markers catalogued in the literature, along with the observed differences in fatty acid presence and concentration in comparative contemporary foodstuffs analysed from known food sources, it is possible to reconstruct the food residues from the remaining fatty acids present within an archaeological sample. The use of known food residues provides a clear comparison of fatty acid suites between the known source and the archaeological sample, and provides a check against possible contamination (Evershed et al 1995).

Preliminary examination of the results of GC analysis relied on the available literature on the fatty acid composition of certain species of animals and plants. This approach was an essential one, but it progressed little further than providing presence/absence of individual fatty acids because of the problem of directly comparing and correlating the GC data with that gained from the literature. At a later

stage of the programme, therefore, a comparative set of animal and plant sources was also analysed using the same methodology as for the pottery; this provided 'profiles' for each of these sources. The animal and plant sources (see section below) were chosen for their presence on Late Neolithic sites within Orkney, especially at Barnhouse itself (see Chapters 6 and 9).

Sampling Strategy

A total of 45 sherds were sampled from across the site. There were two main criteria involved in the selection of sherds. Firstly sherds were chosen with visible evidence of either sooting or visible interior residue. These sherds belonged to the main fabrics, A, B and C. Secondly, sherds were chosen from secure contexts within the site, coming from three main structures: House 2, House 3 and Structure 8. Here sherds were chosen from specific contexts within structures. Again examples of the main fabrics were analysed which deliberately included several sherds of fabrics A and B for which no visible residue was evident. Only three examples of Fabrics D/E were taken.

Foodstuffs

The foods analysed in this manner being beef, lamb, pork, venison, cattle milk, cod, hazelnuts, apple and barley. All animal products were obtained from butchers in Glasgow and were organically reared rather than factory farmed, thereby eliminating extraneous contamination factors. Plants, similarly obtained from local greengrocers, were also organically grown. It is important to note that the barley used was *Hordeum vulgare* var. *nudum* grown on Orkney and was therefore identical to the cereal remains found at Barnhouse (kindly supplied by Camilla Dickson).

Materials used

Solvents and reagents: Analar grade hexane, chloroform, methanol and ethyl acetate were obtained from BDH. and acetyl chloride (Analar) obtained from Aldrich. Pierce Warriner supplied N,O-bis(trimethylsilyl)-trifluoroacetamide (BSTFA). Pyridine (Analar: BDH) was dried over KOH pellets and redistilled prior to use. Water was glass distilled.

Methodology:

Sample Preparation and Extraction.

Samples (c. 1 gm) of the selected sherds were prepared either by grinding in an agate pestle and mortar or by drilling into the cross section (or wall) of the sherd using a small flat-headed diamond-tipped drill. All samples were subjected to Soxhlet extraction using hexane as solvent and boiling under reflux for six hours. The hexane solution was then reduced to a small volume using a rotary evaporator, transferred with a Pasteur pipette to a pre-weighed glass vial, and finally evaporated to dryness to give a dried weight of extract.

Sherd 1589 was further examined by (1) Soxhlet extraction using chloroform, (2) Soxhlet extraction using water, and (3) ultrasonication. For the latter procedure, the powdered sample (1 gm) was placed in a test tube, treated with chloroform/methanol (10 ml; 2:1 v/v) and placed in a rack within an ultrasonic bath heated at 60 C for 1 hr. The test tube was then centrifuged at 4,500 rpm for 10 min.

This extract was concentrated and transferred to a weighed vial, prior to evaporation to dryness as above.

Methodology: Derivitisation

Derivatisation extracts from the sherds (c. 2 to 3 mg) were redissolved in MeOH (200 l), transferred to a Reactivial and evaporated to dryness using a stream of nitrogen. Methylating reagent (0.5 ml of a stock solution of MeOH (2 ml) and acetyl chloride (0.5 ml)) was added to the Reactivial and heated at 100 C for 1 hr. After cooling, the sample was evaporated to dryness using a stream of nitrogen. The methylated extract was then treated with pyridine (20 ml) and BSTFA (15 ml) and the Reactivial heated a 80 C for 30 min. After evaporation of the reagents using nitrogen, the residue was redissolved in ethyl acetate (20 ml) and analysed (c. 1-2 ml) by gas chromatography and in some cases gas chromatography-mass spectrometry.

Methodology: Separation (GC)

Gas Chromatographic (GC) separations were achieved using either (a) an Hewlett-Packard 5880A instrument equipped with a CP Sil 5CB (Chrompack) fused silica capillary column (25 m x 0.32 mm x 0.12 ml) and flame ionisation detector (FID). The Grog-type injector was operated in split mode (50:1), and the helium carrier and make-up gas flow rates were 2 ml/min and 25 ml/min respectively. The column temperature was programmed from 80 C (2 min) to 275 C (10 min) at 5 C/min. The injection port and detector temperatures were 255 C and 260 C respectively; or (b) an Hewlett-Packard 6890 instrument equipped with an integrator (HP 3395), an HT5 (SGE) fused silica capillary column (12 m x 0.22 mm x 0.1 ml) and a FID detector. The Grog-type injector was operated in split mode (75:1). The

helium carrier gas was maintained at a constant flow (1.4 ml/min), while the make-up gas flow rate was 25 ml/min. The column was temperature programmed as above and the injection port and detector temperature were 250 C and 300 C respectively.

Methodology: Analysis (GC and GC/MS)

Gas Chromatography-Mass Spectrometry (GC-MS) Analyses were carried out with an Hewlett-Packard 5971 mass selective detector interfaced to a 5890 series II gas chromatograph and computer (Vectra Q5/165) which possessed an NBS mass spectral data base. Separations were affected with an HPI fused silica capillary column (12 m x 0.2 mm x 0.33 ml). Injection port and temperature programming conditions were identical to those for GC above. Retention times from the total ion current (TIC) traces practically matched those of the FID chromatograms. Mass spectra (70 eV) were recorded in continuous scanning mode over the range m/z 40 to m/z 550.

The GC/MS was operated on behalf of the author by Dr. W.J Coles of the Dept. of Chemistry, Glasgow University. All technical data pertaining to the process was supplied by Dr. Coles.

Results

The first step in the interpretation of the gas chromatograms was the identification of each peak as a fatty acid, alcohol, alkane or other (e.g. phthalate from plastic contamination). In the case of the fatty acids this was achieved with reference to samples of known composition which were run by GC under identical conditions. Recourse was then made, as necessary, to comparison with the suite of fatty acids observed within samples of known plant or animal origin (e.g. barley, beef or milk).

Selected extracts were analysed by GC-MS. The mass spectra under each peak eluting in the TIC chromatogram were averaged, and the NBS data base was then searched for each MS obtained. This procedure confirmed the presence of many compounds; for some compounds confirmation was attained by comparison with retention data and mass spectra of authenticated standards.

The results of GC are presented in Fig 11 (fatty acids) and 12 (alcohols) as non-integrated peak heights (values measured in mm), and in Fig 13a and 13b for fatty acids (in a limited number of samples) as integrated peak areas (values measured as percentage of total area present). Due to the presence of unassigned or unattributable peaks in the GC scans, the integrated peak areas in Figs 13a and 13b do not sum to 100%.

Of those samples listed in Fig. 13a and 13b, the relative abundances of the different fatty acids in barley and in the residues of four samples which are argued to have contained barley are shown in Figs. 2-5. The corresponding situation in the case of beef and cattle milk appears in Fig. 7-8 and 10. The fatty acids observed from barley, beef and cattle milk are presented in Figs 1, 6 and 9 respectively.

As explained in the Introduction, a crucial element in the interpretation of the GC data was the ability to identify from the literature those compounds that might be specific to particular animal or plant products; the presence of such biochemical markers in the samples should in principle increase the confidence with which the function of a particular vessel could be attributed. Among the potential 'markers' in cow's milk is 2-methylhexadecanoic acid which is a constituent of the milk fat of cattle (Hilditch and Williams 1964, 585) but is not present in any other animal or plant product. Its presence appears to be restricted to milk. The presence of a number of unsaturated fatty acids, particularly 9-Hexadecenoic acid, 9-Octadecenoic acid and 13-Docosenoic acid, are important biochemical indicator of plant material, particularly seed oils associated with such cereals as wheat and barley. Among the long-chain

alcohols, Octacosanol, is a component of the waxy cuticle of wheat and barley (ibid., 668), while Triacontanol (along with C26 and C28 alcohols) is a component of the waxy cuticle of apples (ibid., 668). Both of these alcohols are only present in plants, and their distribution appears to be fairly restricted within the plant kingdom, being only found in certain restricted species.

Catalogue of results

All results will be listed by small find number and the fabric of the vessel will be noted in a square bracket [ ] after the small find number. Context number and description will be listed in a round bracket ( ). In each case I will discuss the presence and absence of particular fatty acids or alcohols which are relevant to the interpretation of the contents of the vessel.

Sherds with unknown contents

A large group of sherds contained a suite of fatty acids in which there were no diagnostic fatty acids present. Therefore the origin of the fats within these sherds cannot be determined.
These include:

SF 165 [C] (34: old land surface): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics. The presence of Hexacosanoic acid and Octacosanoic acid indicates a probable plant origin.

SF 1577 [C] (205: old land surface): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics.

SF 1554 [B] (226: ash dump next to hse 3): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics. The presence of Hexacosanoic acid and Octacosanoic acid may indicate a plant origin.

SF 1586 [B] (172: against wall of hse 3): The presence of triacontanol suggest the presence of some form of plant material within this sample.

SF 1650 [C] (318: pit in W recess hse 2): Fatty acids present: Hexadecanoic, Heptadecanoic, Octadecanoic and Eicosanoic acids. The levels of these acids was low.

SF 2115 [C] (228: layer or dump central area): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics.

SF 2578 [C] (469: layer primary occupation hse 3): Fatty acids present: Hexadecanoic, Heptadecanoic Octadecanoic and Eicosanoic acid.

SF 2522 [C] (306: primary occupation hse 3): This vessel contained Hexadecane, as well as Hexadecanoic, Octadecanoic, Docosanoic and Tetracosanoic, Hexacosanoic acids.

SF 3221 [A] (139: layer): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics.

SF 3724 [C] (110: occupation layer hse 6): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics.

SF 3727 [C] (110: occupation layer hse 6): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics. However, the presence of Hexacosanoic acid indicates a probable plant origin.

SF 3741 [C] (735: occupation hse 6): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics.

SF 4246 [B] (1102: fill of ditch area IM): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics. However, the presence of Hexacosanoic acid indicates a probable plant origin.

SF 4671 [C] (208: hearth fill hse 7b): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics. However, the presence of Hexacosanoic acid indicates a probable plant origin.

SF 5053 [B] (1158: layer platform S8): Fatty acids present: Hexadecanoic, Octadecanoic and Docosanoic acids.

SF 5511 [A] (1053: layer platform S8): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics.

SF 5526 [A] (1055: layer platform S8): The presence of Hexacosanoic acid within this sample suggests a plant product.

SF 5554 [C] (1061: layer platform S8): The presence of Octacosanoic acid indicates a probable plant origin.

SF 5855 [A] (763: layer S8 interior): Fatty acids present: Hexadecanoic, Octadecanoic and Docosanoic and Eicosanoic acids.

SF 5587 [C] (1053: layer platform S8): Although a wide suite of fatty acids were present in this sample, there were no real diagnostics.

SF 5607 [A] (1055: layer platform S8): Fatty acids present: Hexadecanoic, Octadecanoic, Eicosanoic, Docosanoic and Tetracosanoic acids.

A single sherd contained such low levels of fatty acids that it was concluded that it was only used for containing foods intermittently during its use-life.

SF 1685 [B] (438: NW alcove hse 2): Fatty acids present: Hexadecanoic, Heptadecanoic, Octadecanoic and Docosanoic acid.

Sherds containing Beef

A series of sherds indicated the likely presence of beef fat, this was observed by greater concentration of short chain fatty acids such as Hexadecanoic and Octadecanoic acid, as well as the presence of Nonadecanoic acid (cf. Hilditch and Williams 1964, 585). Furthermore the presence of low levels of long chain fatty acids such as Docosanoic, Tetracosanoic and Hexacosanoic acid are also indicative of beef fat.

SF 10 [A] (34: house 2 midden): This sherd is unique in containing a bile acid Cholan-24-oic acid (noted in MS), which is a constituent of the stomach of cattle.
The suite of fatty acids was restricted to the low chain fatty acids in this sample.

SF 1655 [A] (350: ash around E hearth hse 2) Fatty acids present: Hexadecanoic, Heptadecanoic, Octadecanoic, Nonadecanoic, Docosanoic, Tetracosanoic, Hexacosanoic and Octacosanoic acids.

SF 1665 [A] (351: hearth fill W hearth hse 2) Fatty acids present: Dodecanoic, Hexadecanoic, Octadecanoic, Docosanoic and Tetracosanoic acids, Hexacosanoic, Octacosanoic acids.

Sherds containing Cattle Milk

A series of sherds contained 2-methylhexadecanoic acid, which is a constituent of cattle milk. However the identification of these sherds with cattle milk residues also involved the close correlation between the known cattle milk residue analysed using the same methodological procedure as the sherds.

SF 1080 [A] (205: old land surface): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk. No other fatty acids were present to indicate any further contents.

SF 1812 [B] (226: ash dump next to hse 3): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk. No other fatty acids were present to indicate any further contents.

SF 2032 [C] (187: old land surface): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk.

SF 2547 [A] (148: secondary occupation hse 3): This vessel contained 2-methylhexadecanoic acid, identified from MS and therefore certainly contained cattle milk.

SF 5618 [B] (1068: ditch S8): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk.

SF 5299 [A] (1158: layer platform S8): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk.

SF 5662 [C] (200: layer central area): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk.

Sherds containing Barley

A number of vessels indicated a number of fatty acids which were also observed in barley, these include the presence of 9-Hexadecenoic acid, 9-Octadecenoic acid, probable 13-Docosenoic acid as well as 9, 12, 15-Octadecatrienoic acid.
Note that although the presence of a single bonded docosenoic acid is certain it is uncertain the position of the bond.
Given the relative instability of single and double bonded fatty acids the presence of these fatty acids within these sherds would seem to suggest that these vessels were consistently used for the storage and preparation of plant material, and in this case barley.

Reconstructed vessel [B] (Set into floor in S8 interior): The MS from this vessel indicated a number of unsaturated fatty acids. Particularly 9-Octadecenoic and 13-

Docosenoic acid. Both of these are components of plant oils, and therefore a comparison was made between this residue and that of naked barley (*Hordeum vulgare* var. *nudum*). Other fatty acids identified from GC were Tetradecanoic, Hexadecanoic, Heptadecanoic, Octadecanoic and Docosanoic acid. All of these saturated and unsaturated fatty acids are present in both naked barley and the sample. It is therefore concluded that this vessel contained naked barley.

SF 1564 [B] (205: old land surface): The presence of Octacosanol suggests the presence of barley or wheat in this sample.

SF 1667 [E] (342: fill of cut in primary floor in W recess hse 2): This residue contains Hexadecanoic, Heptadecanoic, Octadecanoic, Eicosanoic and Docosanoic acid, as well as Linoleic acid, which suggests it is certainly a plant product. Again a similarity between this residue and naked barley was observed. It was therefore concluded that this sherd contained naked barley.

SF 1827 [A] (226: ash dump next to hse 3): The presence of Octacosanol suggests the presence of barley or wheat in this sample.

SF 1890 [D] (147: secondary occupation hse 3): This vessel contained an unusual suite of fatty acids identified using the MS, including unsaturated fatty acids and triene acids. 9-Octadecenoic and 9-Hexadecenoic acids were present, as well as 9, 12, 15-Octadecatrienoic acid. While the first two may be found in animal products, the Linolenic acid is only found in plants as a seed oil, and is present in barley, and not in hazelnuts. Notably this vessel contained high levels of Tetradecanoic and Pentadecanoic acids identified from GC, both present in large quantities in plants.

Given this, and the overall concordance between this residue and that of naked barley from the GC suggests this vessel certainly contained naked barley.

SF 2000 [B] (377: dresser hse 3): This vessel contained both 9-Octadecenoic and 9-Hexadecenoic acids, identified by MS. Other fatty acids identified from GC were Tetradecanoic, Hexadecanoic, Octadecanoic, Eicosanoic and Docosanoic acid. The series of concordances between this residue and that of naked barley, suggests that this vessel probably contained naked barley.

SF 4263 [E] (1102: dump in area IM): This sample contained an unsaturated acid, 9-Octadecenoic acid, identified by MS. Other fatty acids identified from GC were Hexadecanoic, Heptadecanoic, Octadecanoic, Eicoanoic, Docosanoic, Linolenic and Tetracosanoic. Furthermore a series of concordances were observed between this sample and naked barley, which suggests that this vessel contained naked barley.

Sherds with Multiple contents

SF 1589 [B] (172: against wall of hse 3): This sherd was subject to detailed extraction procedures and analysis. Its contents are also complex, the presence of 2-methylhexadecanoic acid suggests the presence of cattle milk, while octacosanol suggests the presence of wheat or barley. The presence of triacontanol suggests some form of plant material. The latter interpretation is strengthened by the high levels of dodecanoic acid which further suggests some form of plant such as barley.
The presence of 16-hydroxyhexadecanoic acid and 22-hydroxydocosanoic acid both suggest a plant pitch or resin which may have been present on the exterior surface as part of the sealant or burnish.

SF 1829 [A] (226: ash dump next to hse 3): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk. The further presence of Hexacosanoic acid and Octacosanoic acid indicates a probable plant origin.

SF 4227 [B] (1102: fill of ditch area IM): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk. The further presence of triacontanol suggest the presence of plants within this sample.

SF 5697 [C] (200: layer central area): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk. The further presence of Octacosanol suggests the presence of barley or wheat in this sample.

SF 6218 (two samples) [B] (522: layer central area): This sherd contained a small amount of 2-methylhexadecanoic acid, and therefore certainly indicates the presence of cattle milk. Uniquely, one of these samples also contained a complex sugar. The complexity of sugars precludes its precise definition, nevertheless its presence should be noted.

Discussion of results

Residue analysis, as an analytical technique, is still in its infancy. As a result we have few studies to compare results against. Despite this, a number of samples of Grooved ware from Pool, Sanday have recently been subjected to similar analytical procedures. At the time of writing, this study remains unpublished, although preliminary results suggest lipid 'fingerprints' of Hexadecanoic acid, Octadecanoic acid

and acyl lipids on some sherds (Carl Heron pers. comm). While there are some similarities in lipid content between the Barnhouse and Pool assemblages, these are difficult to assess at this stage. In the analysis of the Barnhouse lipids, an attempt was made to determine, in more precise detail, the nature of the food contents of individual vessels as represented by individual lipid suites.

Almost all the examples of Grooved ware examined in this study were found to have a lipid content. While around half of the samples had an undiagnostic fatty acid suite which prevented any definite analysis from being made, it was possible to isolate three groups each with one or more potentially diagnostic biochemical markers - basically these are consistent with cow's milk, barley (or wheat/barley), beef.

A sugar, of unidentified class, was found in only one sample, 6218, together with milk. The presence of two specific branched hydroxy acids in 1589, 16-hydroxyhexadecanoic acid and 22-hydroxydocosanoic acid, both of which are specific to tree resins, suggest some form of pitch may have been applied to the exterior of the vessel in order to decrease porosity (Evershed et al 1992, 208; Skibo 1993, 62).

Examination of the food type or content as a function of vessel size proves to be a productive exercise. To begin with, the large vessels (which appear in Fabrics A, B and B1) seem to contain either cattle milk or cereal. The presence of one or two samples with multiple contents, especially 4227, raises the question of coexistence of different foodstuffs as a possibility; although given the likely function of most of these vessels as storage vessels it seems more likely that each vessel saw a palimpsest of uses and reuses, with for example 4227 containing a number of foods over time.

The medium size vessels of fabrics A and C appear to have had a wider range of use: milk is common, as are plants, nearly all of which are unidentified. Beef residue is also present in this group, significantly, only in vessels of fabric A and only from House 2. In one sample, 10, the presence of cholan-24-oic acid, a bile acid, indicates that the stomach region of a cow was present in the vessel. The nature of the cattle

stomach is equivocal: the bile acid may simply be the result of cooking this particular part of the animal, or alternatively the stomach wall could have been used to line the wall of the vessel creating a watertight container; it may even be due to the presence of cattle blood drained from a specific region of the animal. Interestingly, the levels of fatty acids within these vessels is lower than in the larger vessels which may be due to continual cooking and recooking. This may have two effects, one in speeding up the process of fatty acid diagenesis and the second in simply removing fatty acids from the inner surface of the sherd. Another point to note is that these vessels appear to have less evidence of a palimpsest of uses, indeed the focus of use seems to be on cattle products, either meat or milk. Vessels of fabric C appear to have less certain uses, although some are associated with milk, others with plant material possibly barley. The differentiation of cattle milk and beef within sherds of fabric A and C was problematic. The presence of 2-methylhexadecanoic acid is not a certain indicator of cattle milk, and it may be found in beef residue. However these two residues could be differentiated using the results from the two known food sources. In the case of cattle milk this clearly indicated the presence of greater concentrations of 2-methylhexadecanoic acid.

It is evident from the large amount of sooting on the sherds of medium size vessels of fabrics A and C that the contents of the vessels were heated; the milk may then have been transformed, possibly into other dairy products like butter. The presence of liquids may mean that boiling was at least one means of cooking. However, we may be seeing a complex and staged use of vessels in which one form of vessel was used for cooking, the food then being transferred to another form of vessel for serving.

The residues in the small vessels, seem to be very specific; here vessels appear to be used as containers for some form of barley product. What is more this seems to be the vessels' only function. The evidence for barley within these vessels is strong;

1890 has evidence for a triene acid; 9, 12, 15-Octadecatrienoic acid, a component of seed fats, and a certain component of barley germs (Hilditch and Williams 1964, 632f); furthermore it also contained evidence of hexadec-9-enoic acid which is another seed fat component. 4263 contained Docosanoic acid, a seed oil component. Since both these vessels indicated a high number of concordances with the barley standard signature, it seems surely likely that they indeed contained barley. It has already been noted that these vessels probably had a single function: perhaps either for mixing barley either in grain or flour form, or for the consumption of barley previously cooked in other vessels.

It is essential when examining these results to consider the nature of the identification procedure. As noted above, one of the major problems with residue analysis is the precise identification of fatty acids with respect to certain plant or animal taxa. Here it should be noted that the identification procedure utilised here was twofold. The first involved a search of the literature, but the second concerned a detailed comparison with known food sources. As such, the precise identification of both plant and animal species involved the close integration of these two techniques.

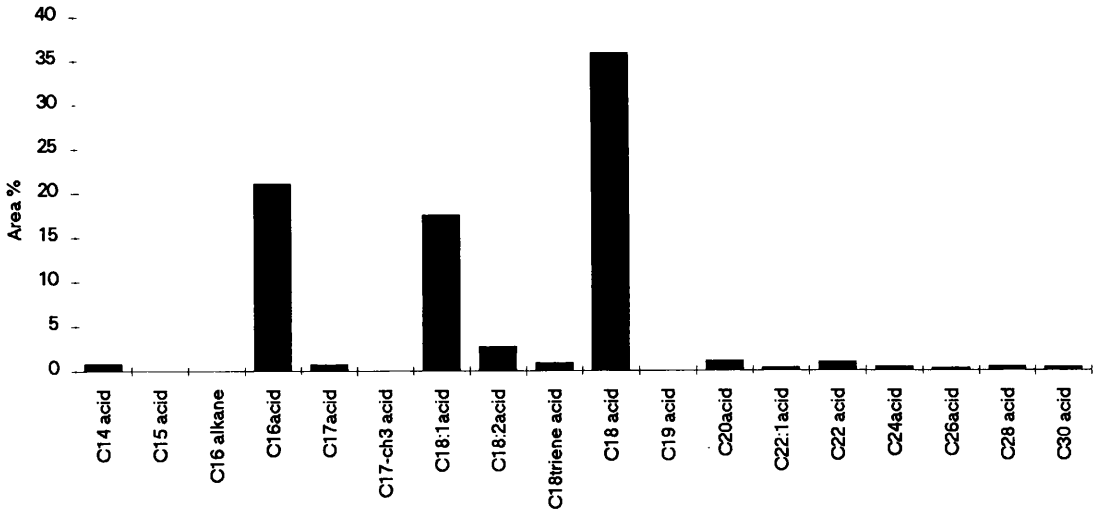


Figure 1: Fatty acid suite for Barley

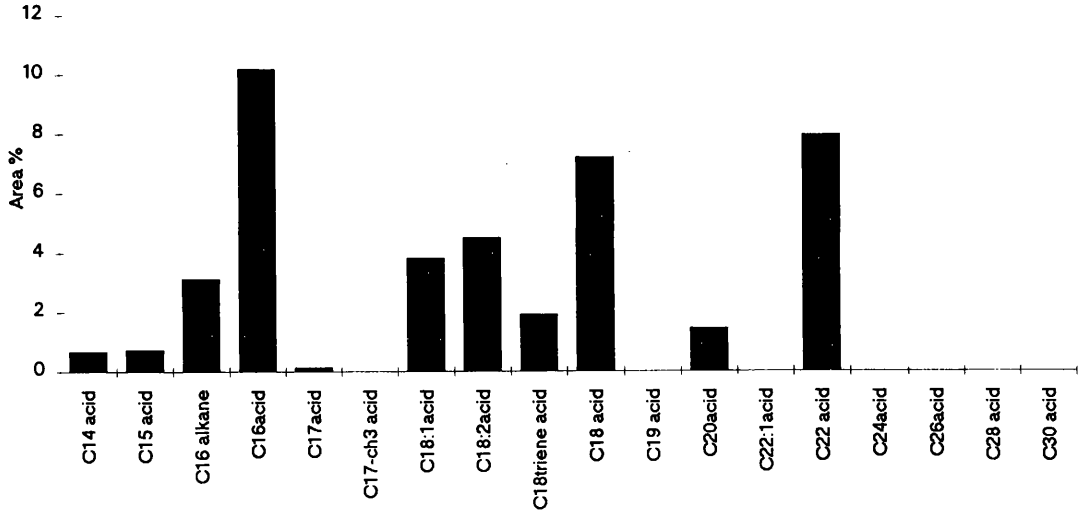


Figure 2: Fatty Acid suite for SF 1890

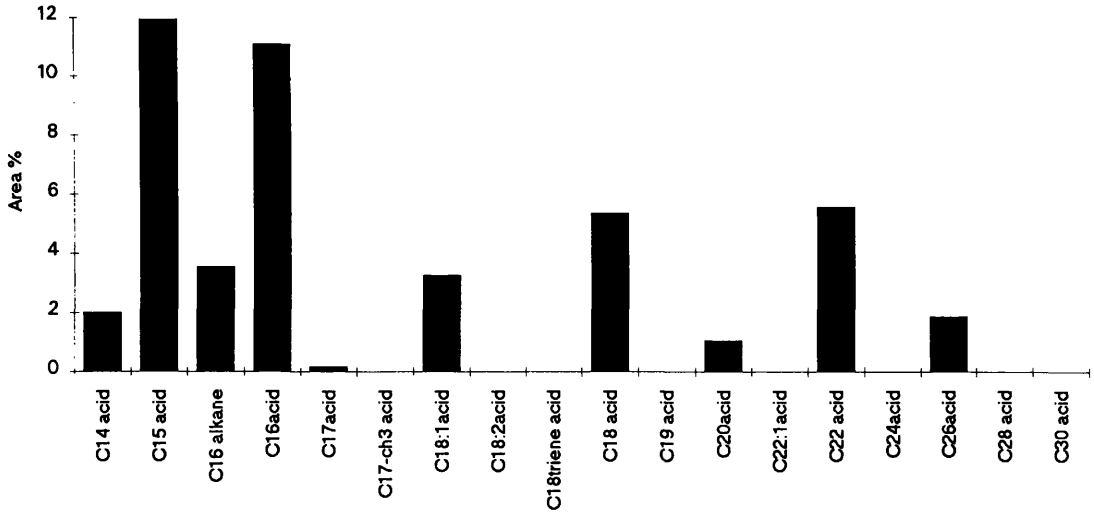


Figure 3: Fatty Acid suite for SF 2000

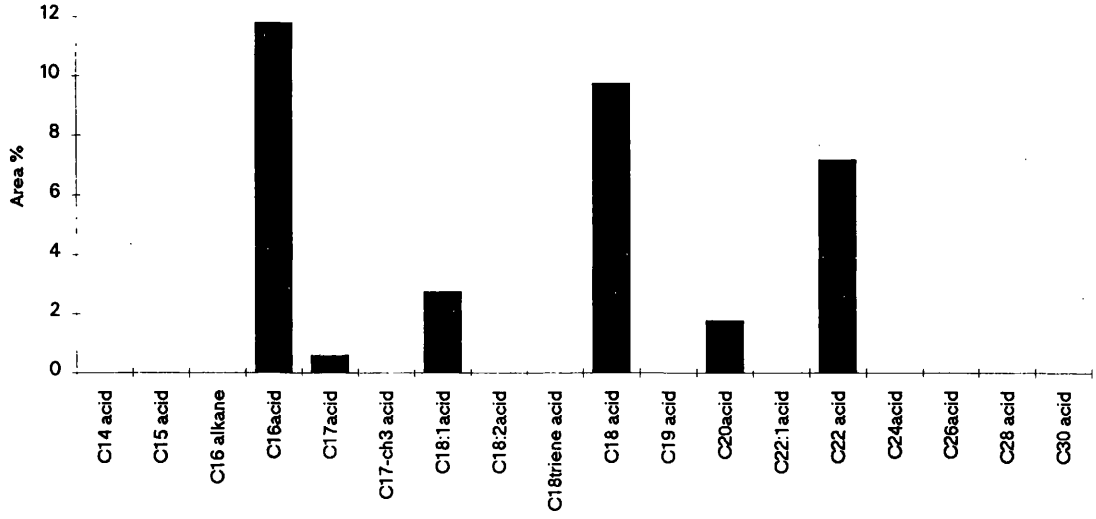


Figure 4: Fatty Acid suite for SF 4263

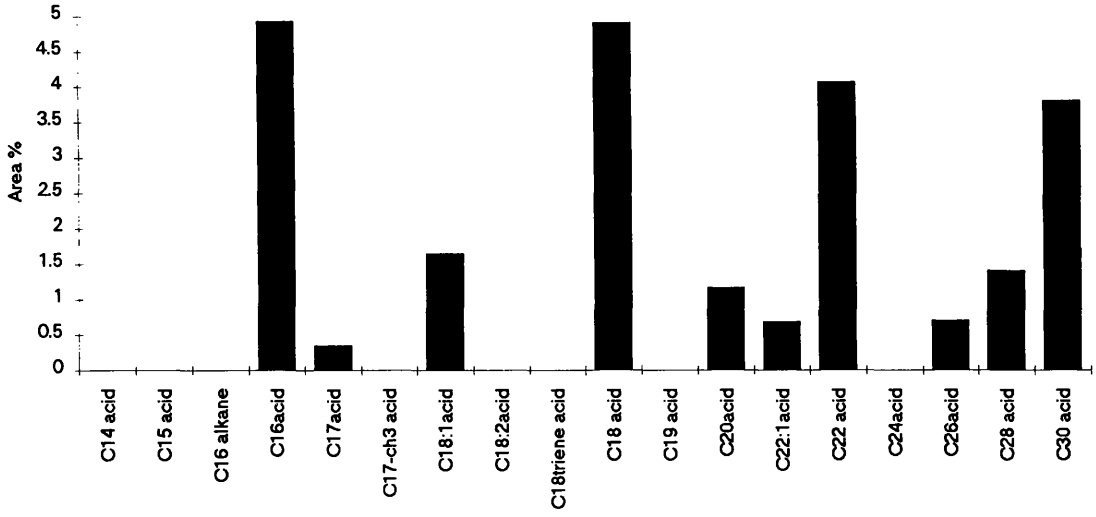


Figure 5: Fatty Acid suite for reconstructed vessel (Structure 8 interior)

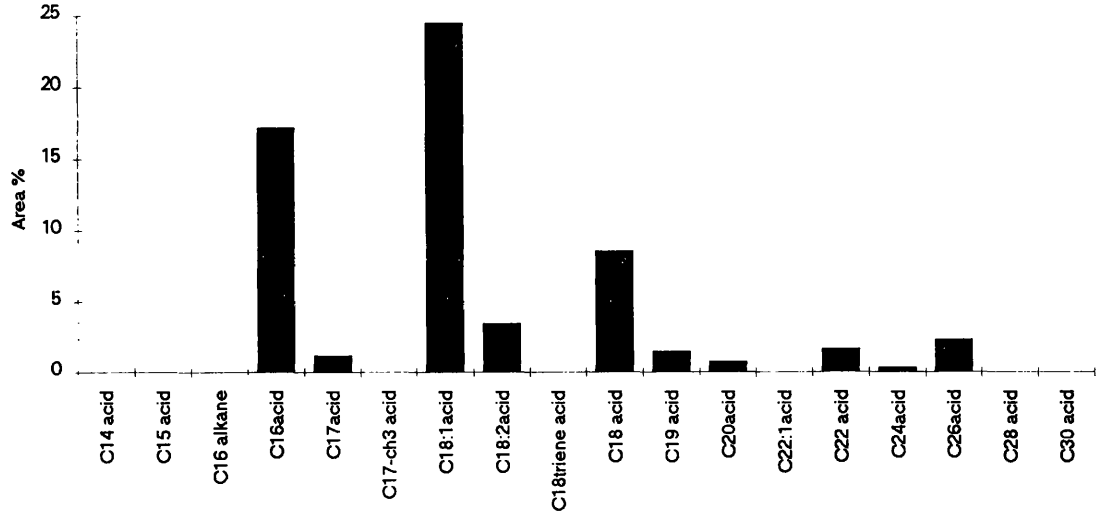


Figure 6: Fatty Acid suite for Beef

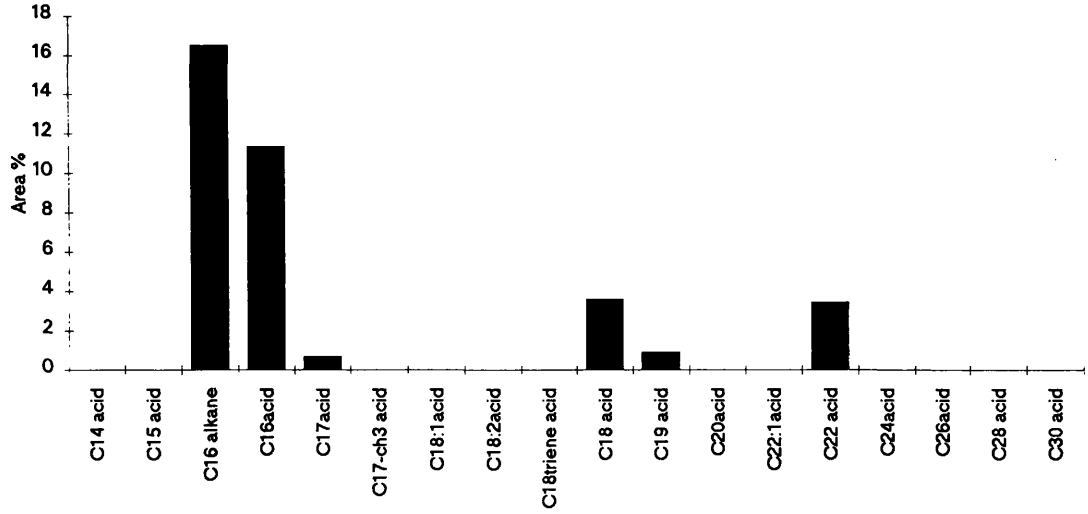


Figure 7: Fatty Acid suite for SF 1655

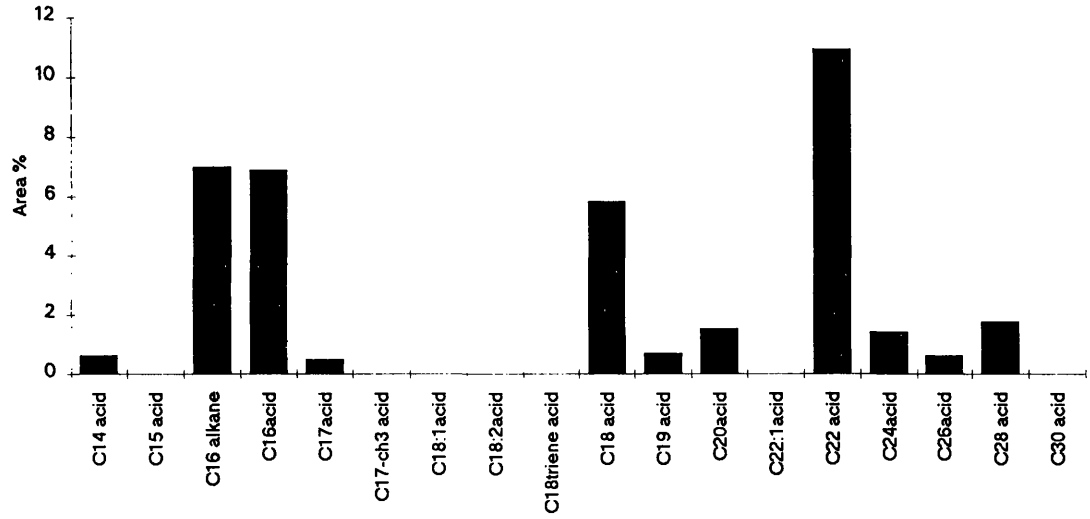


Figure 8: Fatty Acid suite for SF 1665

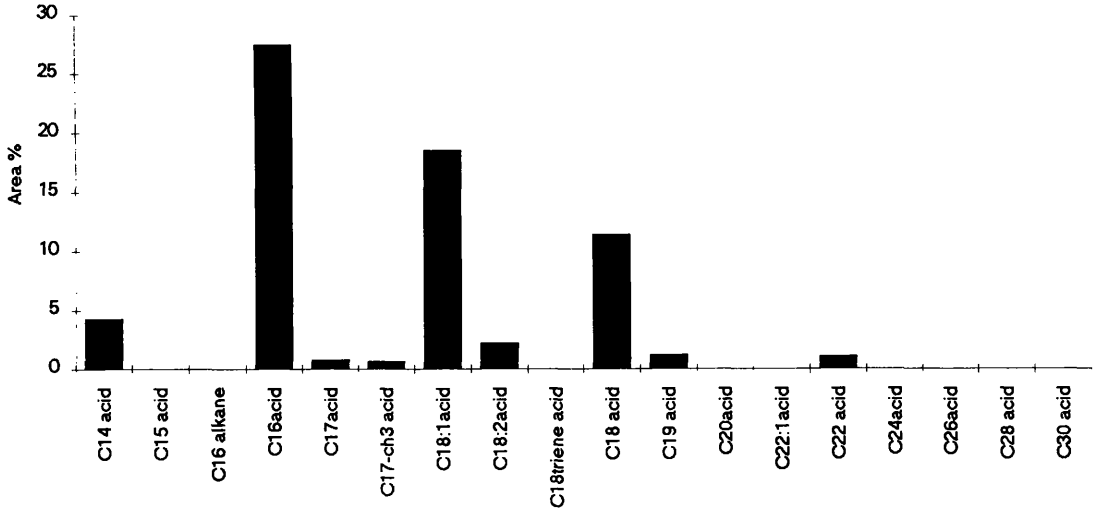


Figure 9: Fatty Acid suite for cattle milk

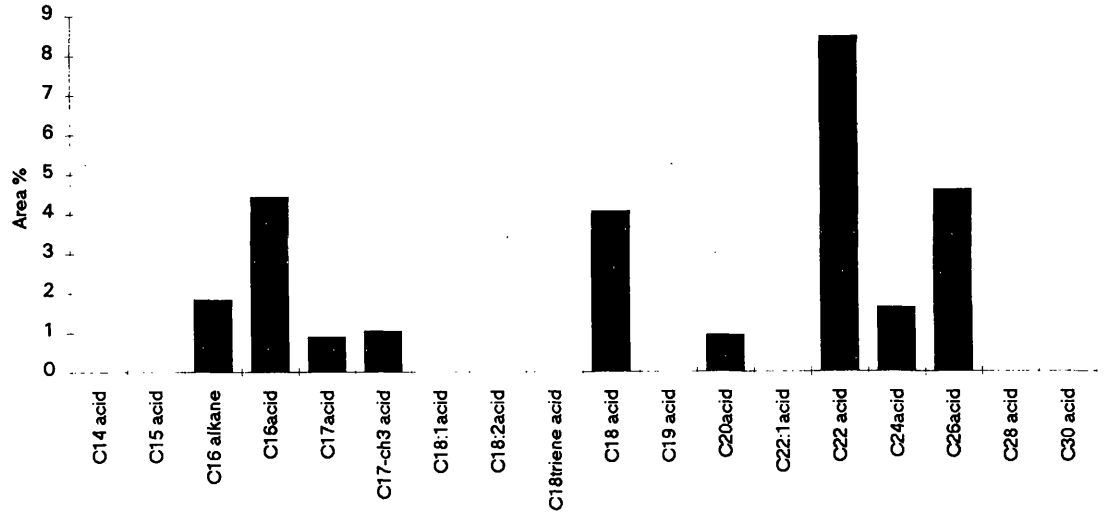


Figure 10: Fatty Acid suite for SF 2547

SF No.	Fabric	C12 acid	C14 acid	C15 acid	C16 acid	C17 acid	C17-CH3 acid	C18 acid	C20 acid	C22 acid	C23 acid	C24 acid	C25 acid	C26 acid	C28 acid
10	A	0	11	4	100	8	0	92	24	9	0	2	0	0	0
1080	A	0	14	4	124	8	3	210	20	10	0	3	0	0	4
3221	A	2	23	8	410	13	0	210	13	7	4	7	2	8	8
1827	A	0	4	4	54	0	0	51	8	38	2	6	2	5	7
1829	A	8	39	9	221	8	4	130	10	0	2	4	0	3	0
5299	A	35	54	10	410	10	3	220	50	28	4	10	3	9	0
5511	A	0	12	5	110	11	0	187	13	7	2	4	0	3	0
5526	A	3	21	6	410	7	6	220	28	18	0	5	0	4	0
5662	A	6	42	0	350	17	5	245	18	11	3	6	5	4	0
5697	A	4	39	10	400	15	120	280	18	6	3	5	2	4	0
1554	B	85	110	12	400	13	4	280	74	40	3	11	2	6	0
1564	B	3	8	3	33	3	0	23	4	14	0	5	3	6	12
1586	B	3	13	10	95	9	0	75	10	21	3	6	3	3	4
4227	B	2	16	9	121	0	4	130	9	51	0	6	2	3	12
4246	B	0	5	4	110	14	0	187	20	6	3	4	0	3	0
6218	B	18	43	11	140	8	4	93	31	17	3	9	2	5	10
6218	B	2	12	3	90	3	0	93	21	13	0	3	0	0	2
1812	B	9	25	4	98	5	0	67	29	14	0	3	0	0	0
5618	B	3	21	11	400	8	6	280	16	22	8	8	4	5	5
1589	B	16	46	23	324	14	14	103	25	72	23	67	15	19	6
3724	C	0	0	0	13	0	0	28	10	8	0	2	0	0	2
5554	C	6	28	7	240	7	0	140	6	0	0	0	0	0	4
4671	C	0	18	7	410	17	0	287	26	13	3	7	0	4	3
2032	C	3	21	9	420	22	7	294	30	14	3	4	0	0	4
1577	C	9	25	4	98	5	0	67	29	14	0	3	0	0	0
3741	C	0	13	5	73	8	3	81	9	5	0	2	0	0	0
5587	C	2	16	4	121	7	0	111	25	21	0	3	0	0	3
2115	C	14	105	28	398	50	0	278	74	48	12	28	9	25	19
3727	C	12	88	21	410	23	0	205	25	12	6	7	0	4	0
2115	C	15	110	28	140	49	17	215	68	42	9	20	7	15	10
165	C	75	131	23	420	39	0	290	98	49	7	14	6	9	6

Figure 11: Table of fatty acid peak heights.

SF No.	Fabric	C12OH	C14OH	C16OH	C18OH	C20OH	C22OH	C24OH	C28OH	C30OH
10	A	0	2	4	5	0	113	0	0	0
1080	A	0	0	3	13	2	40	0	0	0
3221	A	0	0	8	18	6	43	0	0	0
1827	A	0	0	6	8	5	31	2	6	0
1829	A	0	0	2	4	3	41	0	0	0
5299	A	0	0	8	11	6	45	2	0	0
5511	A	0	0	0	0	0	21	0	0	0
5526	A	0	0	6	8	5	68	0	0	0
5662	A	0	0	0	0	0	16	0	0	0
5697	A	0	0	0	14	0	55	0	2	0
1554	B	0	5	6	8	40	44	0	0	0
1564	B	0	0	3	5	2	28	5	4	0
1586	B	0	0	6	7	0	46	3	5	0
4227	B	0	4	7	9	3	31	5	11	4
4246	B	0	0	2	3	0	35	0	0	0
6218	B	0	0	21	24	8	36	0	0	5
6218	B	0	0	0	4	0	0	0	0	0
1812	B	0	0	6	20	6	40	0	0	0
5618	B	0	4	5	5	3	32	0	5	0
1589	B	0	11	13	21	10	113	13	7	44
3724	C	0	0	5	5	3	42	0	0	0
5554	C	130	0	21	12	5	68	0	12	0
4671	C	0	0	7	10	4	85	0	0	0
2032	C	0	0	12	24	0	44	0	0	0
1577	C	0	0	3	3	0	98	0	0	0
3741	C	0	0	2	5	0	40	0	0	0
5587	C	0	0	6	7	3	30	0	0	0
3727	C	0	0	0	11	0	13	0	0	0
2115	C	0	10	5	8	2	35	0	0	0
165	C	0	0	5	0	23	21	0	0	0

Figure 12: Table of alcohol peak heights.

SF No.	Fabric	Context	C14 acid	C15 acid	C16 alkane	C16acid	C17acid	C17-CH3 acid	C18:2acid	C18:1acid	C18triene acid	C18 acid
1655	A	Hse 2 E	0	0	16.51	11.35	0.7	0	0	0	0	3.62
1665	A	Hse 2 W	0.62	0	7	6.89	0.5	0	0	0	0	5.83
2547	A	Hse 3	0	0	1.84	4.43	0.9	1.05	0	0	0	4.07
5607	A	S8 plat.	0	0	2.47	12.98	0.42	0	0	0	0	14.92
5855	A	S8 Int.	0	0	2.03	11.46	0.8	0	0	0	0	8.39
Recon.S8	B	S8 Int.	0	0	0	4.93	0.35	0	0	1.65	0	4.91
1685	B	Hse 2 E	0	0	0	5.49	0.34	0	0	0	0	7.06
2000	B	Hse 3	2.01	11.95	3.54	11.1	0.17	0	0	3.26	0	5.36
5053	B	S8 plat.	0	0	2.53	11.52	0.6	0	0	0	0	10.28
1650	C	Hse 2 W	5.15	0	0	8.11	0	0	0	0	0	5.15
2522	C	Hse 3	1.08	0	7.69	11.02	0.4	0	0	0	0	8.41
2578	C	Hse 3	0	0	20.31	5.97	0.41	0	0	0	0	5.45
1667	D/E	Hse 2 W	0	0	11.24	10.29	0.6	0	0	2.91	0	5.54
1890	D/E	Hse 3	0.67	0.73	3.14	10.19	0.14	0	4.52	3.82	1.92	7.21
4263	D/E	S8	0	0	0	11.8	0.6	0	0	2.76	0	9.75
Barley			0.83	0	0	21.06	0.76	0	2.77	17.56	0.92	35.86
Beef			0	0	0	17.18	1.19	0	3.45	24.5	0	8.54
Milk			4.3	0	0	27.51	0.8	0.67	2.25	18.56	0	11.46

Figure 13a. Table of fatty acid area percentage.

SF No.	Fabric	Context	C19 acid	C20acid	C22:1acid	C22 acid	C24acid	C26acid	C28 acid	C30 acid
1655	A	Hse 2 E	0.9	0	0	3.47	0	0	0	0
1665	A	Hse 2 W	0.7	1.52	0	10.95	1.42	0.62	1.77	0
2547	A	Hse 3	0	0.94	0	8.48	1.64	4.61	0	0
5607	A	S8 plat.	0	1.67	0	8.7	0.68	0	0	0
5855	A	S8 Int.	0	1.35	0	4.88	0	0	0	0
Recon.S8	B	S8 Int.	0	1.17	0.69	4.07	0	0.71	1.41	3.81
1685	B	Hse 2 E	0	0	0	15.26	0	0	0	0
2000	B	Hse 3	0	1.06	0	5.56	0	1.88	0	0
5053	B	S8 plat.	0	1.56	0	5.25	0.73	1.45	0	0
1650	C	Hse 2 W	0	0	0	2.74	0	0	0	0
2522	C	Hse 3	0	1.4	0	10.83	1.11	4.47	0	0
2578	C	Hse 3	0	0	0	6.06	0	0	0	0
1667	D/E	Hse 2 W	0	1.01	0	2.59	0	0	0	0
1890	D/E	Hse 3	0	1.45	0	7.96	0	0	0	0
4263	D/E	S8	0	1.78	0	7.18	0	0	0	0
Barley			0	1.1	0.36	0.96	0.43	0.27	0.47	0.44
Beef			1.49	0.73	0	1.64	0.35	2.29	0	0
Milk			1.21	0	0	1.09	0	0	0	0

Figure 13b: Table of fatty acid area percentage.